



सत्यमेव जयते

NITI Aayog

NATIONAL MONETISATION PIPELINE

VOLUME II: ASSET PIPELINE





NATIONAL MONETISATION PIPELINE

Volume II : Asset Pipeline



NITI Aayog

**GOVERNMENT OF INDIA
NEW DELHI**

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List of Abbreviations

Acronym	Definition
AAI	Airports Authority of India
BOO	Build-Own-Operate
BOQ	Bill Of Quantities
BOT	Build-Operate-Transfer
BPCL	Bharat Petroleum Corporation Ltd
BSE	Bombay Stock Exchange
BSNL	Bharat Sanchar Nigam Limited
CCO	Coal Controller's Organisation
CEO	Chief Executive Officer
CERC	Central Electricity Regulatory Commission
CIL	Coal India Limited
COD	Commercial Operations Date
CPSE	Central Public Sector Enterprise
CRWCL	Central Railside Warehouse Company Limited
CWC	Central Warehousing Corporation
DFCCIL	Dedicated Freight Corridor Corporation of India Limited
DFI	Development Finance Institution
DWT	Deadweight Tonnage
EPC	Engineering, Procurement and Construction
ESG	Environmental, Social and Governance
FBB	Fixed Broadband
FCI	Food Corporation of India

FDI	Foreign Direct Investment
GAIL	Gas Authority of India Limited
GIS	Geographic Information System
HAM	Hybrid Annuity Model
HPCL	Hindustan Petroleum Corporation Limited
IDBI	Industrial Development Bank of India
IOCL	Indian Oil Corporation Ltd.
IPA	Initial Portfolio of Asset
IRSDC	Indian Railway Stations Development Corporation Limited
JLN	Jawaharlal Nehru Stadium
JNPT	Jawaharlal Nehru Port Trust
LFP	Land Fall Point
LILO	Loop-In-Loop-Out
LMT	Lakh Metric Tonnes
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
MCA	Model Concession Agreement
MCLR	Marginal Cost of Funds-based Lending Rate
MDO	Mine Developer and Operator
MFC	Multi-functional Complexes
MIRA	Macquarie Infrastructure and Real Assets
MIV	Maritime India Vision
MMLH	Multi Modal Logistics Hub
MMPA	Million Metric Tonnes Per Annum
MTNL	Mahanagar Telephone Nigam Limited
MTPA	Million Tonnes Per Annum
MVA	Mega Volt Amp
NBFID	National Bank for Financing Infrastructure and Development
NDCP	National Digital Communications Policy
NHAI	National Highways Authority of India
NHPC	National Hydroelectric Power Corporation
NIP	National Infrastructure Pipeline
NITI	National Institution for Transforming India
NLC	NLC India Limited (formerly Neyveli Lignite Corporation Limited)
NMP	National Monetisation Pipeline
NRP	National Rail Plan
NSE	National Stock Exchange

NSEC	Netaji Subhas Eastern Regional Centre
NSSC	Netaji Subhas Southern Centre
NSWC	Netaji Subhas Western Centre
NTPC	National Thermal Power Corporation Limited
OFC	Optical Fibre Communication
OHE	Over Head Equipment
OMDA	Operations, Management and Development Agreement
OMT	Operate Maintain and Transfer
ONGC	Oil and Natural Gas Corporation Limited
ORR	Outer Ring Road
PEG	Private Entrepreneurs Guarantee
PFC	Power Finance Corporation
PFT	Private Freight Terminal
PGCIL	Power Grid Corporation of India Limited
PNGRB	Petroleum and Natural Gas Regulatory Board
PPP	Public-Private Partnership
PUA	Pipeline Usage Agreement
REC	Rural Electrification Corporation
REIT	Real Estate Investment Trust
RFP	Request for Proposal
RFQ	Request for Qualification
ROW	Right of Way
RPO	Renewable Purchase Obligations
RTM	Regulated Tariff Mechanism
SAI	Sports Authority of India
SAROD	Society For Affordable Redressal Of Disputes
SEBI	Securities and Exchange Board of India
SECI	Solar Energy Corporation of India
SJVNL	Satluj Jal Vidyut Nigam Limited
SPV	Special Purpose Vehicle
STPS	Super Thermal Power Station
TBCB	Tariff Based Competitive Bidding
TEU	Twenty Feet Equivalent Unit
TOT	Toll-Operate-Transfer
TSA	Transmission Service Agreement
USD	United States Dollar
WPI	Wholesale Price Index



1

Context and Approach



India’s National Infrastructure Pipeline (NIP) envisages an infrastructure investment of Rs 111 lakh crore over the five-year period (FY 2020-25). Financing of infrastructure investments at such scale necessitates a re-imagined approach and tapping alternative financing through innovative ways.

As estimated by the Report of Task Force for NIP (2019), traditional sources of capital are expected to finance 83-85%¹ of the capital expenditure envisaged under NIP. About 15-17% of the aggregate outlay is expected to be met through innovative mechanisms such as Asset Recycling & Monetisation and new long-term initiatives such as Development Finance Institution (DFI).

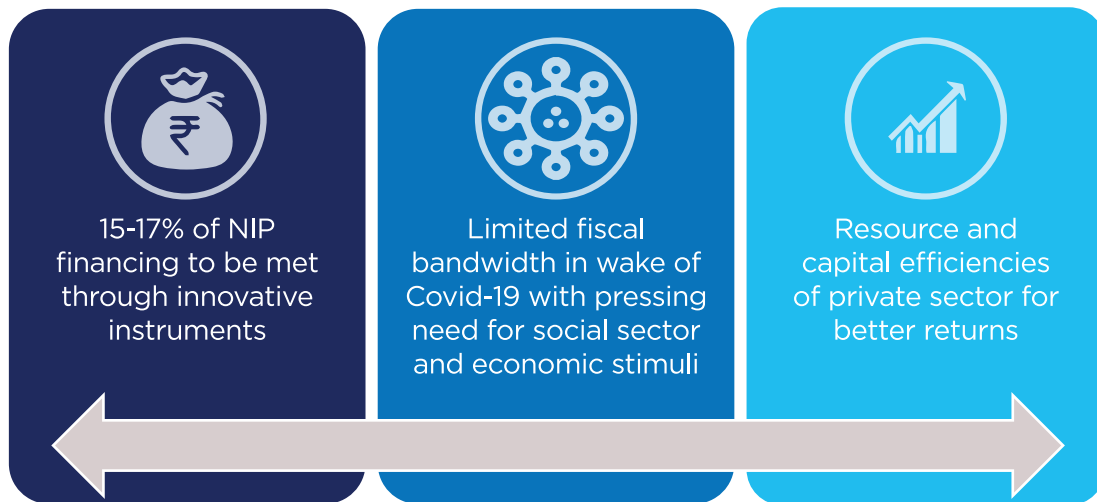


Figure 1: Imperative for Asset Monetisation

As per NIP, asset recycling and monetisation mechanism may finance around 5-6% of the aggregate capex under NIP. In the wake of Covid - 19 however, there is a pressing need on the public outlay towards social sector priorities and economic stimuli initiatives, thereby necessitating exploring of alternatives mechanisms such as Asset Monetisation with an increased vigour.

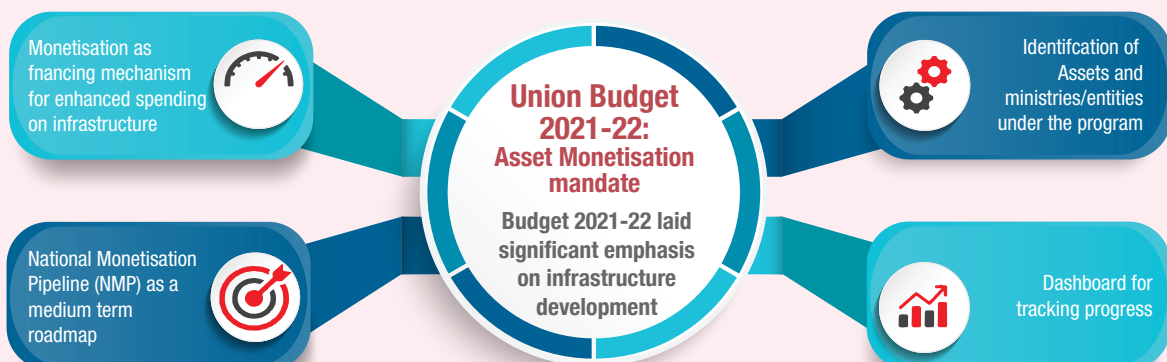
1.1 UNION BUDGET 2021-22

Gol’s strong and continued commitment towards stepping up spending on infrastructure and keeping the investments planned under NIP on track, was reinforced in the landmark Union Budget 2021-22. A three-pronged strategy was laid out in the Budget: Firstly, by creating institutional structures; secondly, through a big thrust on Asset Monetisation, and thirdly by enhancing share of capital expenditure in central and state budgets. Key initiatives under the Union Budget 2021-22 that have laid the foundation for enhanced infrastructure investments include:

¹ To be raised through budgetary resources debt from bond markets, banks and NBFCs; equity from private developers, external aid multilateral and bilateral agencies and internal accruals of PSUs would comprise 4-10% as per NIP document, DEA

Union Budget 2021-22 - Laying the foundation

- Development Finance Institution** - The budget provided for establishing a professionally managed DFI to act as a provider, enabler and catalyst of infrastructure financing. Subsequently, the National Bank for Financing Infrastructure and Development (NBFID) Bill, 2021 was passed. The bill enabled the creation of a DFI - "NBFID", as a corporate body with authorised share capital of Rs 1 lakh crore. The central government's share in the entity is envisaged to remain above 26% (currently at 100%) and the Central Government envisages to capitalise this DFI with initially Rs 20,000 crore. The central government will also provide guarantee at a concessional rate of up to 0.1% for borrowing from multilateral institutions, sovereign wealth funds, and other foreign funds. The budget envisioned the DFI to have a lending portfolio of at least Rs 5 lakh crore in three years' time.
- Asset monetisation** - The Union Budget has laid out the importance of "monetising operating public infrastructure assets for new infrastructure construction". Towards this, the budget provided for preparing a "National Monetisation Pipeline (NMP)" of potential brownfield infrastructure assets and an "Asset Monetisation dashboard" for tracking the progress and to provide visibility to investors.



Towards this objective, National Institution for Transforming India (NITI) Aayog has initiated an exercise for creation of National Monetisation Pipeline (NMP).

1.2 CENTRE'S INCENTIVE SCHEME FOR CAPITAL EXPENDITURE BY STATES

Capital expenditure creates employment, especially for the poor and unskilled, has a high multiplier effect, enhances the future productive capacity of the economy, and results in a higher rate of economic growth. Recognising the criticality of enhanced capital expenditure on infrastructure, Government of India has undertaken several initiatives to address the operational/commercial challenges faced by asset owners in undertaking monetisation and to incentivize State Governments and State level entities in undertaking monetisation.

Central Government launched a “Scheme for Special Assistance to States for Capital Expenditure” as part of ‘Aatma Nirbhar Bharat’ package in September 2020 to boost capital expenditure by state governments reeling under the financial impact of COVID-19 pandemic. Union Budget 2021-22 further announced that the Centre would take measures to incentivise States to spend more on infrastructure and to incentivize disinvestment of their public sector enterprises.

Under the Department of Expenditure, Scheme, financial assistance is provided to the State Governments in the form of 50-year interest free loan. This recently institutionalised Scheme provides incentives to states for asset monetisation and disinvestment by State government/ entities. As an incentive for asset monetisation, additional allocation equivalent to 33% of value of assets realised is envisaged to be deposited in State consolidated funds or in account of State public sector enterprises owning the assets. The allocation and disbursement is subject to the realised amount being necessarily used for capital expenditure by States.

Incentives for

- Disinvestment through minority stake sale
- Listing of SPSEs and disinvestment of stake
- Privatisation (Strategic Disinvestment)
- Asset Monetization/Recycling

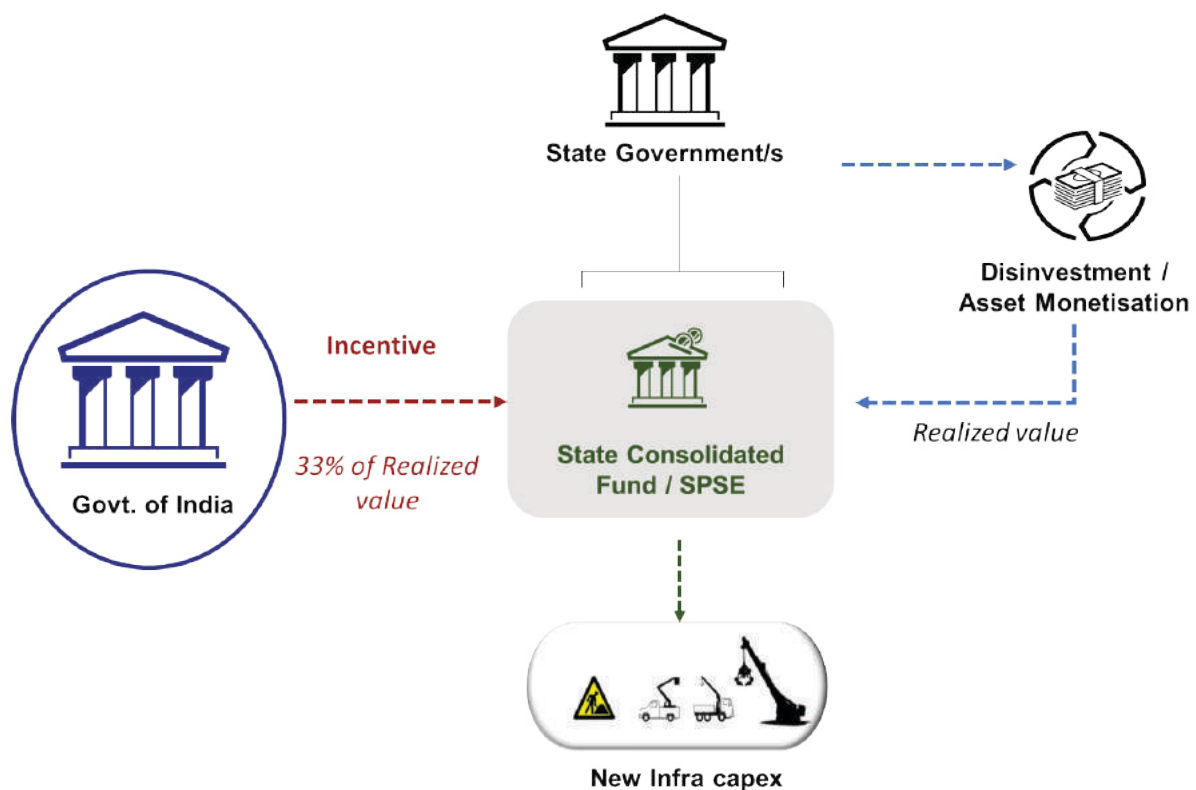


Figure 2: Key Contours of the Scheme for Special Assistance to States for Capital Expenditure

Monetization of assets unlocks their value, eliminates their holding cost and enables scarce public funds to be deployed to new projects, thus speeding up the implementation of the National Infrastructure Pipeline. Funds provided to the States under the scheme by the Government of India shall be used for new and ongoing capital projects, for long term benefit to the State. The funds may also be used for settling pending bills in ongoing capital projects.

1.3 NATIONAL MONETISATION PIPELINE

Creation of National Monetisation Pipeline (NMP) is Government of India's pioneering initiative to establish a medium-term pipeline along with a roadmap for "monetisation-ready" assets. Developed in the backdrop of the unprecedented Covid-induced economic and fiscal shocks, NMP lists out assets and asset classes, under various infrastructure ministries, which will be monetised over a period of time.

NMP provides 'visibility' on the volume of assets to be monetised and the potential value that can be unlocked. The Government's commitment to scale up infrastructure investments despite the fiscal pressures reflects the critical role of infrastructure on the overall economic growth and recovery and expected multiplier effect. NMP shall also serve as a medium - term roadmap of the potential financing opportunities and drive preparedness of public sponsor as well as private sector/ institutional investors towards financing the infrastructure gap.

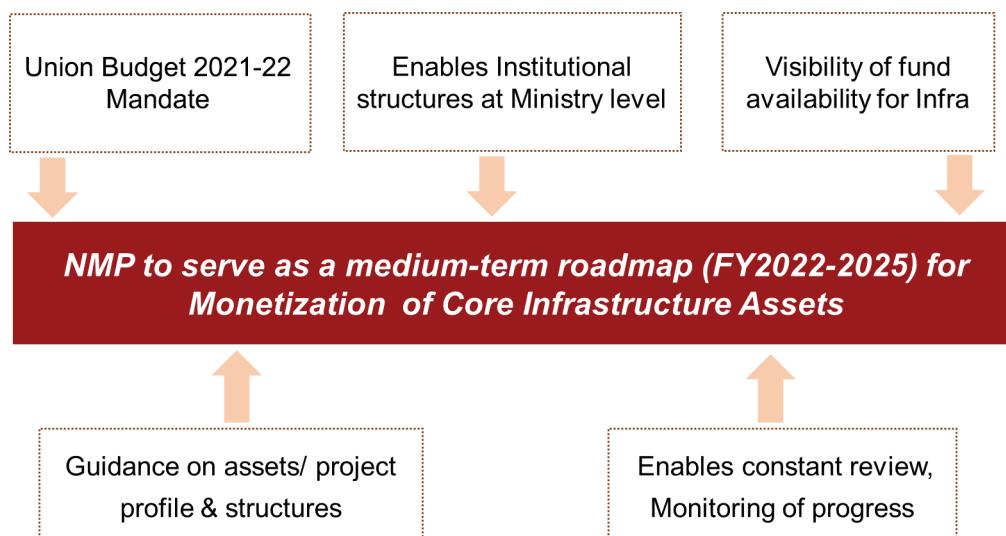


Figure 3: NMP : Medium term road map for Monetisation

Key Objectives of NMP are:

- i. Serve as a medium-term roadmap for the line ministries and agencies
- ii. Provide medium-term visibility to investors on infrastructure assets pipeline
- iii. Provide a platform for ministries to track asset performance
- iv. Bring in greater efficiency and transparency in public assets management

Report on NMP has been organised in two volumes (i) Guidance book for asset monetisation (Volume I) and (ii) Roadmap for asset monetisation over the medium term, including the pipeline of infrastructure assets (Volume II).

NMP Volume II focusses on the latter and provides an annual phasing of the asset pipeline to be monetised along with the value over the four-year period – FY 2022 to FY 2025. The NMP period has been kept co-terminus with the remaining period of the National Infrastructure Pipeline (NIP).

1.4 APPROACH TO NMP

The NMP has been created on a best effort basis by aggregating the information provided by various stakeholders including line ministries, departments as well as assessments of secondary information available on existing infrastructure assets in each of the sectors.

A bottom-up approach has been adopted wherein the existing core infrastructure asset base managed under central sector agencies was identified and mapped. The core infrastructure assets covered include roads, ports, airports, telecom, railways, warehousing, energy pipelines, power generation, power transmission, hospitality and sports stadiums. Besides these conventional infrastructure sectors, assets from mining and housing redevelopment sectors have also been included in the NMP owing to the potential of these sectors to spur private sector investment and to enable tracking of transactions as part of the Monetisation pipeline.

Monetization through disinvestment and monetization of non-core assets (such as land, building, and pure play real estate assets) have not been included in the NMP. The exhibit below provides an overview of the approach to drawing up the NMP:

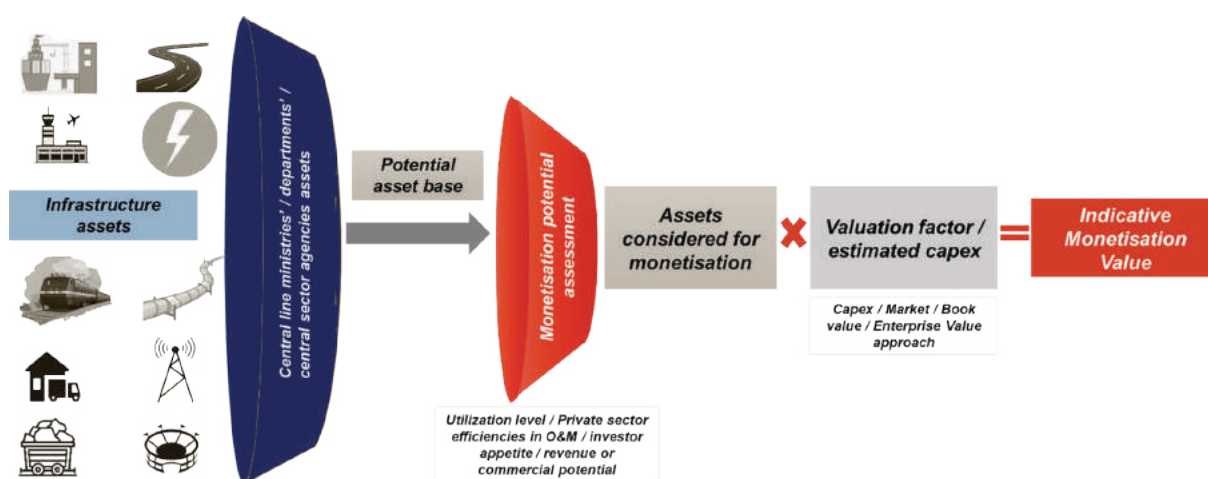


Figure 4: Schematic of NMP Approach

Assets which are central to the business objectives of a public entity/ statutory body/ Government body and/or are being utilised for delivering infrastructure services to public/ users have been categorised as Core Assets for the purposes of monetisation.

For each sector, the NMP has been drawn up for the statutory bodies, public sector enterprises and other such undertakings within the purview of ministries/ departments

of Govt. of India ('Public Asset Owners')². This is based on three key sets of information: (i) Potential Asset Base, (ii) Assets considered for Monetisation and (iii) Indicative Monetisation Value. A brief description of these three sets of information is listed below:

1. **Potential Asset Base** – 'Potential Asset Base' refers to the infrastructure assets under the purview of the central line ministries and CPSEs covered as part of the NMP exercise. Rather than focussing on the whole universe of assets under a ministry/ CPSE, the Potential Asset Base focusses on the assets that are sizeable and amenable to monetisation³. These include brownfield assets that are currently operational as well as assets that are expected to be operational over the NMP period.
2. **Assets considered for Monetisation** – The 'Assets considered for Monetisation' are a part of the Potential Asset Base that is expected to be monetised over the NMP period ('Assets for Monetisation'). The monetisation potential for asset classes has been assessed based on multiple factors varying across sectors. This multi-factoral assessment has focussed on visible revenue streams, commercial potential, utilisation levels, investor appetite, ability to tap private sector efficiencies in operations and maintenance, policy focus to tap institutional investment in the sector. These factors differ from sector to sector and the assessment has been explained in detail in subsequent sections of this report.
3. **Indicative Monetisation Value** – The indicative monetisation value that is expected to be realised by the public asset owner through the asset monetisation process, either in form of upfront accruals or by way of private sector investment, has been referred to as the Indicative Monetisation Value. It may be noted that several brownfield asset classes are proposed to be monetised through Operate Maintain and Develop (OMD) based models or assets where significant capex may be involved over transaction life towards augmentation or rehabilitation of assets. In such cases, estimated capex to be funded through private sector investment has been taken as indicative monetisation value. The value to the government hence may be in form of upfront consideration or by way of private sector investment. Under PPP based mechanisms, additional revenue streams that may accrue to the government towards revenue share and / or concession fee over and above the private investment has not been included as the same cannot be ascertained realistically at this stage.

Monetisation Value is only an indicative high level estimate based on thumb rule estimates. Various approaches such as Market or Cost or Book Value or EV approaches as explained in this section have been adopted to determine indicative value of asset pipeline as applicable and available.

- 2 Currently includes only central government asset owners. Supplementary Volume for State level assets is envisaged to be issued in due course
- 3 Further, for the purpose of the study, the Potential Asset Base has been restricted to a set of identified entities. Assets held via subsidiaries / step-down subsidiaries or JVs have not been included which may be included later as necessary

The actual monetisation value will be determined based on detailed valuation or feasibility studies (as may be applicable) at the stage of transaction structuring. Hence, it would **not be prudent to take the Indicative monetisation value as a reference rate or value for any transactions in future**. For certain assets, the potential for monetisation may be limited or lower than estimates, while for certain assets significant upside potential over the indicative Monetisation Value may exist which needs to be tapped through appropriate structuring and instruments.

Further, the **actual realization (whether by way of accruals or by way of private investment), will depend on various factors** and aspects such as transaction timing, economic scenario, available capital and investor interest etc.

Following are the various approaches used to estimate the Indicative Monetisation Value of the pipeline:

- a. Market approach** – Under the ‘market approach’, indicative value is determined based on comparable market transactions, wherever available, for the identified asset classes. For such transactions, the market value “per unit of asset” has been determined based on secondary review of reference transactions in the sector as may be available or applicable (such as per kilometre of roads, per ckt km of transmission asset, per MW of generation capacity etc.). The value is applied on the Assets for Monetisation to arrive at the Indicative Monetisation Value. The monetization value taken under the market approach has also been averaged out considering the range of quality/ marketability of assets available/ considered for monetization.

The market value based approach is only indicative and the actual consideration that may accrue to the ministries/ CPSEs depends on the following factors: (i) payment terms as envisaged under the instrument, (ii) market price discovery through competitive bidding process (iii) the extent of assets monetised by the ministries/ CPSEs⁴ and (iv) asset quality.

- b. Capex approach** – The ‘Capex approach’ is considered for asset classes that may be monetised through PPP based models envisaging capex investment by private sector. In such cases, typically a sizeable capital expenditure towards expansion/ augmentation or improving the quality of infrastructure delivery is envisaged over the transaction life. Hence, in such cases the extent of private investment estimated towards such capex has been considered as indicative monetisation value.

The principle under the capex approach is that in the absence of the asset monetisation transaction, the Public Asset Owner would have to incur the outlay towards augmentation and O&M of the brownfield asset. Hence, this approach captures savings to the Public Asset Owner by undertaking the asset monetisation transaction. Additionally, revenue streams or proceeds may accrue

⁴ in case of InvIT transactions, this approach considers the total value of asset brought up for monetisation (100% of the units), while the asset owner as sponsor of an InvIT may choose to monetize only a pre-determined number shares/ units (resulting in upfront receipt of the proportional amount)

to the asset owners as concession granting authorities depending on the terms of PPP concession (such as revenue share, concession fee, premium, royalty, etc.). Further, the actual capex towards such outlays will happen over 2-3 years, and sometimes in phases over concession life. Hence, for the purpose of estimating the Indicative Monetisation Value, phasing has been assumed over 2-3 years from the year of tendering out of the project.

- c. Book value approach** – The ‘book value approach’ is considered in case of asset classes where information on comparable market transactions or estimated capex investment is not available. Further, the book value of the assets has been estimated considering the average capex cost incurred to construct a similar category of asset adjusted for the age of the asset/ number of years of operation and other such variables.
- d. Enterprise value approach** – The ‘Enterprise value (EV) approach’ is considered for assets where information on existing revenue stream is available or can be reasonably projected based on assumptions and / or available data on prevailing tariff for an asset / asset class. In such cases, Net Present Value (NPV) of discounted cashflows⁵ has been worked out to determine indicative monetisation value. However, it may be noted that the EV based valuation at this stage is high level estimate only and the actual reference valuation will be arrived at by the asset owners at the stage of transaction preparation and structuring.

The approach adopted under the NMP to arrive at the indicative monetisation value across various asset classes is summarised in the table below. Specific assumptions and explanation of approach has been captured in respective chapters of this Volume.

Table 1: Asset class-wise approach adopted for indicative monetisation value

S.No.	Sector/ asset	Approach to monetisation value
1	Roads	Market approach
2	Ports	Capex approach
3	Airports	Capex approach
4	Railways	Railway stations – Capex approach Passenger trains – Capex approach Private freight terminals – Capex approach Railway colonies redevelopment – Capex approach Track infrastructure under DFCCIL – Book value approach Track, OHE – EV approach
5	Power generation	Book value approach
6	Power transmission	Market approach

⁵ Discounting of cash flows at the operating level has been done for select sectors based on reasonable growth estimates

7	Natural gas pipeline	EV approach
8	Product pipeline	EV approach
9	Sports stadium	Capex approach
10	Warehousing	Capex approach
11	Telecom	Capex approach for Bharatnet fibre assets Market approach for tower assets
12	Mining	Capex approach
13	Urban Housing redevelopment	Capex approach

2

National Monetisation Pipeline



2.1 CONSOLIDATED PIPELINE

The total indicative value of NMP for Core Assets of Central Government has been estimated at Rs 6.0 lakh crore over the 4 year period, FY22-25

The estimated value corresponds to ~5.4% of the total infrastructure investment envisaged under the NIP which is ~Rs 111 lakh crore and ~14% of the proposed outlay for Centre (Rs 43 lakh crore). This pipeline of assets has been phased out over a four-year period starting FY 2022 up till FY 2025.

Asset monetisation is critical to attract the required quantum of capital into infrastructure sector. However, monetisation needs to be viewed not just as a funding mechanism, but as an overall strategy for bringing about a paradigm shift in infrastructure augmentation, service delivery and maintenance. Resource and capital efficiencies of private sector along with the ability to dynamically adapt to the evolving global and economic reality, necessitates looking at Asset Monetization as the key to value creation in Infrastructure.

It presents an immense opportunity for public asset owners to deleverage the balance sheets and easing of fiscal space to take up more greenfield infrastructure creation. In terms of other longer-term benefits, it creates an enabling environment for participation of long-term institutional investors in infrastructure asset management.

NMP – Coverage of Volume II

NMP Volume II includes projects/ assets of central government line ministries and CPSEs in infrastructure sectors with high monetisation potential. The sectors include roads, ports, airports, railways, warehousing, gas & product pipeline, power generation, power transmission, mining, telecom, stadium and hospitality infrastructure.

State governments, state-level entities and urban local bodies also have a sizeable infrastructure asset base with significant monetisation potential. Prominent asset classes thereunder include state highways, energy distribution infrastructure, intra-state transmission networks, urban transport, bus depots, water supply & sewerage networks, gas pipelines (in certain states), sports stadium and district level sport complexes etc.

State assets have not been included in this compendium of assets. The process of co-ordination and collation of asset information/ pipeline from states is currently ongoing and Supplementary Volume for same is envisaged to be issued in due course.

NMP Volume I and II are expected to serve as a guidebook and template for states to evolve a common framework and approach for monetisation of core infrastructure assets.

The breakup of the overall pipeline and the sectoral share is as provided in the figure below:

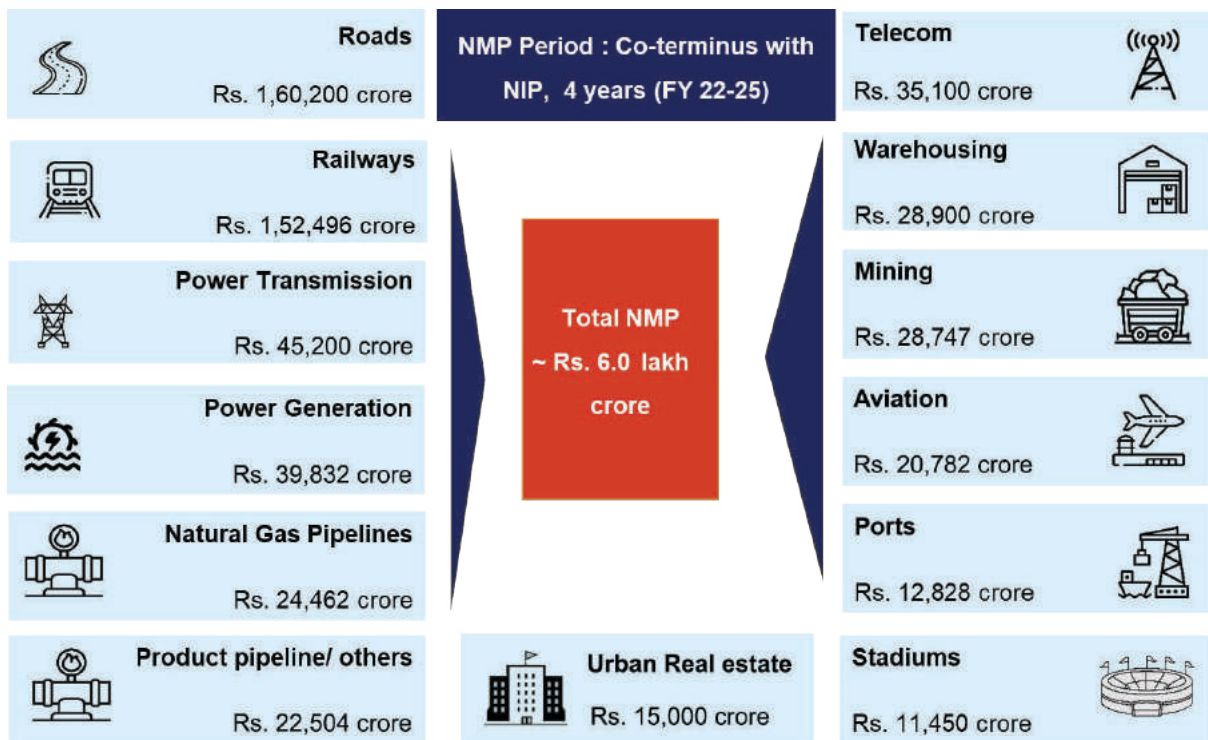


Figure 5: Sector wise Monetisation Pipeline over FY 2022-25 (Rs crore)

2.2 SECTORAL BREAK-UP

The aggregate asset pipeline over FY22-25 under NMP is indicatively valued at Rs 6.0 lakh crore. The overall sectoral contribution from FY 2022 to FY 2025 is shown in the Figure below. The top 5 sectors (by estimated value) capture ~83% of the aggregate pipeline value. These top 5 sectors include: Roads (27%) followed by Railways (25%), Power (15%), oil & gas pipelines (8%) and Telecom (6%). Roads and Railways together contribute ~52% of the total NMP value.

The assets and transactions identified under the NMP are expected to be rolled out through a range of instruments. The choice of instrument is determined by the sector, nature of asset, timing of transactions (including market considerations), target investor profile and the level of operational and/or investment control envisaged to be retained by the asset owner.

20+ asset classes, 12+ line ministries / departments

Top 3 sectors: Roads (27%) Railways (26%) and Power (15%) by value

Pipeline Phasing: 15% of assets, value of Rs 0.88 lakh to be rolled out in FY 21-22

Top 3 Asset classes: Toll Roads, Railway Stations & Transmission towers

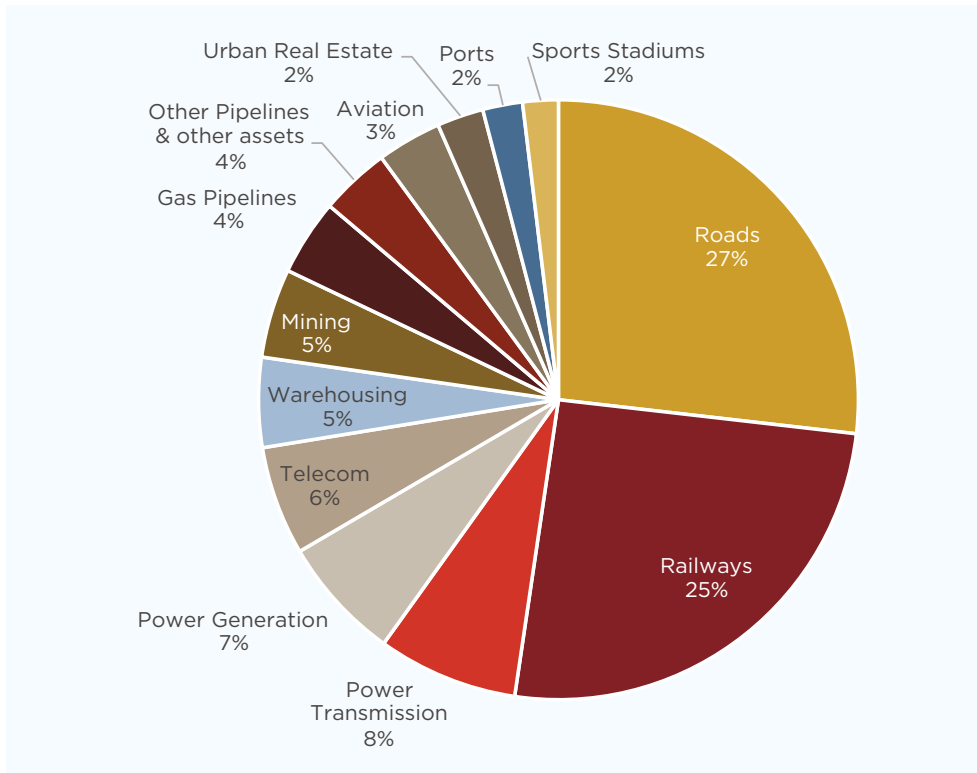


Figure 6: NMP – Share of sectors in terms of indicative monetisation value in NMP

2.3 PIPELINE PHASING

In terms of annual phasing by value, 15% of assets with an indicative value of Rs 0.88 lakh crore are envisaged to be rolled out in the current financial year i.e. FY 21-22. As has been explained previously, the aggregate as well as year on year value is only an Indicative Monetisation Value and the actual realization for public assets owners will depend on the timing, transaction structuring, investor interest etc.

In case of PPP augmentation or redevelopment, the actual capex investment towards the assets is expected to be phased out over 2-3 year period post award. Accordingly, the pipeline phasing below assumes the actual envisaged capex phasing as the year of accrual of monetisation value.

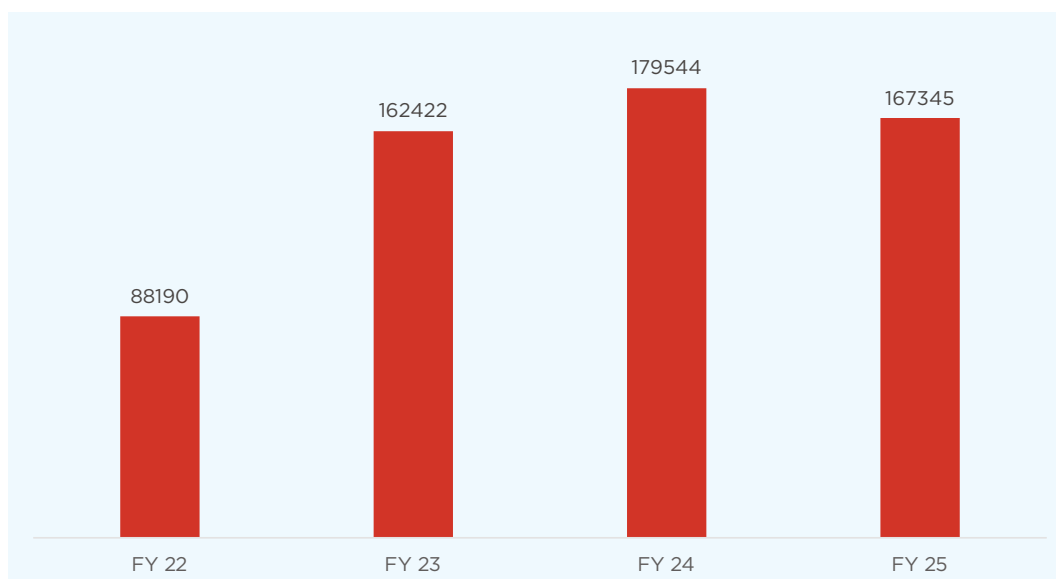


Figure 7: Indicative value of the monetisation pipeline year-wise (Rs crore)

2.4 SHARE OF OVERALL ASSET BASE MONETISED

For any sub-sector, the scale of monetisation envisaged under the NMP (from FY 2022 to FY 2025) is assessed in terms of “capacity/ volume of assets monetised⁶ as a percentage of the total capacity/ volume of asset held under public sector”.

Overall, as a strategy, the scale of monetisation under NMP has been envisaged based on multiple factors and bulk of the asset base, will remain with the government. Further, under the framework for core asset monetisation, the assets monetised will be handed back at the end of transaction life.

<p>Bulk of asset base will still remain with the Government</p>	<p>Even as significant private sector participation is being undertaken for operation and maintenance of brownfield infrastructure assets, bulk of assets continue to remain with public sector entities. Further, the addition of new/greenfield assets using the funds so raised continues to ensure significant share of public sector entities in such sectors.</p>
<p>Scale of monetisation is impacted by both demand and supply factors</p>	<p>While the monetisation scale, aggregated at the sectoral level, presents a reasonably promising picture, any scaling up beyond the identified levels could face the following demand- and supply-side challenges:</p> <ul style="list-style-type: none"> ◆ Monetisation potential of toll road assets, though being a market-tested asset class with established monetisation models, is limited by the percentage of stretches having four-lane and above configuration. The total length of national highway (NH) stretches with four-lane and above is estimated to be about 23% of the total NH network

⁶ Defined in terms of the basic unit of asset. For example: length of roads in km (for road sector), number of railway stations, circuit km (ckm) of transmission network (power transmission) etc.


	<ul style="list-style-type: none">◆ In case of thermal and gas-based power generation assets, there could be a limited appetite from global investors considering the overall aim to achieve net zero carbon emissions by 2050, consequent targets set for investment portfolios and a shift towards greater Environmental, Social and Governance (ESG) compliance.
Volumes are not necessarily correlated to value	Volumes are not necessarily correlated to value. While, the number of railway station assets considered for monetisation under the NMP constitutes about 5% of the total number of railway stations in the country, in value terms the railway station re-development is one of the front-runner asset classes contributing almost Rs 76,250 crore (12% of the total NMP value).

3

Sector – wise Pipeline



3.1 ROADS

 Summary			
26,700 km	20%	Rs 1,60,200 crore	27%
Asset Length to be monetized	Asset Length as a percentage of Potential Asset Base (%)	Indicative Monetisation Value over FY 2022-2025 (Rs crore)	Share in overall NMP in value terms (%)

3.1.1 Potential Asset Base

The Ministry of Road Transport and Highways is the central line ministry responsible for development of National Highways. Works relating to National Highways are undertaken under different central government schemes, such as the Bharatmala Pariyojana, Development of Road in Left Wing Extremism affected areas, Special Accelerated Road Development for North Eastern Region, Inter-Connectivity Improvement Programme, etc. taking into account their impact on tourism potential, trade potential areas, strategic, tribal, remote and border areas. The National Highways Authority of India (NHAI) is the flagship central sector entity set up in year 1995 through an Act of Parliament, the National Highways Authority of India Act, 1988. NHAI is responsible for development, maintenance and management of National Highways entrusted to it. In the recent years, the Ministry of Road Transport and Highways (MoRTH) have made impressive gains in pacing up the award and construction of NHs every year. For example: the MoRTH reported an annual NH construction of over 13,327 km during FY 2021, translating to an average of ~35 km/day.

The Potential Asset Base for roads sector includes aggregate National Highway (NH) road length estimated at about 1,36,155 km⁷ as on December 20, 2020. In terms of lane-wise distribution of NHs as on March 31, 2019, of the total NH network, 23% (~31,067 km) is comprised of four-laned roads⁸ and above, 49% are two-laned roads, and the rest are comprised of roads with less than two lanes. The NH construction is undertaken through three modes viz. EPC, BOT and HAM. It is estimated that in recent years, majority of the projects are being awarded through EPC and HAM mode and NHAI retains the tolling rights over these stretches (and hence amenable for monetisation). The NH network of 4 lane and above configuration, where NHAI reserves tolling rights, has been considered as amenable for monetisation for the purpose of identification of asset under NMP.

7 <https://pib.gov.in/PressReleasePage.aspx?PRID=1684574>

8 <https://pib.gov.in/PressReleasePage.aspx?PRID=1575395>

Factors influencing monetisation of the asset class

Precedence of monetisation transactions and frameworks: Roads and highways, as an asset class, has steadily developed a solid track record of monetisation. The monetisation of operating road assets has generated growth capital for construction of new roads under the Bharatmala programme, in line with the NHAI's mandate to diversify its funding for financing growth. Since 2017, the NHAI has been successfully monetising its brownfield road assets through Toll Operate Transfer (TOT)-based PPP concessions. The TOT model has since matured and is now an established model with a model concession framework already in place. Another method of monetisation that has seen traction in the recent past is the InvIT model. A number of road assets have been monetised through InvITs by private sector players.

Evolved regulatory framework - The regulatory framework for roads sector especially that for PPP Projects including the NHAI's Model Concession Agreement, has strengthened considerably over the last decade. Pursuant to enabling framework/provisions by NHAI, multiple portfolio buyouts have been completed in the roads sector unlocking capital and enhanced participation of institutional investors. Key recent policy decisions and actions relating to BOT (Toll) Model, TOT Model and HAM taken during 2020, which will further resolve impediments and enhance investor interest in toll roads as an asset class are⁹:

- i. Changes in Model Concession Agreement (MCA) of BOT (Toll) Project:** Considering the key challenges faced by stakeholders, changes in the BOT (Toll) framework have been undertaken keeping in mind the reforms related to project preparation and conditions precedents, dispute resolution and limitation of liability, ease of doing business, incorporation of new policies such as policy for harmonious substitution, policy for resolution of stuck projects etc. Also other miscellaneous reforms such as use of latest technology for traffic and road condition monitoring have been issued (Ministry's OM No. NH-35014/25/2017-H dated 24.08.2020 and 25.08.2020).
- ii. Changes in MCA of TOT framework:** Change in the MCA of TOT Model allaying concerns of investors and stakeholders.
- iii. Changes in MCA of HAM model:** In order to address the issues relating to NH Projects under Hybrid Annuity Mode (HAM) raised by stakeholders, changes in the provisions relating to change in ownership (exit option), shifting of utilities, maintenance during construction period, financial close, payment during construction period, applicable bank rate, mobilization advance, termination payment and dispute resolution etc. in the MCA of HAM have been made, and revised MCA of HAM incorporating these changes has been issued .

9 <https://pib.gov.in/PressReleasePage.aspx?PRID=1684574>

Greater transparency in operations - Introduction of measures such as FASTag, electronic tolling, etc., and the palpable behavioural change seen in the adherence to these initiatives, will usher in greater transparency in the asset management process and significantly improve user “willingness to pay”.

This will result in asset aggregators with sound corporate governance practices, such as Infra focussed PE funds, sovereign wealth funds, pension funds, etc., participating in operational road assets with established base traffic

Thus, existing asset owners such as the NHAI will be able to effectively churn their investments and perpetuate a virtuous cycle of “build, commission and monetise” to generate growth capital for fresh investment

3.1.2 Assets considered for monetisation

The aggregate length of assets considered for monetisation over FY 2022 to 2025 aggregate to 26,700 km. This is based on the length of already/ to-be operational, four lane highways and above in the country, entailing potential for revenue generation and thereby monetisation.

The highways which will become operational over the NMP period have also been considered as part of the monetisable asset base once these assets see a seasoning in their performance viz. completion of one-two years of operations post establishment of base traffic. Based on past trend in pace of award and construction, it is estimated that NHAI every year is incrementally adding minimum of 2,000 - 3,000 km of monetizable toll roads to its asset base every year.

The total length of highway assets considered for monetisation (26,700 km) constitutes around 22% of the total NHs (estimated to be about 1,21,155 km) excluding the network operated by private sector under BOT (Toll) based PPP concessions.

Approach to monetisation

Step 1 - Assets considered for monetisation

Both existing operational NH assets and new NH roads which are constructed and operationalised over the next four years¹⁰ have been considered. This is based on the list of stretches received from the Ministry coupled with secondary research on potential for monetizable four-lane and above assets.

The operational NHs constructed under EPC and HAM modes, especially in the 4-lane and above category have been considered for monetisation. This includes both the existing toll roads and potential toll roads to be added over the NMP period. As

¹⁰ This includes the under-construction road assets and the new roads to be awarded over the next 1-2 year and getting monetized within the NMP period

of March 31 2020, the length of toll roads under public funded/ annuity¹¹ mode is estimated to add up to ~16,387 kms¹².

The total assets considered for monetisation over the 4 year period from FY 2022 to FY 2025 aggregate to ~26,700 km.

Step 2 – Arriving at the indicative monetisation value.

The indicative monetisation value has been estimated based on the ‘Market approach’. The multiple (in Rs crore per km) to estimate the indicative value is based on the average blended factor at Rs 6 crore per km. The estimate has been arrived at based on (i) recent TOT transactions¹³ (ii) asset mix to be monetised (iii) scale of monetisation. The average realisation by NHAH under past TOT concessions successfully awarded has been in the range of Rs 9-14 crore per km. A lower range at Rs 6 crore per km has been assumed to assess indicative monetisation value to factor in certain lower traffic stretches in the portfolio and impact of scale on monetisation.

The annual monetisation value has been arrived at by multiplying the annual phasing of assets considered for monetisation (in kms) and the multiple (in Rs. Crore per km)

3.1.3 Indicative Monetisation Value of assets and phasing

The total Indicative Monetisation Value of assets considered for monetisation is estimated at **Rs 1.6 lakh crore** from FY 2022 to 2025. The asset pipeline has been phased out over the NMP period to ensure better preparedness and improved marketability. The summary of annual phasing is as follows:

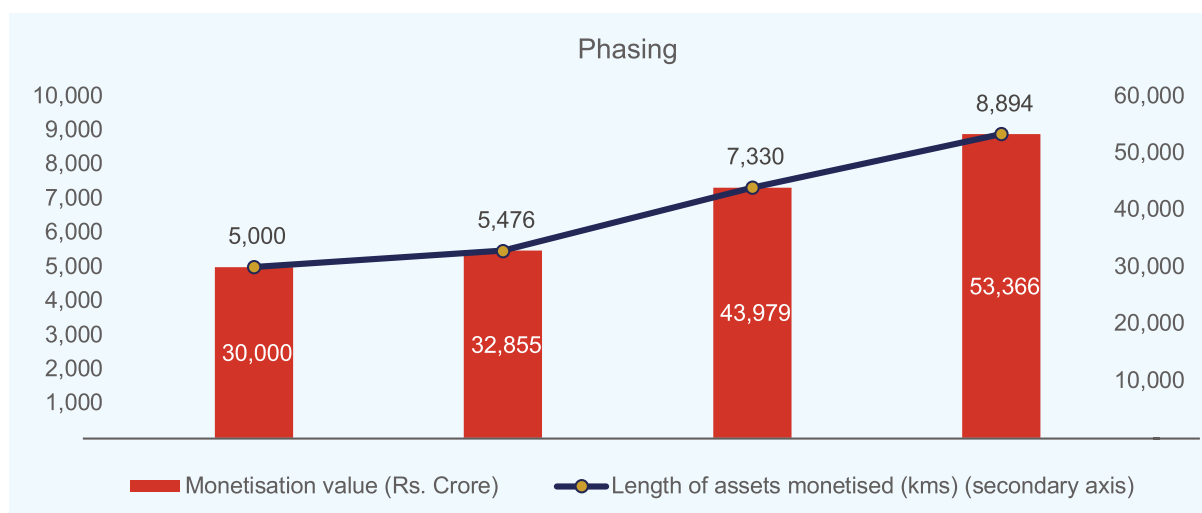


Figure 8: Indicative value of Roads Monetisation pipeline (Rs crore)

11 The BOT (toll) projects awarded under the PPP mode have been excluded as tolling rights on these assets are retained by the private sector for the respective concession periods and hence cannot be considered a relevant part of this monetizable universe.

12 <https://tis.nhai.gov.in/faq?language=en>

13 TOT 1 was awarded at Rs. 14 crore per km, TOT 3 at Rs. 9 crore per km and the recent TOT 5 at Rs. 14 crore per km.

Marquee Project: NHAI's Infrastructure Investment Trust (InvIT)

In order to enhance NHAI's resource mobilization, the Cabinet accorded the approval and authorized NHAI to set up Infrastructure Investment Trust, as per InvIT Guidelines issued by SEBI, to monetize completed National Highways that have a toll collection track record of at least one year.

Background

- NHAI is in the process of monetising its completed and operational highway projects under the Infrastructure Investment Trust route to mobilise additional financial resources through the capital markets.
- NHAI InvIT has been set up with the objective of monetising its selected completed and operational NH projects through alternative sources such as capital markets and diversification of its investor base.
- Selected operational portfolio of projects will be held through an SPV. SPV thus constituted is envisaged to execute a concession agreement with the NHAI for the said projects.
- NHAI InvIT issue is envisaged to be privately placed. Indicative value of the NHAI InvIT fund raise from the current tranche underway is about Rs 5,000 crore. The fund-raise and issue listing is expected to be completed during FY 22 subject to market conditions and stabilisation of toll revenues in wake of covid.

Key features

- The first tranche of InvIT are expected to consist of ~586 km of NH assets in Rajasthan, Gujarat, West Bengal, and Bihar. A second tranche of follow on issue of the InvIT is also being explored by NHAI.
- A new entity wholly-owned by the NHAI, the National Highways Infra Investment Managers Private Limited (NHIIMPL), has been incorporated to act as the Investment Manager under the proposed InvIT transaction.
- The InvIT activities will be managed by the Investment Manager entity, NHIIMPL, which has been staffed with a team of competent industry experts.
- The Board of the Investment Manager comprises independent directors and professionals with extensive private sector experience in operational road assets/capital market-related transactions/fund management. This is critical to ensure the functioning of the NHIIMPL with a reasonable level of independence for the benefit of investors, thereby offering them requisite comfort.

Key timelines and way ahead

- SEBI in-principle approval for registration of NHAI InvIT was obtained in June 2020.

- Project Manager and Investment Manager have been incorporated in September 2020.
- Concession Agreement between the SPV and NHAI has been approved in February 2021.
- Marketing and investor consultations - ongoing
- The first tranche of NHAI InvIT transaction is expected to be completed by Q2/ Q3 of FY2022 subject to market conditions and stabilisation of toll revenues in wake of covid.

The indicative transaction structure of NHAI InvIT is provided in the figure below.

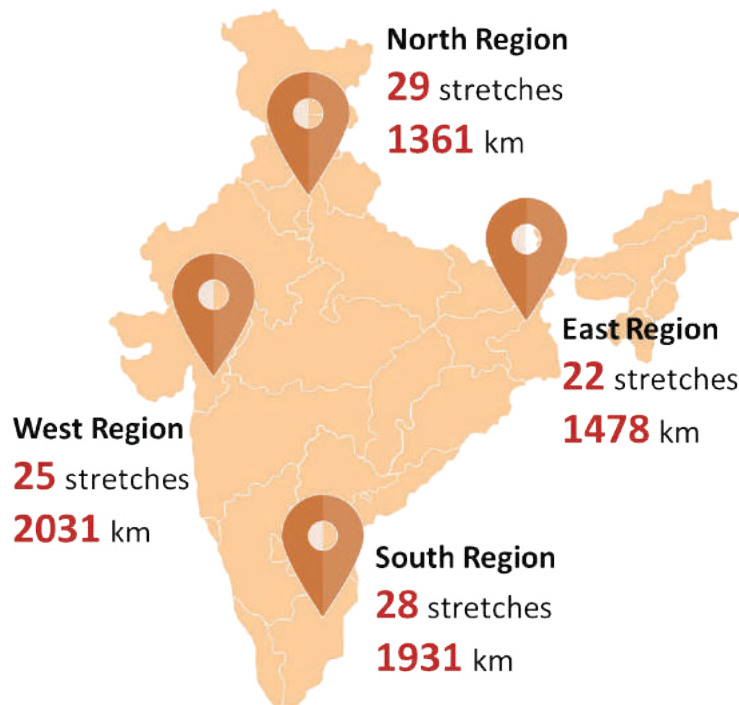
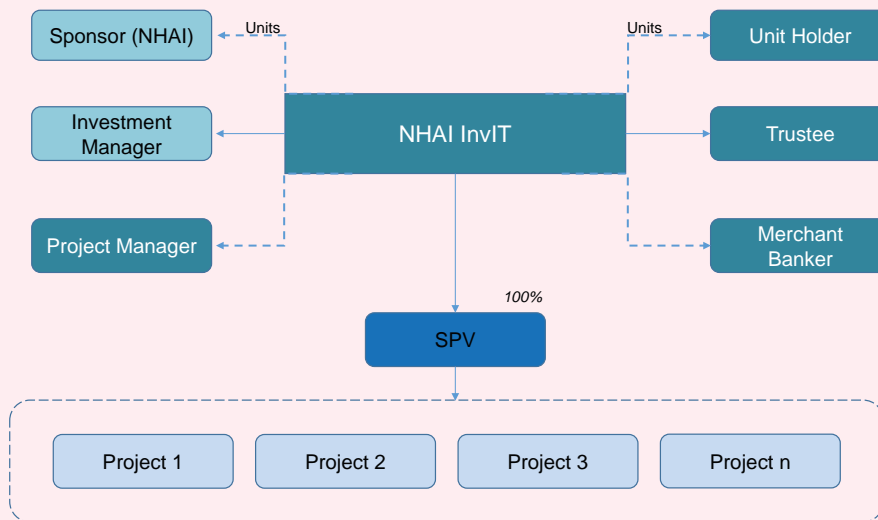


Figure 9: Region-wise key stretches included in the pipeline over FY 2022-2025

Detailed list of stretches is set out in Annexure I.

3.2 RAILWAYS



Summary

Rs 152,496 crore	26%
Indicative Monetisation Value over FY22-25	Share in overall NMP in value terms

Key assets for monetisation over FY22-25 (% of Potential Asset Base)	
Railway stations	400 Nos. (5.5% of stations)
Passenger trains	90 Nos. (5% of total trains)
Railway track	1 route of ~1,400 km (2% of network)
Konkan Railways	741 km
Hill Railways	4 Nos. , 244 km route
Railway owned Good-sheds	265 Nos. (21% of total good sheds)
DFC track and allied infrastructure	673 km (20% of total DFC network)
Others-Railway colonies and stadiums	15 Railway stadiums & selected Railway Colonies

3.2.1 Potential asset base

Indian Railways (IR) is the fourth-largest railway network in the world by size, with 121,407 km (75,439 mi) of total track over a 67,368 km route. With IR's focus on augmenting railway infrastructure to facilitate freight and passenger movement, significant investments will be needed to address capacity constraints. The Potential Asset Base considered includes assets owned and operated under the Ministry of Railways (MoR) (including identified PSUs and entities under MoR). The key assets across categories relevant to the monetisation process are shown in the table below.

Table 2: Total Potential Asset Base for key asset classes¹⁴

S.No	Asset class	Value
1	Railway stations	7,325 nos.
2	Passenger trains	13,169 nos.
3	Track infrastructure (route length)	67,956 km
4	Existing Railway owned Goods sheds	1,246 nos.
5	Hill railways	5 nos.
6	Total length of Eastern & Western Dedicated Freight Corridor (DFC), excl. Sonnagar Dankuni section on PPP mode - <i>target date of commissioning is June 2022</i> ¹⁵	2,843 km (Eastern - 1337 kms, Western - 1506 kms)

Factors influencing monetisation of asset classes:

High commercial potential of the assets and a massive footprint – IR assets (especially railway stations, MFCs, goods sheds, etc.) are typically centrally located in prime locations having high commercial potential due to the presence of such assets in key urban centres or strategic significance (e.g. access to key logistics corridors and providing last-mile hinterland connectivity). This commercial potential remains largely underutilised and is expected to whet investor appetite.

Dedicated institutional arrangements to drive the monetisation agenda – Railway station development agenda lies at the heart of the sector’s monetisation drive. The presence of a dedicated SPV – Indian Railway Stations Development Corporation (IRSDC)¹⁶ along with RLDA – to develop new stations and redevelop existing Indian railway stations helps streamline the process.

PPP Framework: In order to standardise PPP framework for Railway Projects, model concession agreements (MCA) for various projects viz. station redevelopment, private passenger train etc have been developed. This is to provide a balanced risk sharing framework and thereby ensure predictability and bankability of transactions. Similar frameworks and documents need to be developed for brownfield PPP models such as OMD and TOT-based concessions for other railway assets identified under NMP.

Mechanisms to address asset-specific challenges important to scale up monetisation – The key impediments to the monetisation process are asset-specific challenges (e.g. presence of an identifiable revenue stream) and measures to help private sector manage risks effectively. This is specifically relevant to the railway sector, which has seen limited penetration of PPPs as a mode of project delivery. Key asset classes and the influencing factors include the following:

14 http://indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/Annual-Reports-2019-2020/Year-Book-2019-20-English_Final_Web.pdf

15 <https://dfccil.com/Home/ProgressStatusImage> accessed on May 28, 2021

16 IRSDC is a joint venture between IRCON and RLDA with a 51:49 equity shareholding ratio

- ▶▶ **Konkan Railway** – Multiple stakeholders, including state governments, own stake in the entity. Hence, existing shareholder interests need to be managed effectively before shaping the monetisation transaction structure.
- ▶▶ **Track, OHE** – The track infrastructure presently is majorly for exclusive and captive use of Indian Railway operations with earnings coming in form of passenger and freight income. At present there is no concept of apportionment of a track access charge towards use of track. A monetisation mechanism will need to structure an infrastructure access and usage agreement along with ringfencing a Track Access Charge based revenue regime.
- ▶▶ **Private Passenger Trains** – Bidding for 150 trains is presently underway and the project is expected to be awarded in FY 22, any scaling up effort will be based on successful award and experience from the current batch of PPP clusters.

Clearly identified project pipeline – The NIP and the Draft National Rail Plan (NRP) 2020 provide a detailed asset-level plan for the development of the railway sector. The NIP envisages a total capex of Rs 13.7 lakh crore by both the centre and states over FY 2022-25, of which Rs 1.6 lakh crore is envisaged through the PPP mode. The Draft NRP 2020 provides a strategic direction to the sector for the next 30 years, which includes an increase in the modal share (freight) of railways from 26% to 45%, while continuing to provide best-in-class services for passengers.

3.2.2 Assets for Monetisation

The railway assets considered for monetisation over FY 2022-25 are as explained below.

Table 3: Railway assets considered for monetisation

S.No.	Asset type	FY22	FY23	FY24	FY25	Total
1	Railway station development	40 stations	120 stations	120 stations	120 stations	400 stations
2	Passenger train operations (PTO)	—	30 trains	30 trains	30 trains	90 trains
3	Track - OHE InvIT	—	1,400 km	—	—	1,400 km
4	Good Sheds	—	75 nos.	100 nos.	90nos.	265 nos.
5	Konkan Railway	—	—	741 km	—	741 km
6	Hill Railways	2 nos.	2 nos.	—	—	4 nos.
7	Dedicated Freight Corridor	—	—	337 km	337 km	673 km
8	Railway Stadiums	3 nos.	5 nos.	5 nos.	2 nos.	15 stadiums
9	Railway Colonies	—	—	—	—	Numbers not provided

Approach to monetisation

Railway station redevelopment

- *Assets considered for monetisation* – The number of railway stations taken up for monetisation was arrived at based on Gol's Railway Station Redevelopment Program which envisaged redevelopment of 400 railway stations identified by Ministry of Railways. The railway stations were divided into three categories (Tier 1: 50 stations, Tier 2: 100 stations, and Tier 3: 250 stations) based on the commercial potential and potential scale of development.
- *Indicative Monetisation Value* – It has been arrived at based on Capex approach, i.e., the capital cost towards the redevelopment of railway stations. The capital cost per railway station was arrived at based on the estimates for 97 railway stations identified under the Draft NRP 2020. The median capex per railway station is around Rs 400 crore. With this as the base, capex per railway station for the three categories of assets was estimated as follows: Tier 1 – Rs 500 crore per station, Tier 2 – Rs 300 crore per station, and Tier 3 – Rs 85 crore per station.

Passenger train operations

- *Assets considered for monetisation* – The number of projects to be taken up for monetisation is based on ongoing tenders and proposed plans of IR. Bidding for first set of clusters envisaging ~150 passenger trains to be operated by private operators across 12 clusters and 109 O-D pairs of routes is presently underway. The project is currently under bidding stage and the concession is expected to be awarded in FY 2022. These trains are expected to be introduced in a phased manner over FY 2023-25 period. Of these, ~60% of trains (~90 trains) are expected to be operationalised and deployed during NMP period i.e. FY22-25.
- *Indicative Monetisation Value* – It has been arrived at based on Capex approach – capital cost towards acquisition of rolling stock plus an additional mark-up towards establishment and other PPP incidentals have been assumed. Additional revenue streams that may accrue to the Railways in form of revenue share and upfront premium if any under the PPP mechanism has not been included in the monetisation value.

Track, signalling, and Overhead Equipment (Track OHE) InvIT

- *Assets For monetisation* – The objective of proposed framework is to monetise existing railway infrastructure i.e. track, signalling, OHE etc across defined railway routes as a packaged asset. These railway infrastructure assets are currently utilised by IR with a potential for private sector operators also joining the fray in the near future. The monetisation of one major O-D route is envisaged under the NMP as a pilot project, which would serve as the framework for other profitable routes.

- *Indicative Monetisation Value* – It has been arrived at based on EV approach by carrying out a DCF based cashflow projection for a period of 25 years factoring in assumptions and available data on assumed Track Access Charge, number of trains plying, operating cost and renewal expenses. The same is only an indicative number at this stage and the detailed valuation may be carried out at the feasibility and transaction structuring stage. Further, for the purpose of NMP, it has been assumed that during the NMP period, about 85% of the units of the proposed InvIT will be divested and a proportionate enterprise value has been assumed.

Private Freight Terminals (PFTs)

- *Assets For monetisation* – As per Draft NRP 2020, IR manages 1,246 railway-owned goods sheds. It is envisaged that the assets in major locations (especially in and around major urban centres), totalling 265 nos. (i.e. 21% of total good sheds), may be monetised by inviting private sector participation in augmentation & O&M of these good sheds as private freight terminals.
- *Indicative Monetisation Value* – It has been arrived at based on capex approach. The NRP lays out an investment plan of Rs. 10,402 crore for developing around 170 greenfield terminals, translating to ~Rs. 60 crore per terminal. Considering the level of capex for upgradation of existing facilities is relatively low, a capex of about Rs. 21 crore per good shed has been derived and considered for arriving at indicative monetisation value. The 265 good sheds considered for monetisation have been phased out over the NMP period starting with 75 good sheds in FY 23.

Monetisation of track and allied infrastructure of Dedicated Freight Corridor of DFCCIL

- *Assets For monetisation* – Based on current DFCCIL capex plans, it is estimated that 2,843 km of DFCCIL corridors (excluding the PPP section) are expected to be fully commissioned by June 2022¹⁷. Once fully commissioned, it is assumed that DFCCIL will monetise ~673 km of track (either by way of grant of TOT like concessions to private players or through InvIT transaction with revenue in form of Track Access Charge) starting from FY 2024 onwards.
- *Indicative Monetisation Value* – Since detailed traffic and revenue projections for DFCCIL are not available at this stage, the indicative monetisation value for DFCCIL has been arrived at based on the Book Value approach i.e. taken at capital cost towards construction of existing DFCCIL corridors. The capital cost per km was estimated at Rs 30 crore (adjusted for land cost) based on ongoing capex costs.

Other assets: Konkan Railway, Hill Railways, Railway Stadiums and colonies

- *Assets for Monetisation* – The specific assets considered for monetisation have been selected based on the following factors: (i) profitability of routes, (ii) potential

¹⁷ <https://dfccil.com/Home/ProgressStatusImage>

to scale up a range of service offerings (tourism potential associated with Hill Railways networks), (iii) potential for improved O&M standards and utilisation of sports stadiums.

- *Indicative Monetisation Value* - It has been arrived at based on EV approach for Konkan Railway and capex approach for Hill Railways and Railway stadiums. For Railway colonies and stadiums, Capex data provided by Ministry of Railways has been considered for inclusion in the pipeline.

3.2.3 Indicative Monetisation Value of assets and phasing

The Indicative Monetisation Value is estimated at **Rs 1,52,496 crore** over the NMP period FY2022-25. Asset-wise phasing and values are provided in the table below.

Table 4: Asset-wise phasing of monetisation value (Rs crore)

S.No.	Asset type	FY22	FY23	FY24	FY25	Total
1	Railway station development	17,000	29,325	17,575	12,350	76,250
2	Passenger train operations	—	7,002	7,212	7,428	21,642
3	Track - OHE InvIT	—	18,700	—	—	18,700
4	Good Sheds	—	1,575	2,100	1,890	5,565
5	Konkan Railway	—	—	7,281	—	7,281
6	Hill Railways	460	170	—	—	630
7	Dedicated Freight Corridor	—	—	10,089	10,089	20,178
8	Railway Colonies redevelopment	350	450	650	800	2,250
TOTAL		17,810	57,222	44,907	32,557	1,52,496

The figure below depicts the annual phasing of the assets by total value generated.

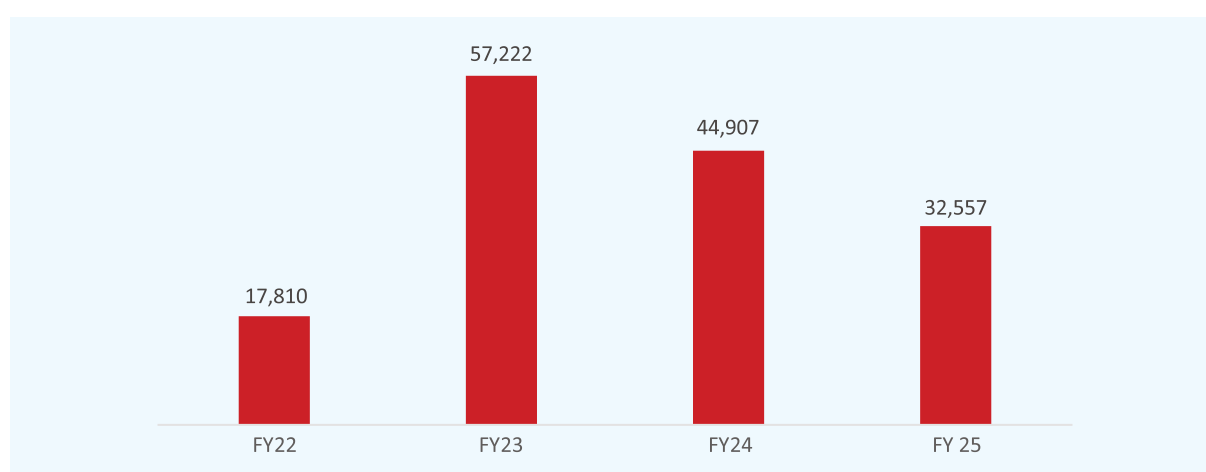


Figure 10: Pipeline phasing - Railway assets (Rs crore)







3.2.4 Marquee Projects











A. Station Redevelopment Programme

Redevelopment of railway stations across India is a priority agenda of Ministry of Railways, Government of India. Indian Railways has initiated the redevelopment of railway stations with the primary objectives of providing world class passenger amenities, making them hubs of economic development and re-establishing them as the nerve centres of cities. This initiative is being driven by the Government with the participation of private players as a part of PPP projects. This is envisaged to be achieved through leveraging the commercial development opportunity of land and air space surrounding the station and to create seamless travel and facilities experience to passengers with the aim to future-proof these important travel nodes.

Salient features and key locations

Railway station development

-  Nodal institutions to drive monetisation – IRSDC/ RLDA
-  Procurement for 10 stations initiated (*refer list on the right*)
Bids for 40 stations in 2022
-  Model Concession Agreements developed; Typically DBFOT
-  Longer tenure – 50 to 99 year concessions
-  Station estate development rights; Flexibility on end-use
-  Revenue – Annual concession fee + fixed upfront premium

-  # 1 – New Delhi
-  # 2 – Mumbai (CSMT)
-  # 3 – Nagpur
-  # 4 – Amritsar
-  # 5 – Tirupati
-  # 6 – Dehradun
-  # 7 – Gwalior
-  # 8 – Sabarmati
-  # 9 – Nellore
-  # 10 – Puducherry

B. Private participation in Passenger Train Operations







Indian Railway (IR) has launched the project to invite private participation in running of passenger trains over its network. Indian Railway (IR) is one of the world’s largest railway systems and the passenger business is estimated to be worth \$ 7.5 billion annually. The passenger demand for IR is robust as it has withstood long term modal shifts and has consistently reported unserved demand levels of ~15% in form of waitlisted passengers. The cluster of projects identified envisages private train operations on ~109 pair of routes structured as 12 clusters with a targeted private investment of Rs. ~30,000 crore. The project will incrementally add over 150 modern trains to the IR system. The clusters in the current set of packages being bid out are dense demand routes and include Delhi-Mumbai, Delhi-Chennai, Mumbai-Chennai among others. The Model Concession Agreement guiding principles for the private passenger train operations has already been developed. Based

on market testing of current cluster of transactions, the model may be replicated on many more routes in future.

The bidding process for a batch of 12 clusters has been undertaken.

Salient features and clusters in the Private Passenger Train Operations project

Private Passenger Trains Operations (PTO)

-  Anchored by Indian Railway
-  RFQ invited for 12 Clusters comprising 109 OD pair of routes through introduction of 151 modern Trains to increase high quality trains operated on the network
-  Concession Agreements developed; Typically DBFO
-  Long term PPP concession ~ 35 years
-  Right to determine and collect market linked fares; Access to Indian Railways' maintenance infrastructure
-  Rationalised track access charges + Revenue share

Clusters in the current batch of projects

SI No.	Cluster Name
1	Mumbai 1
2	Mumbai 2
3	Delhi 1
4	Delhi 2
5	Chandigarh
6	Howrah
7	Patna
8	Prayagraj
9	Secunderabad
10	Jaipur
11	Chennai
12	Bengaluru

3.2.5 Overview of other railway assets

This section comprises of an overview of other railway asset classes that have been identified and included in the pipeline. Some of these transactions are in the preparatory stage hence the structures and modalities for monetisation are indicative in nature and may evolve based on detailed transaction due diligence.

A. Track, Signalling, and Overhead Equipment (OHE) infrastructure

Indian Railways (IR) with its network of over 67,000 route kms is the world's fourth largest railway network in terms of size. Ministry of Railways may explore monetisation of its operating track infrastructure bundled with signalling and OHE/ TRD (Traction & Distribution) assets for selected origin-destination (O-D) pair through a structured financing mechanism. InVIT based structure may be explored for monetisation of this asset class. Besides, monetisation of track infrastructure, improvement in operating efficiency in long term is one of the key objectives guiding the transaction.

Table 5: Snapshot of Indicative Transaction structure

Asset Bundle	♦ Track infrastructure bundled with signalling and OHE/ TRD assets (specified assets) for a selected origin-destination (O-D) pair
Indicative monetisation instrument	♦ Infrastructure Investment Trust

Tenure	<ul style="list-style-type: none"> Fixed term of 25 years (assets to be handed back to IR at end)
Structure	<ul style="list-style-type: none"> Creation of an SPV for holding long term rights to earn Track access charge (TAC) revenue from IR for the specified asset bundle SPV's TAC revenue stream to be monetised by creation of an InvIT sponsored by IR, units of InvIT divested under a private placement/public listing Maintenance payments (for routine/major upgrades to be borne by the SPV on pre-defined terms) Project manager may undertake O&M by subcontracting to IR
Revenue model	<ul style="list-style-type: none"> Pre-determined Track Access Charges (TAC) (Rs per train km) paid by IR to the SPV Traffic guarantee from IR may be explored to provide predictability of operating environment to SPV
O&M charges paid to IR by SPV	<ul style="list-style-type: none"> O&M responsibility of the asset bundle retained by IR who is appointed as the Project Manager by the InvIT Fixed annual amount, which may be escalated at a pre-specified rate A variable component may be linked to performance and efficiency Pre-specified outgo may be apportioned towards renewal and major maintenance expenditure
Status	<ul style="list-style-type: none"> Transaction Structuring underway

The structure enables IR to tap domestic and foreign long-term capital at competitive cost of funds. Divestment of units of the InvIT provides upfront capital proceeds to IR as the sponsor, O&M expenses as sub-contracting revenue, and dividend income on the residual equity holding in InvIT. TAC (Track access charge) linked to utilisation incentive and availability. The figure below provides an overview of the transaction structure.

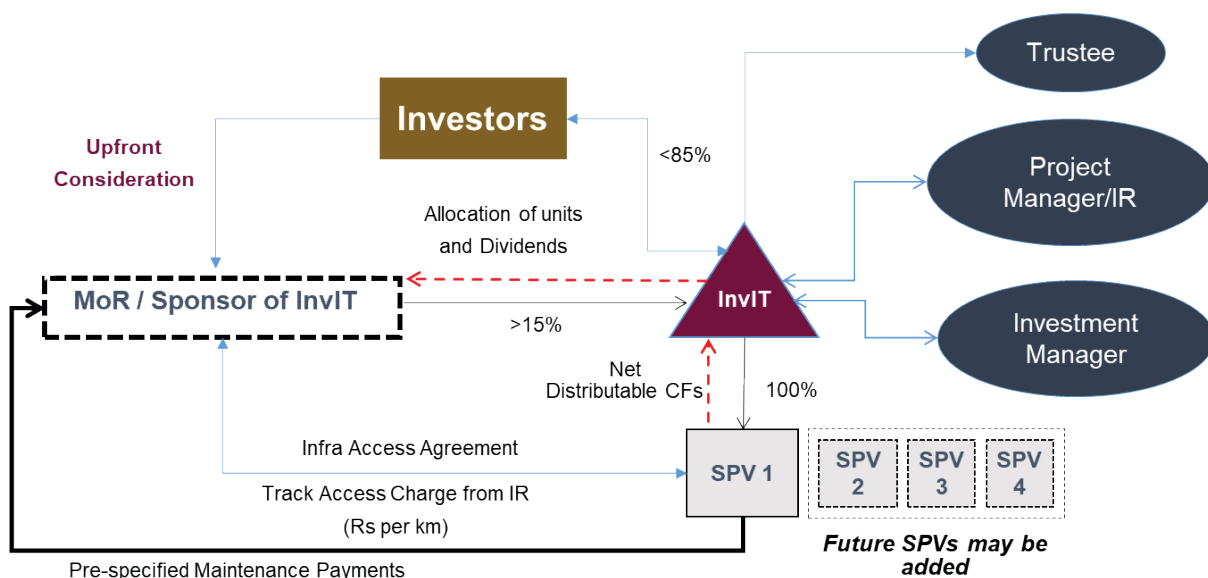


Figure 11: Monetisation of Track OHE infrastructure - indicative transaction structure

B. PPP for redevelopment of Good Sheds as Private Freight Terminals / Multi Modal Logistics Hubs

IR allows PFTs on railway land adjacent to stations with a view to utilising vacant land parcels better, increasing PPP investments, and boosting freight revenue. Commercial viability of private terminals is higher in case of terminals' proximity to cement industries, ports, and power plants, which are key consumption centres. At present, private freight terminals are built by private investors on private land, and connectivity is provided by railways to the operators on lease.

During October 2020, Ministry of Railways issued a Policy¹⁸ on Development of Goods sheds aiming at augmenting terminal capacity through private participation by allowing setting up of new goods-shed facilities and developing existing railway owned goods-sheds at a larger number of stations.

Salient features of the Good Sheds Policy of IR

Private parties permitted to develop goods wharf, loading/unloading facilities, facilities for labour (resting space with shade, drinking water, bathing facilities, etc) approach road, covered shed and other related infrastructure. The facilities are to be created/developed through the private investment.

Developments for the proposed facility to be as per approved Railway designs, standards and specifications.

The facilities created by the private party shall be used as common user facility, and no preference or priority will be granted to the traffic of the party over the traffic of other customers.

Responsibility for maintenance of assets and facilities created shall be vested with the party during the agreement period.

Incentives under the scheme: Share in the Terminal Charges (TC) and Terminal Access Charges (TAC), as the case may be, for all the inward and outward traffic dealt at the goods-shed for five (05) years, from the date of completion of the work.

The party seeking the least share (TC/TAC) to be selected through competitive bidding.

Additional revenue—utilization of available space for establishing small canteen/tea-shop, advertisements, etc.

C. Hill Railways

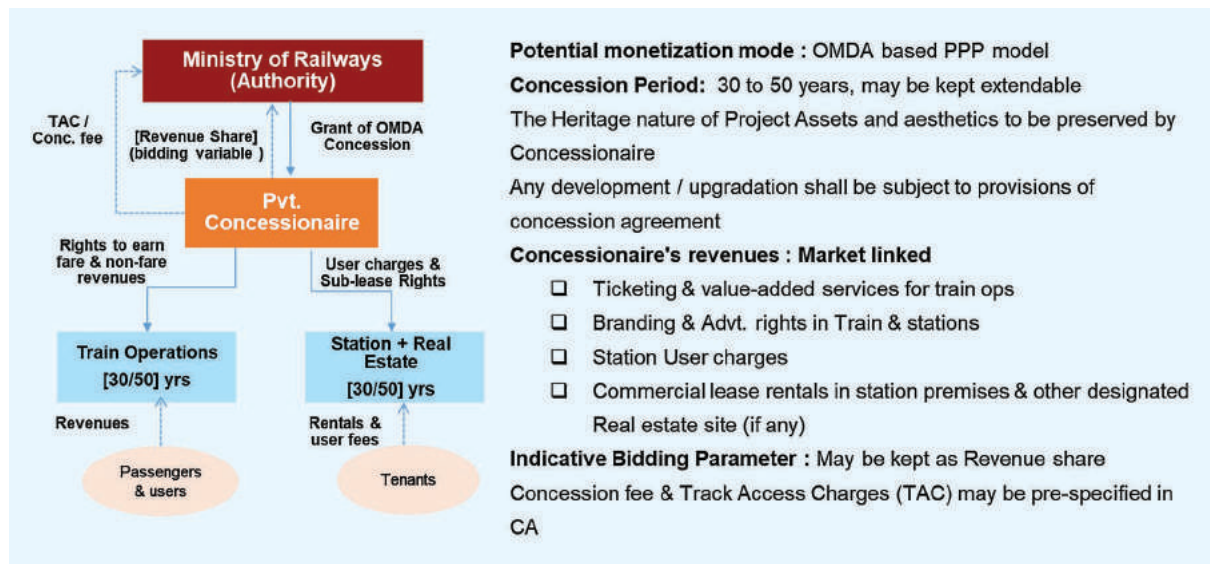
The Mountain railways of India consists of fully functional and operational railways networks in mountains and hilly terrains in India. The key assets are: Darjeeling Himalayan Railway located in the foothills of the Himalayas in West Bengal, the Nilgiri Mountain Railways located in the Nilgiri Hills of Tamil Nadu, the Kalka Shimla Railway located in the Himalayan foothills of Himachal Pradesh and the Matheran Railway located in Maharashtra. These locations are domestic tourism hubs with a heritage based appeal to these railways.

¹⁸ <https://pib.gov.in/PressReleasePage.aspx?PRID=1664798>

HILL RAILWAYS	Kalka Simla	Darjeeling Hill Railway	Nilgiri Mountain Railway	Neral Matheran Railway
Operational since	1903	1879	1908	1907
Length in kms	96.6 kms	~88 kms	~ 46 kms	~ 20 kms
Journey time (Hours)	~ 4-5 Hrs	5.30 Hrs	~ 3.5-5 Hrs	~ 2-2.5 Hrs
Fare / Trip /Person (INR/Person)	25/- (Passenger Train), INR 550 – 630/- (First Class Express Trains)	1,420 – 1,700/-	175 – 520/-	30 – 618 /-
Ridership (mn)	0.77	0.91	0.60	1.02
Key features of Locomotives	<ul style="list-style-type: none"> • Oldest steam engine (still operational) dates back to 1892, Hill Bird • 103 Coaches (includes ZDM-3, Diesel Rail Car and Passenger Coach) 	<ul style="list-style-type: none"> • Most important element of DHR is its Class B Locomotives (Oldest Loco: Baby Sevak, 1892) • 13 Steam Engines and 6 Diesel Engines. • 73 coaches in total 	<ul style="list-style-type: none"> • Oldest steam engine (built in 1918, coal fired) is still operational • 43 coaches, 28 are functional 	<ul style="list-style-type: none"> • 11 Locomotives (1 Steam + 10 Diesel); • Total 49 coaches (across all categories)
Heritage status	2008	1999	2005	UNESCO's potential World Heritage Sites

Mountain railways may be monetised through the OMD based PPP model as the infrastructure may require rehabilitation and augmentation investment. The station and adjoining real estate on the Railway land may be bundled along with train operations to bring in viability and commercial attractiveness. Snapshot of a PPP based transaction structure is as below.

Snapshot of Indicative Transaction structure:



D. Dedicated Freight Corridor (DFC)

DFCCIL, an SPV, was established in 2006 under the administrative control of the MoR to undertake planning, development, mobilisation of financial resources, construction, maintenance, and operations of Dedicated Freight Corridors (DFCs). The two DFCs under implementation - Eastern and Western - are being funded through a mix of equity from the MoR and loan from multilateral development banks - the World Bank and the Japan International Cooperation Agency (JICA). These two DFCs, with an estimated project

cost (excluding land) of Rs 95,238 crore (as per status as on December 2020), are being funded through (a) JICA loans (47%), (b) World Bank loans (17%), and (c) the MoR's equity contribution (36%). The Western DFC is primarily funded through loans from the JICA and equity from the MoR, whereas the Eastern DFC is being funded through loans from the World Bank and equity from the MoR. DFCCIL is planning to develop a section of the Eastern DFC (Sonnagar-Dankuni) via the PPP mode.

In terms of revenue model, the key customer of DFCCIL would be IR, with DFCCIL earning revenue through a TAC mechanism. IR would decide the trains that would run on the DFC network. Freight booking would be done through IR, which would then assign traffic to the DFCs. TAC would be determined by DFCCIL in a way that it covers fixed and variable components of providing and maintaining track infrastructure.

Overview of Eastern and Western DFCs

The Western DFC project comprises 1,504 km of a double-line electrified track from JNPT to Dadri via Vadodara-Sanand-Palanpur-Phulera-Rewari. The alignment is kept parallel to existing lines, except provision of detours. The Western DFC is entirely on a new alignment from Rewari to Dadri and also from Sanand to Vadodara. This new line portion is designed to connect with the existing New Delhi-Mathura line at Asaoti railway station from Pirthala station of DFC. Moreover, the Western DFC is proposed to join the Eastern Corridor near Dadri.

Traffic on the Western Corridor mainly comprises ISO containers from JNPT and Mumbai Port in Maharashtra, and ports of Pipavav, Mundra, and Kandla in Gujarat destined for ICDs located in northern India, especially at Tughlakabad, Dadri, and Dhandari Kalan. Besides containers, other commodities moving on the Western DFC are POL, fertilisers, foodgrains, salt, coal, iron & steel, and cement. Further, owing to its faster growth than other commodities, the share of container traffic is expected to increase progressively. The maximum number of trains in the section is projected at 230 (both in UP and DN) in the Ajmer-Palanpur section in 2024.

The Eastern Corridor, with a route length of 1,861 km, consists of an electrified single-line segment of 401 km between Ludhiana and Khurja and an electrified double-line segment of 1,460 km between Khurja - Kanpur-Mughalsarai - Sonnagar- Dankuni.

Traffic on the Eastern Corridor is mainly dominated by coal for power plants in the northern region of Uttar Pradesh, Delhi, Haryana, Punjab, and parts of Rajasthan - from coal fields situated in eastern part of the country, finished steel, foodgrains, cement, fertilisers, and limestone to steel plants and general goods. The number of trains with axle load of 25 tonne works out to a maximum of about 163 in the UP and DN direction in the Sonnagar-Mughalsarai section of the Eastern Corridor.

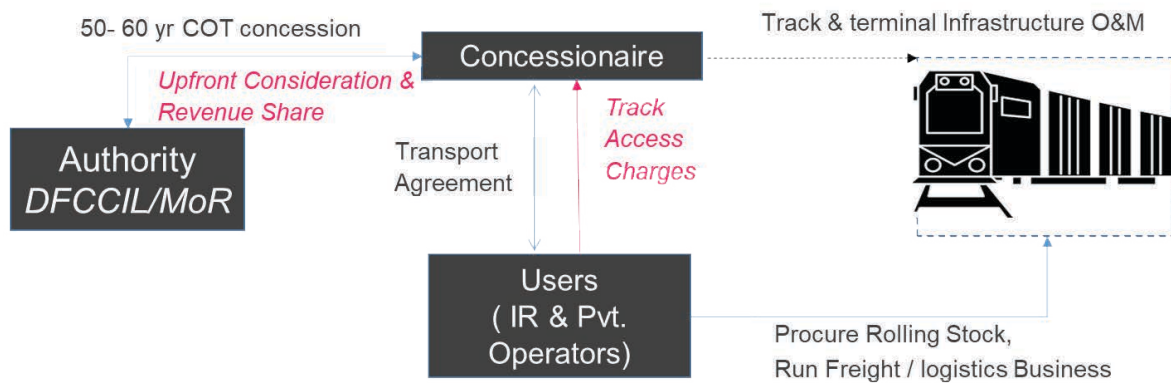
“Railways will monetise Dedicated Freight Corridor assets for operations and maintenance, after commissioning.

— Union Budget 2021

Monetisation Strategy

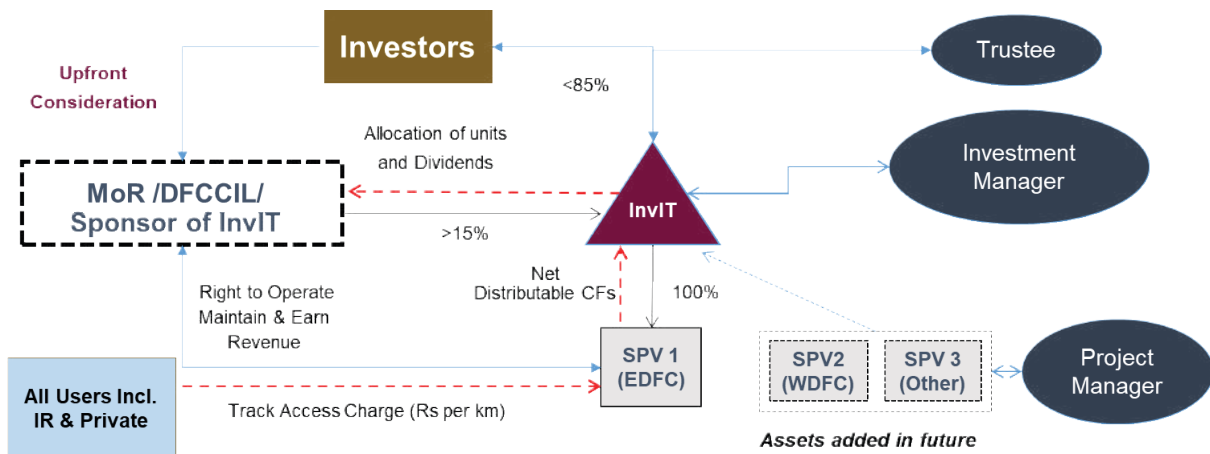
To attract large commercial investors, monetisation strategy for dedicated freight corridors would need to be designed along with ground work for monetisation of assets such as feasibility studies, transaction structuring and assessment of commercial potential. Once the project is substantially commissioned and there is visibility of revenue model, suitable models may be adopted. Two potential instruments may be explored for monetisation of dedicated freight corridor; InVIT and Carry Operate Transfer (COT) Concession. The target date of commissioning of the project is June 2022 with certain sections slated to be commissioned by December 2021. Certain sections of WDFC and EDFC have been commissioned already. Monetisation of the freight corridors in phases may accordingly commence post commissioning.

Indicative Transaction structure and terms under a COT Concession



Authority	♦ Ministry of Railways / DFCCIL
Concessionaire Scope	♦ Grant of a Carry Operate Transfer (COT) concession for operation and maintenance of Eastern and Western Dedicated Freight Corridors in separate packages
Concession Period	♦ 50-60 years
Revenue	♦ TAC (to be indicated under the Concession Agreement) with pre-specified indexation mechanism
Traffic	♦ Minimum traffic guarantee may be explored (as a % of existing traffic)
Monetisation consideration	♦ Monetisation value may be paid upfront (or in installment) ♦ Additionally, Revenue sharing mechanism from additional traffic over minimum traffic guarantee may be specified as per pre-specified percentage
Authority support	♦ Minimum traffic guarantee ♦ Approval for non-IR freight trains ♦ Reasonable support for approvals/clearances
Selection process	♦ Eligibility: threshold financial capacity (minimum net worth, annual revenue, profitability, etc.) ♦ Open competitive bidding process similar to PPP projects

Indicative Transaction structure & terms under an InvIT model




Key terms	<ul style="list-style-type: none"> ◆ Asset Bundle OR Right to operate, maintain and earn revenue from such assets transferred under an InvIT ◆ An SPV may be created sponsored by MoR/DFCCIL ◆ Fixed term of 50-60 years (<i>Assets to be transferred to MoR/DFCCIL at end</i>) ◆ Appointment of Trustee, Investment Manager, Project Manager as per SEBI regulations ◆ Units of InvIT divested under a private placement/public listing (15% for at least 3 years; possibility of higher holding) ◆ Professional Project Manager should undertake the O&M ◆ Minimum Traffic Guarantee by Authority (As percentage of Existing Traffic) may be explored
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Table 6: Comparative assessment of COT Vs InvIT Models for monetising Freight Corridor

	Carry, operate and transfer (COT)	InvIT
Lead time for Monetisation post commissioning	May be monetised as soon as a particular stretch is operational	May need to establish 1 year of operational history as per SEBI regulations
Target Investor category	Infrastructure focussed investors / developers and funds	Both public listing and private placement possible; possibility to tap retail investors in public listing
Valuation driver	Premium for control	Premium for liquidity
Future Cashflows for Authority	Revenue share to capture windfall gains	Dividend against holding of MoR/DFCCIL
Phased addition of assets	Through grant of standalone PPP concessions	Possible by way of future offerings by the InvIT

3.3 POWER TRANSMISSION

 Summary			
28,608 ckt km	17%	Rs 45,200 crore	8%
Asset base considered for monetisation over FY22-25	Asset planned for monetisation as % of asset base over FY22-25	Indicative value over FY22-25	Share in overall NMP in value terms

3.3.1 Potential asset base

India's economic growth hinges on rapid growth in the energy sector. Energy consumption in the country has almost doubled since 2000 and is set to grow further. This calls for huge investments in infrastructure creation and augmentation over the next few years. As of March 31, 2019, the transmission asset base (in terms of network length) in India aggregated to a total length of 4,13,407 circuit kilometre (ckm), growing at a healthy CAGR of 7% since 2015. The shares of the Centre, States and private sector in the overall length of the transmission lines were 38%, 54%, and 8%, respectively.

The potential asset base considered for NMP under power transmission asset class is the transmission infrastructure of the nodal central transmission utility, Power Grid Corporation of India Ltd (PGCIL). As of September 2020¹⁹, PGCIL owned and operated about 1,68,140 circuit kilometre (ckt km) of transmission lines and 252 sub-stations, with an aggregate transformation capacity of 419,815 MVA. Of the total transmission network, 93% was 400 KV and above. PGCIL owns inter-state transmission assets comprising of both the regulated tariff mechanism (RTM) and tariff-based competitive bidding (TBCB) modes.

The bulk of the PGCIL's assets (to the extent of about 95%) belong to the regulated assets category, viz. RTM which works on a cost-plus model providing for an assured return on equity and cost recovery through the tariff fixed by the regulator over 5 year control periods.

¹⁹ https://www.bseindia.com/downloads1/Powergrid%20Infrastructure%20Investment%20Trust_DOD.pdf

TARIFF BASED COMPETITIVE BIDDING (“TBCB”)²⁰

Being a critical link in the power sector value chain, the transmission sector needed more attention to cater to the growing power demand and the increasing generation capacity. Investments in the form of budgetary allocations, internal accruals and public sector undertakings (“PSU”) borrowings were unable to fund this growing need. Keeping this in mind, the Electricity Act permitted competition in the power sector, including in the power transmission sector.

The policy framework for TBCB projects was introduced in 2011, which required for most transmission network development at the Centre to take place through the TBCB route unless for exceptions created under the policy necessitating RTM as a mode. Ministry of Power (MoP) constituted the National Committee on Transmission (NCT) to identify inter-state transmission projects to be developed through competitive bidding and to oversee the process of competitive bidding. Ministry of Power has also issued standard bidding documents, such as request for qualification (“RFQ”), request for proposal (“RFP”), transmission service agreements and share purchase agreements, and also appointed PFC Consulting Limited and REC Transmission Projects Company Limited as the bid process coordinators (each, a “BPC”) for carrying out the bidding process.

Under TBCB mechanism, projects are bid for under a build, own, operate and maintain (“BOOM”) model as per standard bidding documents notified by the MoP, which comprises a request for proposal and request for qualification and standard format of transmission agreement and share purchase agreement. The annual transmission charge for a 35-year period is discovered through this bidding process.

In the power sector, an estimated total capital expenditure of Rs ~14 lakh crore is envisaged by both the Centre and states over FY 2020 to 2025. As per NIP, an estimated total capital expenditure of Rs. ~3 lakh crore would be incurred on electricity transmission projects over financial years 2020 to 2025. In the transmission segment, PGCIL is undertaking major projects such as HVDC Bipole Link between western and southern regions, interstate Green Energy Corridor Transmission Link and construction of substations. Monetisation of seasoned transmission assets could help finance creation of new infrastructure, by bringing in much-needed capital.

Factors influencing monetisation of the asset class

Consistent and stable cash flows from assets with long-term visibility and low counterparty risks: Revenue for electricity transmission is generated from contracted transmission charges under long-term Transmission Service Agreements (TSAs), with a low level of operating risk and an availability-based payment mechanism. The recent PGCIL InvIT was backed by TBCB assets where the transmission charges are fixed for a period of 35 years, providing stability, consistent cash flows, and long-term visibility.

²⁰ Powergrid InvIT filing document

Established track record of participation by private-sector and institutional investors:

The transmission sector in India has witnessed increased participation of both large domestic and institutional investors, owing to the stability of asset class and availability based business model.

Stable availability and robust asset profile of transmission assets:

- Inter-state power transmission projects receive transmission charges on the basis of availability, including in case of outage due to a force majeure event, subject to requisite approvals and irrespective of the quantum of power transmitted through the system
- The availability for transmission projects was above 98% in the first nine months of FY 2021, and the operations of these projects were unaffected as they are classified as essential services making transmission a resilient asset class

3.3.2 Assets considered for monetisation

The transmission assets considered for monetisation over FY 2022-25 are ~28,608 circuit (ckt). This includes PGCIL’s transmission assets of 400 KV and above. The total assets for monetisation constitute around 17% of the total asset base of PGCIL.

- » FY 2022 : During FY22, -Transmission assets considered with indicative value of Rs 7,700 crore. Assets to be monetized during FY22 includes the PGCIL’s InvIT issue transaction for which has already been concluded during Q1 of FY22.
- » FY 2023, FY 2024 and FY 2025 -Aggregate length of 23,734 ckt kms has been considered for monetisation during this period.

Approach to monetisation

In the case of power transmission assets, the assets considered for monetisation (in ckt kms) and the indicative monetisation value (Rs crore) over FY22-25 are arrived at based on the following steps:

Step 1 - Asset considered for monetisation

- Out of the total transmission asset base of PGCIL, the scale of transmission assets with capacity of 400 KV and above (1.56 lakh ckt kms) was estimated. The monetisation potential is available in this category of long-distance transmission assets. This includes a mix of TBCB and RTM assets. While most TBCB assets of PGCIL are expected to be bought under the PGCIL InvIT over a period of time, inclusion of additional assets from RTM category is critical to achieve the required scale in monetisation.
- The transmission assets considered for monetisation over FY 2022-25 depend on factors such as transmission charges, asset availability, and asset mix. The total transmission assets for monetisation are considered at ~28,608 ckt kms.

Step 2 – Arriving at the indicative monetisation value

- A Market approach has been adopted to determine indicative monetisation value. Reference valuation (in terms of Rs crore per ckt km) has been taken with reference to PGCIL's recently closed InvIT. The indicative monetisation value of the transmission assets has been considered based on a factor of Rs -1.58 crore per ckt km. It may be noted that this is only an indicative value and the actual realisation and valuation would depend of factors such as asset profile, transaction structure and market conditions.

3.3.3 Indicative Value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 45,200 crore** over FY 2022-25, as follows:

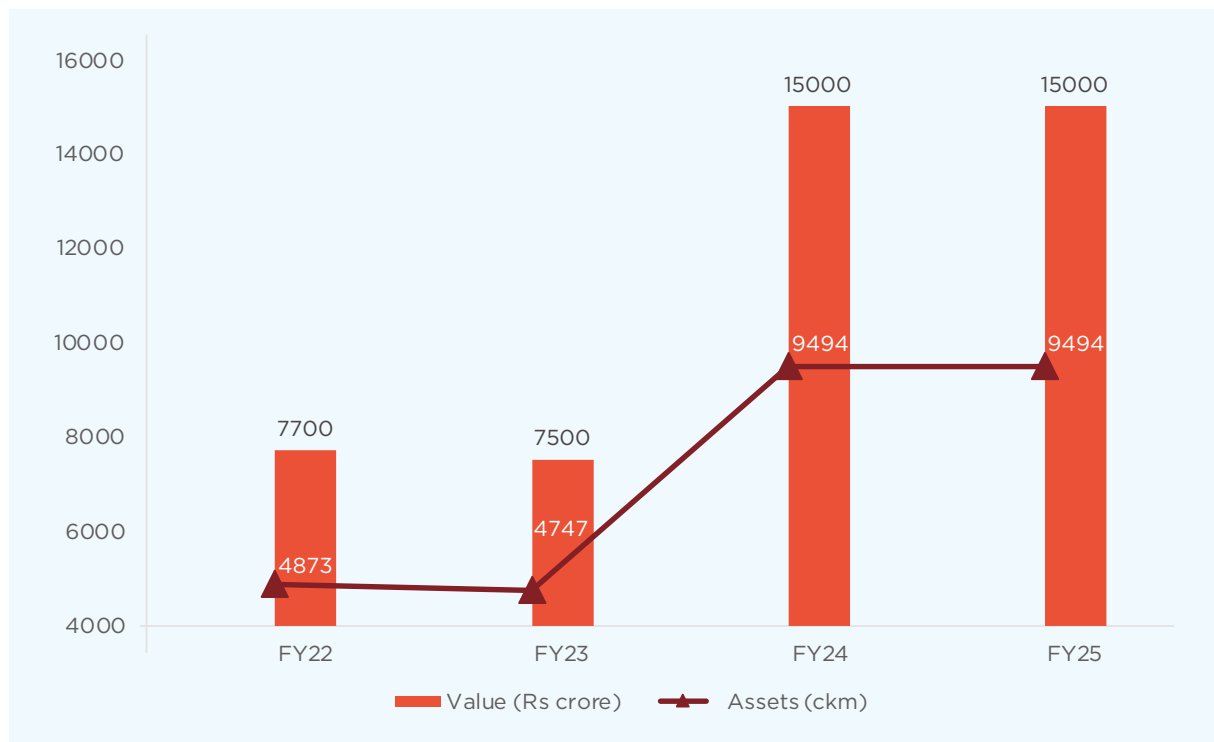


Figure 12: Pipeline phasing - power transmission (Rs crore)

3.3.4 Marquee projects

A. Monetisation of Transmission assets of POWERGRID through InvIT

Key features of the InvIT:

- The PGCIL InvIT has been set up with the objective of monetising its completed and operational transmission projects through alternative sources such as capital markets and by diversifying its investor base

- Union Cabinet approved monetisation of assets of POWERGRID, through Infrastructure Investment Trust (InvIT) model in September 2020. This is the first InvIT by a PSU.
- Pursuant to the Cabinet approval, POWERGRID monetised its 5 high voltage transmission assets held by POWERGRID in form of Special Purpose Vehicles (SPVs) with an aggregate gross block of Rs. ~7,220 crore as on March 31, 2020.
- The InvIT will initially have IPAs, comprising five power transmission projects located across five states of India
- The projects comprise 11 transmission lines, including six 765 kV transmission lines and five 400 kV transmission lines, with a total circuit length of ~3,700 ckt km, and three sub-stations with 6,630 MVA of aggregate transformation capacity and 1,956 km of optical ground wire
- Each of the IPAs has in place a long-term TSA of 35 years from the scheduled COD of the relevant IPA
- Upon expiry of the term of a TSA, the relevant IPA can apply to CERC for renewal if it is not unilaterally extended by CERC
- There is high visibility of potential revenue and cash flows from the InvIT due to availability of additional 18 projects involving an investment of Rs 22,500 crore to be offered as a “project pipeline” to the InvIT

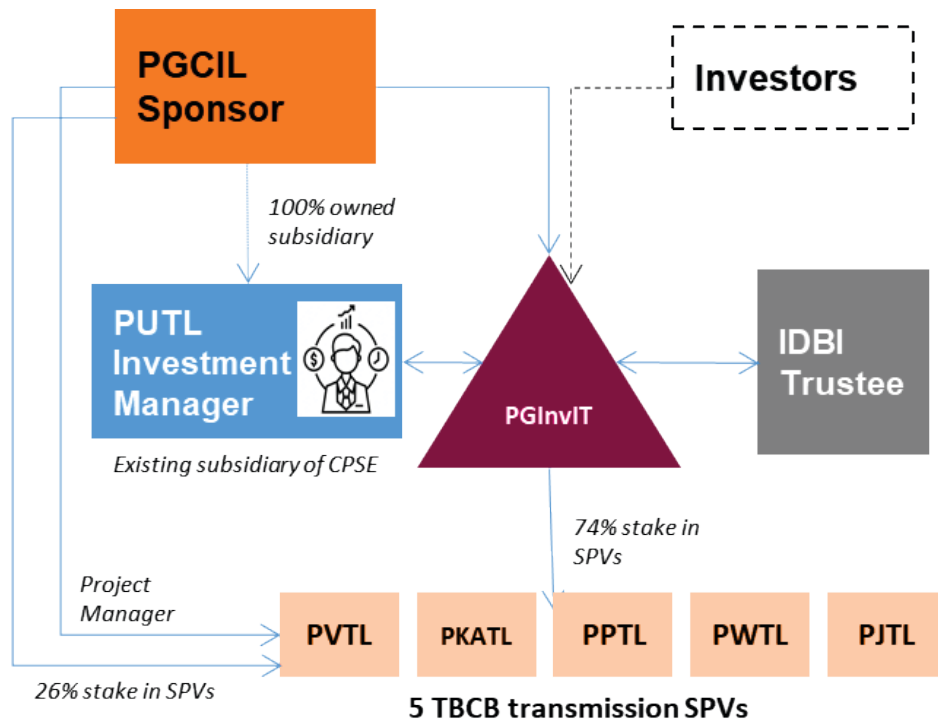


Figure 13: Proposed structure - PGCIL InvIT

B. Monetisation of RTM Transmission assets of POWERGRID

Cost-plus or RTM assets are based on regulated return or cost-plus tariff models, involving regulated returns on invested equity and are set by the regulator at intervals of 5 year control periods. Typically, such assets are housed in the parent entity's balance sheet and not under separate SPVs. Monetisation for such assets hence may require a scheme of arrangement / demerger process which may pose associated transaction overheads such as continuation of tax holiday on assets, capital gains tax, stamp duty etc., due to asset transfer.

The government vide the Finance Act, 2021 has amended various sections to make the reorganisation of a PSU into separate companies a tax-neutral transaction. With the Finance Act, 2021, the government has effected amendments to the Section 47 of the Income Tax Act which allows for transfer of capital assets by a PSU to another notified public sector company, central government or state government to not be regarded as transfer. Such transfer shall be under a plan approved by the central government.

Strategy for monetising RTM assets

- ▶ In order to effect value unlocking, carving out the revenue rights on these assets to a separate SPV by way of a special demerger may be explored as the investors value completed projects differently than the portfolio of assets in the balance sheet which also includes under construction risks and corporate risks. Tax efficiencies can be brought in by structuring of transaction as revenue rights as against transfer of assets into an SPV.
- ▶ Demerged SPV may be assigned rights to receive transmission charges as against asset. Since ownership does not change hands, stamp duty impact can be minimized.
- ▶ Regulator's consent and lenders' approval would need to be obtained prior to transaction process
- ▶ 80 (I) a: Impact can be minimized by choosing assets which have minimal negative impact on valuation or 80 (i) a benefit has been exhausted substantially

A monetisation model similar to the toll-operate-transfer (TOT) model may also be explored for successful monetisation of RTM transmission assets. The TOT model has been conceptualised by MORTH for undertaking the monetisation of operational toll road projects. This model focuses on income yielding assets with established cash flows, and there is no transfer of ownership of assets from the Authority to the Concessionaire. The concessionaire retains the revenues and is responsible for undertaking O&M obligations only, and this model does not involve the concessionaire assuming any construction risk. Besides, capacity augmentation, if required, is undertaken by the Concessioneing authority at its own cost. Certain distinctions however exist between statutory bodies such as NHAI (which has in recent past adopted the TOT model) and PSUs such as PGCIL which functions as a corporate. The key aspects which need to be considered for adopting a TOT based model for RTM transmission assets are:

Aspect	NHAI	PGCIL
Regulatory	Can enter into concession agreements	Does not have regulatory powers/authority to grant transmission license/concessions for transmission business Regulator approval may be required for an investor to obtain a license from CERC/ SERC without owning the project assets
Income tax on upfront payment	Income of NHAI exempt (Sec.10(23C)(iv) of IT Act)	Payable at corporate rates
Toll/tariff determination	Approves toll rates based on formula linked to WPI	Tariff is decided based on Tariff norms; Challenges in ARR filing due to non-ownership of project assets by a concessionaire may need to be addressed at the time of obtaining regulator's consent

3.4 TELECOM



Summary

<p>~ 2.86 lakh km of Bharatnet Fiber</p> <p>14,917 Nos. of BSNL & MTNL towers</p>	<p>Bharatnet Fibre - 57%</p> <p>Towers - 21%</p>	<p>Rs 35,100 crore</p>	<p>6%</p>
<p>Assets for monetisation in FY 2022 to 2025</p>	<p>Asset monetised as % of asset base (FY 2022-2025)</p>	<p>Indicative monetisation value in FY 2022-2025</p>	<p>Share in overall NMP in value terms</p>

3.4.1 Potential asset base

The potential asset base considered are telecom tower assets under the central sector entities, namely Bharat Sanchar Nigam Ltd (BSNL), Mahanagar Telephone Nigam Ltd (MTNL) and Bharatnet optical fibre assets under the central sector entities, namely Bharat Broadband Network Limited (BBNL) and Bharat Sanchar Nigam Ltd (BSNL). BSNL currently has 68,000 towers of which ~13,567 towers have co-locations from third party telecom operators. With more than 70% of BSNL towers fiberized, the tower infrastructure is amenable for 4G and 5G deployments. The tower assets with co-location based revenue stream have been considered as potential asset base for monetisation. Similar to BSNL, MTNL also has about ~1,350 towers with co-location/ rentals which may be suitably bundled along with BSNL tower assets for the purpose of monetisation.

About ~2,86,255 km of existing fibre assets of BBNL and BSNL, laid under the Bharatnet project spanning over 16 states has been considered for monetisation through PPP mode. Bharatnet is a flagship project of Government of India (GoI) funded by Universal Service Obligation Fund (USOF), Department of Telecommunications (DoT), with an aim to provide high speed broadband connectivity to all Gram Panchayats (GP) and extension to their villages across India. The network infrastructure under the Bharatnet project is a national asset and accessible on a non-discriminatory basis to all eligible service providers to enable them to provide services in rural areas.

Factors influencing monetisation of the asset class

Potential for deepening fibre penetration – The level of fixed broadband (FBB) penetration in India is estimated at 6.5%, which is considerably lower than that of the Asian peers (China 84%, Sri Lanka 26.2%, and Vietnam 49.5%). One of the primary challenges to this scale-up is the operational constraints in the deployment of fibre in the intra-city and last mile network segments. The Bharatnet initiative is aimed to plug this gap in FBB. Nevertheless, the considerable untapped market and the potential for greater penetration of fibre network is expected to generate investor interest in these assets.

Government policy push – The government’s policy push to meet the supply-side gap is one of the critical drivers for growth over the medium term.

- ▶ The National Digital Communications Policy (NDCP) 2018 serves as an anchor for India’s transition to a digitally-empowered economy. Under NDCP 2018, the government provides incentives to tower companies to facilitate the establishment of mobile tower infrastructure by: (i) extending incentives and exemptions for the construction of telecommunication towers; (ii) according accelerated right of way (ROW) permission for telecommunication towers in government premises; and (iii) promoting and incentivising deployment of solar and green energy for telecommunication towers.
- ▶ The Bharatnet project is the backbone of ‘Digital India’ and aims to reduce the digital divide between urban and rural India. The project involves laying of optical fibre cable (OFC) between block and gram panchayats. This infrastructure would be made available to service providers on a non-discriminatory basis who, in turn, would utilise it to provide affordable high-speed broadband to rural citizens and institutions. As of March 19, 2021, about 5.13 lakh km of OFC laying has been completed covering 1.57 lakh gram panchayats.

Established processes for passive infrastructure sharing (tower assets) – India has seen active participation between telecom providers on passive infrastructure sharing. Currently, the country has seen robust frameworks for passive infrastructure sharing between telecom operators called Master Service Agreements (MSA). These agreements clearly spell out the pricing, tenure, roles and responsibilities of the parties, and other binding terms. The establishment of such formal frameworks will bring in the necessary transparency to the monetisation process and help investors identify the risks upfront.

3.4.2 Assets considered for monetisation

The following core infrastructure assets have been considered for monetisation during FY 2022 to 2025:

- ▶ **Bharatnet Fibre assets:** ~2.86 lakh route-km of Bharatnet fibre assets proposed to be bid out through PPP model by DoT through nine packages comprising 16

states. The bidding process for this project is expected to be initiated during FY22 and the actual outlay of capex will happen over 2 years from the date of award.

- ▶▶ **BSNL & MTNL Tower assets:** ~14,900 towers (~13,567 towers of BSNL and ~1,350 towers of MTNL) with co-locations from third party telecom operators have been considered for monetisation during FY23. The feasibility study and transaction preparation work for the same is presently being undertaken.

Approach to monetisation

The scale of asset monetisation is guided by the urban-rural distribution of the assets. In case of tower assets, 14,900 towers have been considered.

Tower Assets: The indicative monetisation value for tower assets is arrived at based on the EV approach factoring in available data on revenue earned from co-location rentals, pass through charges, O&M and assumptions based on tower tenancy, ramp up over a 30 year period. NPV of EBITDA has been taken as the indicative monetisation value from tower asset monetisation. The same is indicative only and the actual value realisation is a function of multiple factors intrinsic utilisation, tariff, market conditions, MSA terms and transaction structure. Further, there are two reference transactions in the market for monetisation of tower assets in the private sector which have seen valuation per tower asset of about Rs ~38 lakh.

Bharatnet Fibre Assets: The indicative monetisation value for Bharatnet fibre assets is considered based on Capex approach. The estimated capex for 9 Bharatnet packages envisaged to be tendered out in FY 2022 has been considered at Rs 26,300 crore. It may be noted that these packages are being structured on PPP mode with grant / premium as the bidding parameter. The actual private investment towards these packages could be lower than the estimated capex and a portion of capex may be met out of grant. The capex phasing towards the assets has been assumed as 60% during year 1 and 40% during year 2.

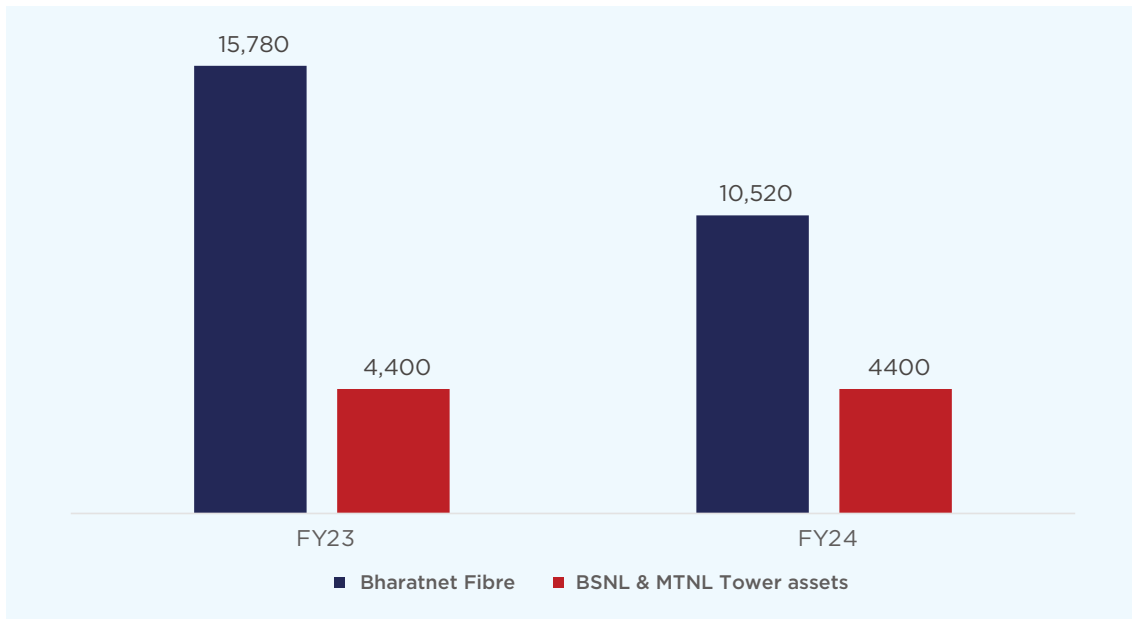
3.4.3 Indicative Value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 35,100 crore** for FY 2022 to 2025, with the following asset phasing:

- ▶▶ **Bharatnet Fibre assets:** Indicative monetisation value of Rs. 26,300 crores has been considered as over FY23 and FY 24. It may be noted that the actual private investment towards these packages could be lower than the estimated capex and a portion of capex may be met out of grant. The capex phasing towards the identified packages has been assumed as 60% during year 1 (assumed as FY23) and 40% during year 2 (assumed as FY 24).
- ▶▶ **BSNL & MTNL Tower assets :** Indicative valuation of Rs. 8,800 crore has been considered as monetisation value to be accrued split equally over FY22 and FY 23.

Table 7: Phasing of monetisation value - Telecom assets (Rs cr)

Sl no.	Asset type	FY22	FY23	FY24	FY25	Total
1	Bharatnet Fibre	—	15,780	10,520	—	26,300
2	BSNL & MTNL Tower assets	—	4,400	4,400	—	8,800
TOTAL		—	20,180	14,920	—	35,100

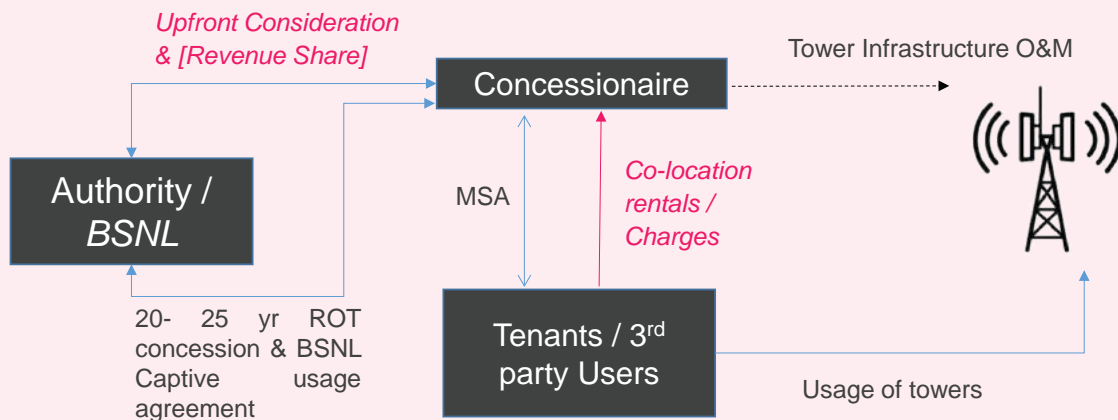

Figure 14: Pipeline phasing - Telecom assets (Rs crore)

3.4.4 Monetisation potential of telecom towers of BSNL

BSNL currently has about 68,000 towers, of which about 13,000 provide co-location facilities to other telecom operators. BSNL is looking to increase the tenancy of these towers to boost revenue. In the past few years, BSNL's revenue through lease rentals has been increasing with rise in the number of tower co-locations. More than 70% of the BSNL sites are connected through fibre compared with the industry average of less than 25%. Of the total 5.8 lakh towers in India, only 1.5 lakh are connected through fibre which provides a huge competitive advantage to marketability of tower infrastructure of BSNL. With the existence of a large number of BSNL towers at own exchange sites, there is ample space to house the equipment. Space has been a key issue in enhancing co-location through the number of tenants or augmenting technology. Further, BSNL's tenancy ratio on towers is 1.2 compared with the average of 1.9 for private players. In view of all of above, there is significant scope for monetisation of tower rental receivables through a PPP based concession which will also help in generating upfront equity liked funds for BSNL for deployment towards capex.

Rent-Operate-Transfer (ROT) Concession model for Telecom towers

This model entails grant of a long-term PPP concession for the utilisation of operational pipeline capacity through a PPP concession akin to the TOT model successfully employed by NHAI in the roads sector. The right to rent, operate and maintain the tower rentals will be granted to a concessionaire for a pre-defined concession period as against an upfront consideration, which could be the bidding parameter.



3.4.5 Monetisation potential of Bharatnet Fiber Network

The project is proposed to be implemented through DBFOT model under PPP mode. The implementation shall be through an SPV wherein the Concessionaire, selected through a competitive bidding process, would enter into a Concession Agreement with the Authority to Develop, Build, Finance, Operate and Maintain the Project Facilities over the pre-agreed Concession Period and Transfer the same to the Authority or its designated agency at the end of the Concession Period (DBFOT).

- ▶▶ Creation and Upgradation: To build and upgrade network infrastructure across GP and Block locations and extend the network to connect villages under the scope of work
- ▶▶ Operation and Maintenance: To operate and maintain the existing and the newly deployed network infrastructure
- ▶▶ Utilization: To ensure and manage utilization of existing and deployed capacity across the network infrastructure in a non-discriminatory manner.

Table 8: Project packages envisaged under Bharatnet

Packages	Licensed Service Area (LSA)
Package 1	Kerala, Karnataka
Package 2	Uttar Pradesh (East)
Package 3	Uttar Pradesh (West)

Package 4	Rajasthan
Package 5	Punjab, Haryana, Himachal Pradesh
Package 6	West Bengal
Package 7	Arunachal Pradesh, Mizoram, Tripura, Manipur, Nagaland, Meghalaya
Package 8	Madhya Pradesh
Package 9	Assam

The Concession Period of 25 years (including construction period) from the appointed date (fulfilment of conditions precedent) is envisaged. Upon the expiry of the Concession Period, project facilities would be handed over to the Authority at no cost. Bid parameter shall be Grant or Premium.

3.5 POWER GENERATION



Summary

6.0 GW (~3.5 GW Hydro, ~2.5 GW RE)	6%	Rs 39,832 crore	7%
Assets for monetisation over FY22-25 (GW)	Assets planned for monetisation as % of asset base over FY22-25	Indicative monetisation value over FY22-25	Share in overall NMP in value terms

3.5.1 Potential asset base

The power sector accounts for the largest share of investments in infrastructure. The energy use is projected to grow rapidly to fuel economic development, urbanisation and improved electricity access. India's growing per capita consumption of energy, calls for huge investments in the sector for installation of new capacities and upgradation of existing ones. Electricity Act, 2003 has been a game changing comprehensive legislation in the sector pushing the sector onto a trajectory of commercial growth.

The potential asset base considered is the existing power generation capacity of central sector entities under the Ministry of Power. The total installed capacity of power generation sector in India was 382 GW as on April 30, 2021²¹. The private sector share in installed generation capacity is ~47%. Out of the total installed capacity of 382 GW, about 97.5 GW is in the Central sector and under central PSUs as on April 30, 2021. Bulk of this capacity is coal and gas based. Based on estimates, the share of central sector agencies according to the nature of fuel is as follows: coal - 74%; gas - 9%; hydro - 15%; and renewables - 3%. Various central sector entities such as National Hydroelectric Power Corporation Ltd. (NHPC), National Thermal Power Corporation Ltd (NTPC), Satluj Jal Vidyut Nigam Ltd (SJVN) and NLC India Ltd (Neyveli Lignite Corporation Ltd) under Ministry of Coal hold this asset base.

Renewable Energy (RE) segment has made significant strides in recent years reporting substantial increase in capacity on the back of strong government support, private sector investment, favourable policies and incentives, as well as falling cost of generation, particularly for the wind and solar power. There is also strong investor appetite for stable RE assets as evidenced by recent transactions.

²¹ <https://powermin.gov.in/en/content/power-sector-glance-all-india>

Factors influencing monetisation of the asset class

Focused government initiatives – The government’s recent initiatives to address the weakest link in the power sector, viz. distribution, is expected to boost investor interest in power generation projects. Key steps include the following:

- *Mitigation of counterparty risks associated with discoms* – Introduction of Solar Energy Corporation of India (SECI) as a nodal agency and as an intermediary between the private sector (power gencos) and discoms for RE projects presents a credible counterparty to the private sector vis-à-vis discoms
- *Liquidity support packages* – The government had approved liquidity support packages involving one-time loans of about Rs 1,30,000 crore from Power Finance Corporation (PFC) and Rural Electrification Corporation (REC) to discoms, to clear their overdue payments to power generating companies. To date, total disbursements under this scheme have aggregated to about Rs 75,000 crore. Timely implementation of this liquidity support scheme is crucial in the near term amid the adverse impact of the Covid-19 event and related lockdown
- *Other long-term measures* are being introduced for sustained improvement in discoms’ finances – (i) Recent directive from the power ministry to all regulatory bodies to issue tariff orders of all distribution licensees with an objective to ensure timely revision of cost-reflective tariffs²²; (ii) installation of smart meters and moving the consumers to prepaid basis to reduce AT&C losses; (iii) introduction of a Rs 3 lakh crore reforms-linked distribution reforms scheme involving disbursement of funds to discoms linked to them achieving set milestones
- The government has announced key measures to address investor concerns related to sanctity of contracts not being honoured – the Electricity Contract Enforcement Authority would adjudicate on performance of contracts

ESG-compliant clean energy projects – Investments in clean energy projects help institutional investors comply with their goals related to environmental, social, and governance (ESG) investments. Hence, renewable energy projects are expected to garner significant investor interest over the medium term.

Strong economic case for investing in renewable energy – Increasing investor interest in the renewable generation sector can be attributed to the government placing greater emphasis on promoting renewable energy investments, through measures such as providing fiscal incentives, and enabling more favourable policies and regulatory frameworks. Further, investors are looking at renewable energy as part of their ESG considerations.

3.5.2 Assets considered for monetisation

The assets considered for monetisation over FY 2022-25 aggregate to 6.0 GW. Out of this, about ~3.5 GW is from hydel assets and about ~2.5 GW is RE assets (solar and wind).

²² In compliance with the provisions of Electricity Act 2003 and Tariff Policy 2016

Together, 6.0 GW asset base considered for monetisation constitute about ~6% of total generation capacity under central PSUs. Key entities whose assets have been considered are NHPC, NTPC & SJVNL who own bulk of the hydel assets and NTPC (under Ministry of Power) and NLC (under Ministry of Coal) that own renewable assets.

Table 9: Phasing of pipeline of power generation Assets (figures in MW)

Category	FY 22	FY 23	FY24	FY 25	Total
Hydro assets-existing	373	870	870	1,243	3,355
RE assets - existing	—	245	612	1,106	1,962
Hydro assets - <i>to be operational</i>	—	—	59	59	117
RE assets - <i>to be operational</i>	—	—	235	300	532
Total	373	1,115	1,775	2,707	5,970

Approach to monetisation

In the case of power generation assets, the assets considered for monetisation (GW) and the indicative monetisation value (Rs crore) over FY 2022-25 are arrived at based on the following steps:

Step 1 - Asset considered for monetisation

- Monetisation of coal and gas assets has not been considered during the NMP period. The interest of global investors in these assets is limited by the strict ESG guidelines under which they operate and the uncertain long-term potential of the assets. Further, asset-level risks such as the dependence on high-cost LNG imports also limit private-sector participation in gas-based power plants, unless backed by (i) assured supply of cheaper gas, or (ii) policy-level push to incentivise discoms to buy gas-based power, or (iii) bundling with Renewable Energy (RE) power to firm up supply from RE sources
- Operational hydel generation assets are more amenable to monetisation given the offered flexibility in operations and renewable nature rendering them eligible for meeting Renewable Purchase Obligation (RPO) for states. Further, the hydro assets operating under a regulated tariff regime provide a degree of predictability to investors on the return on their invested capital. Around 3.5 GW of hydro assets (which is 27% of the existing hydro generation asset capacity of central PSUs of about 12,864 MW) have been considered for monetisation over FY 2022-25 as these could be seasoned assets and have a proven track record of operations and stabilisation in receivables (days) due from off-takers.
- The existing solar capacity of central sector agencies is estimated at ~2.5 GW, with an additional 1 GW capacity to be added over the next two years. Around 2.5 GW of solar capacity (i.e. ~100% of the existing solar capacity by central PSUs namely, NTPC and NLC, of about 2,447 MW) has been considered for monetisation over

- FY 2022-25 assuming seasoning for such assets. Given that solar generation is largely private-sector driven and given that government should rather take the ‘stewardship’ role of nurturing the sector and giving policy direction rather than operating these assets, a larger chunk of RE assets have been considered for monetisation.

Step 2 - Arriving at the indicative monetisation value

- The book value approach has been adopted to determine an indicative value of the above-mentioned assets varying based on the vintage value of the asset. (i) the average realisation value for hydel assets has been tentatively considered as Rs 7.5 crore per MW; (ii) the average realisation value for solar assets has been tentatively considered as Rs 5.5 crore per MW
- The product of asset considered for monetisation (in MW) and above-mentioned book value of assets (Rs crore per MW) are used to compute the annual indicative monetisation value (Rs crore) for assets in each sub-sector, such as solar, hydel, and wind power plants

3.5.3 Indicative value of assets and phasing

The indicative value of assets considered for monetisation is considered at **Rs 39,832 crore** over FY 2022-25. The summary of annual phasing is as follows:

Asset type	FY 22	FY 23	FY 24	FY 25	Total
Monetisation Value (Rs crore)	2770	7808	11704	17550	39,832
Assets considered (MW)	373	1,115	1,775	2,707	5,970

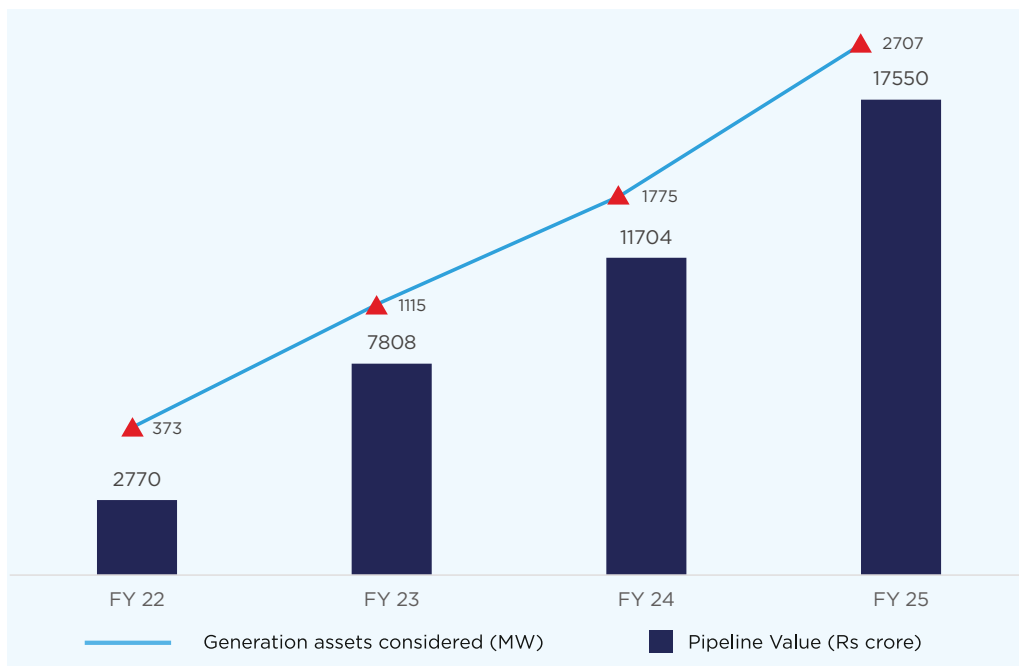
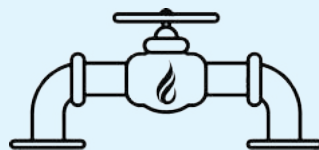


Figure 15: Monetisation pipeline phasing - power generation (Rs crore)

3.6 NATURAL GAS PIPELINES



Summary

8,154 km	25%	Rs 24,462 crore	4%
Assets for monetisation in FY22-25 (km)	Asset planned for monetisation as a % of asset base (FY22-25)	Indicative monetisation value in FY22-25 (Rs crore)	Share in overall NMP in value terms (%)

3.6.1 Potential asset base

The total potential asset base considered are the natural gas pipeline assets managed by the central sector entities. **Natural Gas Pipeline Infrastructure** connects various gas sources to different gas markets to meet the existing/ future natural gas demand of various Power, Fertilizer, CGD and other industries in the Country. The gas pipeline infrastructure has facilitated widespread industrialization and has brought significant socio-economic changes to different parts of the country.

India is the third-largest global energy consumer, after China and the US. India's primary energy requirement is met through a mix of oil and coal, with natural gas forming a 6% share of the energy mix. As part of its environmental agenda, the government aims to increase the share of gas to 15% by 2030. Towards this, expansion of the existing transmission pipeline network and improvement in capacity utilisation of available pipelines become essential. The operational network of natural gas pipelines in India spans about ~16,900 km with a design capacity of ~400 mmscmd.¹ An additional 18,363 km of natural gas pipeline network is approved/under construction stage. Hence, the natural gas grid of India is estimated to expand to ~35,263 km in the next three to five years.

The public sector utilities dominate the pipeline development and operation space. The Government recognizes the need to augment the natural gas transmission infrastructure in the country and has been driving the development of natural gas pipeline connecting all regions of the country which is shaping-up into Natural Gas Grid (NGG).

Over the years, GAIL as a major gas pipeline operator has contributed to the growth and development of natural gas pipeline infrastructure and natural gas market. It has an existing gas pipeline network of 13,389 km with a capacity of 204 MMSCMD.

The table below summarises the total asset base of operational Natural Gas Pipelines of GAIL.

Table 10: Operational Natural Gas Pipelines of GAIL (Common Carrier + Dedicated)

S. No.	Network/ Region#	Length (KM)*
1	Hazira-Vijaipur-Jagdishpur & Gas Rehabilitation and Expansion Project & Dahej-Vijaipur Pipeline Network (HVJ-GREP-DVPL-I)	5,030
2	Dahej-Vijaipur Pipeline (II) & Vijaipur-Dadri Pipeline Network.	1,290
3	Tripura Network	60
4	Cauvery Basin	242
5	Chhainsa-Jhajjar-Hissar Pipeline Network (CJPL)	304
6	Dahej-Uran-Panvel-Dabhol Pipeline Network	935
7	Dadri-Bawana-Nangal Pipeline Network	868
8	Dabhol-Bengaluru Pipeline Network (DBPL)	1,148
9	Gujarat Regional Pipeline Network	663
10	Jagdishpur Haldia & Barauni Guwahati Pipeline Network (JHBDPL)	1,098
11	KG Basin Pipeline Network	889
12	Kochi-Koottanad-Bengaluru-Mangaluru Pipeline Network (KKB MPL)	504
13	Mumbai Regional Pipeline Network	125
14	Dedicated Networks	233
Total Length		13,389

GAIL has been operating at about ~49-52% capacity utilisation levels in recent years. GAIL markets about 25% of its pipeline capacity as common carrier capacity. It has a 100+ customer base of shippers that use its pipeline network on an open-access basis. While the trunk/cross-country pipelines of GAIL do report higher capacity utilisation levels, the overall utilisation is still sub-optimal.

Factors influencing monetisation of the asset class

Established customer relationships: The natural gas pipeline assets are usually backed by long-term customer relationships, ensuring cash flow stability. The market leader GAIL has well established and long-standing relationships with customers across industry segments, including power, fertiliser, city gas distribution companies, etc.

Regulated pricing regime: The natural gas pipelines operate under a regulated pricing regime. The oil regulator Petroleum and Natural Gas Regulatory Board (PNGRB), by tariff regulations, determines the per unit tariff for natural gas pipelines, allowing operators a reasonable post-tax return on capital employed, and remains fixed for its entire economic life. The 'per unit tariff' is determined for the natural gas pipeline over its economic life and is levelised across certain periods.

Policy measures to open up the gas market: India has become one of the fastest-growing natural gas markets globally, led by supportive government policies—aggressive investment plans towards production, import and distribution infrastructure, and measures such as new licences for city gas distribution, raising pipeline tariffs for long-haul pipes, and banning more polluting fuels like fuel oil and pet coke. In November 2020, PNGRB simplified the country’s gas pipeline tariff structure to make fuel more affordable for distant users and attract investment for building gas infrastructure. Further, to usher gas-based economy, a national gas exchange plan is under discussion to bring market-driven pricing in the Indian energy market.

Structures to enable consistent and stable cash flows: The pipeline business’s performance depends on the volume of gas transported. The gas transmission revenues are substantially derived from gas transportation agreements with customers having high dependence on select large customers. Structures, where the central sector agencies provide some backstop arrangements to reduce the counterparty risks, may provide some comfort to investors. This will enable near-term revenue visibility with a minimum guaranteed offtake. Possible arrangements include:

SPV may enter into a pipeline usage agreement (PUA) with the sponsor, whereby the latter could contract a certain capacity of the pipeline for a long term, thus providing assured offtake for a threshold level of throughput

The arrangement could ensure steady cash flows to the SPV in case the actual revenue is lower, either on account of lower gas volume or tariff considerations

3.6.2 Assets considered for monetisation

The assets considered for monetisation during FY 2022-2025 are select gas pipelines with an aggregate length of ~8,154 km, of which 7,928 km are from the existing operational pipeline assets and the rest from pipelines that are expected to become operational during the NMP period.

During FY22, two pipelines with a total length of 2,229 km namely, Dabhol-Bengaluru pipeline (length of 1,414 km & capacity of 16 mmscmd) and Dahej-Uran-Panvel-Dabhol pipeline (length of 815 km & capacity of 20 mmscmd) have been identified for monetisation.

Over the balance NMP period (FY23-25), a total of 5,925 km of pipeline assets have been considered for monetisation (~1554 km in FY 23, ~2073 km in FY 24 and ~2298 km in FY 25). The specific pipelines / bundles would need to be identified corresponding to the years pipeline.

The total assets considered for monetisation (~8154 km) over FY23-25 form around 23% of the aggregate pipeline asset base (total gas pipeline network of ~35,263 km envisaged as part of the Gas Grid).

Monetisation approach

In case of natural gas pipeline assets, the assets considered for monetisation (in kilometres of pipeline) and the indicative monetisation value (Rs crore) over FY 2022-2025 are based on the following:

Step 1 – Asset considered for monetisation.

- Existing assets are shortlisted based on (i) the existing capacity utilisation of the piped network, and (ii) potential demand, especially based on connected regions. Through this methodology, pipeline assets of 7,928 km for monetisation have been identified during FY 2022-2025
- Of the new natural pipelines to be constructed, about 200 km of pipeline assets²³ have been estimated to be monetised over the NMP period. For any new project, at least two years of operational track record has been assumed (to ensure the minimum level of capacity utilisation)

Step 2 – Arriving at the indicative monetisation value

The Enterprise Value (EV) approach (in Rs crore per km) has been considered for estimating indicative value based on available data on pipeline tariff order and assumptions w.r.t. utilisation, peak utilisation, ramp up, tariff and throughput. However, the valuation differs from one pipeline to another. The average value for the purpose of ascertaining monetisation value has been accordingly considered at Rs 3.0 crore per km. The same is indicative only and the actual value realisation is a function of multiple factors intrinsic pipeline utilisation, tariff, assured capacity offtake and transaction structure terms.

A reference transaction available for pipeline valuation is the East West pipeline monetisation (Kakinada to Bharuch) undertaken in the private sector in 2019. The reference valuation of this asset was about Rs. 10 cr / km. The said transaction however had components of captive utilization and assured offtake / revenue arrangements.

3.6.3 Indicative value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 24,462 crore** during FY 2022-2025

²³ This is because the existing assets already include a bulk of the ongoing and under construction projects, which will be operational by FY 2022 or FY 2023

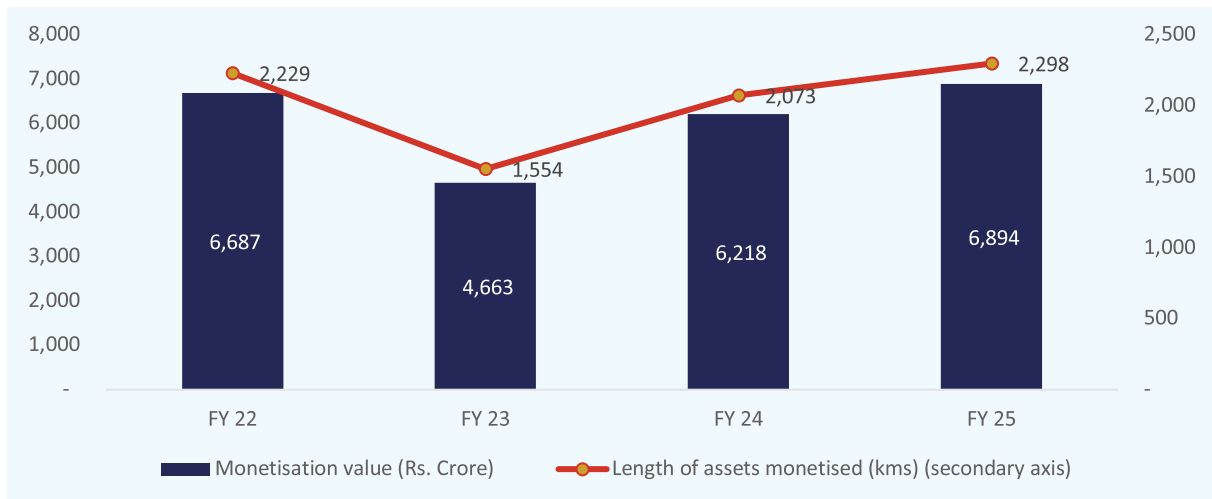


Figure 16: Pipeline phasing – Natural gas pipelines (Rs crore)

3.6.4 Indicative structures for monetisation

Carry-operate-transfer (COT) concession

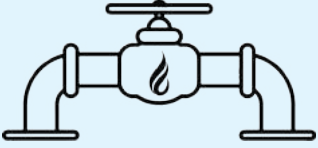
This model entails grant for a long-term PPP concession to utilise operational pipeline capacity through a PPP concession akin to the TOT model, successfully employed by NHAI in the roads sector. Entities can explore this model without creating the pipeline subsidiary or actual transfer of pipeline assets from the balance sheet into a separate SPV. The rights to utilise and market the capacity of the pipeline on a common carrier principle will need to be valued to determine the initial estimated concession value in this option. This structure will require regulatory consultation and approval from the regulator PNGRB to determine regulatory feasibility of grant of concession by GAIL.

Creation of a Pipeline InvIT

In the recent past, InvITs have emerged as a preferred infrastructure financing vehicle to attract investments, especially by foreign institutional investors. In the natural gas transmission sector, there is a precedence of InvIT-based structure, when India Infrastructure Trust, an infrastructure investment trust sponsored by Brookfield Asset Management (BAM), took over 100% ownership of 1,375 km long Kakinada to Bharuch natural gas pipeline from a private sponsor for a period of 20 years against an upfront consideration.

Under an InvIT structure, operational pipeline assets or revenue rights on the assets can be parked directly or through an SPV under an InvIT. InvIT (the trust) can be owned by the asset owner CPSE as the 'Sponsor' with investors holding a partial stake. An InvIT structure involves high standards of strong corporate governance through the appointment of an investment manager, project manager and trustee.

3.7 PETROLEUM, PETROLEUM PRODUCT PIPELINES & OTHER ASSETS

 Summary			
3,930 km	23%	~Rs 22,503 crore	4%
Assets for monetisation over FY22 to FY25 (km) (Product + LPG pipeline)	Asset monetised as % of asset base (FY22-25) (Product + LPG pipeline)	Value in FY22-25 (Rs crore)	Share in overall NMP in value terms (%)
Asset Classes:	<ul style="list-style-type: none"> LPG Pipelines Petroleum product pipelines Hydrogen generation plants ESG assets (Effluent treatment plants, Sulphur recovery units, Flare gas recovery systems) 		

3.7.1 Potential asset base

The total potential asset base considered are the operational product and LPG pipelines operated by the central sector entities, namely Indian Oil Corporation Ltd (IOCL), Hindustan Petroleum Corporation Ltd (HPCL) and Gas Authority of India Ltd (GAIL). The operational product and LPG pipelines in India are ~17,432 km, including (i) 43 product pipelines extending to 14,063 km, and (ii) 6 LPG pipelines extending to 3,369 km.

In this segment, IOCL is the key central sector entity, as it has about 52% share in product pipelines (by length) and operates a network of more than 14,600 km long crude oil, petroleum product and gas pipelines with a throughput capacity of 94.42 mmtpa of oil and 21.69 mmscmd of gas. Other entities that also operate product pipelines are BPCL, HPCL and GAIL. The bulk of the pipelines have utilisation levels exceeding 100%, ensuring a strong revenue visibility. Around 45% of the total product pipeline length (~6,292 km) reported utilisation levels above 100%; another 21% of the pipeline network with utilisation levels of between 80-100%.

Factors influencing monetisation of the asset class

High utilisation levels and counterparty risk profile ensure stable cash flows: The bulk of the crude pipelines network has a capacity utilisation exceeding 100%. Almost 45% of the total pipeline network reports capacity utilisation of more than 100%. Another 21% of the total network reported a capacity utilisation between 80% and 100%. The utilisation levels are similar in case of LPG pipelines with 42% of the network (in km) reporting a capacity of 100% and above.

Regulated pricing regime: Similar to the natural gas pipelines, PNGRB grants the authorisation for the development of petroleum and petroleum product pipelines. The product pipelines operate under a regulated pricing regime. The tariff of Petroleum and Petroleum Product Pipelines (other than those awarded through bidding process) is determined under PNGRB (determination of Petroleum and Petroleum Products Pipeline Transportation Tariff) Regulations, 2010. According to these regulations, the transportation tariff for such pipelines is determined by benchmarking the same against an alternate transportation mode (i.e. rail) at the level of 75% on a full train load basis for equivalent rail distance, except for LPG where 100% parity with rail tariff is allowed.

3.7.2 Assets considered for monetisation

The assets considered for monetisation during FY 2022-2025 are petroleum product / LPG pipelines of ~3,930 km. Out of this, ~3,196 km are product pipeline assets and ~733 km are LPG pipeline assets.

HPCL's, Mangalore - Hassan pipeline (LPG pipeline) has been identified for monetisation during FY 23. Other assets for monetisation from HPCL for subsequent years in NMP will be identified.

The total pipeline assets identified for monetisation under the product pipeline (3,196 km) and LPG pipeline (734 km) assets category as a percentage of total respective asset base (product pipelines of 14,063 km and LPG pipelines of 3,369 km) are 23% and 22%, respectively.

Besides the pipeline assets above, other asset classes including 2 Hydrogen Generation plants at the Gujarat Refinery of IOCL have been identified for monetisation over FY22 and FY23 with an estimated indicative monetisation value of Rs. 1,200 crore. Other asset classes from IOCL include ESG assets (effluent treatment plants, Sulphur recovery units, Flare gas recovery systems) in a phased manner over the NMP period with an estimated indicative monetisation value of Rs. 8,000 - 10,000 crores.

Table 11: Phasing of assets identified for monetisation

S.No.	Asset type	FY22	FY23	FY24	FY25	Total
1	Petroleum product pipelines (km)	755	629	906	906	3,196
2	LPG pipelines (km)	-	141	296	296	733
3	Hydrogen generation plants (nos.)	1	1	-	-	2
4	ESG assets*	Not available	Not available	Not available	Not available	Not available

*Details of ESG assets to be monetised are available with the respective line ministries

Approach to monetisation

In case of product and LPG pipeline assets, the assets considered for monetisation (in kilometres of pipeline) and the indicative monetisation value (Rs crore) over FY 2022-2025 are arrived through following steps:

Step 1 – Asset considered for monetisation

- The assets for monetisation have been shortlisted based on the existing capacity utilisation of the piped network. The pipelines with the capacity utilisation of 100% and above have been considered. However, the public sector agency may bundle some of the high utilisation assets with moderate and low utilisation assets to ensure better risk transfer
- Out of the overall asset base of product pipeline assets of 14,063 km, ~2,643 km of pipeline assets have been considered for monetisation over FY 2022-2025. New product pipeline assets (including under construction pipelines and projects currently under preparation stage) totalling ~554 km is envisaged to be monetised over the same period
- Similarly, out of the overall asset base of LPG pipeline assets of 3,369 km, ~734 km of assets have been considered for monetisation over FY 2022-2025
- Based on this process, a total of 3,930 km of petroleum product and LPG pipeline assets have been identified for monetisation during FY 2022-2025

Step 2 – Arriving at the indicative monetisation value

- **Hydrogen Units & ESG assets:** Indicative monetisation value for these assets has been taken based on information on monetisation value received from the ministry. Based on the range provided by the ministry of Rs. 8,000 – 10,000 crores, Rs. 8,000 crore has been considered divided equally over the NMP period for ESG assets which will be monetised as core assets. For Hydrogen generation Plants, Rs. 1,200 crores divided equally over FY22 & 23, has been taken as the indicative monetisation value based on information provided by the ministry.

- Product pipeline assets:** EV approach has been adopted to determine the indicative monetisation value for pipeline assets. The NPV of the operating profit across pipeline assets has been taken as the basis for arriving at indicative monetisation value. The operating profit has been estimated across two steps: (i) Estimation of tariff based on PNGRB approved rates in NPV terms across fixed (Rs 0.1 per MT) + variable component (Rs 10 per MT per km) for recent pipeline transactions (ii) Operating margin factor of 65% assumed on the above tariff to estimate the NPV of operating profit. The above figures are indicative in nature and the actual value realisation is a function of multiple factors including intrinsic pipeline utilisation, tariff, assured offtake and transaction structure.
- LPG pipeline assets:** EV approach has been adopted to determine the indicative monetisation value for LPG pipeline assets. As in the case of product pipeline assets, the NPV of the operating profit across LPG pipeline assets has been taken as the basis for arriving at indicative monetisation value. The NPV of tariff of Rs 12 per MT per km (in line with tariffs for select pipeline transactions) and an operating margin of 65% has been assumed for estimating the indicative value. The same is indicative only and the actual value realisation is a function of multiple factors including intrinsic pipeline utilisation, tariff, assured offtake and transaction structure.

3.7.3 Value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 22,503 crore** for FY 2022-2025.

Table 12: Phasing of monetisation value - Petroleum product / LPG pipeline & other assets (Rs cr)

Sl no.	Asset type	FY22	FY23	FY24	FY25	Total
1	Petroleum product pipelines	2,697	1,873	4,164	4,164	12,898
2	LPG pipelines	0	40	183	183	405
3	Hydrogen generation plants	600	600	-	-	1,200
4	ESG assets	2,000	2,000	2,000	2,000	8,000
TOTAL		5,297	4,513	6,347	6,347	22,503

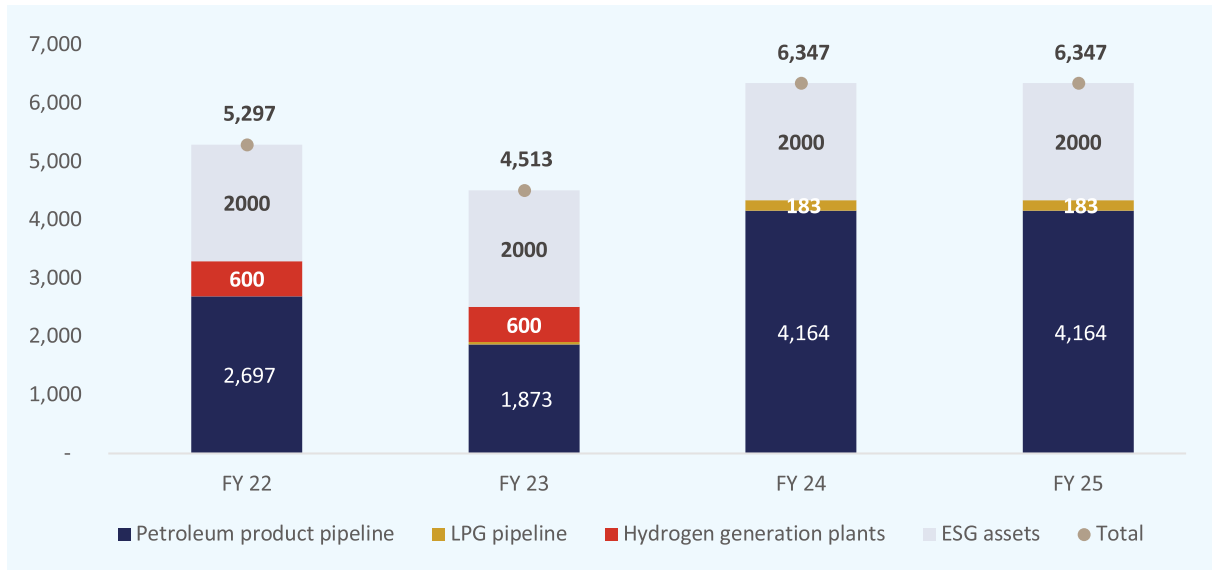


Figure 17: Pipeline phasing – Petroleum product / LPG pipeline & other assets (Rs crore)

3.8 WAREHOUSING ASSETS



Summary

~210 lakh metric tonne (LMT) – 175 LMT - FCI – 35 LMT-CWC	39%	Rs 28,900 crore	5%
Assets planned for monetisation in FY 2022 to 2025	Asset monetised as % of asset base (FY 2022 to 2025)	Indicative Monetisation value in FY 2022-2025	Share in overall NMP in value terms

3.8.1 Potential asset base

The potential asset base considered for monetisation under warehousing assets consists of storage depots, warehouses under the central sector agencies, Food Corporation of India (FCI) and Central Warehousing Corporation (CWC), with both entities operating under the aegis of Department of Food & Public Distribution. Existing storage capacity with FCI and other agencies for central pool stocks as on April 1, 2020 is 755 Lakh Metric Tonne (LMT). Out of this, 412 LMT is available with FCI and 343 LMT with the state agencies. FCI's storage capacity of 412 LMT is in turn 30% owned and 70% hired (through CWC, SWCs, and the private sector). CWC operates 422 warehouses with a total operational storage capacity of 109.72 LMT²⁴. This includes custom bonded warehouses, container freight stations, inland clearance depots, air cargo complexes, etc. The potential assets for monetisation are owned warehouses of FCI and CWC.

The aggregate storage capacity with the key central sector agencies – FCI and CWC – is estimated to be ~521 LMT (~412 LMT with FCI & 109 LMT with CWC). Out of the FCI available asset base, FCI owned storage infrastructure i.e. about 123 LMT is amenable for monetisation as the facilities have a strong potential for augmentation and capacity expansion. CWC's entire capacity of ~110 LMT is amenable for monetisation as it has a revenue stream (in form of storage charges from FCI & other users) and also a strong commercial potential for augmentation, capacity expansion and O&M.

The public distribution system (PDS) is an integral part of India's food security system, operated by the nodal Ministry of Consumer Affairs, Food, and Public Distribution. The central government, through FCI, has assumed the responsibility for procurement, storage, transportation and bulk allocation of food grains to the state governments, for eventual distribution to beneficiaries through the PDS. FCI manages the functions of procurement

²⁴ <https://dfpd.gov.in/cwc.htm>

under its minimum support price (MSP) operations for price support, bulk storage, and transportation of food grains and other notified commodities. These stocks eventually are distributed to the beneficiary consumers at the PDS shops through various welfare schemes of the government.

Hence, owing to the policy mandate of MSP operations, there is a continual need to augment the storage capacity. In this context, adequate storage infrastructure is of paramount importance owing to the requirement to hold huge inventories of food grains over a significant period of time. Adequate scientific storage is, hence, a pre-requisite to fulfil the policy objectives assigned to FCI, for which it has a country-wide network of strategically located warehouses and storage depots.

India needs more bulk handling facilities than it currently has. Many of FCI's old conventional storage warehouses and depots (covered-and-plinth [CAP] type storage) have existed for several years and are located in proximity to production hubs. There is significant potential in improving the infrastructure and reducing the cost of storage and handling losses by tapping private sector efficiencies in operations and management. The continual need to augment the storage infrastructure necessitates leveraging the existing storage warehouses and depots to tap private long-term institutional capital by employing structured investment vehicles and brownfield PPP models so as to ease the burden on budgetary support requirement.

Factors influencing monetisation of the asset class

Growth in e-commerce space: The expanding e-commerce space offers a new set of opportunities for the warehousing and logistics players. FCI and CWC have a sizeable number of underutilised warehouses near urban centres. Considering the potential growth in demand for warehouses due to e-commerce growth, monetisation of such assets is expected to bring in significant value from the private sector.

Established track record of agencies in private sector engagement: FCI and CWC have an established track record in dealing with private sector players over the years. Hence, the institutional understanding as well as the regulatory framework for engagement is successfully in place in these firms. One of the landmark private sector engagement initiatives is the Private Entrepreneurs Guarantee (PEG) Scheme for augmenting the storage capacity of FCI in PPP mode. Under this scheme, storage capacity is created by private parties under an assured capacity offtake arrangement by FCI. A total of 153 LMT of storage capacity has been initiated under the scheme as of February 2021.

Value maximisation: Most of the warehouses that were planned and constructed between 1980 and 1990 are located in prime locations and in proximity to city centres that have now become part of the urban landscape. Thus, these land parcels can be leveraged for augmenting the quality as well as capacity of storage infrastructure. The private sector can be mandated to undertake the task of redevelopment/ refurbishment of assets while ensuring minimal operational disruption and incremental cost for the authority.

Capacity rationalisation and operational efficiencies: Peak stock requirement during the normal procurement season for central pool food grains in the country is ~650 lakh MT. Against this, the total storage capacity available with FCI, CWC, and the state agencies (both owned and hired capacity, including CAP) is 875.09 lakh MT at a pan-India level. Thus, it is imperative to optimally rationalise the existing capacity, while ensuring high operational efficiency by leveraging the strength of specialised firms.

Approach to monetisation

In case of warehouses, the assets considered for monetisation have been taken based on preliminary pipeline information provided by the Department of Food & Public distribution (DoFPD). The pipeline presently consists of storage infrastructure assets with need of significant augmentation in infrastructure and rehabilitation. Accordingly, the key project interventions have been identified by the line ministry. Hence the monetisation value has been considered in form of private sector investment towards augmentation of these assets.

The indicative monetisation value has been arrived at based on the 'Capex approach'. The capex for all the projects has been based on high level estimates provided by the DoFPD as part of the pipeline. The cost assumptions are as follows: (i) capex per LMT for silos has been estimated at Rs 100 crore per LMT, (ii) cost per cold storage facility has been considered at Rs 40 crore per location.

Indicative Monetisation Value considered at this stage is only a preliminary estimate based on high level asset information and thumb rule estimates.

Besides, storage infrastructure, DoFPD has also identified land parcels and vacant land for monetisation however the same has not been considered under NMP as they will be monetised as non-core assets.

3.8.2 Assets considered for monetisation

The assets considered for monetisation during FY 2022 to 2025 have an aggregate capacity of ~210 LMT.

The key asset classes under asset monetisation include (i) development of 175 LMT of wheat silos by FCI, (ii) development of 35 LMT silos at 45 locations by CWC, (iii) development of cold storage facilities in 190 locations by CWC and (iv) development of 1.16 LMT storage capacity by Central Railside Warehouse Company Ltd (CRWCL).

The DoFPD is also in process of developing pipeline of other brownfield assets and finalisation of monetisation mechanisms other than development of Silos and cold storages.

The assets of FCI & CWC considered for monetisation aggregating to ~210 LMT are about 39% of the existing storage capacity available with FCI & CWC i.e. 512 LMT (~412 LMT with FCI & 109 LMT with CWC).

3.8.3 Indicative Value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 28,900 crore** for FY 2022 to 2025, and phased as follows:

Table 13: Phasing of monetisation value - Warehousing assets (Rs cr)

S.No.	Asset type	FY22	FY23	FY24	FY25	Total
1	Storage Infrastructure-FCI	3,500	5,250	5,250	3,500	17,500
2	Storage Infrastructure-CWC	2,280	3,420	3,420	2,280	11,400
TOTAL		5,780	8,670	8,670	5,780	28,900

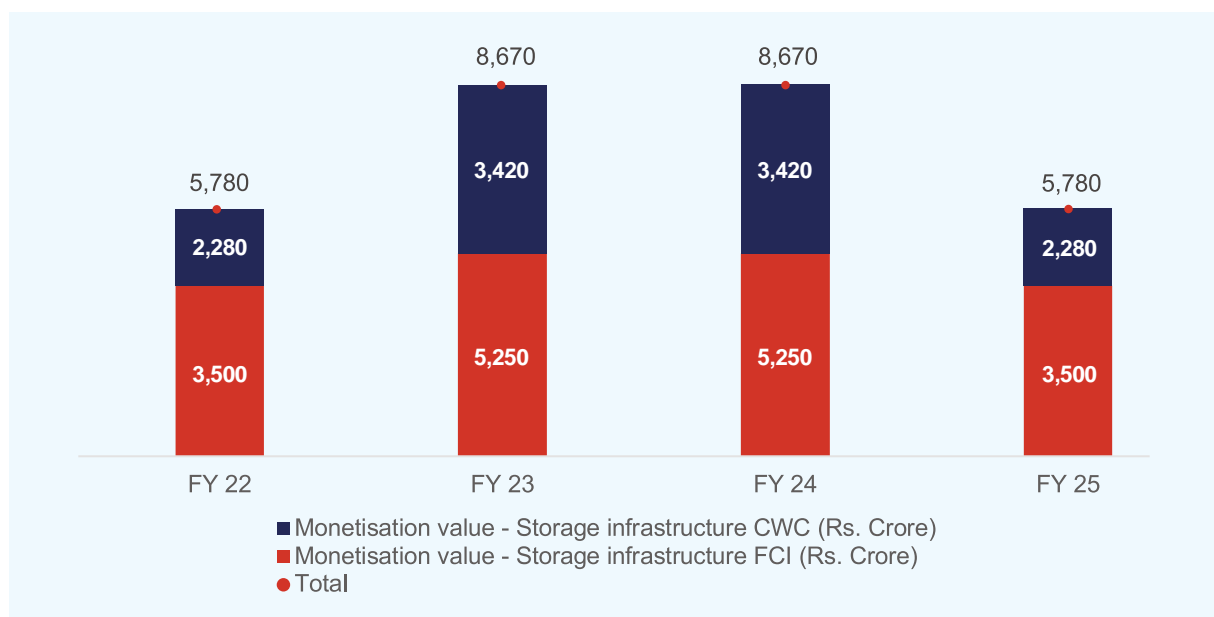


Figure 18: Monetisation value - Warehousing (Rs crore)

3.8.4 Indicative structures

In recent years, alternative means of monetising operating projects have evolved in India, wherein significant interest has been showcased by potential private investors. Several options have been successfully implemented depending on the specific requirement of shareholders. However, the success of such monetisation would depend on the location selected, keeping in mind the interest/ appetite of investors, regulatory requirements, shareholder requirements, type of contracts and governance/ control sought by investors in operating projects, etc. In view of these factors, the following options can be considered:

1. *Monetisation via the infrastructure investment trust (InvIT) route*
2. *Suitable PPP models akin to TOT (toll-operate-transfer) model adopted by NHAI for highways suitably customised for brownfield warehousing assets and OMD based model for assets where augmentation and capacity expansion is envisaged.*

Monetisation Models for warehousing assets

Multiple structures to monetisation have been evaluated, including InvIT, OMD model. A typical structure of transaction is as follows:

InvIT-based monetisation

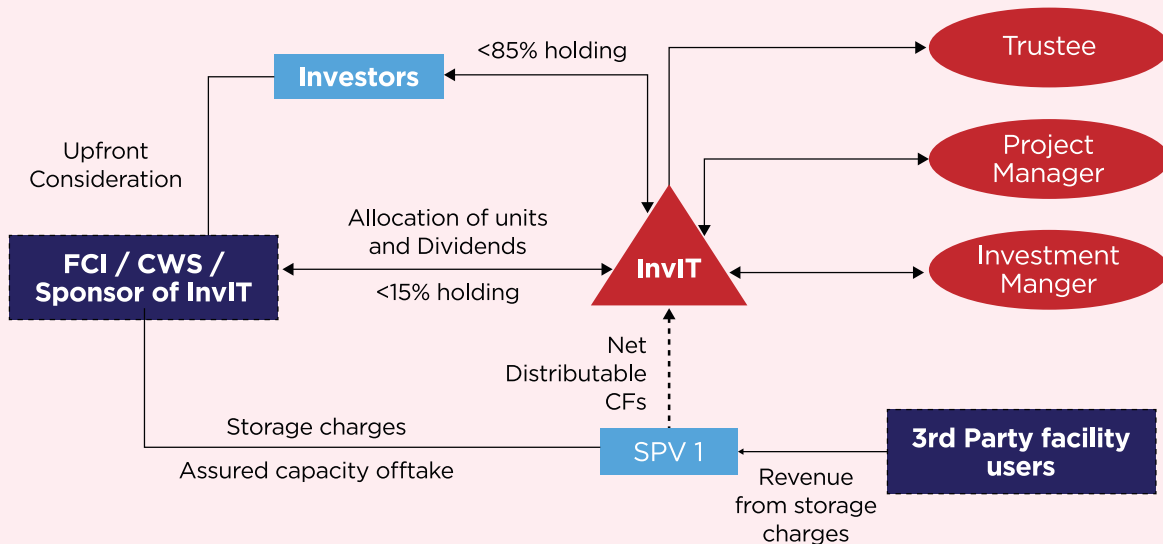
InvIT-based monetisation of SPV (north/ west/ east zone-wise warehousing asset clusters may be formed) with long-term contracted rights to earn storage charges from FCI and other third party users. This structure may entail creating an SPV with requisite revenue rights. Independent investment manager and specialist professional project managers are key to this InvIT based monetisation.

Tenure: 25-30 years with transfer back to the Authority / Sponsor at the end

Other features:

- Assured storage capacity for FCI's captive use and storage needs
- Professional management and key performance indicators (KPIs; handling losses, etc)
- FCI and / or CWC could be co-sponsors of the InvIT
- Since investors look at scale, region-wise clusters may be formed. InvIT-based monetisation of SPV (north/ west/ east zone-wise) with long-term contracted rights to earn storage charges from FCI

Indicative transaction structure

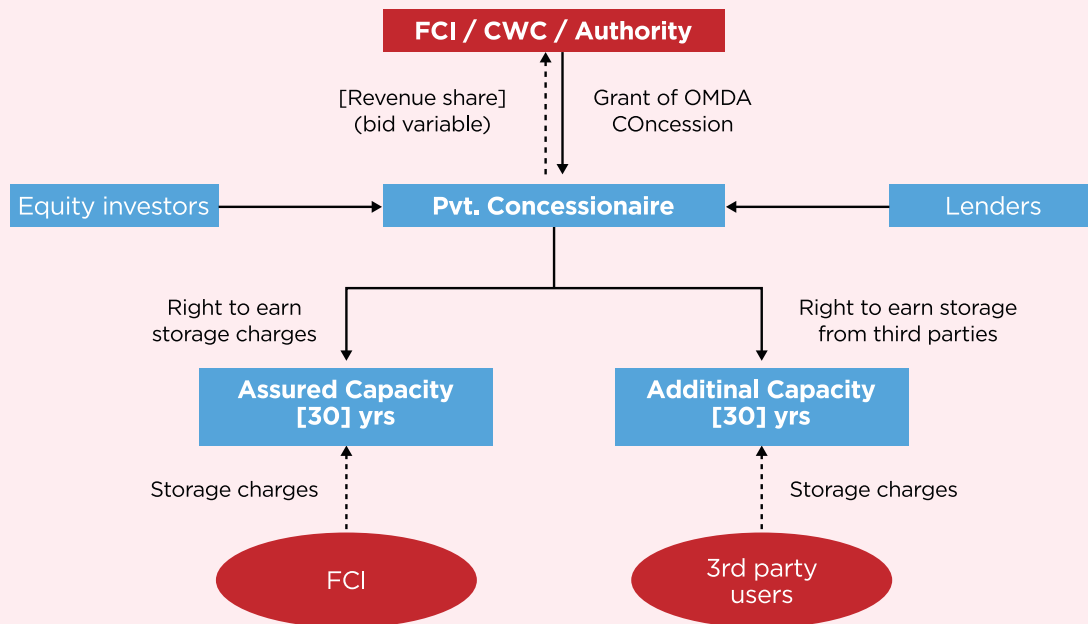


Operate, Manage and Develop (OMD) based PPP model



- OMD for brownfield warehousing assets with rights to add additional capacity/ augment existing infrastructure and at vacant land
- **Tenure:** 25-30 years with transfer at the end of the concession

- **Revenue model:** Storage and handling charges paid by FCI (assured capacity) and third parties (surplus capacity)
- **Other features:** Strict KPIs (handling losses, etc) and mandatory investments may be specified
- **Benefits to Investors:**
 - Strategic locations: surplus production areas or in the consumption areas
 - Presence of trunk infrastructure
 - Reduced gestational time
 - Professional management and investment in mechanisation

Indicative transaction structure for an OMDA-based model for warehouse monetisation



3.9 MINING ASSETS

 Coal Mining Assets-Summary		
160 projects	Rs 28,747 crore	5%
Number of identified projects for monetisation over FY22-25	Indicative monetisation value over FY22-25 period	Share in overall NMP in value terms
 Mineral Mining Assets-Summary		
761 blocks over FY22-25	Fresh mineral blocks G4 level Composite License, G2 / G3 level Mining Lease Non-working mines ML applications under Section IOA(2B)	Auctioned by : Respective State Governments Value : Not assessed

3.9.1 Potential asset base

Coal Mining Assets

The total inventory of coal resources in India (up to a depth of 1,200 metre) was estimated²⁵ at about 344 billion tonne as per GSI as on April 1, 2020. As per CIL (Coal India Limited) demand for coal was estimated at 1,000 MT for FY 2020, whereas the indigenous availability was estimated at 811 MT. The gap of 189 MT was projected to be met through imports.

Factors influencing monetisation of the asset class

Strong policy push by the government to open up the sector – The push towards reducing dependence on coal imports was one of the major policy initiatives under the pioneer ‘Atmanirbhar Bharat’ initiative by the government. The government’s recent initiatives towards opening up commercial mining to the private sector in India remains a landmark reform for asset monetisation. The Mineral Laws (Amendment)

²⁵ Prepared by the Geological Survey of India on the basis of resources estimated by CMPDI, MECL, GSI, and SCCL

Act, 2020²⁶, is expected to bring in higher inventory of assets towards auction, and increase participation of the private sector by removal of end-user restriction on coal assets for the private sector. It also amends the methodology for auction of coal and lignite mines/blocks for sale of coal/lignite on a revenue-sharing basis. The sector is also open to global investors as 100% FDI (Foreign Direct Investment) is allowed for the coal and mining sector.

Streamlining the approval process - The government's recent launch of the Single Window Clearance portal for coal mining is expected to streamline the approval process and reduce the lead time to starting commercial exploration of coal assets. It is a unified platform that facilitates grant of clearances and approvals required for starting a coal mine in India.

Success of the first auction - Pursuant to the opening of the commercial coal mining sector, the first auction was held in June 2020. Out of the 38 mines put on auction, financial bids were received for 19 mines²⁷. These assets saw a fair bit of competition and high premium (despite uncertainties due to the Covid-19 event and related lockdown). The highest premium was 66.75%, whereas the average premium was 29%. States are also expected to raise revenue of Rs 6,656 crore annually through the auction.

Mineral Mining Assets

Auction of mineral blocks is undertaken by the respective State Governments. Once a mineral block is auctioned, various clearances such as forest clearance, environmental clearance and other statutory clearances are obtained prior to commencement of production. Upon commencement of production, the royalty and auction premium on the mineral produced and dispatched typically constitutes the income from the mine. However, royalty and auction premium are paid to the Government as and when the mineral is removed from the leased area. Hence, the auction of mineral blocks may not yield upfront lump sum proceeds. The proceeds / revenues accrue to the State governments and is spread throughout the mining lease period.

Ministry of Mines in 2015 amended the MMDR Act, 1957 which introduced auction regime to bring transparency in allocation of mineral blocks. Besides, the Ministry has initiated a number of reforms pertaining to auction of mining blocks as a result of which a large number of mineral blocks will be available for auction during the coming years.

26 Reforms to the Coal Mines (Special Provisions) Act, 2015, and the Mines and Minerals (Development and Regulation) Act, 1957

27 Out of these successfully auctioned 19 mines, 11 are opencast, five are underground mines, and the remaining three are a mix of underground and opencast mines. These mines are spread over five states - Madhya Pradesh, Chhattisgarh, Odisha, Jharkhand, and Maharashtra - and have consolidated peak rated capacity of 51 MT per annum.

3.9.2 Assets considered for monetisation

Ministry of Coal

The Ministry has identified more than 160 projects for private-sector participation towards improving efficiency as well as scaling up production. The projects are expected to be implemented over the next 2-3 years and include the following:

- ▶ Mine developer and operator (MDO) model - 17 projects with total capacity of ~178 MTY (15 projects of CIL and 2 projects of NLCIL)
- ▶ Establishment of 3 washeries (BOO - Build, Own, Operate model)
- ▶ 1 Coal gasification plant (BOO - Build, Own, Operate model)
- ▶ 35 identified first-mile connectivity projects for building coal silos/ mechanised loading
- ▶ Operationalisation of 4 discontinued / abandoned projects
- ▶ Commercial auction of mines²⁸

Ministry of Mines

About 761 mineral blocks are expected to be put on auction over FY22-FY25 period. Year wise mineral blocks asset phasing is summarised in table below:

Table 14: Phasing of Mineral Blocks

S.No.	Category of Mineral blocks	FY21–22	FY22–23	FY23–24	FY24–25
1	Fresh mineral blocks ready to be auctioned	49	—	—	—
2	50 blocks of G4 level for Composite License or CL and 12 blocks of G2 / G3 level for Mining Lease or ML	62 (50 CL+12 ML)	62 (50 CL+12 ML)	—	—
3	Non-working expired mines (~50% of total 104 i.e. 52)	18 (Working expired mines which have not been auctioned)	26	26	—
4	Mines expiring till 2024	9	34	53	29
5	ML applications under Section 10A(2B) (Total of 393 Nos.)	—	131	131	131
Total		138	253	210	160

²⁸ CMDPI (subsidiary of CIL) plans to explore/discover approximately five mines every quarter to the pool of coal blocks available for auction. Accordingly, around 80 coal blocks are expected to be added in the next 4 years. Valuation of the commercial auction has not been considered as it depends on the success of the same.

For the above mineral blocks, monetisation value has not been determined. The premium amount that may accrue to auctioning authorities typically depends upon the quality and quantity of the resources, and the market prices during the lease period. Reserve positions of many mines are not known at present and are yet to be ascertained by the State Governments. Therefore, the information regarding estimated proceeds from auction of such mineral blocks can be discovered only after the auction process is completed and mining has commenced.

Approach to monetisation

The approach to monetisation has been anchored on the project assets identified by the line ministries for monetisation. The value has been phased out for the period FY 2022 to FY 2025 based on the year in which the project is planned to be awarded. The actual capex may be phased out across multiple years.

3.9.3 Indicative value of assets and phasing

The total indicative value of assets considered for monetisation is estimated at **Rs 28,747 crore** over FY 2022-25. About Rs. 22,625 crore of the assets are expected to be tendered out during FY 2022. However, the actual capex will be phased out across the next three years. The Monetisation value in the pipeline has been accordingly considered based on actual capex phasing assumed over 4-5 years, as set out in the figure below.

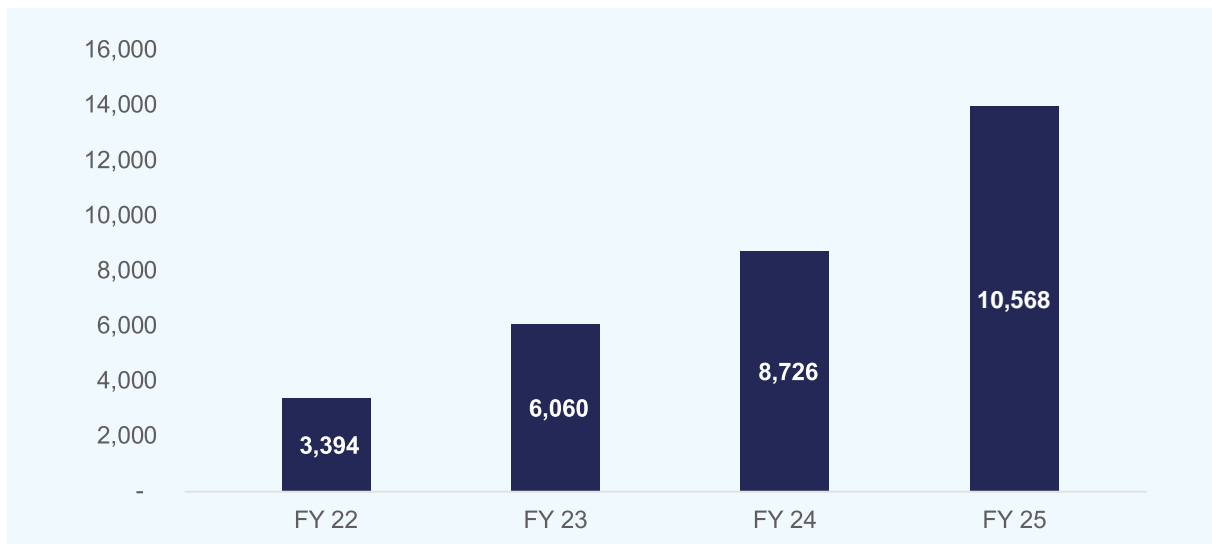



Figure 19: Phasing of Monetisation pipeline – coal mining (Rs crore)

3.10 AIRPORTS

 Summary			
25	18%	Rs 20,782 crore	4%
Number of AAI airports considered for monetisation	Assets planned for monetisation as % of existing AAI airports	Indicative Monetisation Value over FY22-25	Share in overall NMP in value terms (%)

3.10.1 Potential Asset Base

India has seen massive growth in the airport sector with investments from both the government and private sector. The country has become the third-largest domestic civil aviation market in the world and has immense potential to grow further. This calls for higher investment to build new airports and augment the existing airport infrastructure to support future growth.

The total Potential Asset Base considered includes airports under Airports Authority of India (AAI) and its joint venture (JVs)²⁹ under the aegis of the Ministry of Civil Aviation. AAI is a statutory body constituted by an Act of Parliament with the responsibility of creating, upgrading, maintaining, and managing civil aviation infrastructure both on the ground and air space in the country. AAI manages 137 airports³⁰, including 24 international airports, 10 customs airports, and 103 domestic airports. In FY 2020, AAI airports handled ~160 million passengers (international: 22 million and domestic: 138 million), which accounted for ~35% of the total passenger traffic handled by airports in India. Over the years, AAI has made significant strides in tapping private sector efficiencies in development, operations and management of airports which has resulted in about 65% of passenger traffic throughput being managed by private airports in India. PPPs in major airports such as Delhi, Mumbai have contributed significantly in pushing the aviation sector ahead.

29 Assets held via other subsidiaries or JVs of AAI or entities directly under the purview of MoCA (as applicable) have not been included. However these assets are proposed to be included as part of NMP in due course as necessary.

30 <https://www.aai.aero/en/corporate/organization#:~:text=During%20the%20year%202019%2D20,International%20452.46%20%26%20Domestic%20456.85%5D>

Factors influencing monetisation of asset classes:

Airport monetisation through brownfield PPP models has been boosted in India by the success stories of asset monetisation of four airports – Mumbai, Delhi, Hyderabad, and Bengaluru. This is primarily in terms of improved user experience and increase in value for all stakeholders. During FY 2020-21, 6 AAI airports were leased out to private sector through PPP based model, namely, Ahmedabad, Lucknow, Mangalore, Guwahati, Jaipur and Thiruvananthapuram and the assets are in process of getting handed over to the operator. Further, this is backed by the presence of a strong regulatory and contractual framework which has helped retain investor confidence.

Policy enablers – Government initiatives such as the introduction of the Airports Economic Regulatory Authority (AERA) of India (Amendment) Bill, 2021, in the Lok Sabha proposing amendment of the definition of ‘major airport’.

- Currently, 25 AAI airports have been considered for asset monetisation. Given their nascent stage of actual traffic and expected ramp-up period to achieve a minimum scale of operations, a strategy of bundling such airports with smaller airports is being explored.
- In order to enable bundling of airports as a bidding strategy, a bill for Amendment in AERA Act has been introduced during March 2021 in Lok Sabha with an intent to empower AERA to determine tariff for a ‘group of airports’.
- **Government vision for the sector** – The NIP has provided for capex of Rs ~90,000 crore over FY 2020-25 to scale up passenger handling capacity. For this, a number of projects for construction of new terminals, runways, taxiways, and parking facilities are being undertaken. Several airports are being developed under the Regional Connectivity Scheme-*Ude Desh Ka Aam Nagrik* (RCS-UDAN), and terminal buildings are being expanded to improve amenities and passenger handling capacity. Development of the airport sector through PPP is one of the key areas of focus identified in the government’s NIP 2020.

3.10.2 Assets considered for monetisation

Twenty-five major AAI airports are considered for monetisation over FY 2022-25. The larger objective is to focus on monetisation of these 25 airports, while bundling of smaller airports may be explored based on market testing of transactions and investor feedback.

During FY 22, AAI has identified 6 airports in Tier 2/Tier 3 cities namely, Amritsar, Varanasi, Bhubaneswar, Indore, Raipur and Trichy for the purpose of monetisation through brownfield PPP models. To ensure commensurate development of non-profitable airports along with the profitable airports with the help of private sector investment and participation, pairing /clubbing of smaller airports with each of the six bigger airports and leasing out as a package is being explored.

Further, divestment of AAI’s residual stake in four airport JVs has also been considered under the monetisation pipeline. This includes the private sector operated airports in Mumbai (26% stake), Delhi (26% stake), Hyderabad (13% stake), and Bangalore (13% stake).

The total airport assets for monetisation account for ~18% of the total airport assets under management of AAI.

Approach to monetisation:

Step 1 – Asset considered for monetisation: It includes a combination of large and small airports, in line with the current monetisation plans of the Ministry of Civil Aviation.

Airports with a threshold level of traffic: Scale is an important factor in determining investor interest. Hence, airports having annual traffic above the threshold of ~0.4 million passengers (in FY 2019 and 2020) have been considered.

Airports with a sizeable ongoing/proposed capex plan as per the NIP have been considered for monetisation. Such projects can be financed via the PPP mode.

Step 2 – Arriving at the indicative monetisation value

The ‘Capex approach’ has been considered for arriving at the Indicative Monetisation Value. In the absence of availability of airport-wise capex, a normative assumption of Rs 130 crore per million incremental passenger capacity (for moderate sized airports) and Rs. 200 crore (for larger airports i.e. FY 19 annual passenger throughput of more than 1 million) per million incremental passenger capacity has been considered. This is in line with the capex per million passengers for select projects considered under the NIP.

A ‘Market approach’ has been adopted for determining indicative valuation of AAI stake in private JV airports. As per secondary sources and estimates based on recent transactions involving sale of stake in Indian airports, the total indicative value of AAI’s residual stake in the above-mentioned four JVs has been tentatively taken at ~Rs 10,000 crore³¹ for inclusion in the pipeline. The valuation of AAI stake in JV airports is only an indicative high level value and the actual price discovery will be made from the market transaction. The actual realisation will depend on multiple factors such as transaction timing, market conditions, investor appetite and transaction terms.

3.10.3 Indicative Monetisation Value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 20,782 crore** for FY 2022-25.

Out of this **Rs. 10,000 crore** of monetisation value has been tentatively considered on account of divestment of AAI stake in private JV airports. The same has been phased out equally over FY22 and FY23. It may be noted that the actual realisation from AAI stake sale will depend on multiple factors such as transaction timing, market conditions, investor appetite and transaction terms.

³¹ The values are indicative in nature. While the initial estimates pegged the value at ~Rs 16,000 crore, a lower estimate has been taken considering the adverse impact of Covid-19 and related travel restrictions

The remaining pipeline is contributed by estimated investment towards the augmentation of 25 airports identified for monetisation. Based on assumptions explained above, the total estimated capex towards the 25 airports is estimated to be **Rs.13,945 crore**. However, the actual investment towards the augmentation will be phased out over 2-3 year period and in certain cases in phases. Since the same cannot be reasonably determined at this point in time, for the purpose of NMP, the actual investment has been assumed to be phased out over 3 year period from the target year of award. Hence, during the NMP period of FY22-25, monetisation value of **Rs. 10,782 crore** has been considered on account of estimated capex towards identified airports. The phasing considered for capex towards identified airports is as per table below:

Table 15: Assumed phasing considered for capex of identified airports

Parameter	FY 2022	FY 2023	FY 2024	FY 2025
Phasing of 6 airports with target award in FY22	720	1,440	1,440	—
Phasing of 8 airports with target award in FY23	—	859	1,718	1,718
Phasing of 6 airports with target award in FY24	—	—	839	1,677
Phasing of 5 airports with target award in FY25	—	—	—	371
Total	720	2,299	3,996	3,767

It may be noted that under PPP based mechanisms, based on final transaction structure for the projects, there could be additional revenue streams to AAI as an authority such as passenger fees, upfront premium or any other charges to authority. The same have not been factored in the indicative monetisation value.

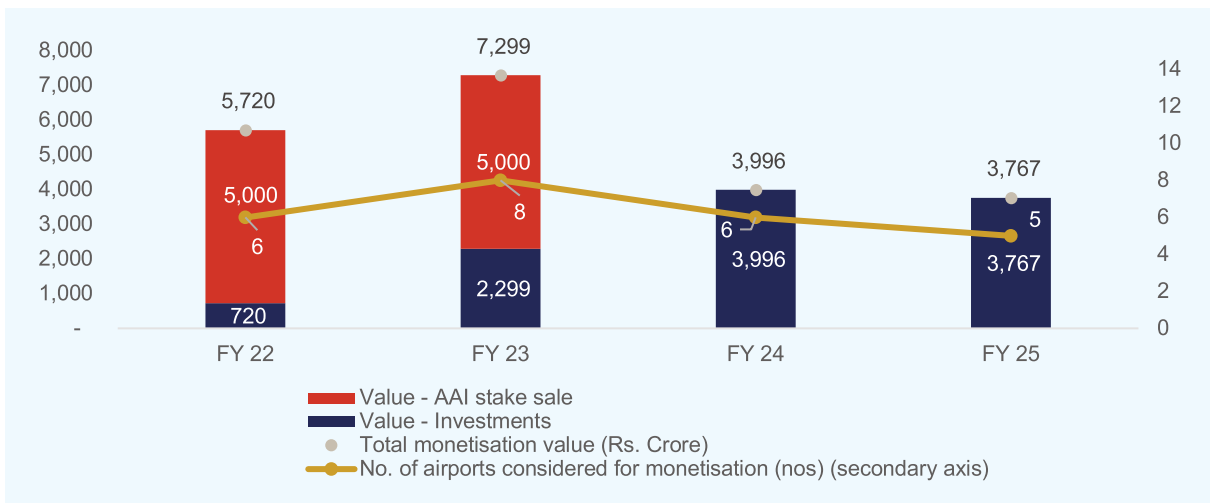


Figure 20: Phasing of Monetisation pipeline - airports (Rs crore)

Table 16: Phasing for Airport assets identified for monetisation

S.No.	City / Airport	Estimated Capex (Rs cr)	S.No.	City / Airport	Estimated Capex (Rs cr)
6 Airports in FY22			6 Airports in FY24		
3,600			4,193		
1	Bhubaneswar	900	1	Chennai	2800
2	Varanasi	500	2	Vijayawada	600
3	Amritsar	500	3	Tirupati	260
4	Trichy	700	4	Vadodara	245
5	Indore	400	5	Bhopal	159
6	Raipur	600	6	Hubli	130
8 Airports in FY 23			5 Airports in FY25		
4,295			1,857		
1	Calicut	562	1	Imphal	253
2	Coimbatore	500	2	Agartala	418
3	Nagpur	400	3	Udaipur	491
4	Patna	1000	4	Dehradun	566
5	Madurai	694	5	Rajamundhry	130
6	Surat	301			
7	Ranchi	708			
8	Jodhpur	130			

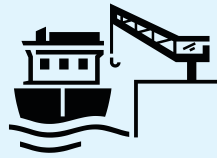
25 Airports in Tier 2 & 3 cities spread pan India

Table 17: Passenger traffic (in FY 19 & 20) and existing capacity of the identified airports

Sl. No.	Airport	Existing Annual capacity (million pax)	Traffic- FY19 (million pax)	Traffic- FY20 (million pax)
1	Chennai	21.00	22.54	22.27
2	Bhubaneswar	4.50	4.16	3.67
3	Calicut	2.19	3.36	3.23
4	Coimbatore	2.50	3.00	2.84
5	Varanasi	2.50	2.79	3.01
6	Amritsar	2.50	2.52	2.46
7	Trichy	1.50	1.58	1.61
8	Imphal	1.73	1.28	1.29
9	Vijaywada	2.00	1.18	1.13
10	Tirupati	1.00	0.83	0.83
11	Nagpur	3.00	2.80	3.06
12	Patna	5.00	4.06	4.53
13	Madurai	1.28	1.52	1.42
14	Surat	1.10	1.24	1.52
15	Indore	3.00	3.16	2.92
16	Ranchi	1.46	2.25	2.49
17	Raipur	2.00	2.03	2.12
18	Agartala	0.91	1.44	1.51
19	Udaipur	0.55	1.39	1.25
20	Dehradun	0.46	1.24	1.33
21	Vadodara	1.28	1.16	1.10
22	Bhopal	1.28	0.81	1.33
23	Jodhpur	0.50	0.51	0.57
24	Hubli	1.00	0.46	0.48
25	Rajahmundry	1.00	0.44	0.41

Source: AAI

3.11 PORTS



Summary

31 projects in 9 major ports	Rs. 12,828 crore	2%
Number of development projects planned in major ports	Total Indicative Investment over FY 2022-2025 (Rs crore)	Share in overall NMP in value terms (%)

3.11.1 Potential Asset Base

India comprises a significant size maritime sector with 12 Major and 200+ Non-Major Ports situated along its 7500 km long coastline and a vast network of navigable waterways. The country's maritime sector plays a crucial role in its overall trade and growth, with 95% of the country's trade volume and 65% of the trade value being undertaken through maritime transport. Port development in India is guided by the flagship Sagarmala programme³² and the recently unveiled Maritime India Vision 2030.

Maritime India Vision 2030

Maritime India Vision 2030 (MIV 2030) is a ten-year blueprint for the maritime sector that was released by the Prime Minister of India at the Maritime India Summit in February 2021. It aims to boost waterways, give a fillip to the shipbuilding industry and encourage cruise tourism in India. With the objective of propelling India to the forefront of the global maritime sector, the Ministry of Ports, Shipping and Waterways formulated the MIV 2030, a blueprint to ensure the coordinated and accelerated growth of India's maritime sector over the next decade. MIV 2030 has been formulated in consultation with over 350 public and private sector stakeholders, comprising ports, shipyards, inland waterways, trade bodies and associations, national and international industry and legal experts.



³² Sagarmala is the flagship programme of the Ministry of Shipping to promote port-led development in the country

As part of MIV 2030, Major Ports need to undertake 423 MTPA capacity addition. A total investment cost of over INR 33,400 Cr. has been envisaged for this capacity expansion. Out of this, approximately 95% capacity expansion is likely to be planned under Public Private Partnership (PPP)/ Captive mode by Major Ports³³.

With 12 major ports, the aggregate asset capacity under the purview of Central line ministry (MoPSW,) directly held by the Port Trusts³⁴ is around 1,494 MMTPA, as on March 31, 2020³⁵. Of this, the total capacity under PPP mode/ captive use is estimated at around 664 MMTPA (~44% of total capacity), while the capacity under the purview of respective Port Trusts is around 830 MMTPA (~56% of total capacity).

3.11.2 Assets considered for monetisation

The assets considered for monetisation from FY 2022 to 2025 are spread across 9 of the 12 major ports. Towards this, 31 projects have been identified for private sector participation for improved operational efficiency and capacity utilisation of existing port assets.

Approach to monetisation

In the case of port assets, monetisation potential has been arrived at based on key development and maintenance projects envisaged over FY 2022-25 for private sector investment through PPP mode. Key projects include additional berths, mechanisation, development of oil jetty, container jetties, O&M of container terminal, O&M of International cruise terminal and development of marina. The proposed capex (in Rs crore), as estimated by the Ministry of Ports, Shipping & Waterways, has been taken as the basis for estimation of indicative monetisation value. Further, the actual capex outlay has been assumed to take place over a three year period from the date of expected award and in certain cases in two phases.

The primary model for monetisation of ports and shipping assets is by way of grant of PPP concessions.

3.11.3 Indicative Monetisation Value of assets and phasing

The total estimated capex towards 31 identified projects considered for monetisation is estimated at **Rs 14,483 crore** for FY 2022-25. Out of 31 projects, 13 projects with expected capex of Rs. 6,924 crore are envisaged to be tendered out in FY 2022, followed by another 10 projects with expected capex of Rs. 4,680 crore are envisaged to be tendered out in FY 2023.

However, the actual investment towards the development of assets will be phased out over a defined time period as laid out under the contract. Since the same cannot be

³³ MIV 2030 document

³⁴ Additional assets held via subsidiaries or JVs have not been included.

³⁵ IPA Yearbook 2019-20

reasonably determined at this point in time, for the purpose of NMP, the actual investment has been assumed to be phased out over 3 year period from the target year of award. Hence, during the NMP period of FY22-25, monetisation value of **Rs. 12,828 crore** has been considered on account of estimated capex towards identified the 31 projects.

Table 18: Pipeline of Ports projects over FY22-25

S.No.	Port	Total No of Projects	FY22	FY23	FY24	FY25
1	Paradip Port	4	2			2
2	Deendayal Port (Kandla)	4	2	2		
3	JNPT(Mumbai)	3	1	2		
4	Mormugao Port	3	1	2		
5	Mumbai Port		2			
6	Shyama Prasad Mukerji Port Kolkatta (Khidderpore)	4	1		1	2
7	Shyama Prasad Mukerji Port Kolkatta (Haldia)	3	1	1	1	
8	Visakhapatnam Port	4	1	2	1	
9	V. O. Chidambaranar Port (formerly Tuticorin)	3	2	1		
10	New Mangalore Port	1				1
Total		31	13	10	3	5

FY 2022 – A total of 13 projects adding up to Rs 6,924 crore are envisaged to be awarded during FY 2022. The monetisation pipeline phasing represents the year in which a certain project is envisaged to be tendered out and the actual capex investment is likely to happen in phases during the initial years in the envisaged concession period.

Table 19: Port Projects to be tendered out during FY2021-22

S. No.	Project Name	Port	Estimated Investment (Rs. Cr.)	Target award
1, 2	Deepening and optimisation of Inner Harbour facilities including development of Western dock Captive berth (1 nos) to handle cape size vessel	Paradip Port	3,005z	Jan,2022
3	O&M of Mumbai International cruise terminal 'Capacity-10 L pax pa	Mumbai Port	495	Sep,2021
4	Mechanization of Berth No. 2 (erstwhile No.3 (PPP))	SMP, HDC	332	Mar,2022

S. No.	Project Name	Port	Estimated Investment (Rs. Cr.)	Target award
5	Conversion of 2 Berths as container Jetty at Kidderpore dock (PPP)	SMP, KDS	96 (Phase-1), 86 (Phase-2)	Jan ,2022
6	O&M of Proposed Mormugao Port International Cruise Terminal (PPP)	Mormugaon	102 (EPC), 22 (PPP)	Dec, 2021
7	Oil Jetty No. 9	Kandla	123	March,2022
8	Berth No.14 Mechanized Fertilizer Handling Facility	Kandla	300	Dec,2021
9	Container Terminal	JNPT	863	Sep, 2021
10	Berth No. 9	VOCPT	435	Sep,2021
11	NCB-III Berth	VOCPT	420	Dec, 2021
12	WQ-7&8	Visakhapatnam	288	Jan, 2022
13	Development of Marina (PPP),Capacity:300 yacht	Mumbai	357	Oct, 2021
Total (FY22)			6,942	

- **FY 2023 to 2025** – A total of 18 projects adding up to Rs 7,168 crore are expected to be awarded during the period. The phasing represents the year in which a certain project is envisaged to be tendered out; the actual capex investment is likely to happen in phases during the envisaged concession period.

Table 20: Port Projects to be tendered out during FY2023-25

SN	Project Name	Port	Estimated Investment (Rs. Cr.)	Target award
1	Berths 1,2,3&4	VOCPT	2,144	FY22-23
2	Development of Additional Liquid Cargo Jetty	JNPT	181	FY22-23
3	Redevelopment of Berth No. 9 and 3 barge berths	Mormugaon	700	FY22-23
4	O&M of Berth Nos. 10& 11 on PPP	Mormugaon	200	FY22-23
5	Mechanization of EQ-7 berth	Visakhapatnam	200	FY22-23
6	Mechanization of WQ-6 berth	Visakhapatnam	250	FY22-23
7	Mechanisation of Berth No. 10	SMP (HDC)	350	FY22-23
8	Oil Jetty No. 10	DPT (Kandla)	123	July ,2022
9	Oil Jetty No. 11	DPT (Kandla)	362	Nov, 2022
10	Operationalization of Coastal Berth	JNPT	170	July,2022
Sub-total (FY23)			4,680	

SN	Project Name	Port	Estimated Investment (Rs. Cr.)	Target award
1	Mechanization of EQ-6 berth	Visakhapatnam	250	FY23-24
2	Strengthening and Mechanization of Berth 7,8 NSD on DBFOT basis	SMP (KDS)	340	FY23-24
3	Mechanisation of Berth No. 5	SMP (HDC)	325	FY23-24
Sub-total (FY24)			915	
1	Mechanization of CQ1 & CQ2 Berths	Paradip	1103	Sep, 2024
2	Berth 9,10&11	New Mangalore	200	FY24-25
3	Mechanization of Berths 4 & 5 NSD on DBFOT Basis	SMP (KDS)	270	FY24-25
4	Construction and mechanisation of container berths at NSD outer Terminal	SMP(KDS)	298	FY24-25
5	Mechanization of SQB Berth	Paradip	75	FY24-25
Sub-total (FY25)			1,946	

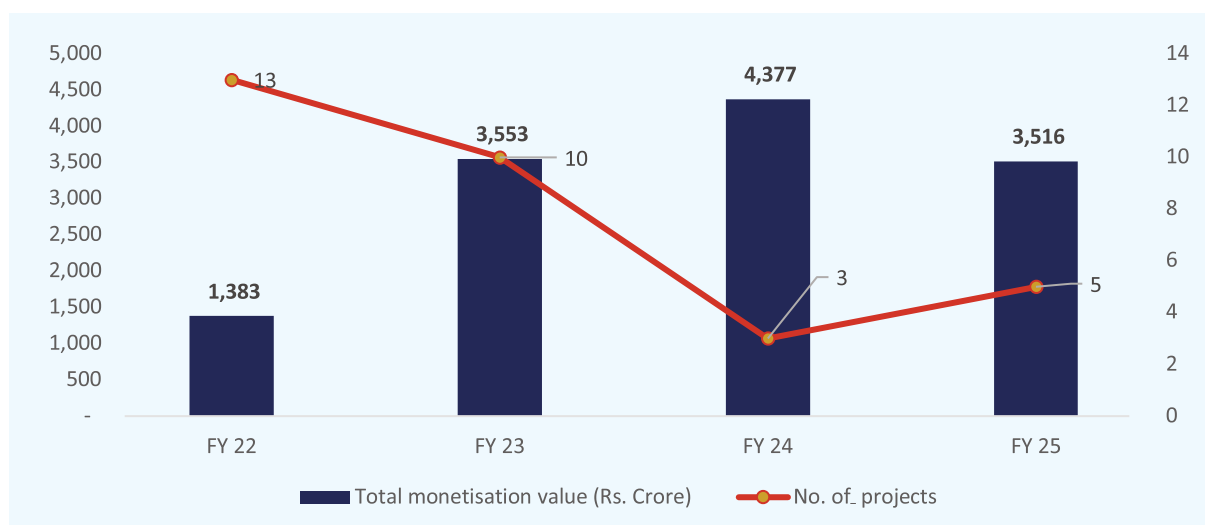


Figure 21: Monetisation pipeline phasing - Ports (Rs crore)

Factors influencing monetisation of asset class

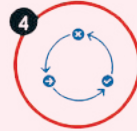
The ports sector has witnessed many policy initiatives over the last decade to revive investor interest and facilitate asset recycling. Key actions include:

- 100% FDI permitted under the automatic route
- Central government has already taken multiple initiatives like Major Port Authorities Act 2021 which enables Major ports to move from a service model to a landlord model and bring in more private sector participation to drive operational efficiency.

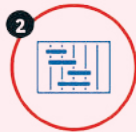
- Major Port Authorities Act 2021 enables Major ports to transform effectively for the future. Key areas to be implemented on the ground as per the Major Port Authorities Act 2021 are³⁶:



1 Constitution and composition of Board of Major Port Authority in place of the Board of Trustees



4 Removing Tariff Authority for Major Ports (TAMP) and the powers of tariff fixation to be given to Port Authorities based on the prevailing market conditions



2 Enabling the Board to –

- Frame the scales of rates for assets usage and services available
- Use property, assets and funds as it may deem fit for the benefit of respective Major Port
- Create master plan for any development or infrastructure (established or proposed) within port limits



5 Empowering the Board of Major Port Authority to raise loans in any currency and issue securities for capital expenditure and working capital requirements



3 Constituting an Adjudicatory Board for adjudication of any disputes or claims among Major Ports, Public Private Partnership (PPP) concessionaires and captive users



6 Retaining the right of the Central Government

- To order survey or examination of the works of the Major Port Authority
- To take over the management of the Major Port Authority in specific circumstances of national interest
- To issue directions to every Major Port Authority on matters of policy

Image source : Maritime India Vision document, 2030

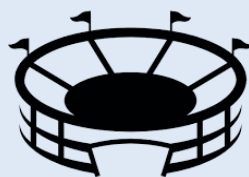
- An evolved framework and MCA for PPP projects in major ports was approved by the Cabinet in 2018 to make investments in the ports sector more attractive. The amendments approved by the Cabinet include dispute resolution mechanism (SAROD³⁷–Ports), relaxed exit clause for developers.
 - Constitution of the SAROD–Ports as a dispute resolution mechanism similar to the SAROD in highways sector
 - Concessionaire to pay royalty on “per MT of cargo / TEU handled” basis; this would be inflation-indexed annually, with port operator to pay royalty on actual and not notional income. Ministry has recently constituted an empowered committee to review the MCA and recommend amendments (if any).
 - Providing an exit route to developers for complete stake sale post two years of project completion date

These initiatives will help usher in increased private sector interest and also result in improved operational efficiencies with reduction in turnaround time at Major Ports.

36 maritime-india-vision-2030.pdf (maritimeindiasummit.in)

37 SAROD – Society for Affordable Redressal of Disputes is a dispute resolution mechanism similar to SAAROD in the highways sector

3.12 SPORTS STADIA



Summary

2 National stadiums and 2 regional centres	Rs 11,450 crore	2%
Assets planned for monetisation in FY22-25	Indicative monetisation value in FY22-25 (Rs crore)	Share in overall NMP in value terms (%)

3.12.1 Potential asset base

The total potential asset base considered are the assets under the Sports Authority of India (SAI) under the aegis of the Ministry of Youth Affairs & Sports. The assets are largely managed under the Sports Authority of India (SAI) and categorised into three broad categories – stadiums (managed by the Stadia division), regional centres and academic institutions. The focus of monetisation is on the stadiums and regional centres.

The Stadia division is responsible for formulating policy guidelines for the utilisation of five SAI stadiums in Delhi, having different facilities created with the twin objective of broad-basing sports and to achieve excellence in sports. The five stadiums include: (i) Jawaharlal Nehru Stadium Complex, (ii) Indira Gandhi Sports Complex, (iii) Dr. Shyama Prasad Mukherjee Swimming Pool Complex, (iv) Major Dhyani Chand National Stadium and (v) Dr. Karni Singh Shooting Range.

The SAI regional centres/sub-centres and academic institutions are the implementing agencies for its sports promotional schemes and academic programmes across the country. The 10 regional centre assets include (i) SAI Netaji Subhas Eastern Regional Centre (NSEC), Kolkata; (ii) SAI Netaji Subhas Southern Centre (NSSC), Bengaluru; (iii) SAI Netaji Subhas Western Centre (NSWC), Gandhinagar; (iv) SAI Udhav Das Mehta (Bhai ji) Central Centre, Bhopal; (v) SAI Ch. Devi Lal Northern Regional Centre, Sonapat; (vi) SAI Regional Centre, Chandigarh; (vii) SAI Netaji Subhas North-East Regional Centre, Imphal; (viii) SAI Regional-Centre, Lucknow; (ix) SAI Regional-Centre, Guwahati; and (x) SAI Regional Centre, Mumbai.

Factors influencing monetisation of the asset-class

World class sports infrastructure: Sports stadiums not only serve as playing venues but also are centres of training and excellence in sports. Large infrastructure facilities host several international events, and maintaining these venues after the events are over or in between events is a challenge globally. Stadia fall to disrepair and disuse due to lack of foresight across the life cycle of a stadium. Over the last few years, the sports industry has witnessed a transformation with growing sophistication in infrastructure needs, increased visibility of competitive sports and emergence of sports as a business proposition. Recently, India has made proactive efforts to host numerous mega sporting events. Majority of sports stadia in India require better utilisation, revitalisation of sports usage and upgradation of infrastructure.

Brownfield PPPs in sports infrastructure: There is a pressing case for PPPs in sports' infrastructure development in India to augment and maintain sports facilities and for tapping private sector efficiencies in management of infrastructure. An integrated multi-use sports infrastructure development model, focusing on optimisation of sports facilities by hosting sporting and non-sporting events, upgrading sports infrastructure technology and mixed-use urban development, can drive the provision of world class sports infrastructure. Limited funding avenues for sports and lack of state-of-the-art facilities make a strong argument for attracting private capital in sports infrastructure development through brownfield PPP models. Under a PPP framework, private sector efficiencies in design and management can revitalise the facilities and usage.

Sports facilities have strong latent demand: The existing sports stadiums provide infrastructure for user groups that pursue sports as a career. There is a strong demand for sports facilities that tap an additional user segment who play games/sports for entertainment, fun, and rejuvenation. Investments in sports, leisure and such recreational facilities have a positive impact on the regeneration of urban centres, including:

- Building a strong community spirit
- Providing opportunities for young people to develop lifelong skills
- Increasing the motivation and self-esteem of young people
- Attracting people from outside the area to work and participate in newly developed communities
- Improving the health and lifestyle of people in the local community
- Increasing the economic profile of the area

3.12.2 Assets considered for monetisation

The assets considered for monetisation during FY 2022-2025 cover 2 national stadiums (JLN and one more national stadium to be identified) and 2 SAI regional centres (at Bangalore & Zirakpur). The mode of monetisation for the identified assets will be PPP based concessions on OMDA model.

While the award of the 4 assets is planned in a phased manner over FY22 and FY 23, the actual capex may take place over a 3-4 year period. Further, any concession fee, upfront premium and revenue share payments to authority are over and above this indicative monetisation value and will be discovered based on market testing with transaction.

Approach to monetisation

The assets considered for monetisation include specific assets for which ministry has identified specific plans towards the development of the facilities under brownfield PPP mode. Capex approach has been adopted to determine the indicative monetisation value for stadium assets. The estimated capex has been considered as the approach to estimate the monetisation value. This is only an indicative value at this stage and actual valuation will be arrived at based on detailed feasibility and transaction preparation stage.

3.12.3 Indicative Value of assets and phasing

The total value of assets considered for monetisation is estimated at **Rs 11,450 crore** for FY 2022-2025, with capex phasing as follows:

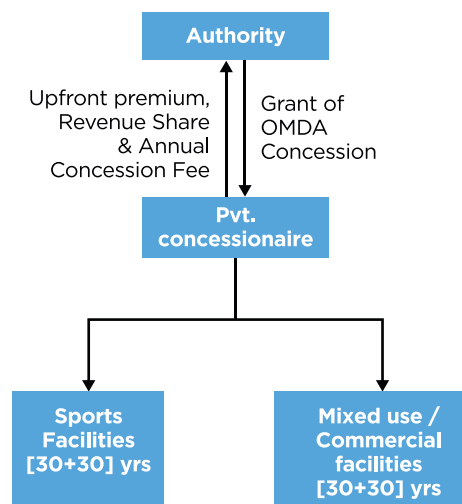
- » FY 2022 -Rs.1,650 crore
- » FY 2023 - Rs 2,100 crore
- » FY 2024 - Rs.3,200 crore
- » FY 2025 - Rs.4,500 crore

3.12.4 Marquee project: Development of JLN Stadium

Jawaharlal Nehru (JLN) Stadium in New Delhi is expected to be a pioneer in creating a financially sustainable sporting model in India through an OMDA-based PPP concession agreement for integrated development with shared usage of sports facilities. There is a pressing need for financial sustainability in sports and to explore mixed-use areas that are connected and accessible to promote sporting culture. Hence, the PPP framework is being explored to tap private sector efficiencies in design and management, which can revitalise the facilities and optimise usage.



7,853 Cr
Indicative Capex Investment



Existing facilities & consumed built-up		
S.No.	Facility	Seating/Capacity
1	Main Arena	60,000 (fixed)
2	Auditorium	2,172 (fixed)
3	Hostel complex	140 rooms + 100 u/c
4	Indoor sports	Table Tennis (2)
5	On Ground facilities	2nd Football ground, Archery, Cricket practice net, Volleyball, Handball

Responsibility	SAI	Operator
Site access	✓	
Bid Procedure and criteria	✓	
Set the design & specs	✓	
Contract monitoring	✓	
Commercial revenues		✓
Sporting zone revenues	✓	✓
O&M		✓

Figure 22: Snapshot of the JLN stadium asset (New Delhi)

OMDA-based model for monetisation of sports stadiums/ complexes

Rationale

The PPP concept envisages that the selected PPP concessionaire will be given the rights for development and commercialisation of the sports facility through an OMDA. The project structure envisages grant of a concession to a private operator to operate, maintain and augment or redevelop and upgrade the existing facilities at the stadium. As part of the concession, the private partner may be granted development rights at the site subject to compliance with applicable local laws.

Salient features of the OMDA-based PPP model

Scope: The scope of such concessions would entail getting the existing asset at site into the specified condition over an initial development period; developing, operating and maintaining an additional infrastructure at a designated site; operating and maintaining the asset for the concession period followed by transfer back of the asset at the end of the concession in the specified condition. The nature of additional infrastructure may be specified upfront and should be complementary to the existing site usage.

Concession period

A concession period of 30 years may be explored, extendable by another 30 years subject to asset life and viability considerations.

Revenue streams for concessionaire

- Commercial lease rentals
- User fees from sports facilities (sports club and memberships)
- Space renting for sports/ non-sports events and food and beverages for events
- Parking, entry fees, advertisements, etc

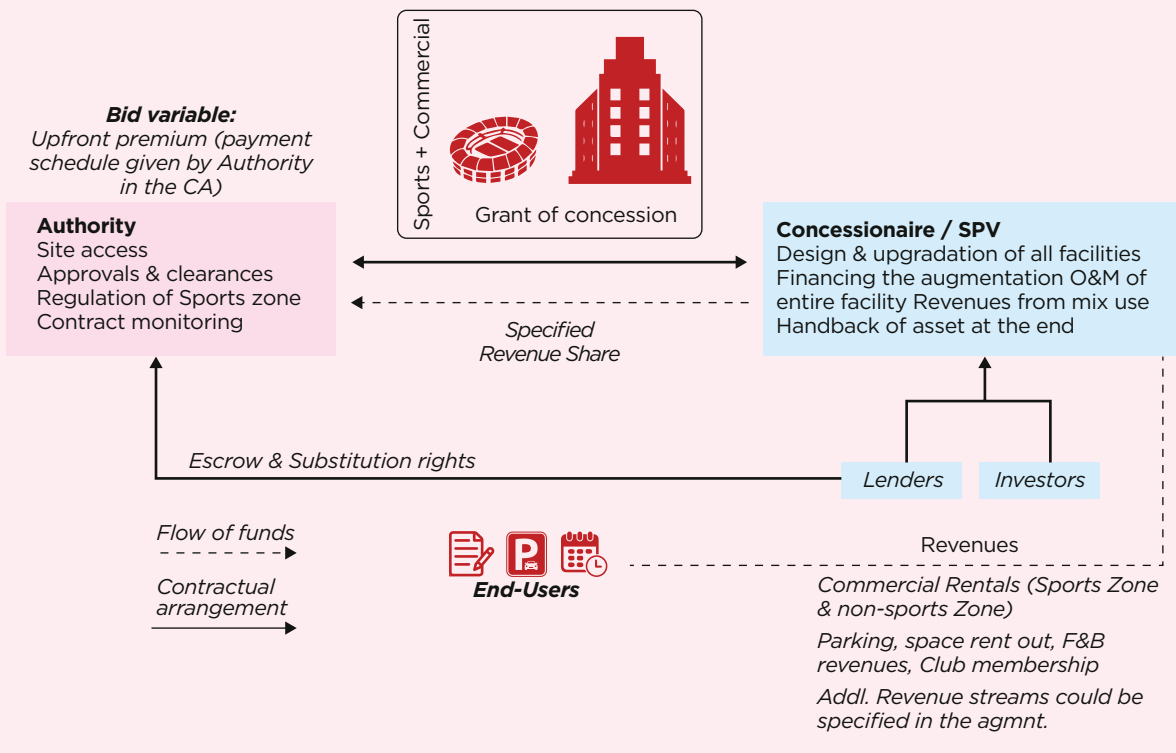
Authority’s users and events

- Year-round access to the authority’s designated users and campers at regulated charges
- Pre-specified event roster and event day-sharing for the authority’s sports and other events

Authority revenue

- Revenue share
- Annual concession fee
- Upfront premium

Indicative transaction structure of OMDA-based sports stadiums/ complex is depicted in the exhibit below.



3.13 URBAN REAL ESTATE ASSETS



Redevelopment of Colonies

Ministry of Housing & Urban Affairs (MoHUA) owns and manages land through the Land and Development Office (L&DO). During the NMP period, the following projects pertaining to redevelopment of colonies are being envisaged. PPP based model is recommended for redevelopment of such GPRA projects cross subsidized through sale / lease of commercial BUA.

Proposed projects are real-estate projects which envisage mixed use redevelopment of a vacant tract / brownfield sites at prime locations in Delhi-NCR. They entail development of general pool residential accommodation and commercial office complexes in one of the most prime areas of the country through a self-funded mechanism.

Considering the prime location and attractive commercial potential of the Project, development of these projects is recommended through private sector participation. This will not only enhance the commercial and operational efficiencies but also ensure upfront / periodic consideration to the Authority / Ministry of Housing and Urban Affairs.

Table 21: Identified projects–Redevelopment of Colonies

Housing redevelopment Assets		
Category	Locations / particulars	Estimated Investment (Rs crore)
Redevelopment of 7 General Pool Residential Accommodation (GPRA) Colonies in Delhi	Sarojini Nagar Naoroji Nagar Netaji Nagar Srinivaspuri Thyagraj Nagar Mohammadpur Kasturba Nagar	32,276 crore
Development of residential / commercial units on 240 acre land in Ghitorni (Delhi)	8000 units of GPRA 3000 units for migrant construction workers	15,000 crore

Under a PPP based model for such projects, the entire land parcel should be transferred into an SPV owned by the Authority with requisite change of land use etc wherever required. Multiple statutory clearances are typically required for such Projects which should be pre-obtained by the Authority and housed in the SPV. The SPV should then be bid out under PPP mechanism through a transparent competitive bidding system.



Hospitality assets

The total asset universe considered for the exercise are the hotel assets under the central sector agencies India Tourism Development Corporation (ITDC) under administrative control of the Ministry of Tourism. ITDC is running hotels, restaurants at various places for tourists, besides providing transport facilities. The present network of ITDC consists of 4 Ashok Group of Hotels, 4 Joint Venture Hotels, 7 Transport Units part of the travel & tourism infrastructure, 14 Duty Free Shops at Seaports, 1 Sound & Light Show and 4 Catering Outlets. The hotel assets under ITDC comprise of the following:

Table 22: Identified projects-ITDC Hotel assets

S.No	Hotel Name	Location
1	Hotel Pondicherry	Puducherry
2	Hotel Kalinga	Bhubaneshwar
3	Hotel Ranchi	Ranchi
4	Hotel Nilachal	Puri
5	Hotel Anandpur Sahib	Rupnagar
6	Hotel Samrat	New Delhi
7	Hotel Ashok	New Delhi
8	Hotel Jammu Ashok	Jammu

ITDC is exploring monetisation of its properties which have been considered under the monetisation pipeline. Major assets which are under various stages of discussion as following:

- ▶▶ Joint leasing of Hotel Pondicherry Ashok, Puducherry
- ▶▶ O&M contract for Hotel Kalinga Ashok, Bhubaneshwar
- ▶▶ Divestment of Hotel Ranchi Ashok, Ranchi
- ▶▶ Divestment of Hotel Nilachal, Puri
- ▶▶ Transfer of ownership of Anandpur Sahib Hotel
- ▶▶ Subleasing of Hotel the Ashok, New Delhi
- ▶▶ O&M contract for Hotel Samrat, New Delhi
- ▶▶ O&M contract for Hotel Jammu Ashok, Jammu

Factors influencing monetisation of the asset class

Potential to leverage the Brand Value of Ashok Group - The Ashok group of hotels is the flagship hotel chain under ITDC which have a brand value developed over last 40-50 years and has been the centre stage for all government events organised by various ministries and public sector entities. The Ashok hotels has been the key part of major Conferences, Exhibitions, Workshops/ Seminars and other National and International events organised.

Government push for underutilised assets - ITDC chain of hotels being placed at ~125 acres of land parcels spanning across major cities across the country have not been utilised to their maximum potential.

Strategic Location Advantage - ITDC hotels have the location advantage as majority of the hotels are placed at the heart of the city in prime locations (*Hotel the Ashok, Hotel Samrat, Hotel Kalinga etc.*).

All 8 hotel assets of ITDC have been considered for monetisation during FY 2022 to 2025. Long-term leasing, divestment, long term OMT contract may be explored as potential models for monetisation to be ascertained on a case to case basis as per detailed asset level due diligence.

4

Implementation Plan

This section highlights the framework for monitoring progress of transactions forming part of the NMP.



Successful implementation of NMP hinges on an effective governance framework with escalation matrix for real time monitoring of progress. This will help all stakeholders in monitoring the implementation of projects by comparing actual progress vis-a-vis planned pipeline for the NMP assets. Which in turn will ensure effective programme implementation. The figure below captures the monitoring and evaluation tools available with an objective to help all stakeholders monitor the implementation and progress of the NMP projects. Real time monitoring will be undertaken through the asset monetisation dashboard, as envisaged under Union Budget 2021-22.

The basic elements of the monitoring and evaluation framework are highlighted in figure below.

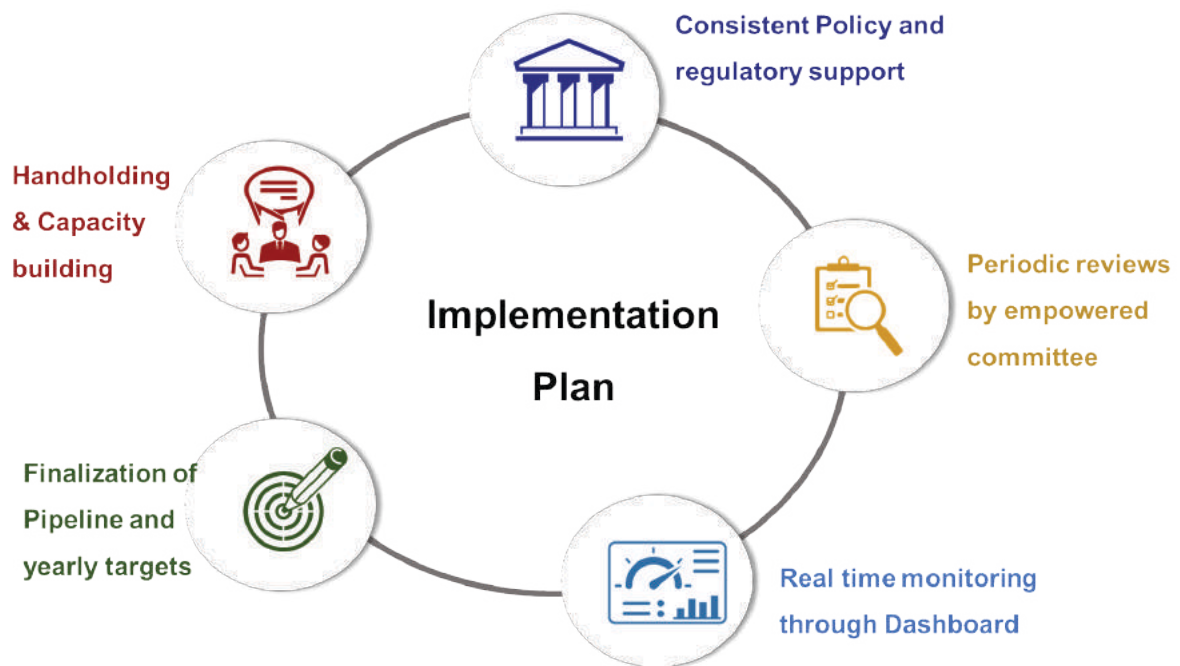


Figure 23: Implementation framework

The programme is envisaged to be supported through necessary policy and regulatory interventions by the Government in order to ensure an efficient and effective process of asset monetisation. These will include streamlining operational modalities, encouraging investor participation and facilitating commercial efficiency, among others. Union Budget 2021-22 has been a witness to commitment of the Government in this regard.

Further, the initiative mandates adoption of innovative models and extensive private sector collaboration, which in turn necessitates augmentation of knowledge base and capacity at the sponsoring ministries/ public sector entities level. Such knowledge and capacity is proposed to be shared across ministries/ public sector asset owners, in form of guidance material, model documents etc so as to avoid redundancies and to ensure value accretive transactions. The end objective of this initiative to enable 'Infrastructure Creation through Monetisation' wherein the public and private sector collaborate, each excelling in their core areas of competence, so as to deliver socio-economic growth and quality of life to the country's citizens.

Annexure



ANNEXURE I: KEY NH STRETCHES TO BE MONETISED OVER FY 2022-2025

North region	State	Length (km)
Hissar–Dabwali	Haryana	47
4 laning of Hissar–Dabwali (2 pkgs)	Haryana	145
6 laning of Panipat–Jalandhar existing Saraswati bridge	Haryana	1
6 laning Eastern Peripheral Expressway (Pkg 1)	Haryana	22
6 laning Eastern Peripheral Expressway (Pkg 3)	Haryana	25
Jammu bypass–Udhampur	J&K	65
Chenani–Nashri	J&K	12
Jhansi Shivpuri	UP / MP	35
Indore–Khalghat	MP	80
Lakhnadon–Mahagaon	MP	57
Patiala bypass–Sangrur bypass	Punjab	61
Sangrur bypass (BP)–Tapa incl. Sangrur & Dhanuala BP	Punjab	59
Farukhanagar–Kottakatta (NS 2 / AP 3)	Haryana	46
Farukhanagar–Kottakatta (NS 2 / AP 4)	Haryana	33
Agra bypass	UP	33
6 laning Eastern Peripheral Expressway (pkg 2)	Haryana	25
6 laning Eastern Peripheral Expressway (pkg 4)	Haryana	22
6 laning Eastern Peripheral Expressway (pkg 5)	Haryana	21
6 laning Eastern Peripheral Expressway (pkg 6)	Haryana	22
Agra Bharatpur	UP / Rajasthan	45
Orai Bara	UP	61
Cable stayed bridge at Naini and approach	UP	4
Fatehpur Khokharaj	UP	58
Chakeri Usrania	UP	21
Allahabad–Handia–Varanasi	UP	72
Chhindwara–Amarwara incl. Chhindwara ORR section	MP	123
Chhindwara (from Ring Road)–Seoni	MP	61
Amarwara–Narsinghpur	MP	70
Amritsar–Wagah	Punjab	36
Total	29 stretches	1361 km
East region	State	Length (km)
Hazipur–Muzaffarpur on NH-77 and NH-28	Bihar	39
Chas–Ramgarh (2 sections)	Jharkhand	77

Puintola-Sunakhala	Orissa	58
Sunakhala-Bhubaneshwar	Orissa	76
Bhubaneshwar-Puri	Orissa	59
Palsit-Dankuni	West Bengal	64
Panagarh-Palsit	West Bengal	67
Purnea-Dalkhola	West Bengal / Bihar	36
Dalkhola-Islampur	West Bengal	88
Islampur-Sonapur-Ghoshpukur	West Bengal	44
Salsalabari to West Bengal Assam border	West Bengal	26.5
Kotwa-Mehsi-Muzaffarpur	Bihar	80
Khagaria-Purnea	Bihar	70
Muzaffarpur-Sonbarsa	Bihar	142
Chandikhol Bhadrak	Orissa	75
Aurangabad-Barachetti	Bihar	60
Gorhar-Barwa Adda	Jharkhand	79
Bhadrak Balasore	Orissa	63
Barachetti-Gorhar	Bihar	80
Chandikhol Paradip	Orissa	77
Mokama Munger	Bihar	69
Shillong bypass	Assam	49
Total	22 stretches	1478 km
West region	State	Length (km)
Chittorgarh-Kota and Chittorgarh bypass	Rajasthan	161
Palanpur-Abu Road	Gujarat / Rajasthan	45
Abu Road-Swaroopganj	Rajasthan	31
Vadodara-Surat	Gujarat	7
Bharuch-Surat (6 lane) (BOT-II)	Gujarat	65
Bharuch-Surat (6 lane) (BOT-I)	Gujarat	83
Saoner-Chindwara	Maharashtra	76
Deodhari-Kelapur	Gujarat / Maharashtra	30
Borkhei-Wadner-Deodhari	Gujarat / MP border	86
Kelapur-Maharashtra/Telangana border	Maharashtra	23
Pimpalgaon Nashik Gondhe	Maharashtra	57
MP/Maharashtra border-Dhule	Maharashtra	89

Dhule-Pimpalgaon	Maharashtra	118
Kondhali-Talegaon	Maharashtra	50
Talegaon-Amravati	Maharashtra	58
Baran-Shivpuri	Rajasthan/MP	121
Reengus-Sikar	Rajasthan	44
Jaipur-Kishangarh	Rajasthan	90
Bharatpur-Mahua	Rajasthan	57
Mahua-Jaipur	Rajasthan	108
Jaipur-Reengus	Rajasthan	52
Suratgarh-Sri Ganganagar	Rajasthan	78
Kota to Chittorgarh (RJ-7 and RJ-8)	Rajasthan	128
Rajasthan & Gujarat Palanpur-Swaroopganj	Gujarat / Rajasthan	76
Kota-Baran-Shivpuri-Jhansi	Rajasthan / MP / UP	300
Total	25 stretches	2031 km
South region	State	Length (km)
Kothakota Bypass-Kurnool	A.P.	75
Maharashtra/Karnataka border to Belgaum	Karnataka	78
Hyderabad-Bangalore (6 sections)	A.P. / Karnataka	251
Chikalurper-Vijaywada (6 laned)	A.P.	68
AP/Karnataka Border-Devenhalli	Karnataka	72
Nandi Hill crossing & Devenhalli to Meenu Village AP/KA border	Karnataka	61
6 laning of Bangalore-Hosur section of NH-7	Karnataka	14
AP/KA border-Nandi Hill crossing & Devenhalli to Meenu kunte Village	Karnataka	61
Ulundurpet-Padalur (pkg VI B)	Tamil Nadu	94
Ulundurpet-Tindivanam (pkg VI A)	Tamil Nadu	73
Trichy-Padalur (pkg VI C)	Tamil Nadu	38
Krishnagiri-Thopurghat (NS 2 / TN 1)	Tamil Nadu	63
6 laning of Hosur-Krishnagiri	Tamil Nadu	60
Kadtal-Armur	Telangana	31
Adloor Yellareddy-Chegunta	Telangana	52
Chegunta-Bowenpally	Telangana	62
MH/AP border to Islamnagar (NS-2 / BOT / AP-8)	A.P.	55
Farukhanagar-Kottakatta (NS 2 / AP 3)	Haryana	46
Farukhanagar-Kottakatta (NS 2 / AP 4)	Haryana	56

Armur to Kadloor Yellareddy (NS 2 / AP 1)	Telangana	59
Kadloor Yellareddy to Gundla Pochampali	Telangana	86
Hyderabad-Bangalore (NS-2 / BOT / AP-7)	Karnataka / Telangana	75
Tambaram-Tindivanam	Tamil Nadu	46.5
Hadadi-Devgiri	Karnataka / Maharashtra	80
Hadadi-Doddasiddanahally	Karnataka	71
Gabbur-Devgiri	Karnataka	64
Hattargi - Hirebagewadi	Karnataka	22
Trichy-Karaikudi including Trichy bypass (2 sections)	Tamil Nadu	117
Total	28 stretches	1,931 km

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