

Report
on
**ZONAL STUDY ON NATURAL GAS PIPELINE:
REQUIREMENT OF NEW NATURAL GAS PIPELINES IN INDIA**

**Prepared For Petroleum And Natural Gas Regulatory Board (PNGRB)
By Deloitte Touche Tohmatsu India LLP (DTTILLP)**

June 2025

DISCLAIMER, SCOPE AND LIMITATIONS

This document has been prepared by the Deloitte study team (“Deloitte”) exclusively for the Petroleum and Natural Gas Regulatory Board (“PNGRB”) in accordance with the applicable engagement agreement, and solely for the purpose of providing recommendations on the requirement for new natural gas pipeline infrastructure in India. It must be read in conjunction with the agreed scope, assumptions, methodology, and limitations of the engagement.

2. The scope of this study is limited to: (i) assessment of connectivity to major demand centers (including CGD geographical areas, industrial consumers, and anchor loads); (ii) identification of gaps in the existing natural gas pipeline network; and (iii) considerations relating to supply security and availability of supply options.

3. This document does not include detailed route alignment, engineering design, financial feasibility, environmental impact, or regulatory analysis, all of which would require separate evaluation.

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Scope and Limitations

- The study is designed to provide recommendations on requirement of new natural gas pipelines to be laid out in India. This document contains the opinion of the study team of Deloitte, using its professional judgment and reasonable care. It is to be read in the context of the project agreement with PNGRB, and the methodology, procedures, and techniques used, the team's assumptions, and the circumstances and constraints under which the study was performed.
- The primary focus of this study is on the assessment of these focus areas:
 1. Connectivity of Major demand centers - CGD GAs, Industry or anchor loads
 2. Gap in existing natural gas pipeline infrastructure
 3. Supply security and choice
- The research methodology primarily relies on readily available data (desktop research) and consultations with industry stakeholders. Assessment and analysis is based on available information and reasonable assumptions that reflect current industry trends. In some instances, these assumptions are informed by well-established industry practices. The study has been conducted for PNGRB keeping industry at large in mind.
- It is important to note that this study does not review the exact route of natural gas pipelines in detail, and a detailed analysis will be required to establish feasibility. The study is also limited by the accuracy and availability of the data used in the projections. The assumptions made in the study are based on current industry trends and practices, which may change over time. Therefore, the results should be interpreted with these limitations in mind.
- This document is written solely for the purpose stated in the project agreement, and for the sole and exclusive benefit of the PNGRB. Unless expressly stated otherwise, assumptions, data, and information supplied by, or gathered from other sources upon which the team's opinion as set out herein is based have not been verified by the team; the team makes no representation as to their accuracy and disclaims all liability with respect thereto. No warranty, whether express or implied, including the implied warranties of merchantability and fitness for a particular purpose is given or made by the team in connection with this report. The team disclaims any liability to the client and to third parties in respect of the publication, reference, quoting, or distribution of this report or any of its contents to and reliance thereon by any third party.

Abbreviations

Acronym	Full Form
ARGN	Assam Regional Gas Network
BGPL	Bhatinda Gurdaspur Pipeline
CBN	Cauvery Basin Network
CGD	City Gas Distribution
CJHPL	Chaissana-Jhajjhar-Hissar Pipeline
DBNPL	Dadri-Bawana-Nangal Pipeline
DBPL	Dabhol Bangalore Pipeline
DPPL	Dadri-Panipat Pipeline
DUPL	Dabhol Uran Panvel Pipeline
ETPL	Ennore Tuticorin Pipeline
GJPL	Gurdaspur-Jammu Pipeline
GSPL HP	Gujarat State Petronet Limited Pipeline - High Pressure
GSPL LP	Gujarat State Petronet Limited Pipeline - Low Pressure
HVJ	Hazira-Vijaypur-Jagdishpur
KKMBPL	Kochi-Kottanad-Mangalore-Bangalore Pipeline
MBPL	Mehsana-Bhatinda Pipeline
MBBPL	Mallavaram-Bhopal-Bhilwara Pipeline
RoW	Right of Way

Engagement Context

PNGRB is assessing the need for additional natural gas pipelines to enhance connectivity in underserved regions, strengthen supply chain reliability, diversify supply sources, and bolster energy security

CONTEXT

The Petroleum and Natural Gas Regulatory Board (PNGRB) is currently undertaking a comprehensive assessment of India's natural gas pipeline infrastructure. The study aims to:

- Evaluate the existing pipeline capacity and regional connectivity,
- Identify infrastructure gaps in meeting projected future demand, and
- Explore potential new pipeline routes to enhance network coverage.

The overarching objective is to ensure a resilient and efficient natural gas supply chain, thereby strengthening the nation's energy security.

Scope of Work

1 Module 1- Overview of Natural Gas in India

- Detailed Approach & Methodology for Determining Natural Gas Pipeline Infrastructure
- Overview of Natural Gas Consumption and Future Projection
- Overview of Natural Gas Supply
- Overview of Natural Gas Pipeline Infrastructure in India and its Utilization
- Overview of Natural Gas Demand and Supply Balance
- Key takeaways

2 Module 2 – Natural Gas Pipeline Requirement Analysis

- Pipeline selection and Prioritization Framework
- Section wise analysis of pipeline
- Selection and prioritization framework parameters
- Pipeline Section wise Analysis- Northern, Eastern, Western, Southern and Central India
 - Overall view of the Region/Section
 - Connectivity status of the region
 - Key takeaways of the section/region with identification of corridors of demand or no connectivity

3 Module 3 – Summary of Proposed Pipelines

- Identify corridors for laying of pipelines
- Selection and Prioritization of Pipelines
- Final Proposal of pipelines required in next 10-15 years

Executive Summary

The Government of India has set an ambitious target to increase the share of natural gas in the country's primary energy mix from the current 6% to 15%, positioning it as a cleaner transition fuel in India's journey toward a low-carbon economy. In alignment with this national objective, the Petroleum and Natural Gas Regulatory Board (PNGRB) has undertaken a comprehensive assessment to evaluate the connectivity of key natural gas demand centers—such as City Gas Distribution (CGD) networks, Geographical Areas (GAs), power plants, refineries, and fertilizer units—via the existing and proposed natural gas pipeline network.

Currently, over ~30% GAs remain unconnected to the national pipeline grid. Several power plants, particularly in the eastern and southern regions, are linked to isolated gas networks, and four operational refineries lack pipeline connectivity. Additionally, certain high-utilization pipelines may require capacity augmentation to meet the anticipated surge in demand. To address these gaps, a detailed analysis was conducted to explore connectivity options and infrastructure enhancements.

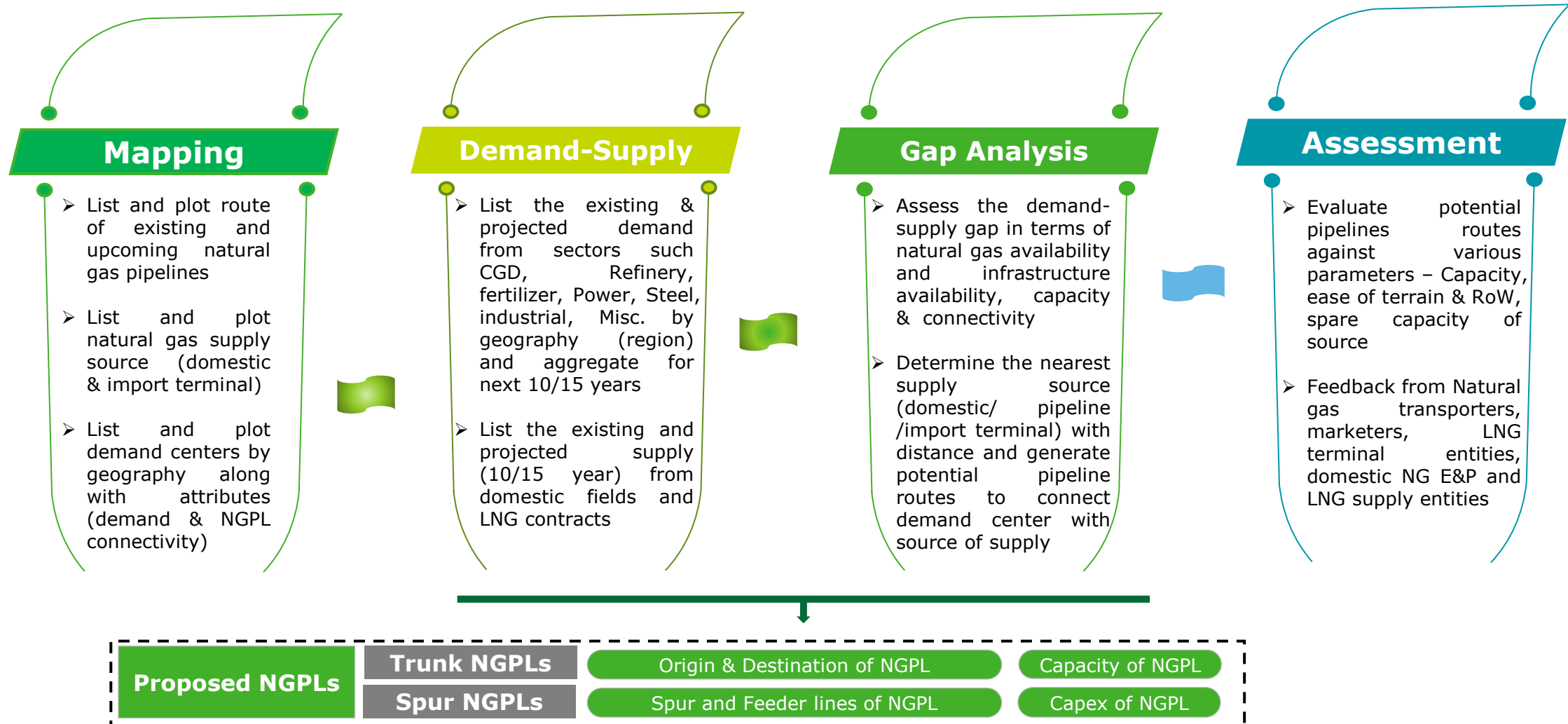
The study proposed **14 pipeline routes (spur lines + mainline + expansion line)** over **~600 Kms** spur lines and **~1100 Kms** mainline/expansion line aimed at connecting unserved, underserved demand centers or isolated gas networks, improving supply security for regions dependent on isolated gas fields, and expanding capacity in corridors with projected demand growth. The analysis covered natural gas consumption trends, supply projections, pipeline utilization, and region-wise demand imbalances through 2040.

Region-specific insights highlight that the **southern and northern regions exhibit the highest incremental demand, necessitating new pipelines or enhanced CGD connectivity through existing network**. In the **central region, pipeline links to the Bina and Haldia refineries** are critical. The western region, while well-connected via the GSPL high-pressure network, may require capacity expansion. In the **eastern region**, connectivity through the Indradhanush Gas Grid Limited (IGGL) and **expansion of the Assam Gas pipeline** are essential, along with integration of **isolated power plants**.

Upon implementation of the proposed recommendations, the total natural gas pipeline network would expand from 34,769 km to 36,400 km. This would enable connectivity to all major demand centers, with only seven CGD-GAs remaining unconnected either owing to terrain challenges or less demand in the region. The proposed infrastructure development will bridge existing gaps, support regional energy needs, and promote inclusive growth by ensuring remote and underserved areas are integrated into the national gas grid.

Overall Approach & Methodology of the Study

The approach and methodology integrate both qualitative and quantitative data analysis, complemented by geospatial mapping, to identify the most feasible and strategically beneficial pipeline routes



Notes: 1. Pipeline routes analyzed basis available data and within the ambit of the methodology. Detailed feasibility to be carried out for each proposed pipeline.

Sources: 1. Deloitte Analysis

Report Outline

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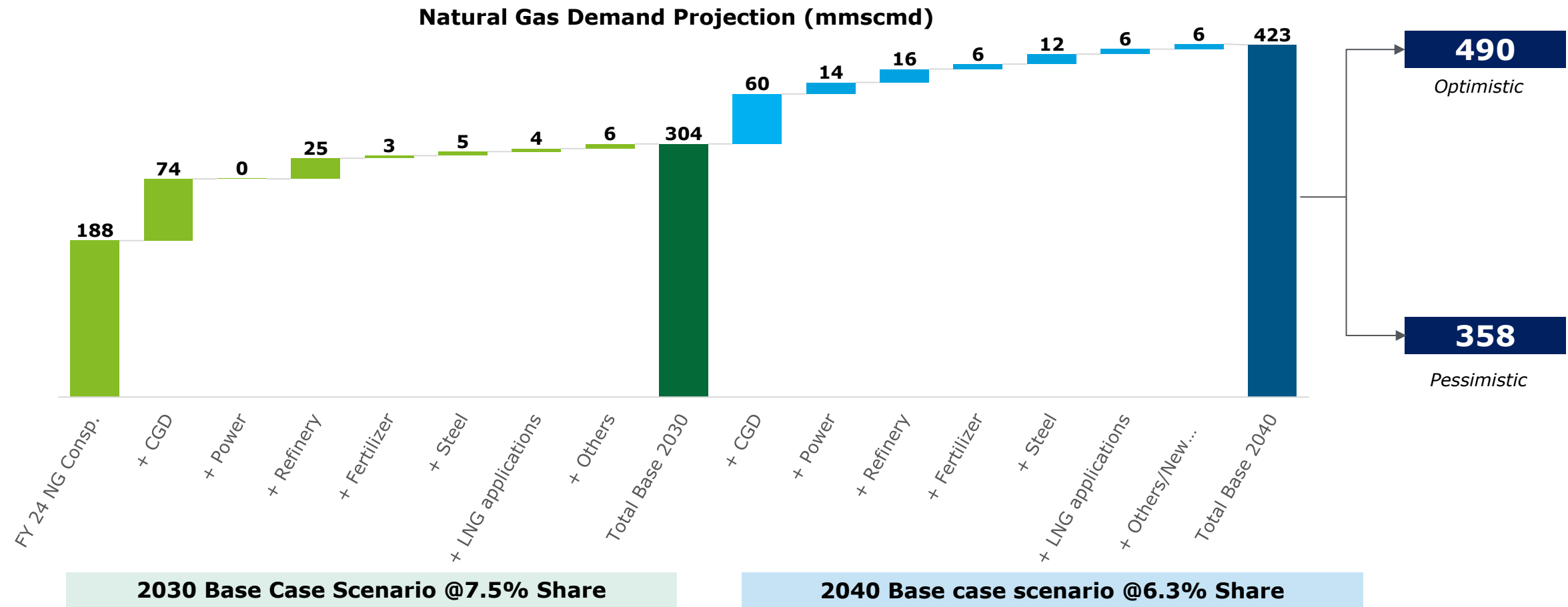
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Overview of Natural Gas in India

1

Natural Gas Consumption and Projection

Natural gas consumption is projected to reach 304 mmscmd with 7.5 % share by 2030 and ~423 mmscmd with 6.3% share in the primary energy mix by 2040

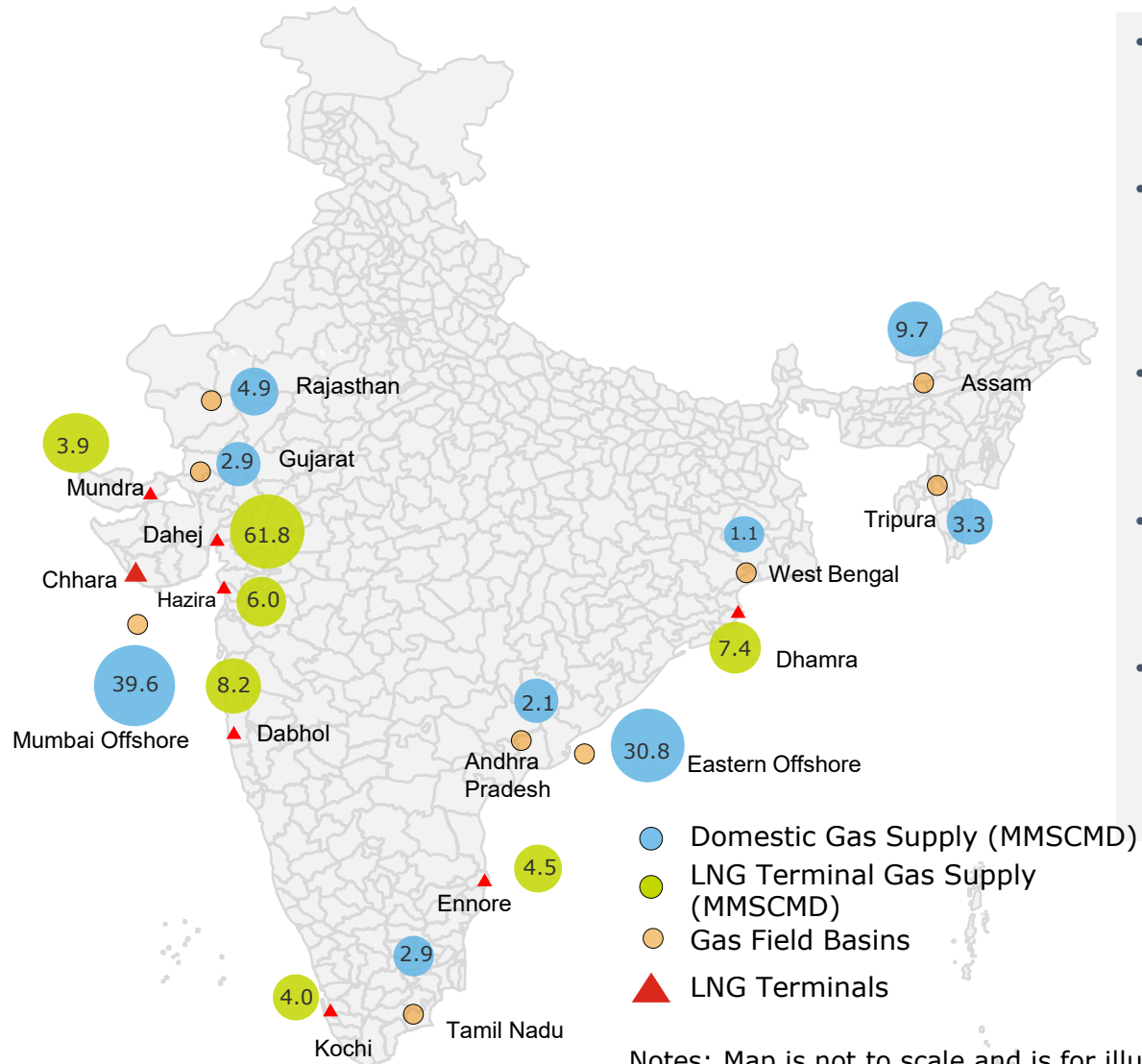


Natural gas demand¹ has been projected under three scenarios—Business-as-Usual (BAU), Optimistic, and Pessimistic to account for varying sectoral growth trajectories and policy environments

Sources: 1. Natural Gas Demand Assessment for 2040 – A Study for PNGRB by Deloitte, PPAC

Natural Gas Supply

With domestic production constrained and demand expected to be in the range of 358 to 490 mmscmd by 2040, LNG imports via terminals will be critical to meeting India's gas needs



- **Balanced Supply Mix:** India's natural gas supply is nearly evenly split between domestic production¹ (97.5 MMSCMD, 49.3%) and LNG imports (100.5 MMSCMD, 50.7%).
- **Domestic Production Sources:** Over 90% of domestic gas comes from offshore fields, primarily Mumbai High (41%), Eastern Offshore (31%), and smaller contributions from Assam, Rajasthan, and Tripura.
- **LNG Import Terminals:** The majority of LNG imports are handled by Dahej¹ (64.5%), followed by Dabhol, Dhamra, Hazira, and Ennore, which together account for over 90% of imported volumes.
- **Regional Imbalance:** Approximately 68% of the total gas supply is concentrated in the western region, highlighting a significant east-west supply disparity.
- **Future Supply Gap:** With domestic production expected to remain around² 100–110 MMSCMD by 2030, and demand projected to touch 300 MMSCMD by 2030 and 400 MMSCMD by 2040, increased LNG imports will be critical to meeting future energy needs.

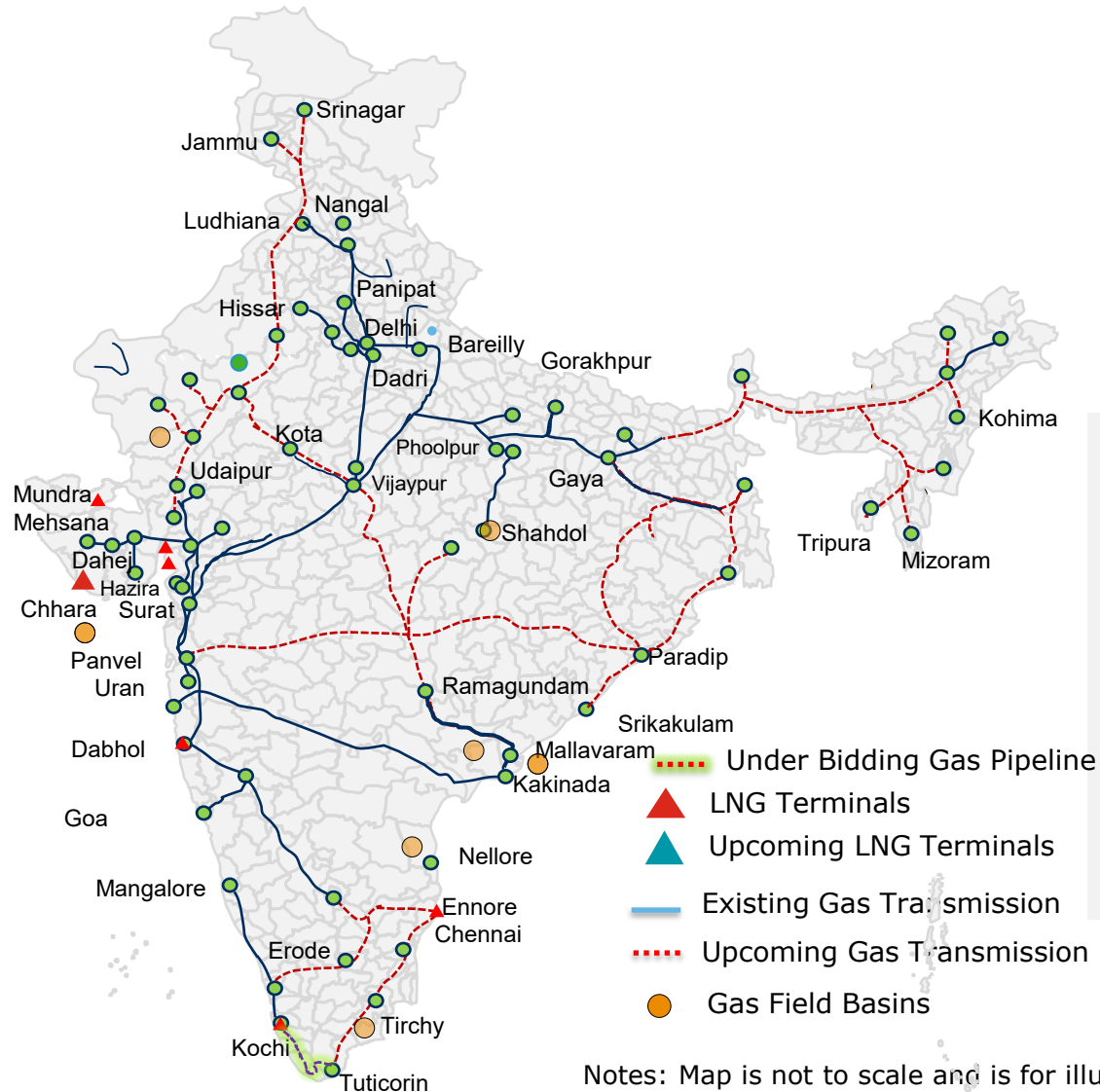
To meet the growing demand, LNG terminals will need to be expanded or newly constructed in future, depending on regional demand clusters and existing terminal utilization level

Notes: Map is not to scale and is for illustrative purpose

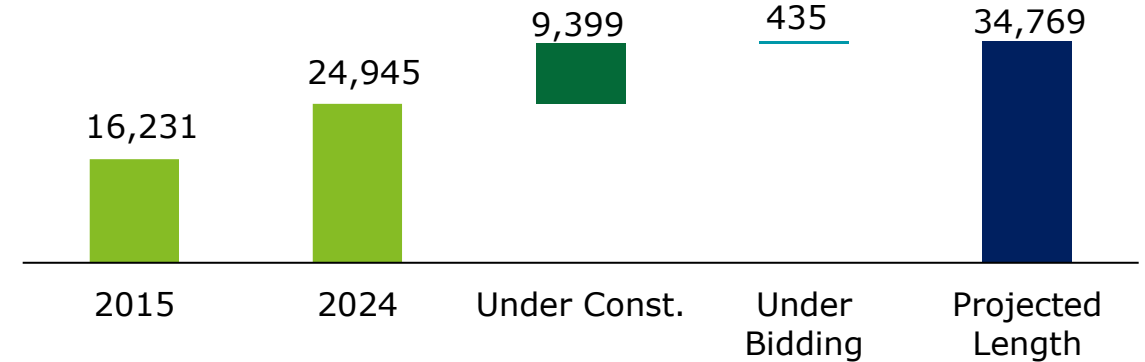
Sources: 1. PPAC March 2025; 2. IEEFA, [IEA World Energy Outlook 2022](#), [BP Energy Outlook 2023](#); 3. EIA, IEA-World Energy Outlook 2022, Internal Analysis

Natural Gas Pipeline Infrastructure

India's gas pipeline density lags global benchmarks, highlighting the need for accelerated network expansion to meet rising demand



Natural Gas Pipeline Capacity Length¹ (km)



- **Projected Network Expansion:** India's natural gas pipeline network is expected to expand to approximately 34,769 km, supporting broader regional connectivity and energy access.
- **Pipeline Length Density:** India's pipeline density⁴ stands at 7.5 meters per sq. km, significantly lower than developed nations such as the USA² (~53 m/sq. km) and the UK³ (~32 m/sq. km), indicating substantial room for growth.
- **Pipeline Volume Density:** With a volume density of 132 km per million cubic meters, India trails behind countries like the USA (~202 km/sq. km) and Canada (~235 km/sq. km), highlighting the need for capacity enhancement.

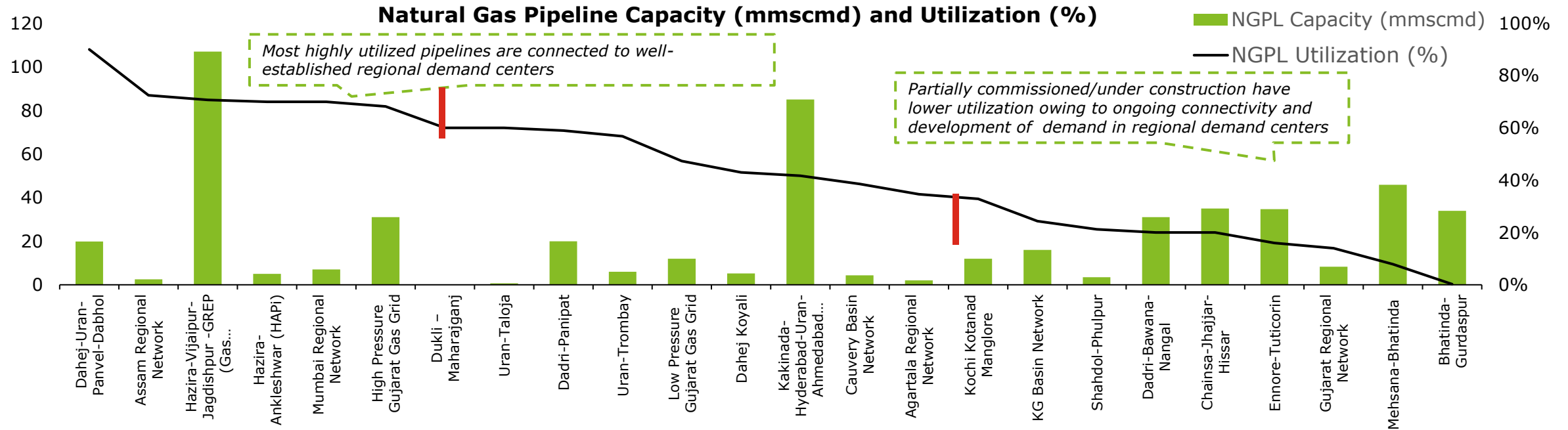
Even after considering the projected cumulative natural pipeline length, India's pipeline length density is expected to reach 10m/sq. km in 2035 from 7.5m/sq.km in 2025, which is well below global benchmarks

Notes: Map is not to scale and is for illustrative purpose

Sources: 1. PNGRB; 2. DOE-USA and Statistical Review of World Energy; 3. National Grid and Statistical Review of World Energy; 4. PNGRB and PPAC NG Consumption

Utilization of Natural Gas Pipelines

Pipelines linked to established demand centers show higher utilization, while under-construction/partially commissioned/few others have lower use due to ongoing regional connectivity and demand buildup



High (>65%)

- DUPL
- Mumbai Regional Network
- Assam Regional Network
- HVJ
- GSPL HP
- Hazira-Ankleshwar

Medium (35%-65%)

- Dadri-Panipat
- Uran-Trombay
- GSPL LP
- Dahej Koyali
- East-West Pipeline
- Cauvery Basin Network
- Kochi-Kottanad Mangalore

Low (<35%)

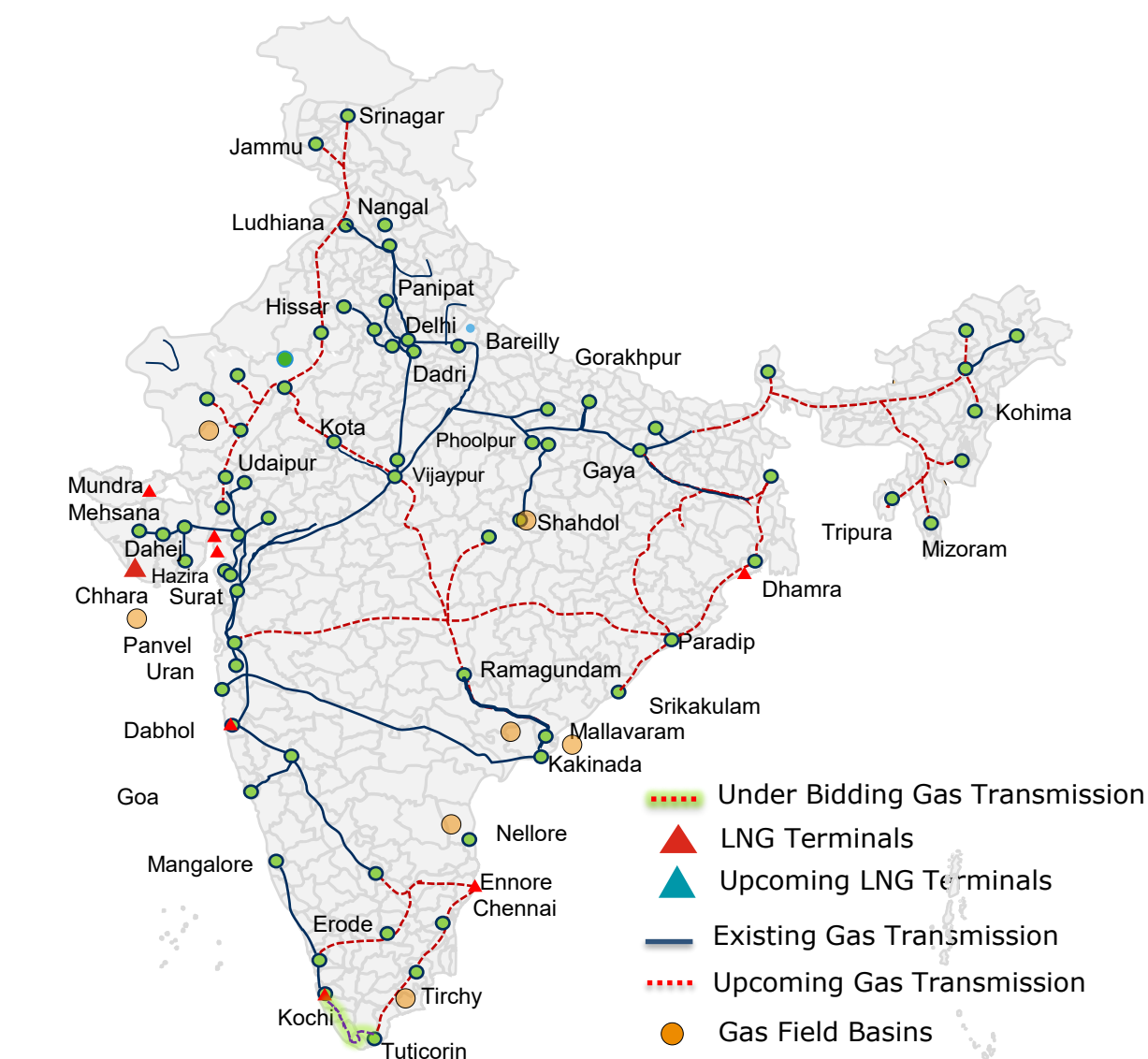
- KG Basin Network
- Dadri-Bawana-Nangal
- Shahdol-Phulpur
- Chainsa-Jhajjar-Hissar
- Ennore-Tuticorin
- Gujarat Regional Network
- Mehsana-Bhatinda
- Bhatinda-Gurdaspur and Uran-Taloja

Notes: Annual Utilization as per March 2025

Sources: 1. PPAC March 2025

Demand-Supply Balance (1/2)

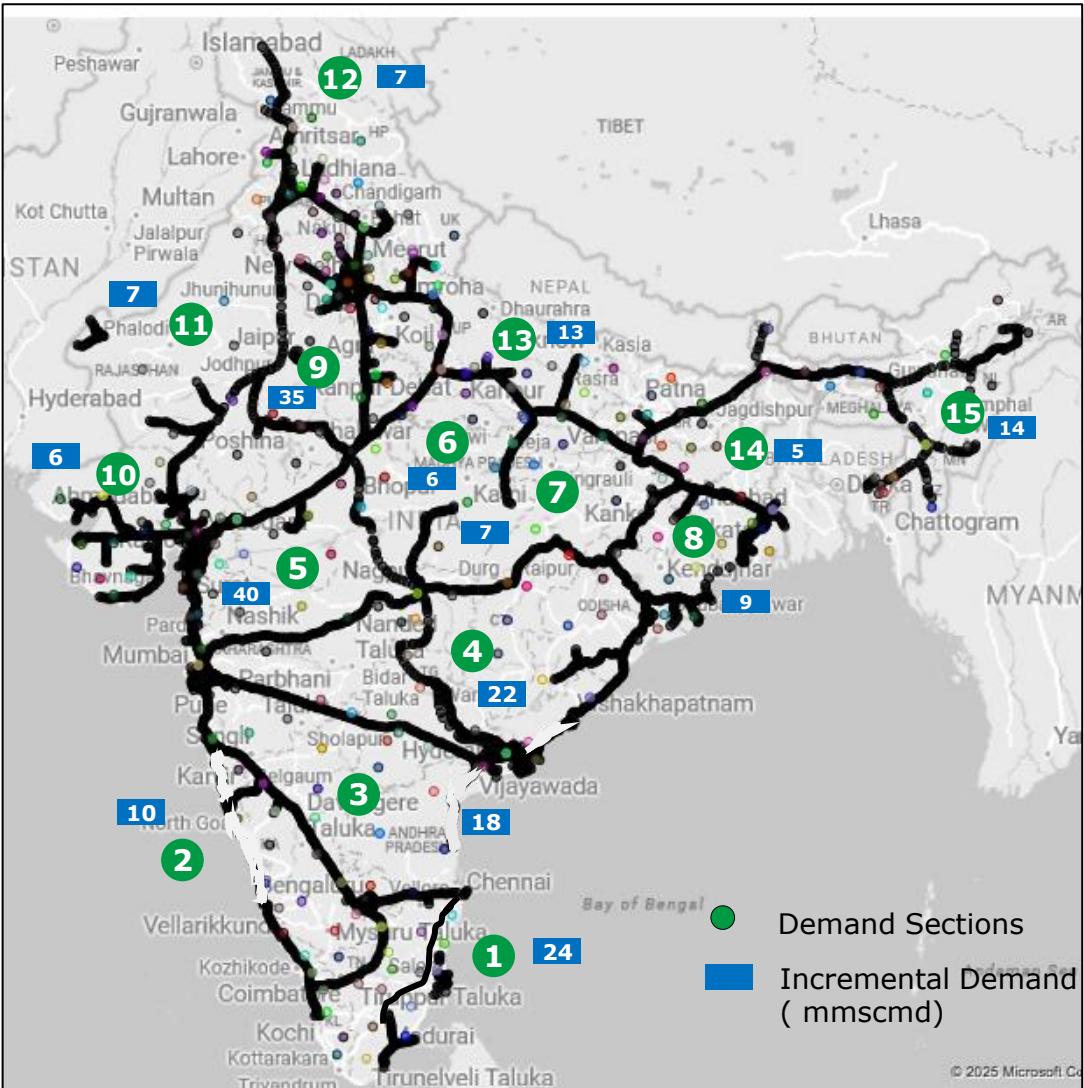
Existing infrastructure status and region-wise tentative incremental demand by 2040



Sources: 1. PPAC, PNGRB, Internal analysis

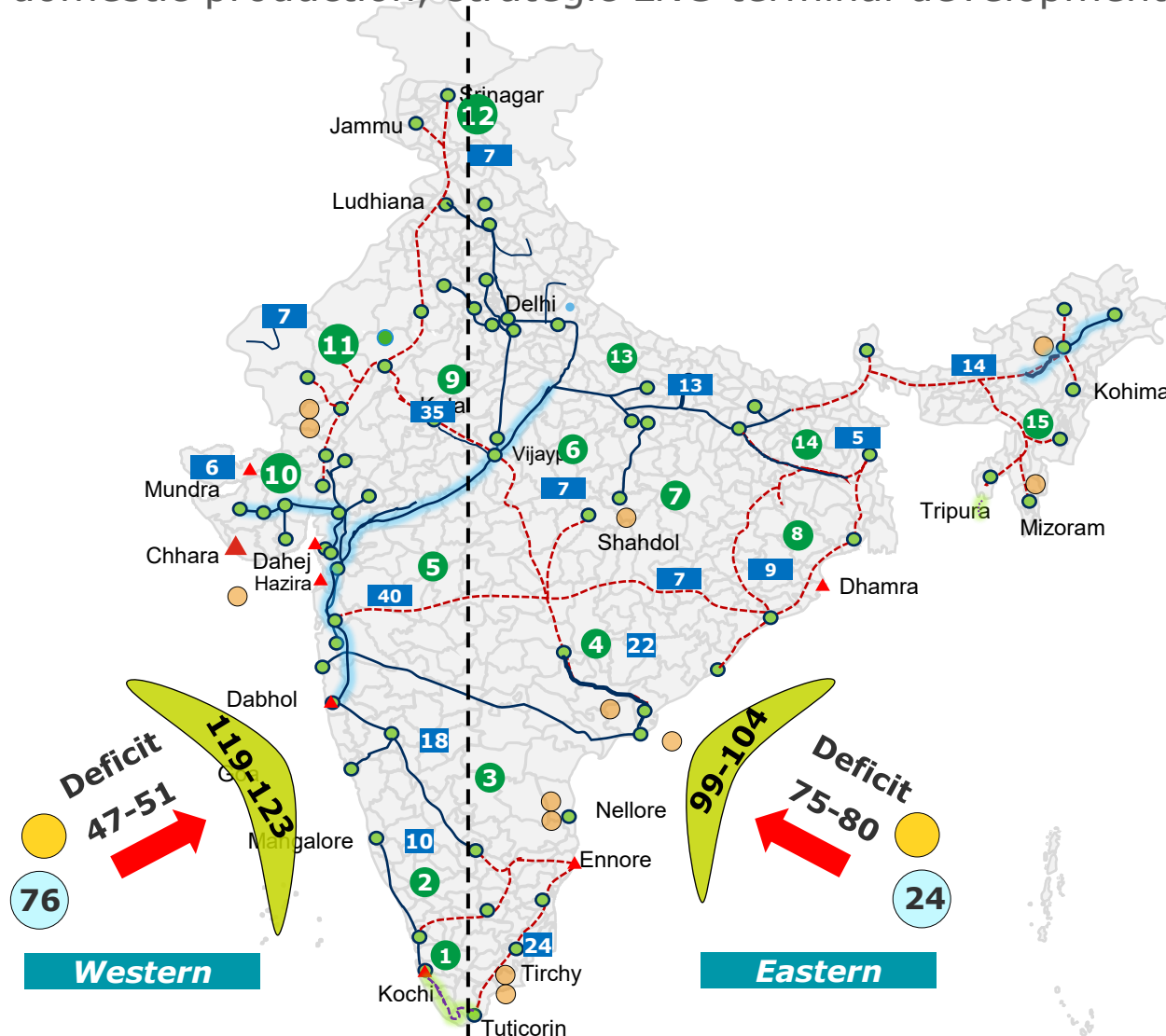
Notes: Map is not to scale and is for illustrative purpose

Tentative Incremental Demand by region in MMSCMD b/w 2025-2040



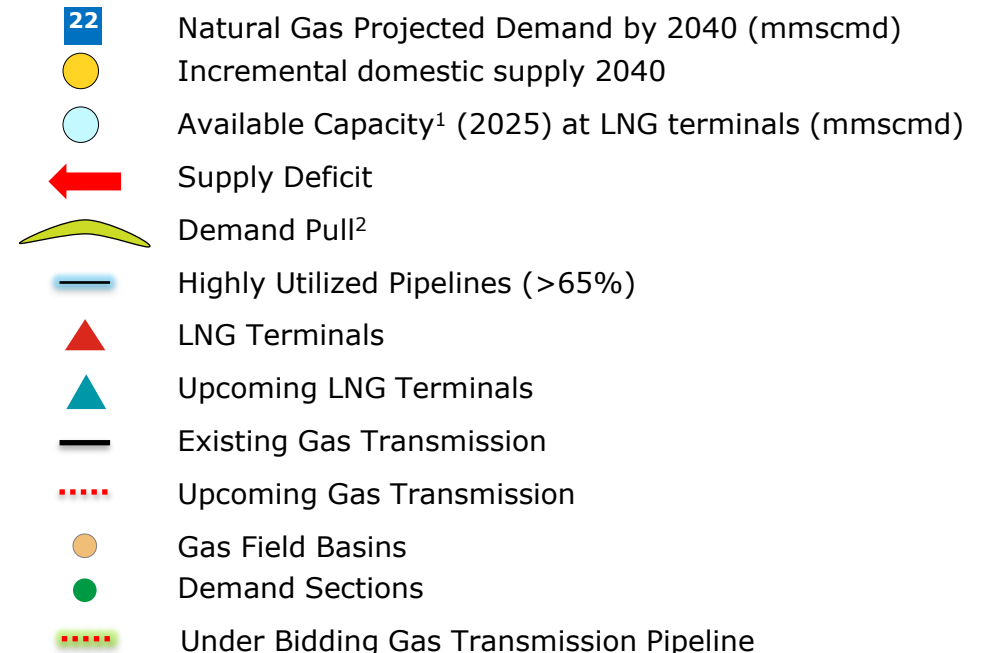
Demand-Supply Balance (2/2)

Projected supply deficits and regional demand imbalances by 2040 underscore the need for enhanced domestic production, strategic LNG terminal development, and expansion or construction of new pipelines



Key Highlights

- By 2040, a cumulative supply deficit of 122–130 MMSCMD is expected. This calls for either boosting domestic production or expanding/building LNG terminals
- Varied demand across western and eastern India may lead to a supply-demand imbalance, necessitating capacity expansions or strategic construction of new LNG terminals
- Highly utilized pipelines would require the need of capacity expansions of existing pipelines or creation of new pipelines

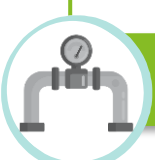


Notes: Map is not to scale and is for illustrative purpose.

Sources: 1.PPAC March 2025 (LNG Terminals available capacity); 2. Internal Analysis

Connectivity Status of Major Demand centers in India

There are demand centers which are operational or announced/under-construction but are not connected to the natural gas pipeline network

Sector	Total	Operational	Under Construction	Announced/ Under Discussion	Connectivity O&C	O&NC	
 Refinery	24 Nos	23 Nos	1* Nos	3 Nos	19 Nos	4 Nos	<i>*HPCL Barmer is under construction while BPCL Machilipatnam, ONGC Prayagraj, have been announced and RRPCL is under discussion. Bina, Haldia, Guwahati & Vizag unconnected</i>
 Power	63 Nos	35 Nos	0 Nos	0 Nos	35 Nos	0 Nos	<i>At least 20 Gas Power plants are not operating because of lack of economic viability owing to gas prices</i>
 Fertilizers	42 Nos	37 Nos	1 Nos	1 Nos	37 Nos	0 Nos	<i>Namrup-IV has been announced in FY25-26 Matrix Fertilizers Phase 2 is under Construction but connected</i>
 CGD GAs	307 Nos	307 Nos	0 Nos	0 Nos	209 Nos	98 Nos	<i>287 GAs are Gasified however PNGRB has authorized 307 GAs. CGD entities are in the process of laying STPL for connectivity</i>
 Steel	21 Nos	21 Nos	0 Nos	0 Nos	8* Nos	13* Nos	<i>Pipeline connectivity to steel industry as per sources is tentative. Hence, would require further evaluation</i>

Note: 1. O&C - Operational and connected, O&NC: Operational and Not Connected, 2. In case of CGD, operational refers to GAS that have been authorized; *Tentative
Sources: Refinery-PPAC & Industry Sources; Power- CEA Fuel Report March 2025; Fertilizers: Industry Sources & Union Budget FY25-26; CGD: PNGRB; Steel-Industry Sources

Key Takeaways

To meet rising natural gas demand and address regional supply deficits, India must develop new pipeline infrastructure aligned with domestic production, LNG import needs, and regional demand-supply dynamics

Demand

- **Rising Demand Trajectory:** India's natural gas demand is projected to reach approximately 300 MMSCMD by 2030 and 423 MMSCMD by 2040 under the base case scenario.
- **Sectoral Demand Drivers:** The primary demand will come from the City Gas Distribution (CGD) and refinery sectors, followed by fertilizer, steel, and emerging uses such as LNG trucking and bunkering.
- **Geographic Demand Pull:** Demand growth is expected to generate a pull across both western and eastern regions

Supply

- **Domestic Supply Outlook:** India's domestic natural gas production is projected to range between 100–110 MMSCMD by FY30, indicating limited growth potential in indigenous output.
- **Rising LNG Dependence:** To meet projected demand, LNG imports may need to rise to 190 MMSCMD by FY30, potentially reaching upto 313 MMSCMD by 2040.
- **Infrastructure Gap:** As of March 2025, with LNG terminal capacity at ~172 MMSCMD and domestic production around 100 MMSCMD, a supply deficit of 151 MMSCMD is anticipated by FY40—necessitating either enhanced domestic production or expansion of LNG terminal capacity

Infrastructure

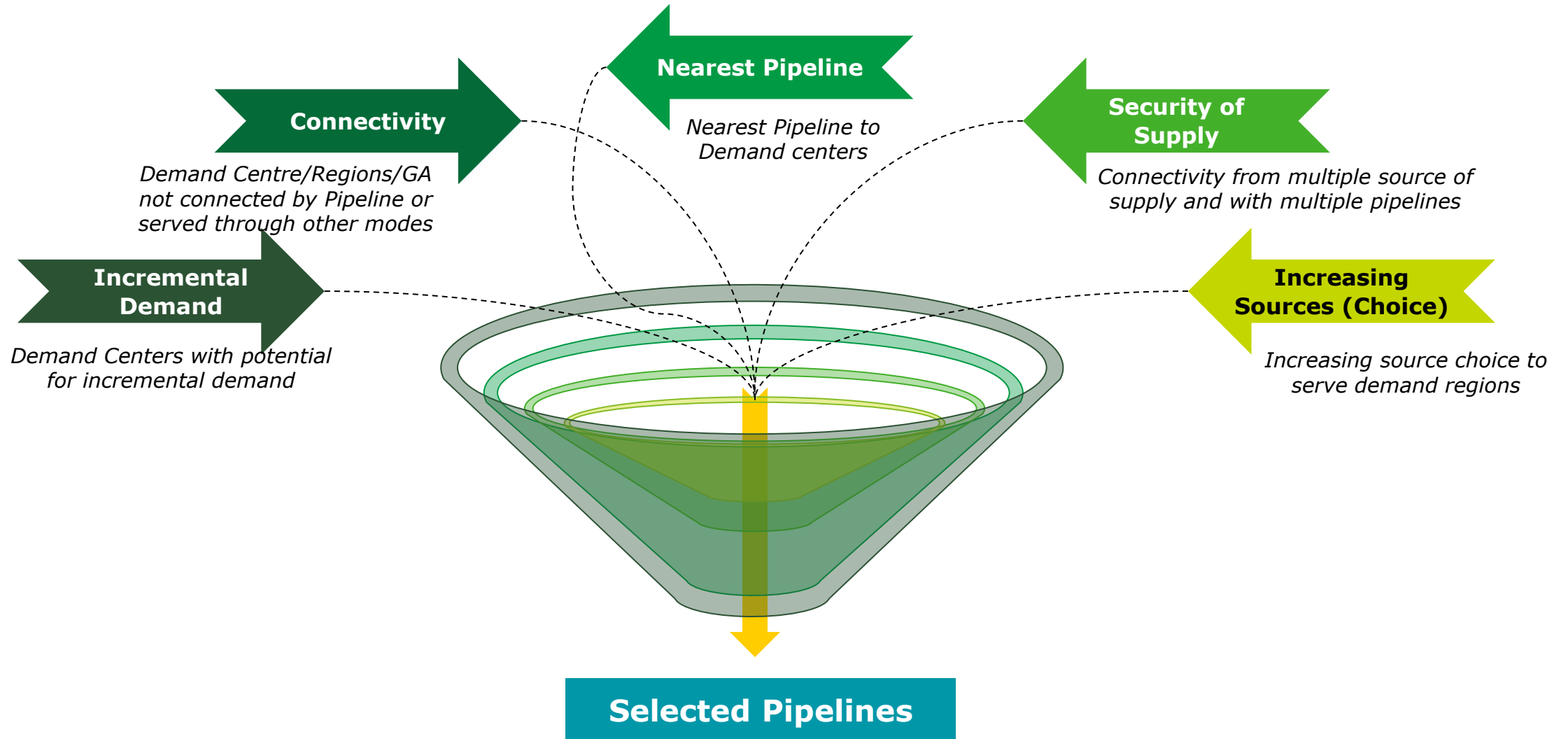
- **Phased Capacity Expansion:** With current LNG import capacity (~172 MMSCMD) falling short of future demand, phased expansion or new terminal development is essential, guided by regional demand-supply dynamics.
- **Strategic Pipeline Planning:** New pipelines and capacity upgrades must align with regional demand growth, supply security, and strategic sourcing to ensure a resilient and efficient gas distribution network.

Natural Gas Pipeline Requirement Analysis

2

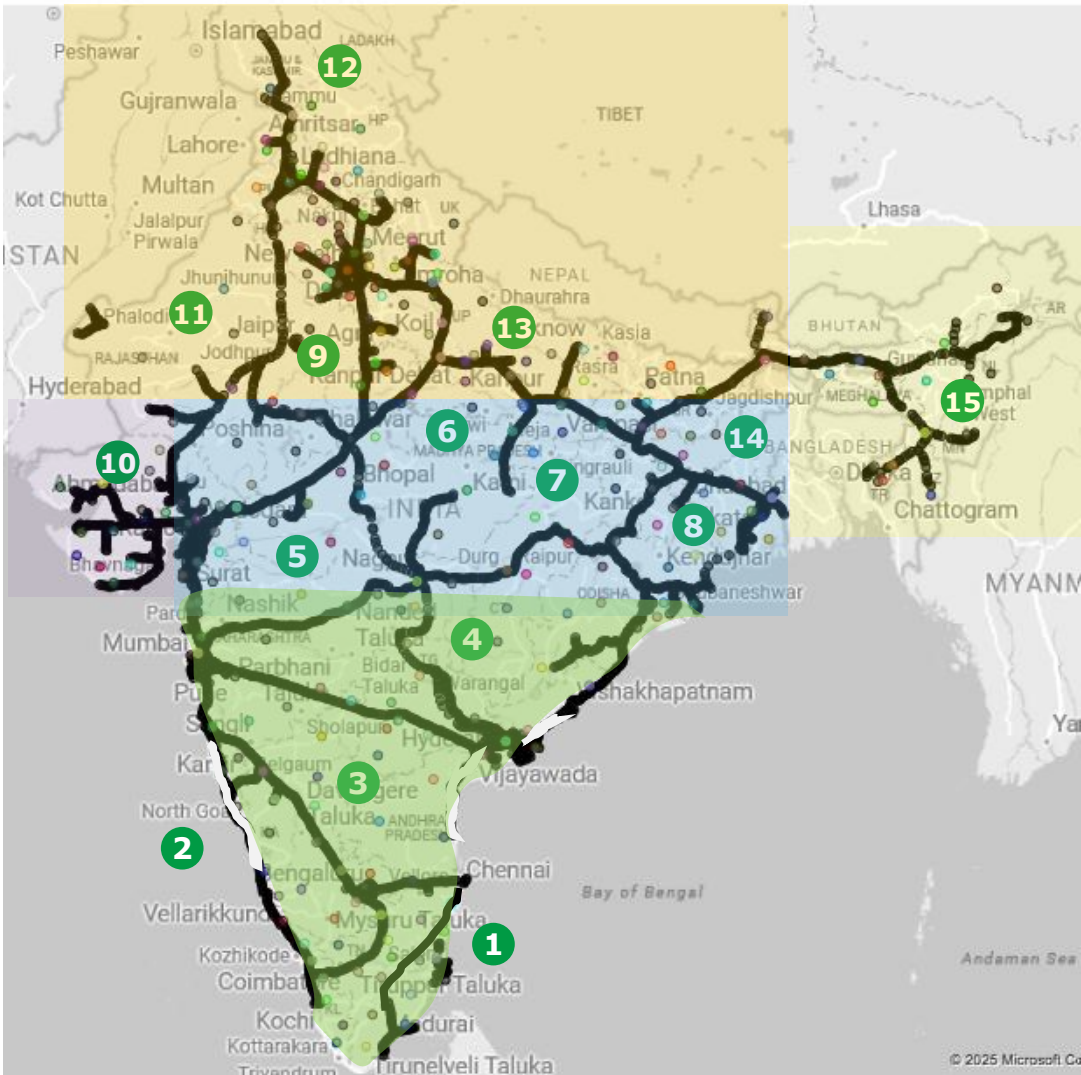
Pipeline Selection Framework

The pipeline selection framework considers multiple factors, including incremental demand, existing connectivity, proximity to the nearest pipeline, security of supply, and potential for increasing supply sources

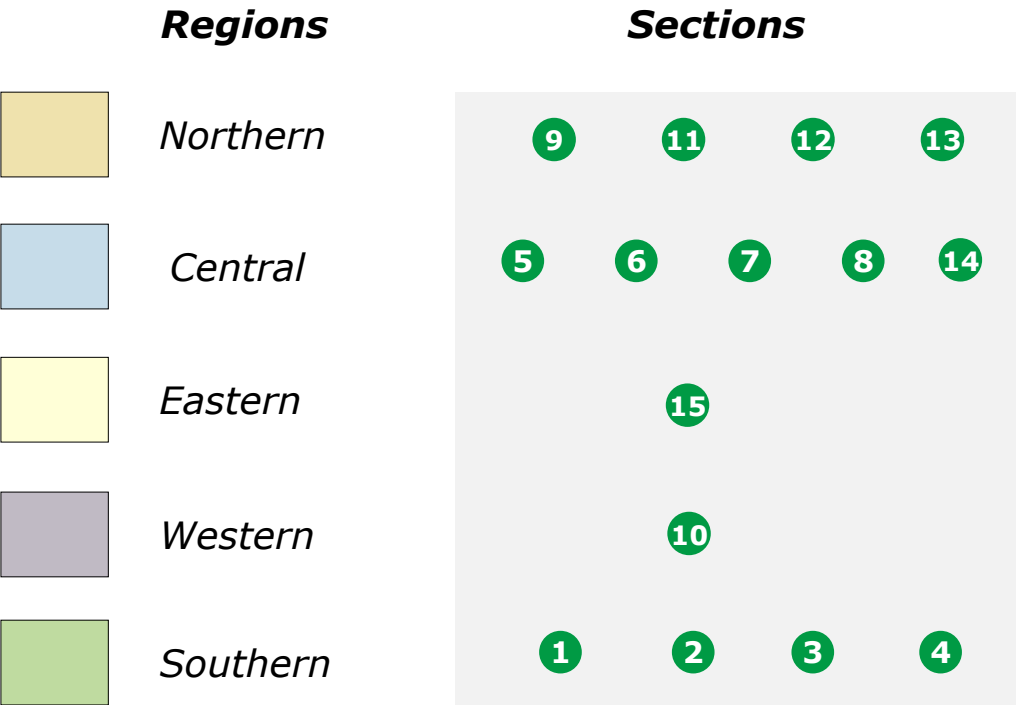


Pipeline Section wise analysis

India has been divided into five regions based on natural gas pipeline coverage, followed by a detailed sectional analysis within each region to assess pipeline requirements



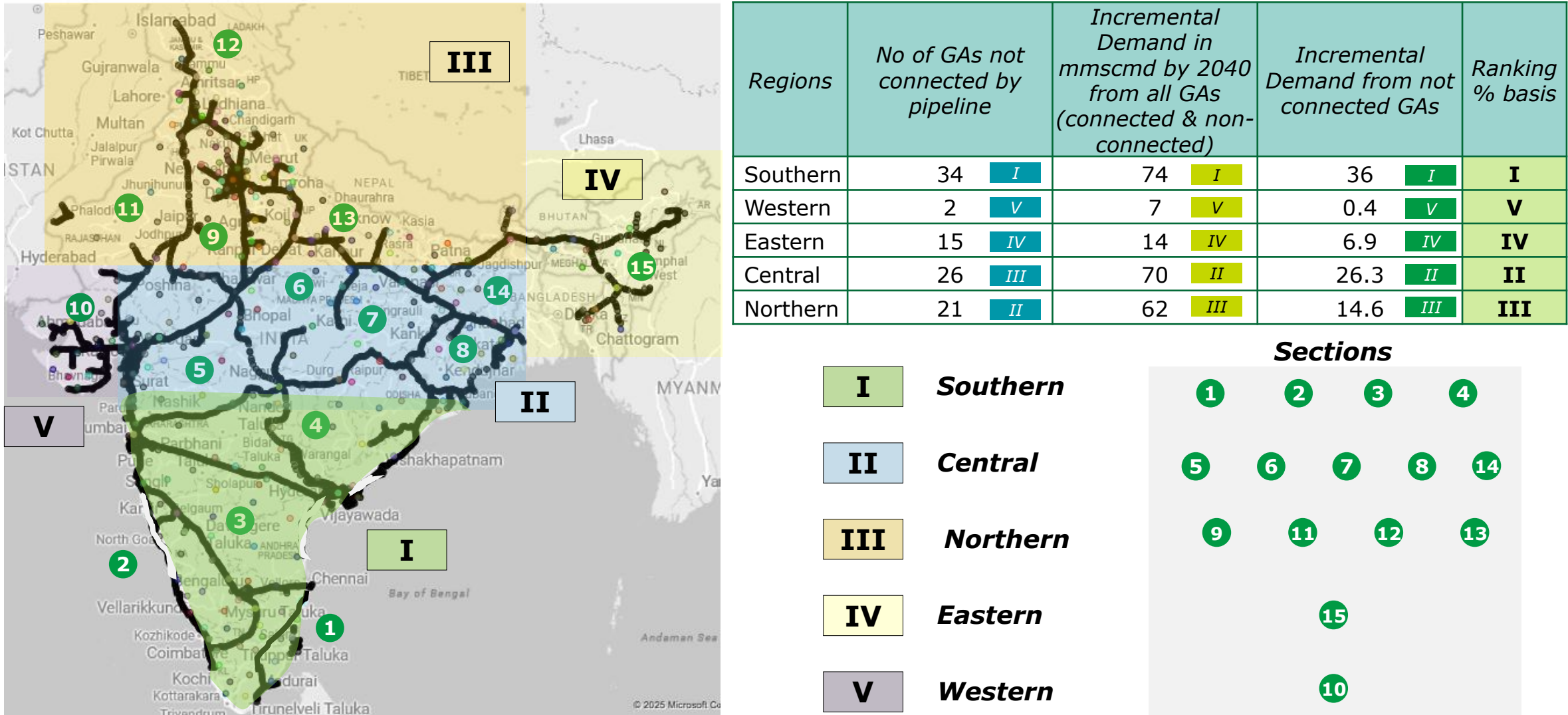
Entire India is divided into Five parts (North, Central, East, West, South) and further depending upon the regions covered by natural gas pipeline, these regions are further divided into 15 sections for the infrastructure gap analysis



Note: 1. Map is not to scale and is for illustrative purpose, 2. Assumption of regions and sections are only for purpose of analysis; Kochi-Tuticorin & Mallavaram-Srikakulam under bio
Sources:PNGRB: Notes: BGPL, GJPL, MBBPL, SAPL, MNJPL, JHBDPL (Part), IGGL, KKMBPL & ETPL (Part) are authorized and either partially commissioned or under construction or not
laid

Pipeline Section wise analysis: Ranking based on % basis on different parameters

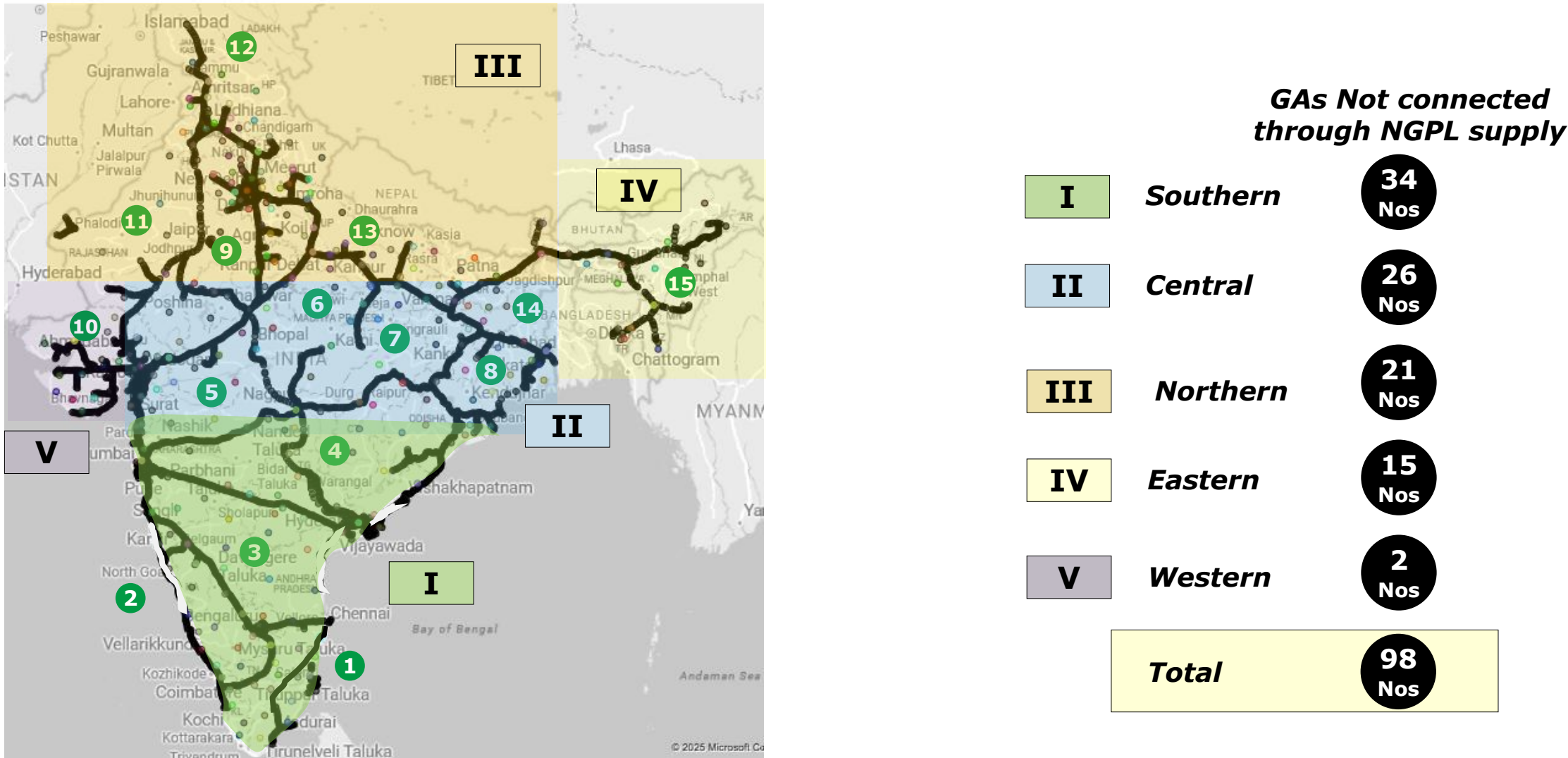
Southern and Northern regions stands out in terms of incremental demand from connected and non-connected GAs & prioritization in terms of connectivity and regions served by L-CNG



Note: BGPL, GJPL, MBBPL, SAPL, MNJPL, JHBDPL (Part), IGGL, KKMBPL & ETPL (Part) are authorized and either partially commissioned or under construction
 Sources: PNGRB, Deloitte Analysis; Notes: Kochi-Tuticorin & Mallavaram-Srikakulam under bid

Pipeline Section wise analysis: Ranking based on % basis on different parameters

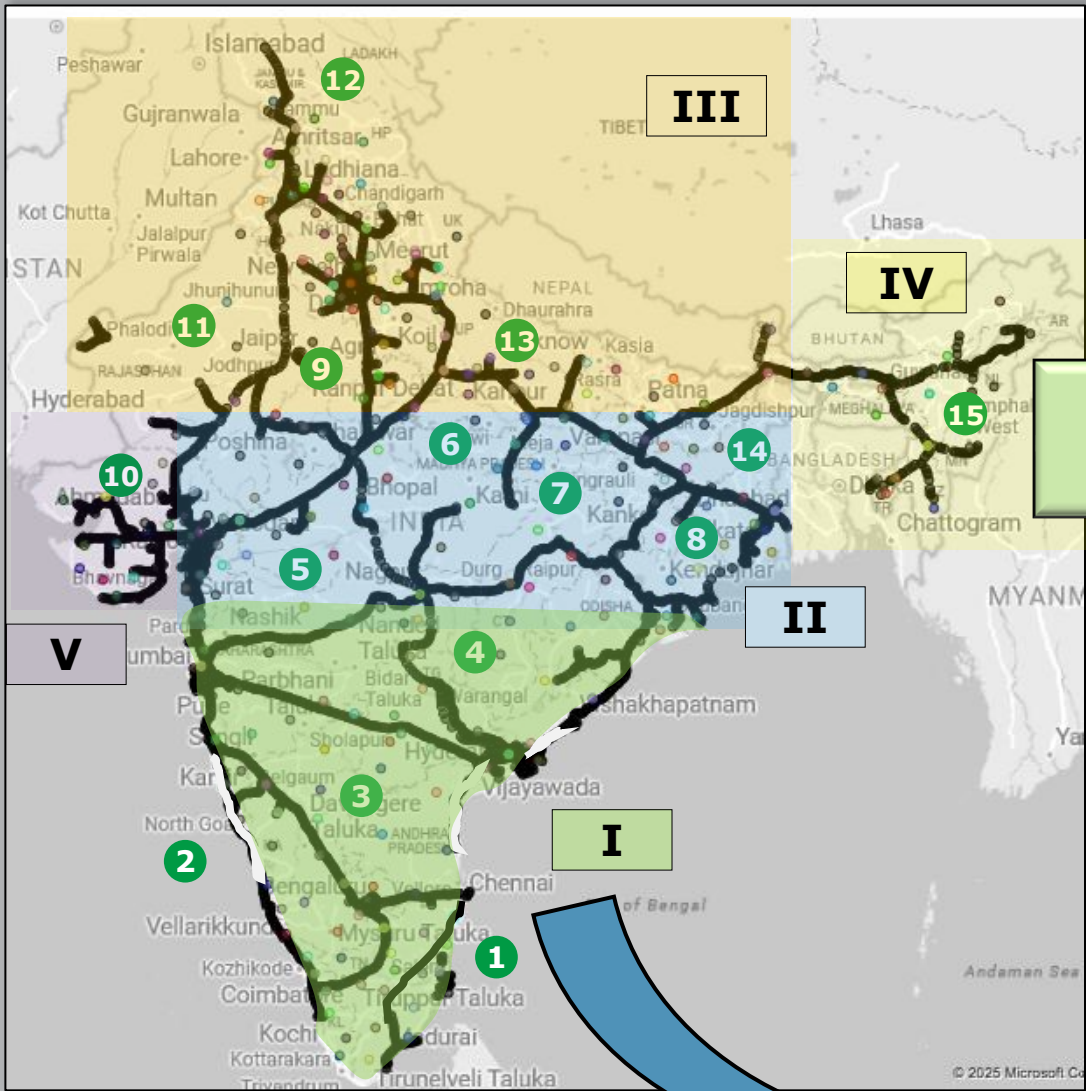
Southern Region and Northern regions stands out in terms of incremental demand from connected and non-connected GAs & prioritization in terms of connectivity and regions served by L-CNG



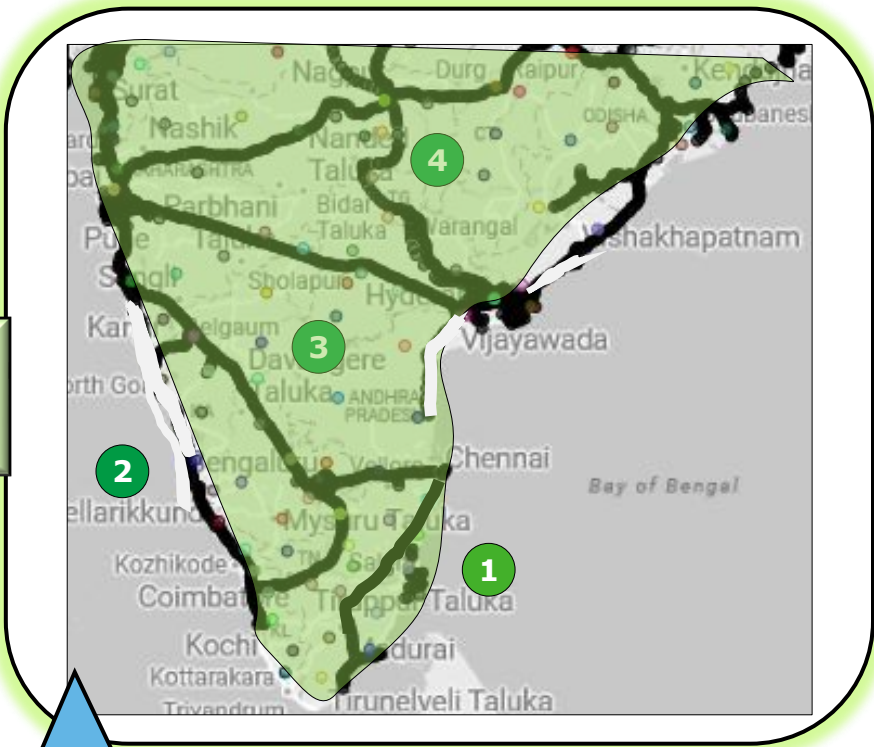
Note: BGPL, GJPL, MBBPL, SAPL, MNJPL, JHBDPL (Part), IGGL, KKMBPL & ETPL (Part) are authorized and either partially commissioned or under construction
 Sources: Industry discussions, PNGRB, Deloitte Analysis; Notes: Kochi-Tuticorin & Mallavaram-Srikakulam under bid



Section wise pipeline analysis | Southern Region



Southern Region



Southern Region has been further analyzed by dividing into 4 sections -1,2,3, and 4

Section wise pipeline analysis | Southern Region

Overall incremental demand in the southern region is projected to be ~70–74 MMSCMD by 2040, with 34 out of 88 GAs currently unconnected to the pipeline network, representing huge potential for demand

Southern Region



Key Highlights for *Southern Region*

1

Incremental Demand in this region is ~70-74 mmscmd

2

34 GAs are not connected through pipeline

3

This region is served by natural gas pipelines such as KKMBPL, DBPL, DUPL, Ennore Tuticorin, Ennore-Bangalore, East-West Pipeline with few pipelines under construction or planning

4

In this region, all major anchor loads – refineries, fertilizers and active gas based powerplants are connected through pipelines

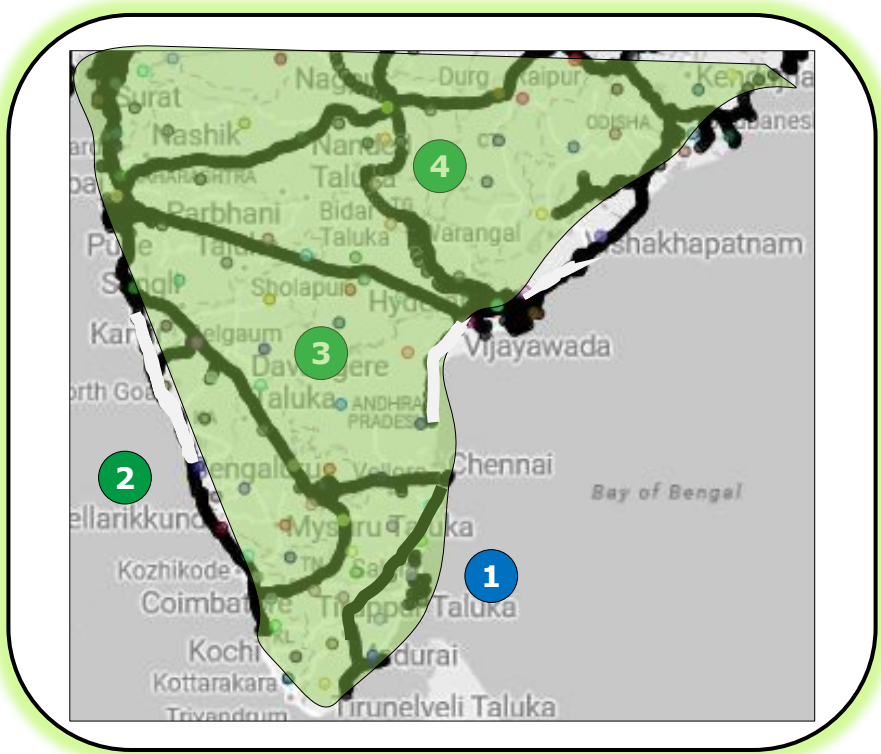
Note: MNJPL/MBPL is under construction; Kochi-Kanyakumari-Tuticorin is under bidding and planning;

Sources: PNGRB, Industry sources, Internal Analysis

Section wise pipeline analysis | Southern Region | Section 1-(1/4)

Overall incremental demand in Tamil Nadu/Kerala Region is projected to be ~23-24 MMSCMD by 2040, with 9 GAs currently unconnected to pipeline network with region covered by KKMBPL & Ennore Tuticorin UC PL

Section 1



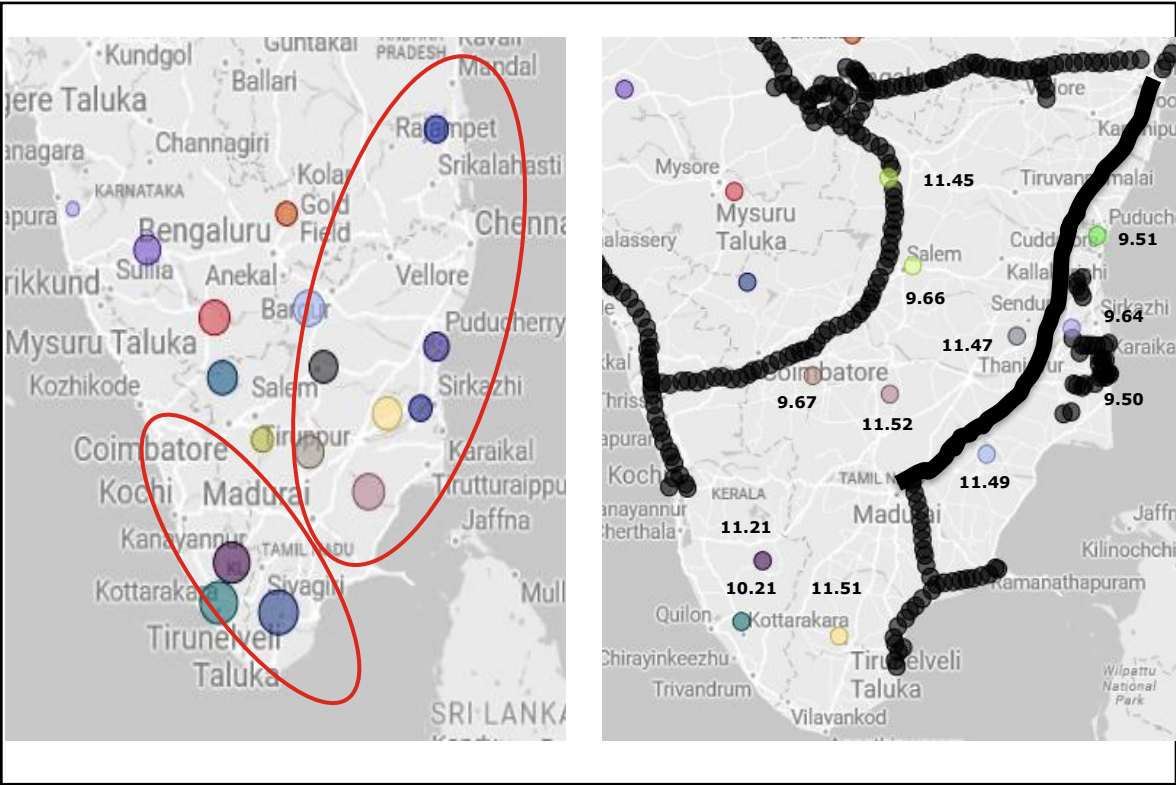
Key Insights for Section 1

- 1 Incremental Demand in this section is ~23-24 mmscmd
- 2 9 GAs are not connected through pipeline
- 3 Currently 3 natural gas pipelines are passing through this section- KKMBPL, Ennore Tuticorin, Ennore-Bangalore
- 4 In this section, all major anchor loads –refineries, Fertilizers and active gas power plants are connected through pipeline

Section wise pipeline analysis | Southern Region | Section 1-(2/4)

Incremental demand intensity analysis of the region highlights the presence of strong demand clusters, particularly around Trivandrum, Tirunelveli, Idukki-Kottayam corridor, Karur, underscoring the need for NGPL

Section 1



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.51	Puducherry District	Puducherry (UT)
9.64	Cuddalore, Nagapattinam & Tiruvarur Districts	Tamil Nadu
9.66	Salem District	Tamil Nadu
9.67	Tiruppur District	Tamil Nadu
10.21	Alapuzzha, Kollam and Thiruvananthapuram Districts	Kerala
11.21	Idukki, Kottayam and Pattanamtitta districts	Kerala
11.45	Dharmapuri and Krishnagiri districts	Tamil Nadu
11.51	Kanyakumari, Thoothukudi, Tirunelveli Kattabo and Tenkasi districts	Tamil Nadu
11.52	Dindigul and Karur districts	Tamil Nadu

Section wise pipeline analysis | Southern Region | Section 1-(4/4)

NGPL-Kochi-Trivandrum, Tirunveli- Tuticorin and Tirchy-Karur-Erode would significantly address the demand-supply gap and supply security of this section

Section 1



Pipeline Route (NGPL/Spur)	Length (Km)	GA Connectivity	Pipeline Selection
Spur-KKMBPL-Erode to Karur / ETPL Tirchy-Karur	40/45	11.52	✓ ✓ ✓ ✓
Kochi-Trivandrum-Kanyakumari-Tuticorin	340	11.21,10.21, 11.51	✓ ✓ ✓ ✓

- 1Connectivity for GA-9.51, 9.64 can be taken from spur extended from ETPL to these GAs
- 2Connectivity for GA-(9.66, 9.67) can be taken from ETPL and KKMBPL as ETPL and KKMBPL route covers both of GA groups
- 4For GA -11.52, connectivity could be provided from KKMBPL and ETPL to Karur considering choice of two pipelines for this GA

Section wise pipeline analysis | Southern Region | Section 2-(1/4)

Overall incremental demand in Karntaka/Kerala Region is projected to be ~9-10 MMSCMD by 2040, with 4 GAs currently unconnected to pipeline network with region covered by KKMBPL, DBPL Bangalore/Goa section

Section 2



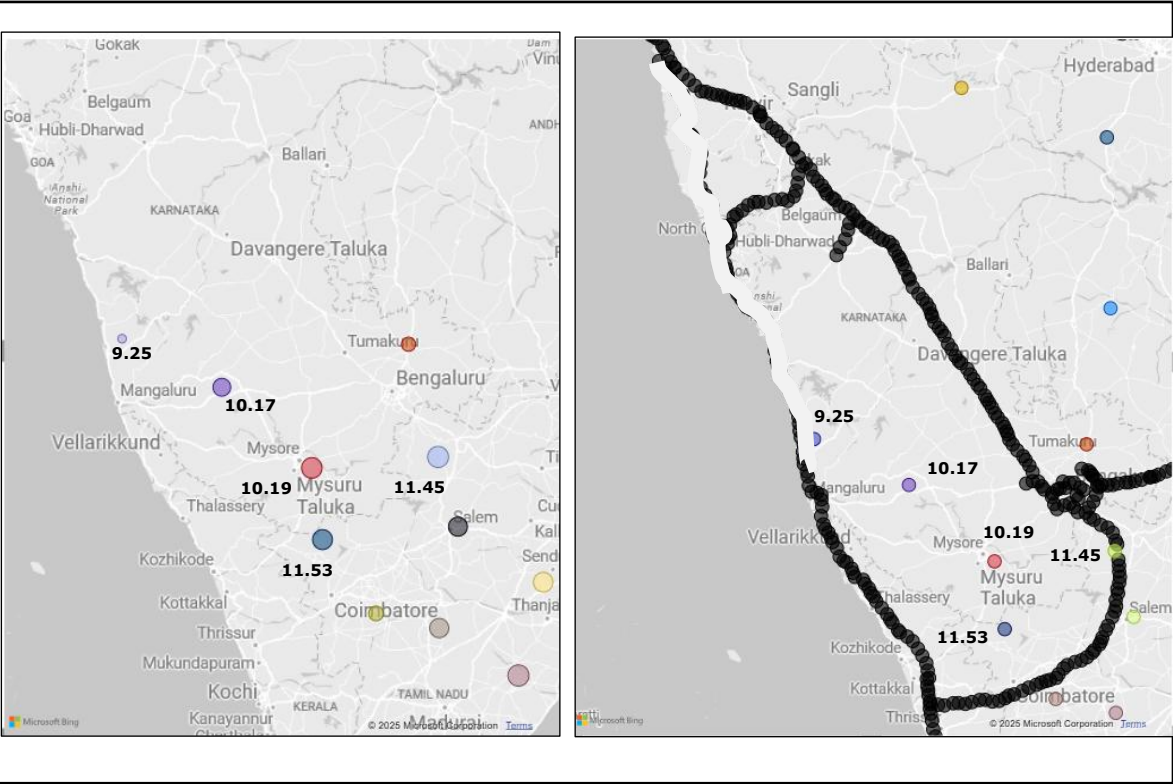
Key Insights for Section 2

- 1 Incremental Demand in this section is ~9-10 mmscmd
- 2 4 GAs are not connected through pipeline
- 3 Currently 3 natural gas pipelines are passing through this section-
KKMBPL-Mangalore, Dabhol Bangalore, DBPL-Goa
- 4 In this section, all major anchor loads – refineries, fertilizers plants and active Powerplants are connected through natural gas pipelines.
However, 4 GAs are not connected

Section wise pipeline analysis | Southern Region | Section 2-(2/4)

KKMBPL and Dabhol-Bangalore pipeline section cover majority of the demand center in this section of the region

Section 2



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.25	Udupi District	Karnataka
10.17	Chikkamagaluru, Hassan and Kodagu Districts	Karnataka
10.19	Mysuru, Mandya and Chamarajanagar Districts	Karnataka
11.53	The Nilgiris and Erode districts	Tamil Nadu

Section wise pipeline analysis | Southern Region | Section 2-(4/4)

Post completion of STPLs in this section, 100% connectivity of GAs can be achieved

Section 2



Key Takeaways

- 1 Connectivity for **GA-9.25, 10.17 and 10.19** is taken by CGD entity from KKMBPL, DBPL and DBPL by extending STPL
- 2 Connectivity for **GA-11.53** can be taken from KKMBPL as KKMBPL is already passing through both of these GA

Section wise pipeline analysis | Southern Region | Section 3 -(1/4)

Overall incremental demand in this section of Karnataka/AP/Telangana/Maharashtra region is projected to be ~17-18 MMSCMD by 2040, with 8 GAs currently unconnected to pipeline network

Section 3



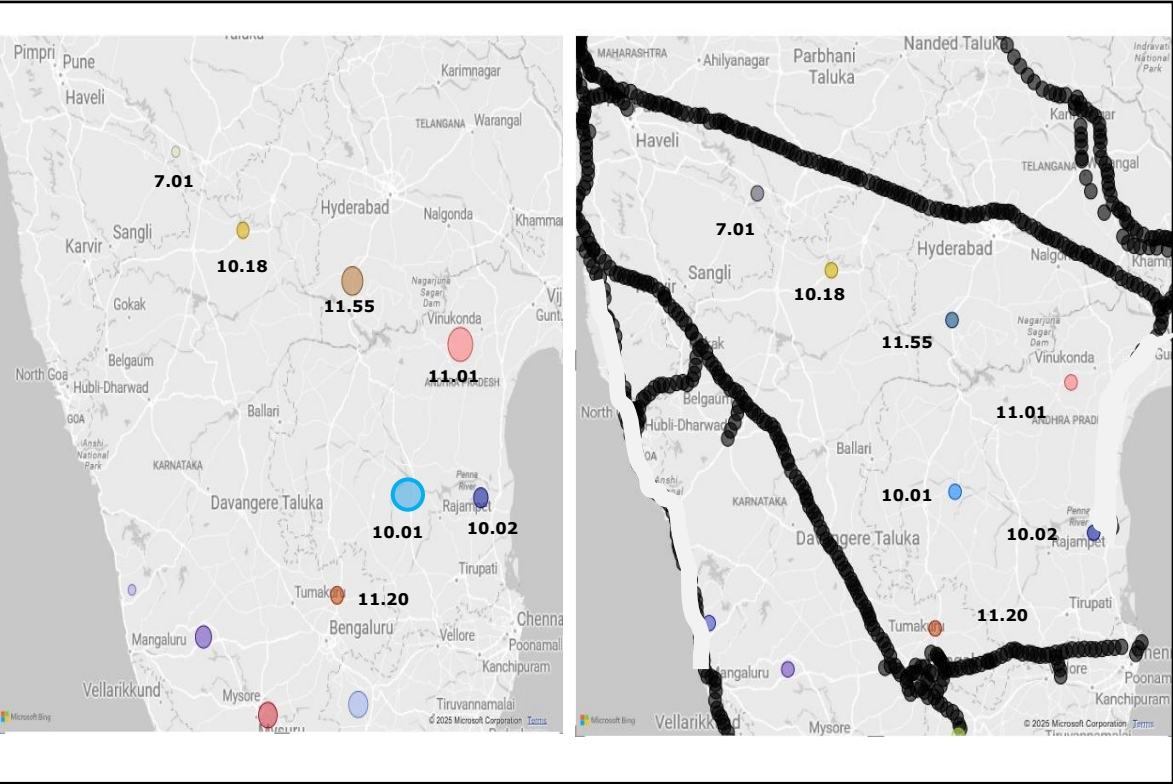
Key Insights for Section 3

- 1 Incremental Demand in this section is ~17-18 mmscmd
- 2 8 GAs are not connected through pipeline with 2 GAs served through L-CNG station (10.01,10.02) and one other connected GA has L-CNG station i.e. 10.16)
- 3 Currently 4 natural gas pipelines are passing through this section- Dabhol Bangalore, Dahej-Uran-Panvel-Dabhol-Pipeline and East-West Pipeline and parts of KG Basin Network
- 4 In this section, all major anchor loads –refineries, Fertilizers and active Powerplants are connected through natural gas pipelines. However, 8 GAs are not connected

Section wise pipeline analysis | Southern Region | Section 3 -(2/4)

This section of the region currently lacks adequate natural gas pipeline infrastructure, despite the presence of potential demand centers

Section 3



List of GAs not connected through pipeline

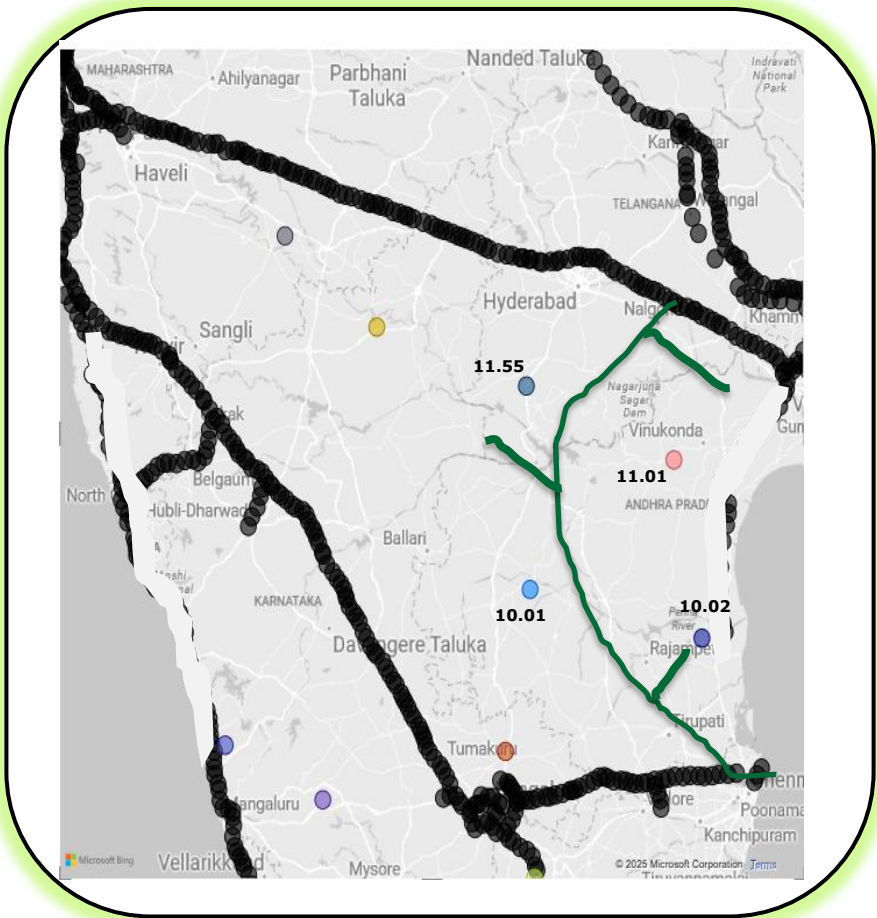
GA ID	Geographical Area	State/UT
7.01	Solapur District	Maharashtra
10.01	Anantapur and YSR (Kadapa) Districts	Andhra Pradesh
10.02	Sri Potti Sriramulu Nellore District	Andhra Pradesh
10.18	Kalaburagi and Vijayapura Districts	Karnataka
11.01	Kurnool, Guntur, and Prakasam districts	Andhra Pradesh
11.2	Chikkaballapur district	Karnataka
11.55	Jogulamba Gadwal, Nagarkurnool, Mahabubnagar, Narayanpet, Wanaparthy and Yadgir districts	Telangana and Karnataka
11A.06	Yanam	Puducherry

Sources: PNGRB, Industry sources, Internal Analysis

Section wise pipeline analysis | Southern Region | Section 3 -(4/4)

Ennore-Nellore-Kurnool-Suryapet and Suryapet-Ongole would address the demand-supply gap and establish security of supply in the southern region

Section 3



Pipeline Route (NGPL/STPL)	Length (Km)	GA Connectivity	Pipeline Selection
Ennore-Nellore-Tirchy-Kadapa-Kurnool-Nagarkurnool-Suryapet	630	10.01,10.02, 11.55	✓ ✓ ✓ ✓
Spurline Tirupati-Nellore	65	10.03	✓ ✓ ✓
Spurline Kurnool-Raichur	70	10.16	✓ ✓ ✓ ✓
Proposed Suryapet-Guntur	100	11.01	✓ ✓ ✓ ✓

Key Takeaways

- 1
- Ennore-Suryapet pipeline to be laid covering the GAs -10.01, 10.02, 11.55, 11.01 such that interior regions of this section receive connectivity
- 2
- Since, GA-11A.06 (Yanam) is only 4 Km away from EWPL, hence connectivity can be taken by extending STPL pipeline after installation of CGS

Section wise pipeline analysis | Southern Region | Section 4 -(1/5)

Overall incremental demand in this section of Telangana/Maharashtra/Chhattisgarh/Orissa region is projected to be ~21-22 MMSCMD by 2040, with 13 GAs currently unconnected to pipeline network

Section 4



Key Insights for Section 4

1

Incremental Demand in this section is ~21-22 mmscmd

2

13 GAs are not connected through pipeline

3

Currently 3 natural gas pipelines are passing through this section- MNJPL, East West Pipeline, and Mallavaram-Ramagundam Pipeline section

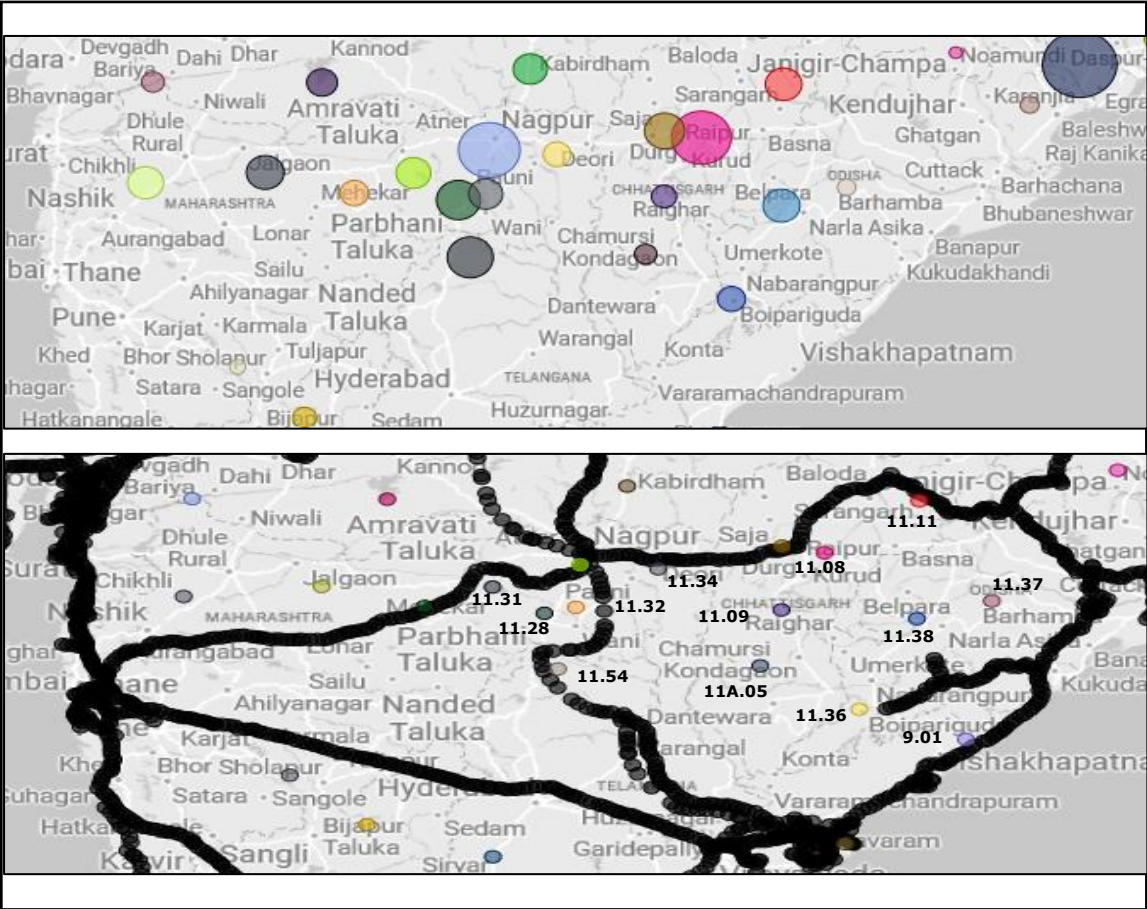
4

In this section, all major anchor loads – refineries, fertilizers and active powerplants are connected through natural gas pipelines. However, 13 GAs are not connected

Section wise pipeline analysis | Southern Region | Section 4 -(2/5)

This region consists of five pipelines- MNJPL (UC), East-West pipeline, SAPL (UC), Mallavaram- Angul under bidding, and incomplete MBBPL.

Section 4



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.01	Srikakulam, Visakhapatnam & Vizianagaram Districts	Andhra Pradesh
11.08	Baloda Bazar, Gariyaband and Raipur districts	Chhattisgarh
11.09	Kabirdham, Raj Nandgaon and Kanker districts	Chhattisgarh
11.11	Jashpur, Raigarh, Janjgir-Champa and Mahasamund	Chhattisgarh
11.28	Buldana, Nanded and Parbhani districts	Maharashtra
11.31	Amravati and Yavatmal districts	Maharashtra
11.32	Chandrapur and Wardha districts	Maharashtra
11.34	Bhandara, Gondiya and Garchiroli districts	Maharashtra
11.36	Koraput, Malkangiri, and Nabarangpur districts	Odisha
11.37	Gajapati, Kandhamal, Boudh and Sonepur districts	Odisha
11.38	Rayagada, Kalahandi, Bolangir and Nuapada districts	Odisha
11.54	Nizamabad, Adilabad, Nirmal, Mancherial Kumuram Bheem Asifabad and Kamareddy districts	Telangana
11A.05	Kondagaon, Bastar, Sukma, Narayanpur, Bijapur and Dantewada districts	Chhattisgarh

Section wise pipeline analysis | Southern Region | Section 4 -(5/5)

Connectivity to the presently non-connected Geographical Areas (GAs) in this region is anticipated following the implementation of promised pipeline projects, either under bidding or formal proposal

Section 4

Key Takeaways



- 1 Connectivity for GA-**11.09** can be taken at Rajnandgaon and interiors districts of the GA could be connected by extending STPL of length approximately 75 Km
- 2 MNJPL and SAPL to be commissioned to enable connectivity to GAs as the pipeline is passing through GAs-**11.08, 11.11, 11.30, 11.31, 11.32, 11.33, 11.34** and GAs-**11.36, 11.37, 11.38** respectively
- 2 For 11A.05, since the demand is very less in this region, it is proposed to serve this region by establishing pipeline connectivity from adjoining GA- 11.36

Key takeaways | Southern Region (1/2)

CGD connectivity within respective GAs, along with development of proposed pipelines to southern interior demand centers, will be key to ensuring comprehensive regional coverage

	<i>GAs Not connected</i>	<i>GAs being extended by existing PL</i>	<i>GAs proposed to be connected by PL bid by PNGRB</i>	<i>GAs connected by new proposed PL</i>	<i>Total GAs remain unconnected</i>	<i>Pipelines</i>
Section 1	9 Nos	6 Nos	KKMBPL /ETPL	3 Nos	0 Nos	• ETPL-Tirchy-Karur/ KKMBPL-Erode-Karur
Section 2	4 Nos	4 Nos	KKMBPL /DBPL	0 Nos	0 Nos	
Section 3	8 Nos	4 Nos	EWPL/EBPL/DBPL	0 Nos	4 Nos	• Ennore-Suryapet • Suryapet-Guntur • Tirupati-Nellore • Kurnool-Raichur
Section 4	13 Nos	12 Nos	SAPL/MBBPL	0 Nos	0 Nos	
Total	34 Nos	26 Nos		3 Nos	4 Nos	1 GA (11A.05) of Chhattisgarh

Note: KKMBPL: Kochi-Kottanad-Mangalore-Bangalore-Pipeline, Ennore-Tuticorin-Pipeline, DBPL-Dabhol-Bangalore, SAPL-Srikakulam-Angul, MBBPL-Mallavaram-Bhopal-Bhilwara
Sources: PNGRB, Industry sources, Internal Analysis

Key takeaways | Southern Region (2/2)

Vizag Refinery and CPCL CBR to be connected via upcoming UC pipelines and with grid connectivity of Tamil Nadu's gas based power plants to ETPL

Other Focus Area for PNGRB in this Region

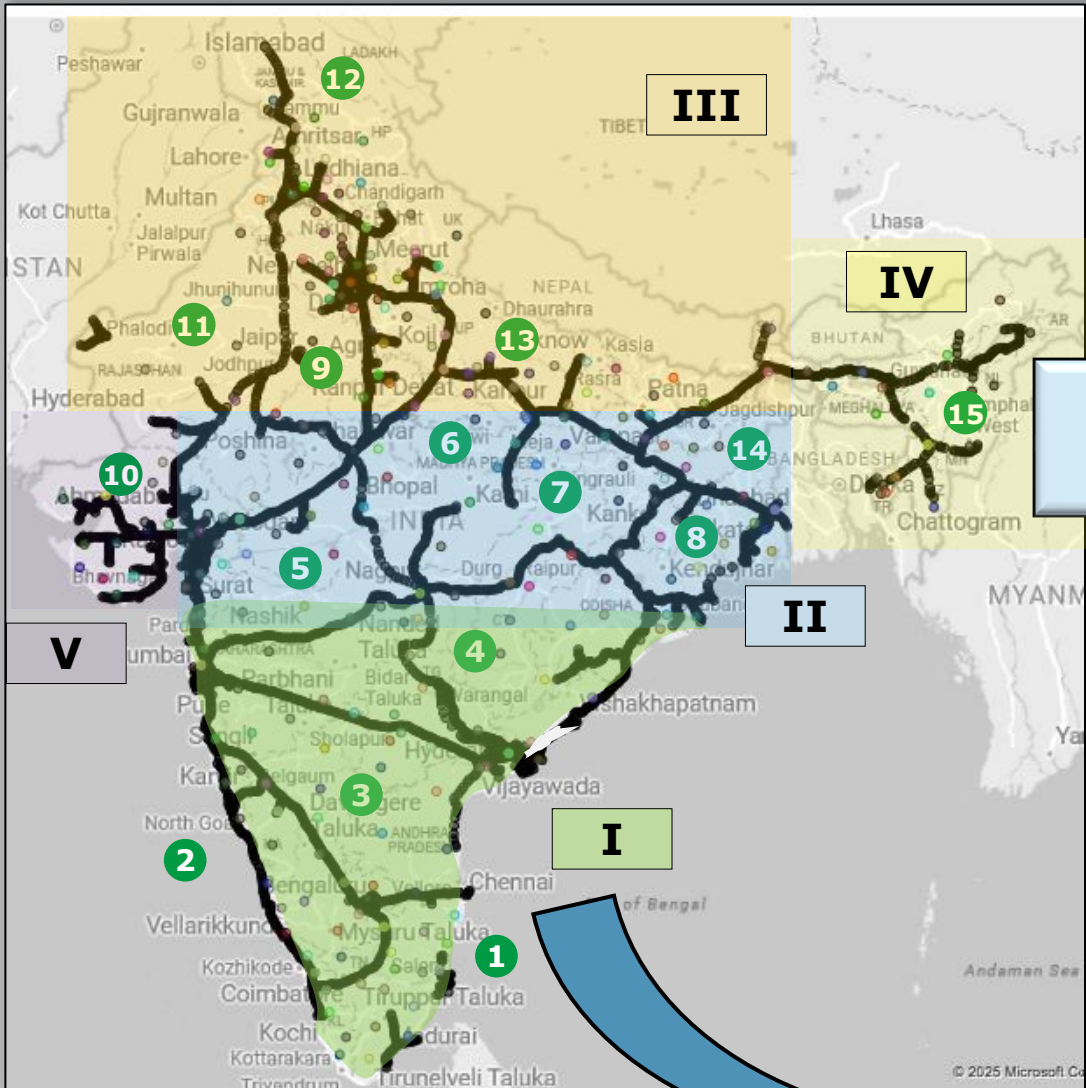
Sector	Total	Operational	Connectivity		Remarks
			O&C	O&NC	
 Refinery	6 Nos	6 Nos	4 Nos	2 Nos	- BPCL Machilipatnam Refinery¹ ~12 MMTPA is under planning and hence suitable provision for connectivity to be planned post location finalization. - Connectivity of HPCL Vizag and CPCL CBR to be achieved via SAPL and ETPL respectively
 Power	28 Nos	8 Nos	8 Nos	0 Nos	
 Fertilizers	8 Nos	8 Nos	8 Nos	0 Nos	- All Power plants are connected through pipeline. However, many² are not active. - Here, the term 'operational' refers to power plants that have historically consumed gas and are currently active.

Note: O&C: Operational and connected and O&NC: Operational and Not connected

Note: Refinery-Kochi, Manali, CBR, MRPL, Tatipaka, Vizag; Fertilizers: SPIC, MCF, Manali, ZIL Goa, RCF-Thal, NFCL-Kakinada I&II, Ramagundam, Power: MH-Ratnagiri, Uran, Mangaon

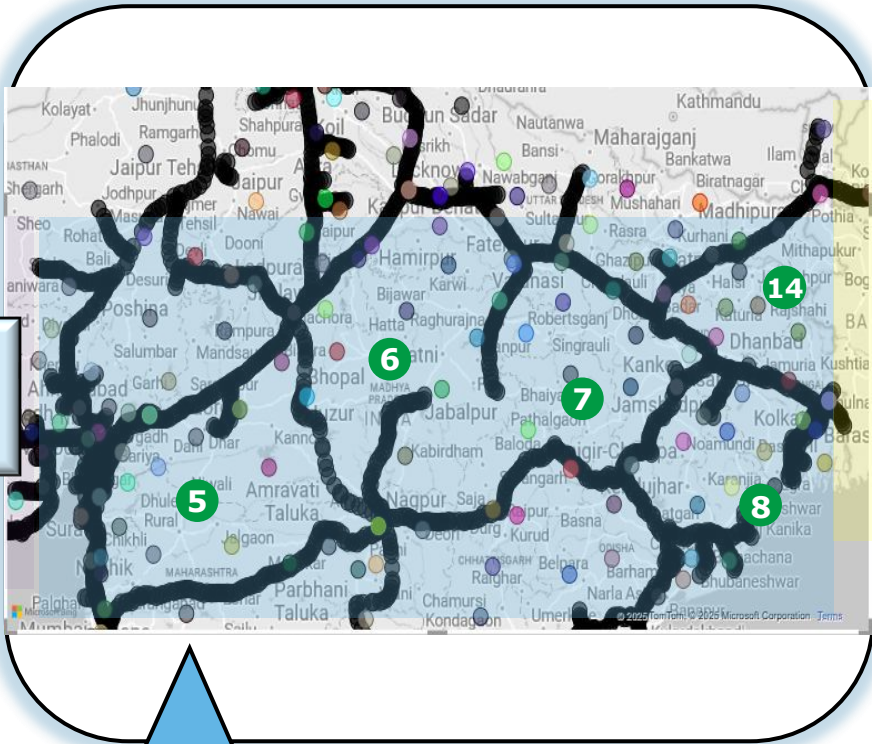
Sources: 1. The [Hindu](#); 2. CEA Fuels Consumption Report March 2025; Notes Continued Power: TN-Valuthur, Kutalam, and 4 others, AP: Kodapalli, Karaikkal, KA: Yelahanka

Section wise pipeline analysis | Central Region



II

Central Region

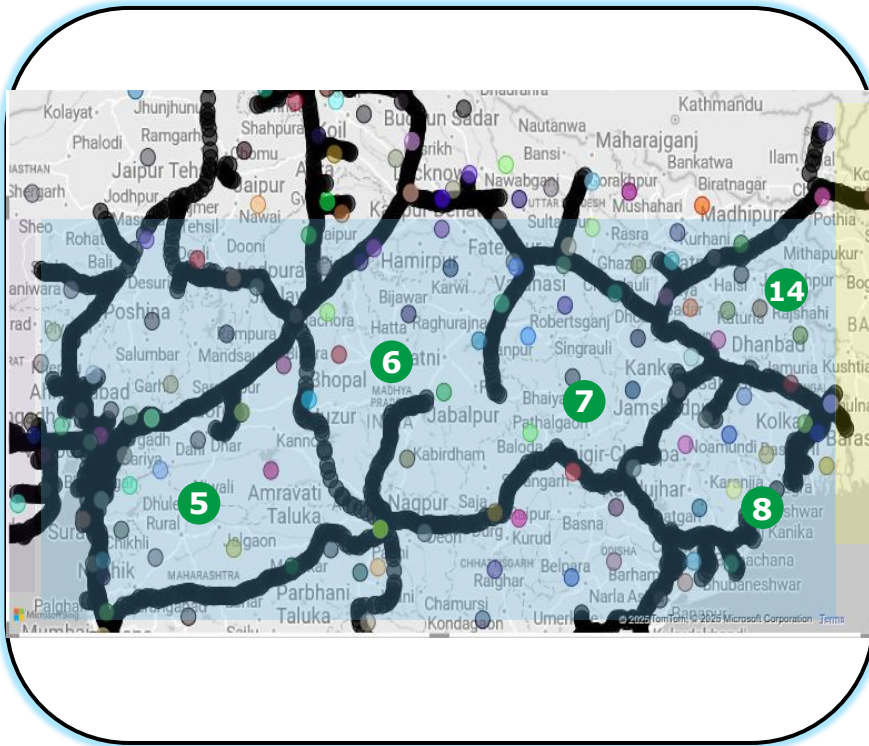


Central Region has been further analyzed by dividing into 5 sections -5,6,7,8 and 14

Section wise pipeline analysis | Central Region

Overall incremental demand is the highest ~65-70 mmscmd in this region with 26 GAs not connected through pipeline

Central Region



Key Insights for Central Region

1

Incremental Demand in this section is ~65-70 mmscmd

2

26 GAs are not connected through pipeline

3

Currently 4 natural gas pipelines are passing through this section- MNJPL, HVJ, DUPL, GSPL-HP pipeline

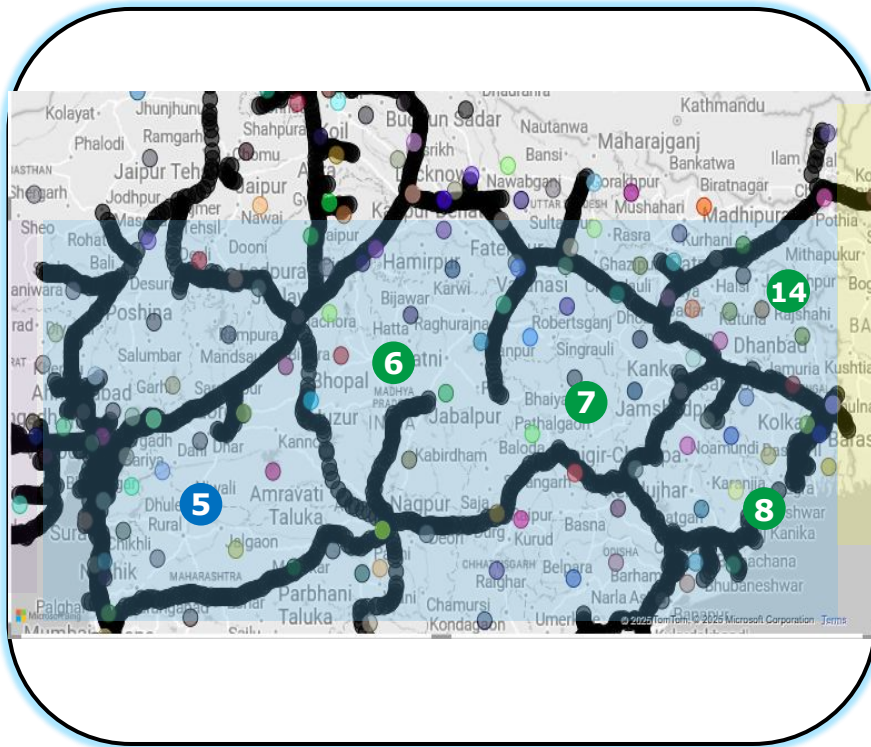
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network

Section wise pipeline analysis | Central Region | Section 5-(1/4)

Overall incremental demand is the highest ~40-42 mmscmd in this section of Mangano Gujarat, Maharashtra and Madhya Pradesh with 6 GAs not connected through pipeline

Section 5



Key Insights for Section 5

1

Incremental Demand in this section is ~40-42 mmscmd

2

6 GAs are not connected through pipeline

3

Currently 4 natural gas pipelines are passing through this section- MNJPL, HVJ, DUPL, GSPL-HP pipeline

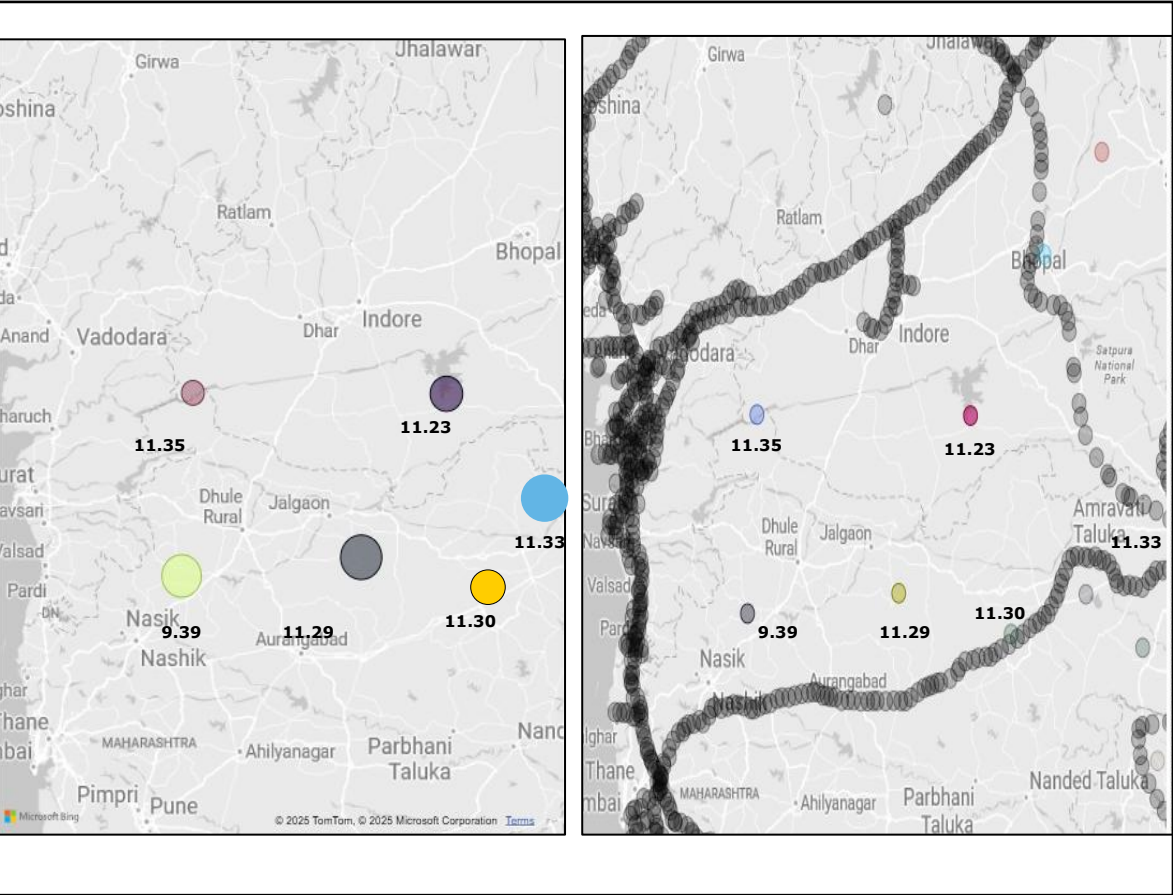
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network

Section wise pipeline analysis | Central Region | Section 5-(2/4)

Major high potential demand centers which are not connected are GA 9.39, 11.33, and 11.29

Section 5



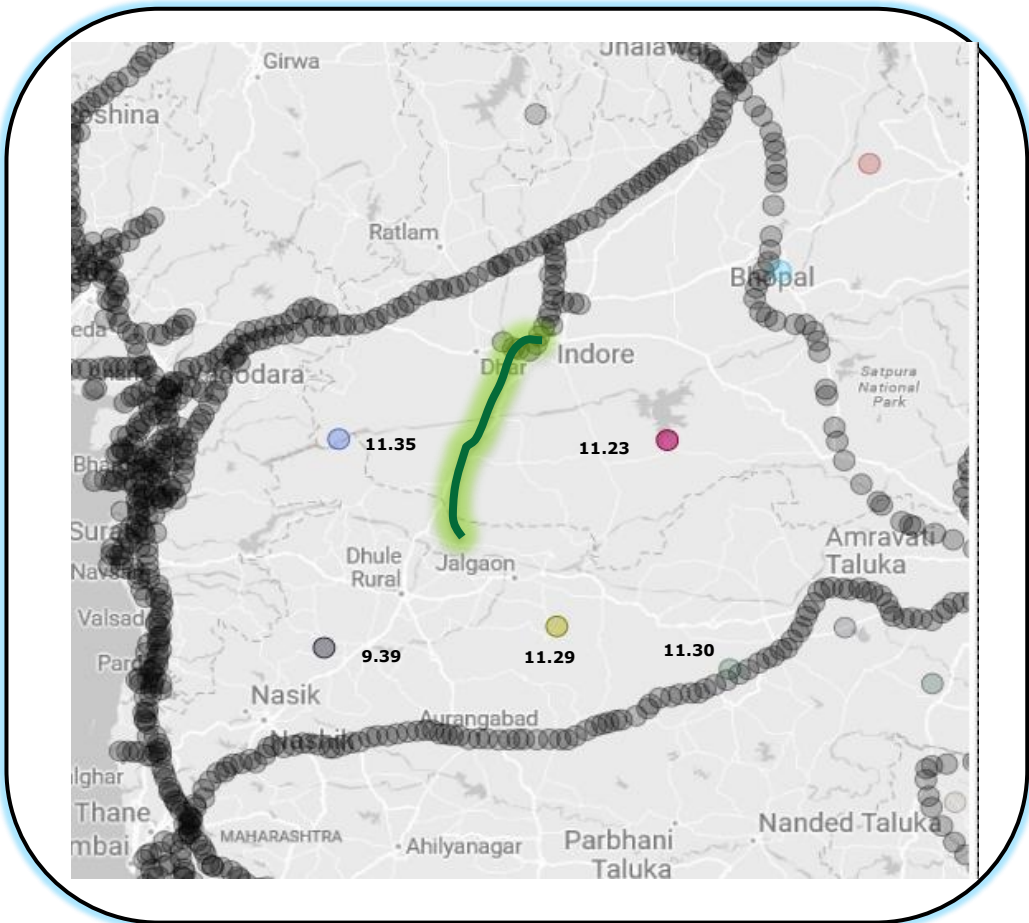
List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.39	Valsad (EAAA), Dhule & Nashik Districts	Maharashtra & Gujarat
11.23	Burhanpur, Khandwa, Khargone and Harda districts	Madhya Pradesh
11.29	Beed, Jalgaon and Jalna districts	Maharashtra
11.35	Alirajpur, Nandurbar and Barwani districts	Maharashtra and Madhya Pradesh
11.30	Akola, Hingoli and Washim districts	Maharashtra
11.33	Nagpur districts	Maharashtra

Section wise pipeline analysis | Central Region | Section 5-(4/4)

Completion of MNJPL is important to enable connectivity to GAs of this section

Section 5



Key Takeaways

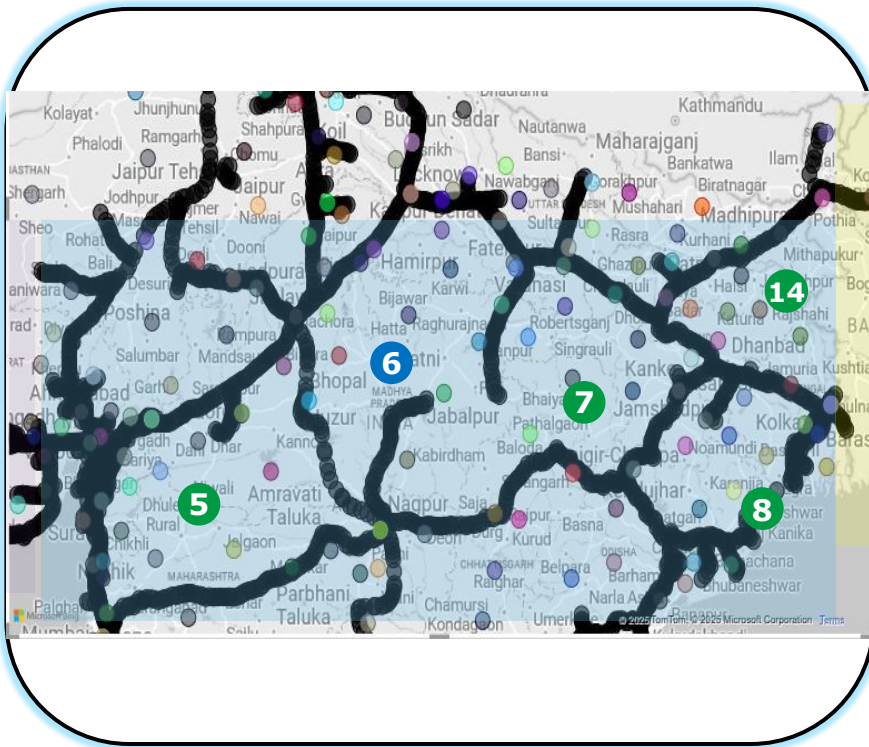
- 1
- For GAs, 9.39, 11.29, 11.30 and 11.33 connectivity would be achieved once MNJPL is commissioned, hence, construction and commissioning of MNJPL is priority to enable connectivity.
- 2
- Connectivity for GA-**11.23, 11.35**, and interior region of GA **9.39** and **11.29**-Option of extending spur-line pipeline from Indore to Jalgaon to Jalgaon/Dhule boundary through Khargone, Barwani, and Shirpur

Pipeline Route (NGPL/Spur)	Length (Km)	GA Connectivity	Pipeline Selection
Indore-Khargone-Jalgaon	220	11.23, 11.35 and interior parts of GA 9.39, 11.29	✓ ✓ ✓

Section wise pipeline analysis | Central Region | Section 6-(1/4)

Overall incremental demand is the highest ~6-7 mmscmd in this section of Sharper Madhya Pradesh and UP with 4 GAs not connected through pipeline

Section 6



Key Insights for Section 6

1

Incremental Demand in this section is ~6-7 mmscmd

2

4 GAs are not connected through pipeline

3

Currently 2 natural gas pipelines are passing through this section- HVJ and Shahdol-Phulpur

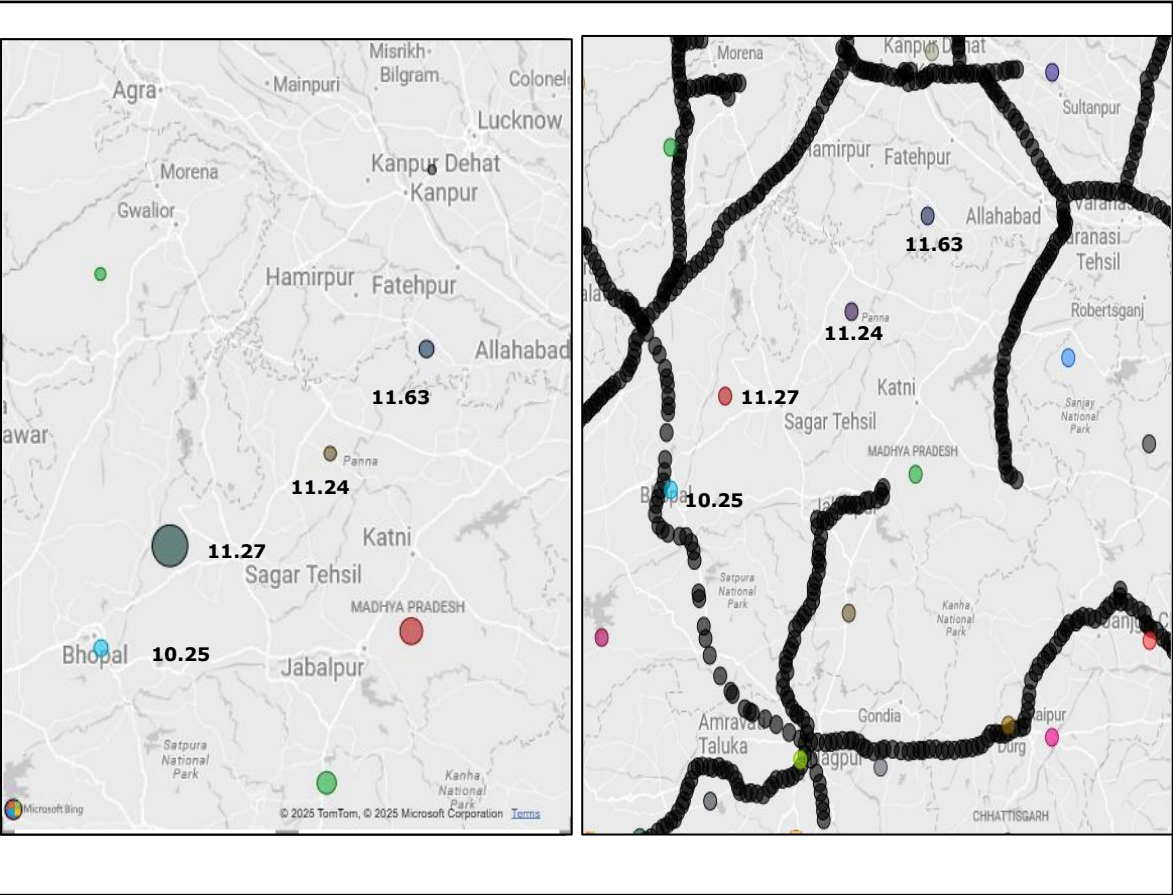
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network except BPCL Bina Refinery

Section wise pipeline analysis | Central Region | Section 6-(2/4)

BPCL Refinery is the major anchor load customer which is not connected and not receiving gas

Section 6



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
10.25	Raisen, Shajapur and Sehore Districts	Madhya Pradesh
11.24	Tikamgarh, Niwari, Chattarpur and Panna districts	Madhya Pradesh
11.27	Hoshangabad, Narsinghpur, Sagar and Vidisha districts	Madhya Pradesh
11.63	Banda, Chitrakoot and Mahoba	Uttar Pradesh

List of Refinery not connected through pipeline

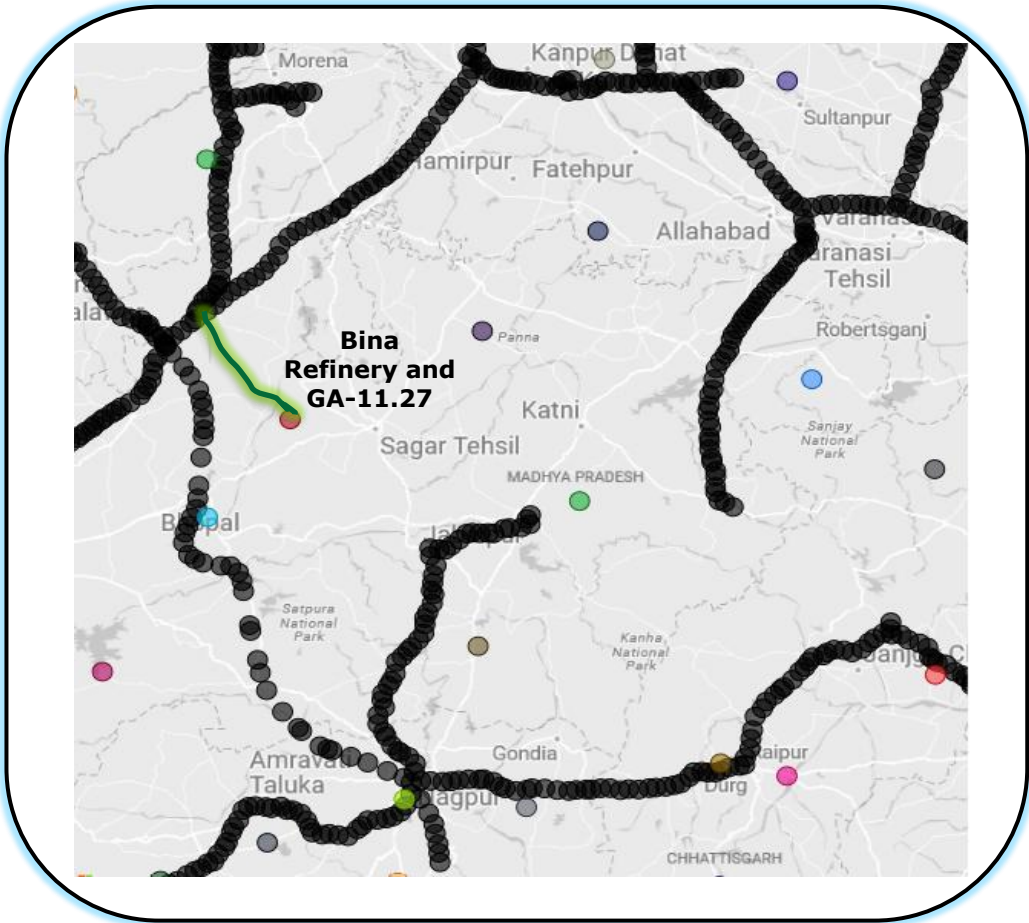
GA ID	Geographical Area/Demand center	State/UT
11.27	BPCL Bina Refinery	Madhya Pradesh

Sources: PNGRB, Industry sources, Internal Analysis

Section wise pipeline analysis | Central Region | Section 6-(4/4)

BPCL Refinery and associated GA can be connected by laying a spurline from HVJ in this section

Section 6



Key Takeaways

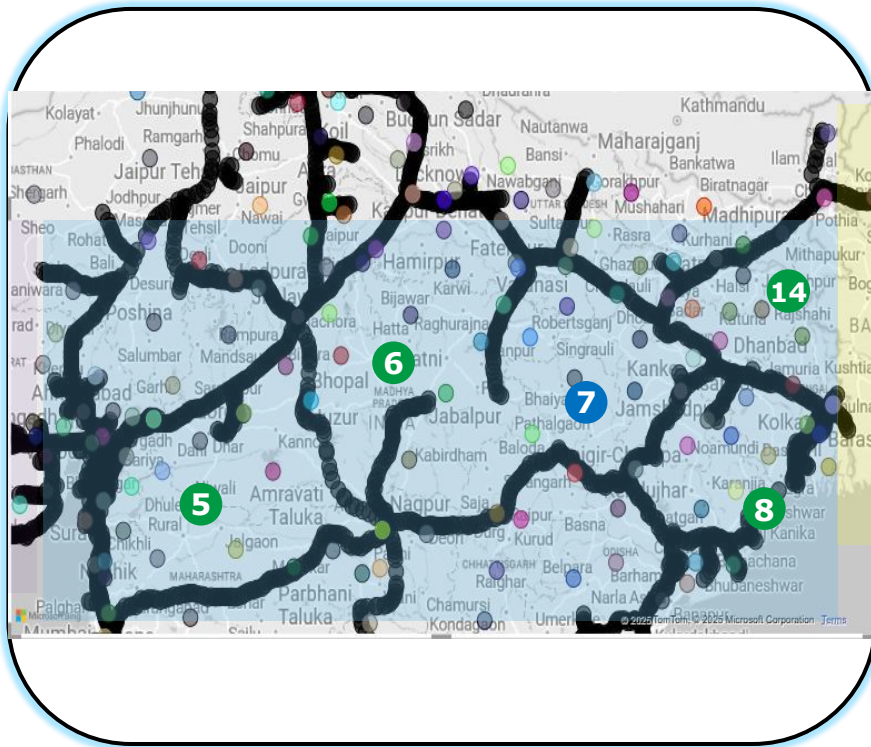
- 1
- For connectivity of BPCL Bina Refinery and Sagar district spur pipeline can be laid from HVJ and further this connectivity to be extended to GA 11.27-Hoshangabad, Narsinghpur, Sagar and Vidisha districts. MBBPL
- 2
- Mallavram-Bhopal-Bhilwara Pipeline shall be crucial in providing connectivity to this region and hence, to be connected and completed so as to connect GA 10.25, 11.27, 9.34 (Bhopal city)

Pipeline Route (NGPL/Spur)	Length (Km)	GA Connectivity	Pipeline Selection
HVJ-Guna-Bina	95	11.27	✓ ✓ ✓ ✓

Section wise pipeline analysis | Central Region | Section 7-(1/4)

Overall incremental demand is the highest ~6-7 mmscmd in this section of Madhya Pradesh, Chhattisgarh, and Jharkhand with 6 GAs not connected through pipeline

Section 7



Key Insights for Section 7

1

Incremental Demand in this section is ~6-7 mmscmd

2

6 GAs are not connected through pipeline

3

Currently 3 natural gas pipelines are passing through this section- MNJPL, JHBDPL and Shahdol-Phulpur

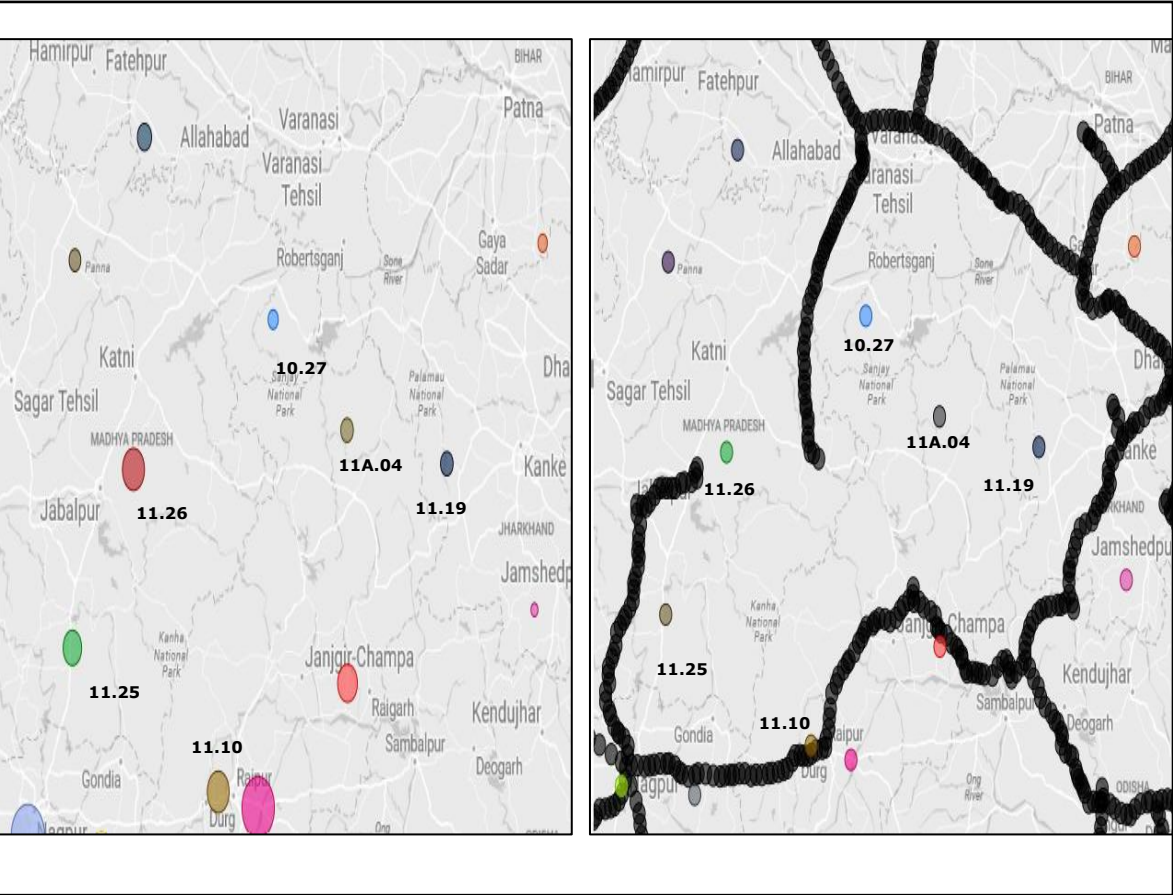
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network

Section wise pipeline analysis | Central Region | Section 7-(2/4)

There are no major anchor loads which are not connected in this region of supply

Section 7



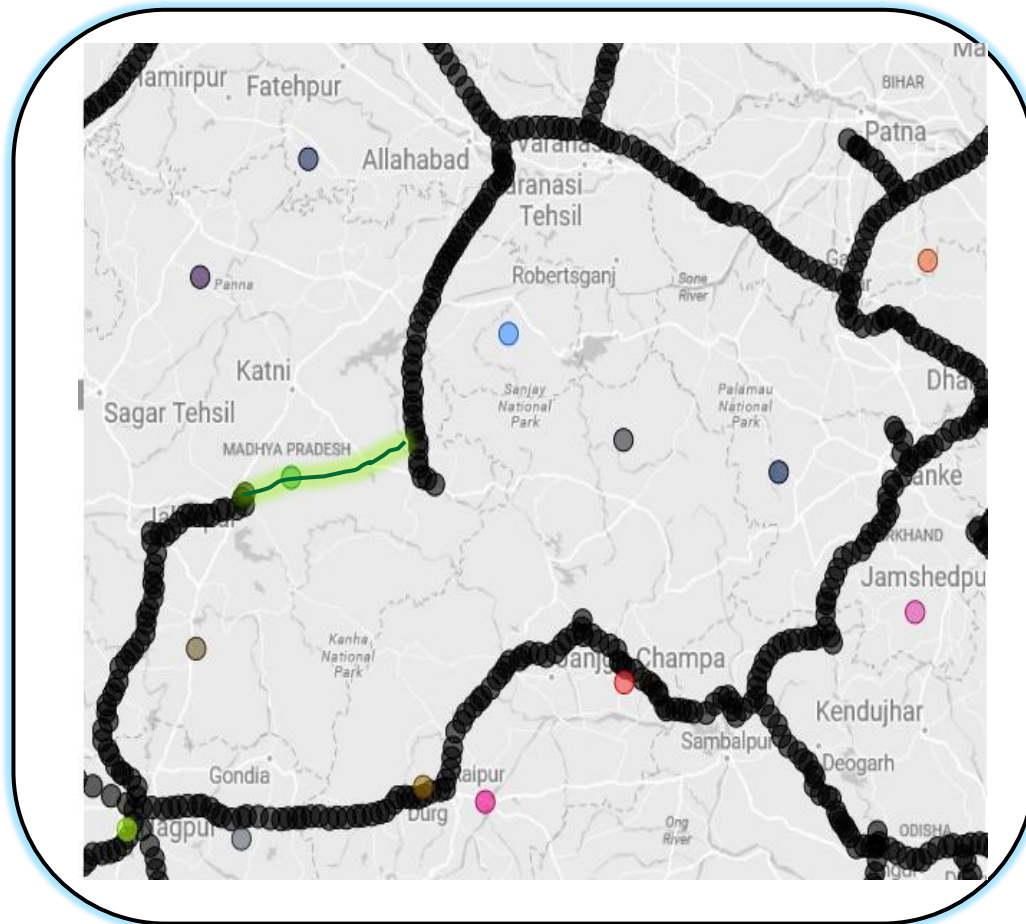
List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
10.27	Sidhi and Singrauli Districts	Madhya Pradesh
11.10	Mungeli, Bemetara, Durg, Balod and Dhamtari districts	Chhattisgarh
11.19	Gumla, Latehar, Lohardaga, Simdega, Garhwa and Khunti districts	Jharkhand
11.25	Betul, Chhindwara, Seoni and Balaghat districts	Madhya Pradesh
11.26	Damoh, Jabalpur, Katni, Mandla, Umaria and Dindori districts	Madhya Pradesh
11A.04	Koriya, Surajpur, Balrampur and Surguja districts	Chhattisgarh

Sources: PNGRB, Industry sources, Internal Analysis

Section wise pipeline analysis | Central Region | Section 7-(4/4)

Section 7



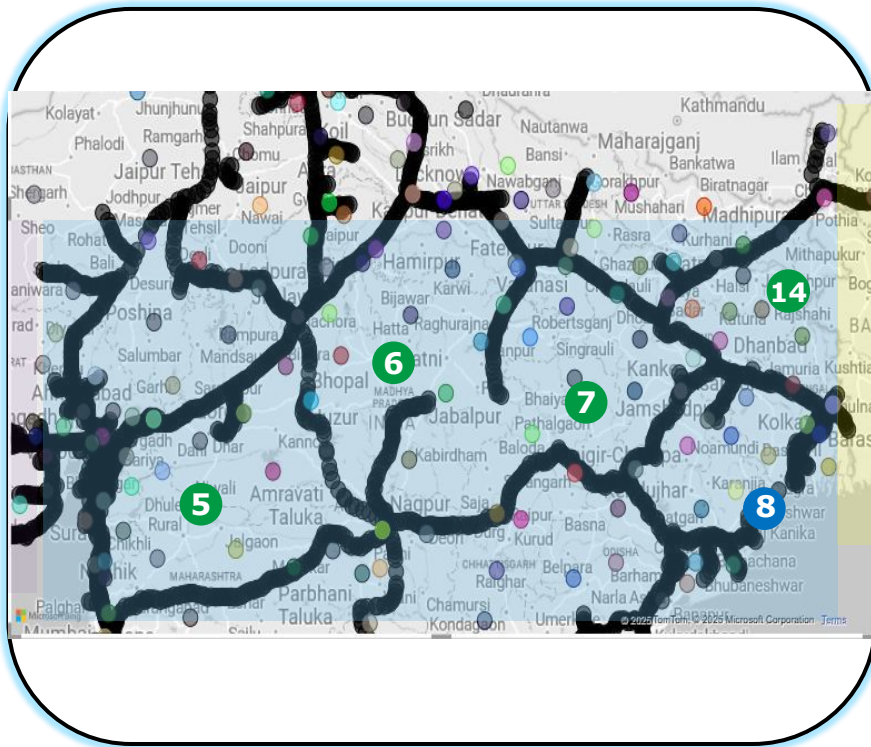
Key Takeaways

- 1 Majority of the GAs would achieve connectivity via MNJPL/JHBDPL pipeline through STPLs extended by CGD entities
- 2 Option of alternate connectivity of MNJPL from Jabalpur to Shahdolpur source can be explored

Section wise pipeline analysis | Central Region | Section 8-(1/4)

Overall incremental demand is the highest ~8-9 mmscmd in this section of West Bengal with 6 GAs not connected through pipeline

Section 8



Key Insights for Section 8

1

Incremental Demand in this section is ~8-9 mmscmd

2

6 GAs are not connected through pipeline

3

Currently 2 natural gas pipelines are passing through this section- JHBDPL and Kanahi-Chhata Shrirampur pipeline

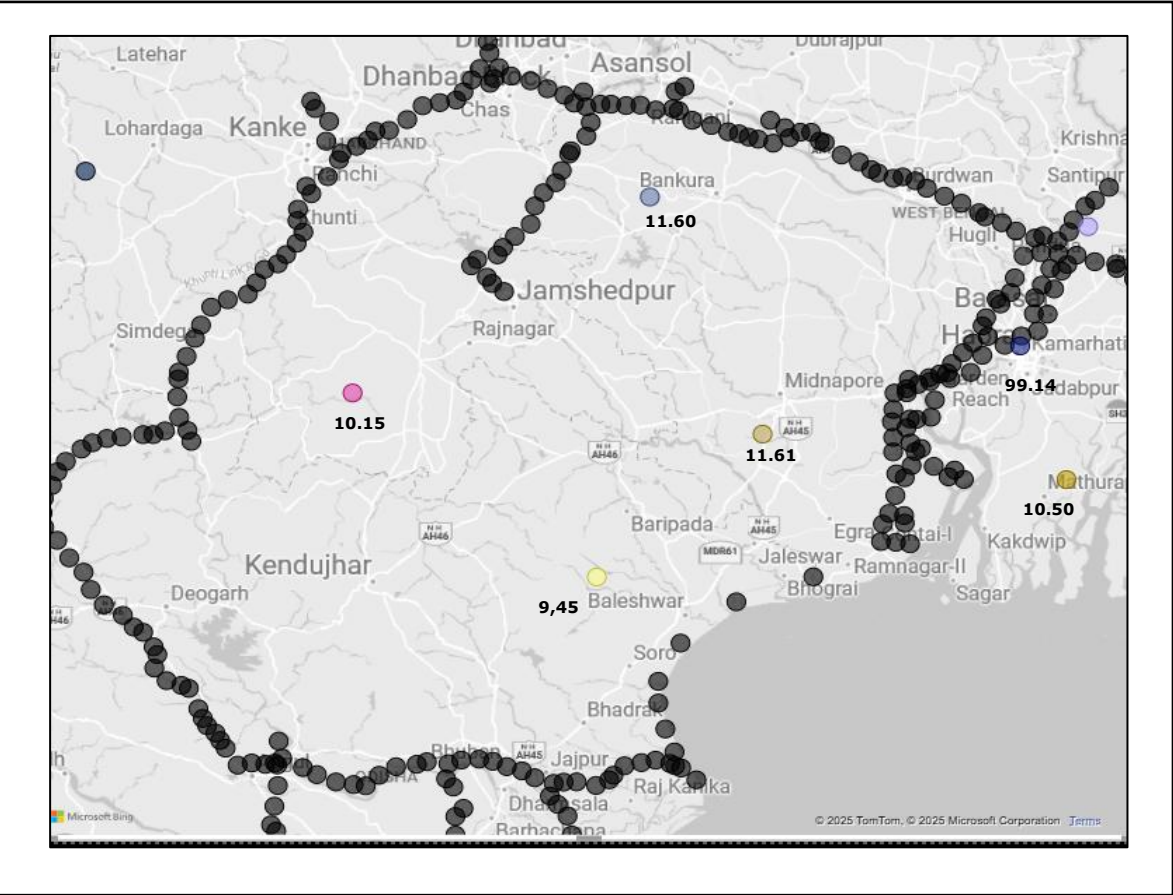
4

In this section, all refineries and fertilizer plants are connected to natural gas pipeline network except Haldia Refinery

Section wise pipeline analysis | Central Region | Section 8-(2/4)

IOCL Haldia refinery is the major anchor load customer which is still to be connected via natural gas pipeline

Section 8



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.45	Balasore, Bhadrak & Mayurbhanj Districts	Odisha
10.50	South 24 Parganas (EAAA) District	West Bengal
11.60	Purulia and Bankura districts	West Bengal
11.61	East Mednipore, West Mednipore and Jhargram districts	West Bengal
10.15	West Singhbhum District	Jharkhand
99.14	Kolkata	West Bengal

List of Refinery/Fertilizer not connected through pipeline

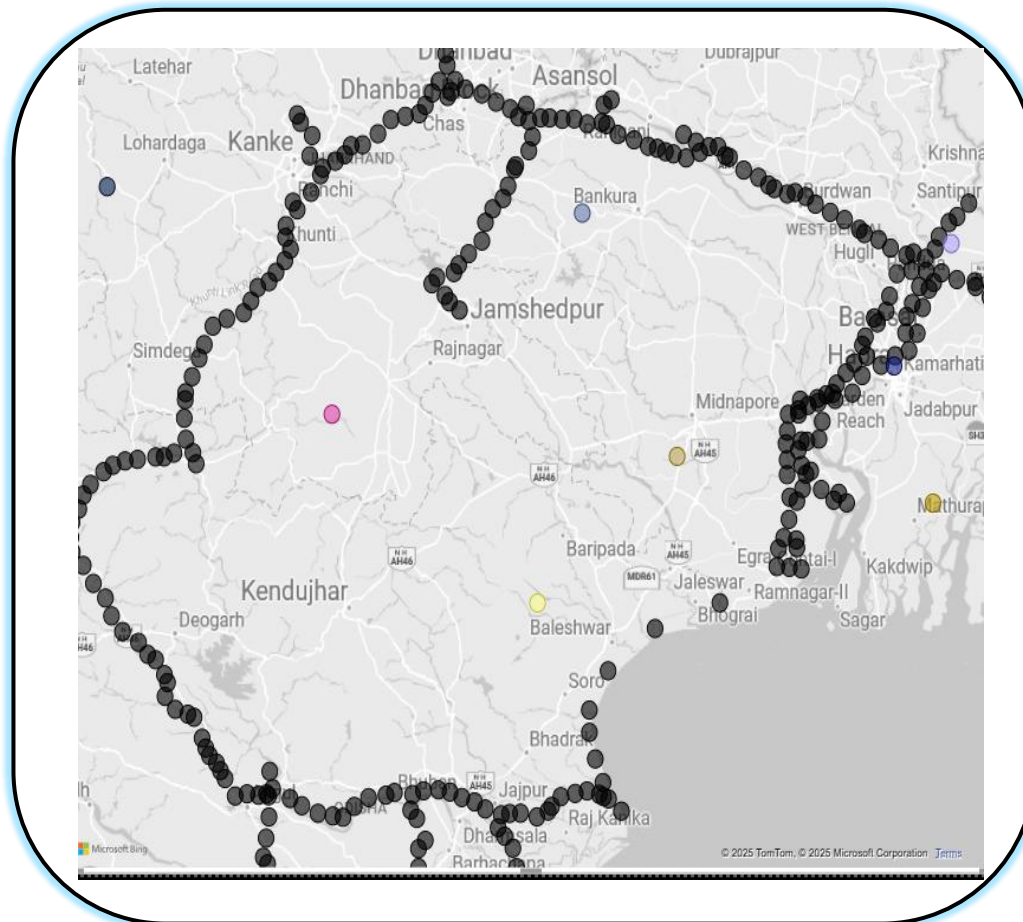
GA ID	Geographical Area/Demand center	State/UT
11.61	IOCL Haldia Refinery	West Bengal
11.61	HFCL Haldia (Dormant)	West Bengal

Sources: PNGRB, Industry sources, Internal Analysis

Section wise pipeline analysis | Central Region | Section 8-(4/4)

Pipelines have globally accepted as economical, environmentally friendly and a supply secure means of delivering petroleum products

Section 8



Key Takeaways

1

CGD entities are extending pipeline connectivity from CGS to their GA using STPL and JHBDPL (UC) is being extended by GAIL to provide connectivity to IOCL Haldia Refinery

2

Currently, the HFCL Haldia Fertilizer Plant is dormant and inactive. However, provision for connectivity can be made, and it is advisable to closely monitor government policies for potential revival of the plant similar to the Namrup IV revival announcement made in the Union Budget

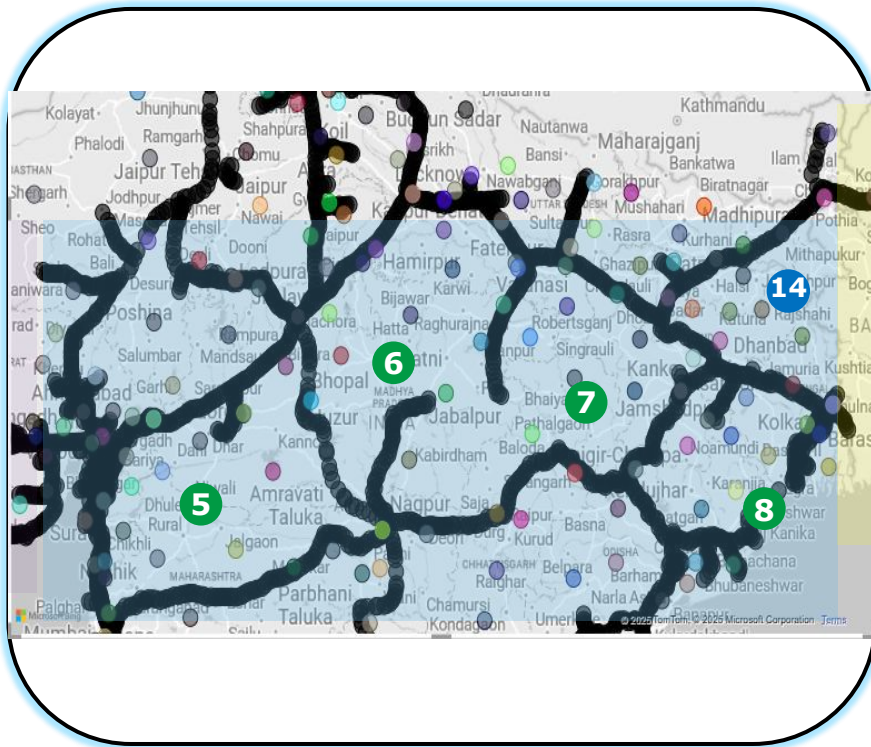
3

For GA 10.15, potential gas demand is less. Hence, this GA can be served from neighboring GA through other modes of transportation unless any provision for pipeline connectivity is established

Section wise pipeline analysis | Central Region | Section 14-(1/4)

Overall incremental demand is the highest ~4-5 mmscmd in this section of West Bengal with 4 GAs not connected through pipeline

Section 14



Key Insights for Section 14

1

Incremental Demand in this section is ~4-5 mmscmd

2

4 GAs are not connected through pipeline

3

Currently 2 mainline of JHBDPL natural gas pipelines are passing through this section 14

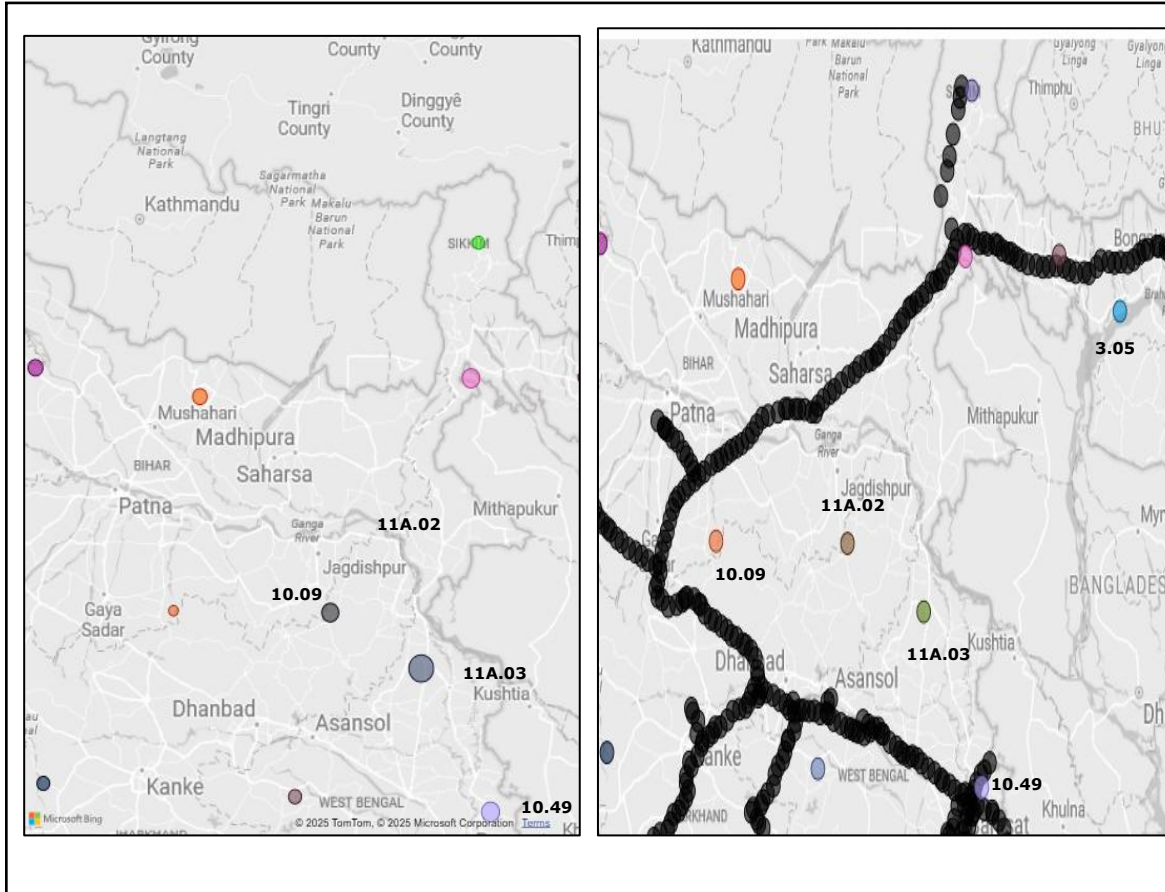
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network. HFCL Durgapur Fertilizer plant is dormant and Matrix fertilizer plant is under construction

Section wise pipeline analysis | Central Region | Section 14-(2/4)

There are no major anchor loads which are not connected in this section except GAs

Section 14



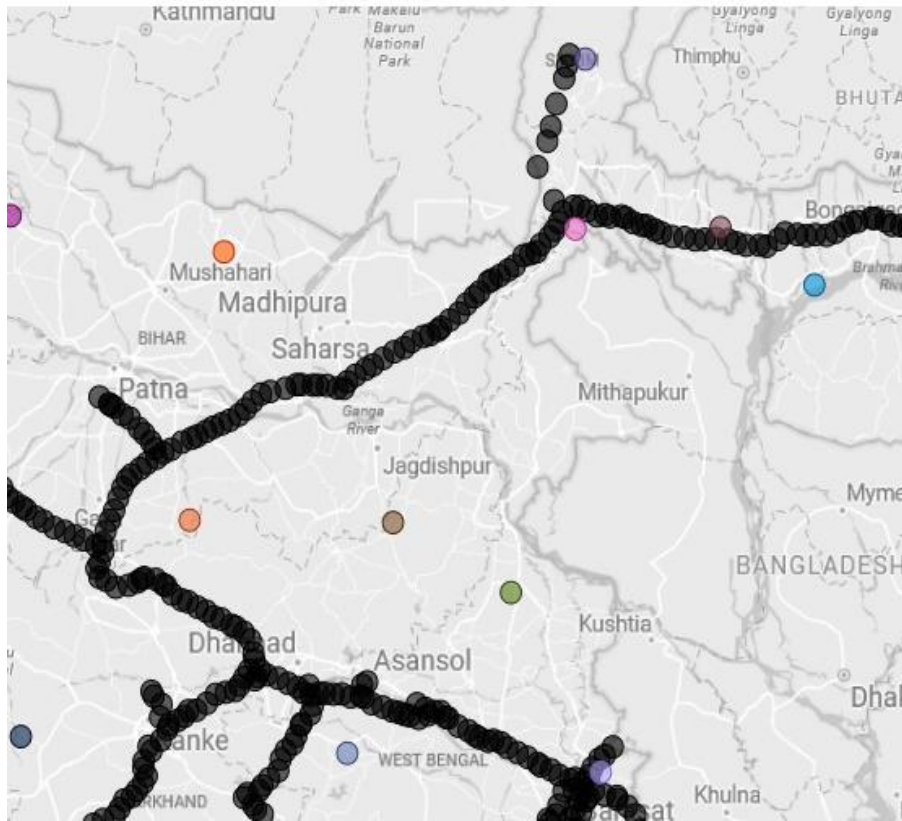
List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
10.09	Nawada and Koderma Districts	Bihar and Jharkhand
10.49	Nadia (EAAA) District and North 24 Parganas (EAAA) District	West Bengal
11A.02	Banka (Bihar), Dumka, Godda, Jamtara, Pakur & Sahibganj districts	Bihar & Jharkhand
11A.03	Birbhum, Murshidabad, Maldah & Dakshin Dinajpur districts	West Bengal

Section wise pipeline analysis | Central Region | Section 14-(4/4)

This section would achieve 100% GA connectivity post completion of STPL connections by CGD entities

Section 14



Key Takeaways

1

CGD entities are extending pipeline connectivity from CGS to their GA using STPL from JHBDPL (UC) pipeline. Hence, no other additional natural gas pipelines are required for connectivity

Key Takeaways| Central Region (1/2)

CGD connectivity within respective GAs, along with development of proposed pipelines to Central interior demand centers, will be key to ensuring comprehensive regional coverage

	<i>GAs Not connected</i>	<i>GAs being extended connectivity by existing PL</i>	<i>GA proposed to be connected by PL bid by PNGRB</i>	<i>GAs connected by new proposed PL</i>	<i>Total GAs remain unconnected</i>	<i>Pipelines</i>
Section 5	6 Nos	4 Nos	MNJPL	2 Nos 11.23	0 Nos	• Indore-Khargone-Barwani-Shirpur-Jalgaon
Section 6	4 Nos	3 Nos	HVJ/MBBPL	1 Nos 11.27	0 Nos	• HVJ/MBBPL-Bina-Refinery-Sagar
Section 7	6 Nos	6 Nos	MNJPL/MBBPL/SHHPL	0 Nos	0 Nos	• MNJPL-Shahdolpur-Jabalpur
Section 8	6 Nos	5 Nos	JHBDPL/KCPL	0 Nos	1 Nos	
Section 14	4 Nos	4 Nos	JHBDPL	0 Nos	0 Nos	
Total	26 Nos	22 Nos	0 Nos	3 Nos	1 Nos	1 GA (10.15) of Jharkhand

Key Takeaways| Central Region (2/2)

Pipeline connectivity to Bina and Haldia refineries should be prioritized

Other Focus Area for PNGRB in this Region

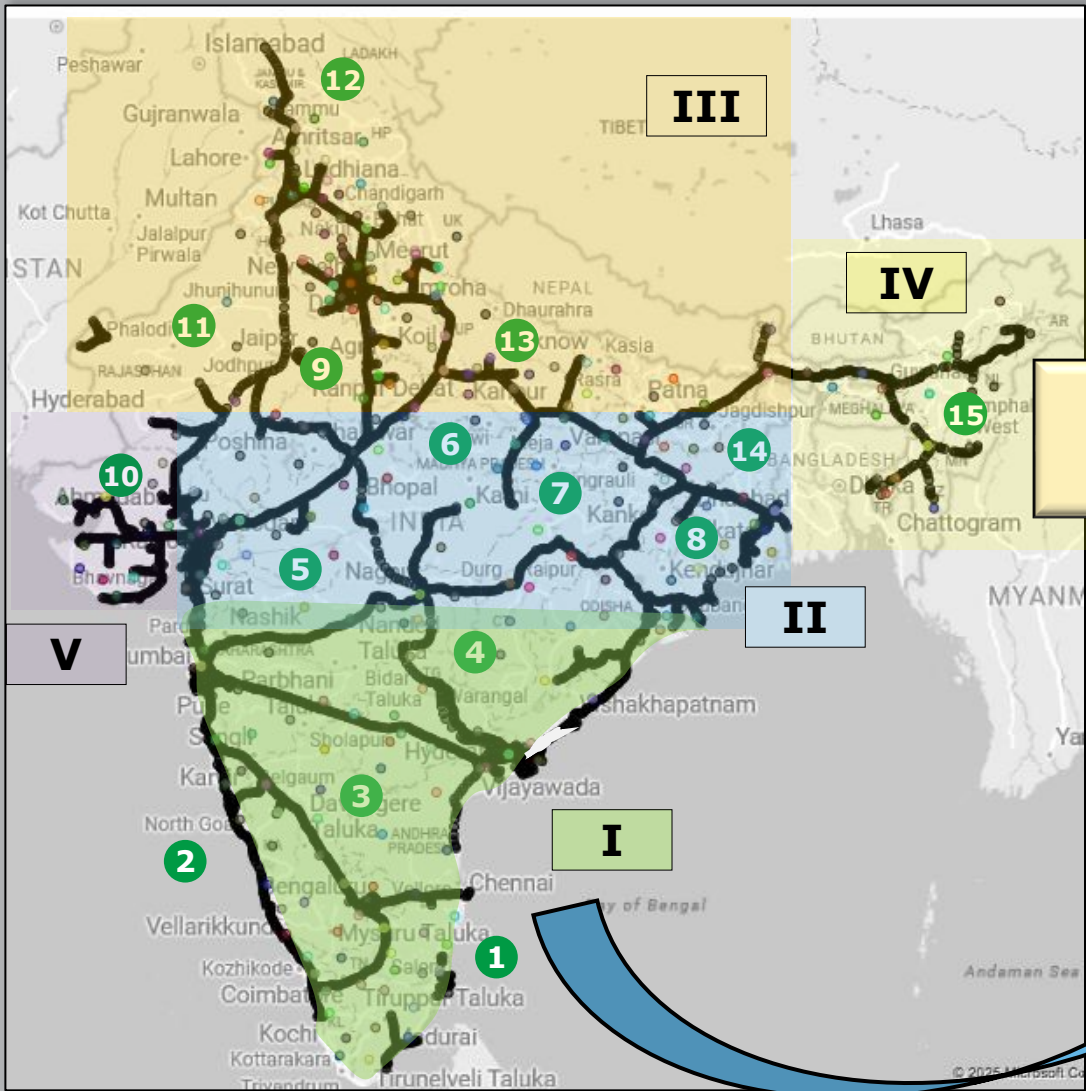
Sector	Total	Operational	Connectivity		Remarks
			O&C	O&NC	
 Refinery	5 Nos	5 Nos	3 Nos	2 Nos	- RRPCL Refinery ~60 MMTPA earlier planned in Ratnagiri is being reconsidered, with ministry talking on setting up 3 refineries¹ at 3 different locations across the country. - Connectivity of BPCL-Bina and IOCL Haldia is not achieved
 Power	11 Nos	8 Nos	8 Nos	0 Nos	- All Power plants are connected through pipeline. However, many² are not active. - DGEN & SUGEN power plants have signed long term contracts for power supply³ with NTPC
 Fertilizers	4 Nos	4 Nos	4 Nos	0 Nos	RCF Trombay received an environmental clearance for Nano Urea. Hence, future consumption of natural gas may foresee a decline⁴.

Note: O&C: Operational and connected and O&NC: Operational and Not connected

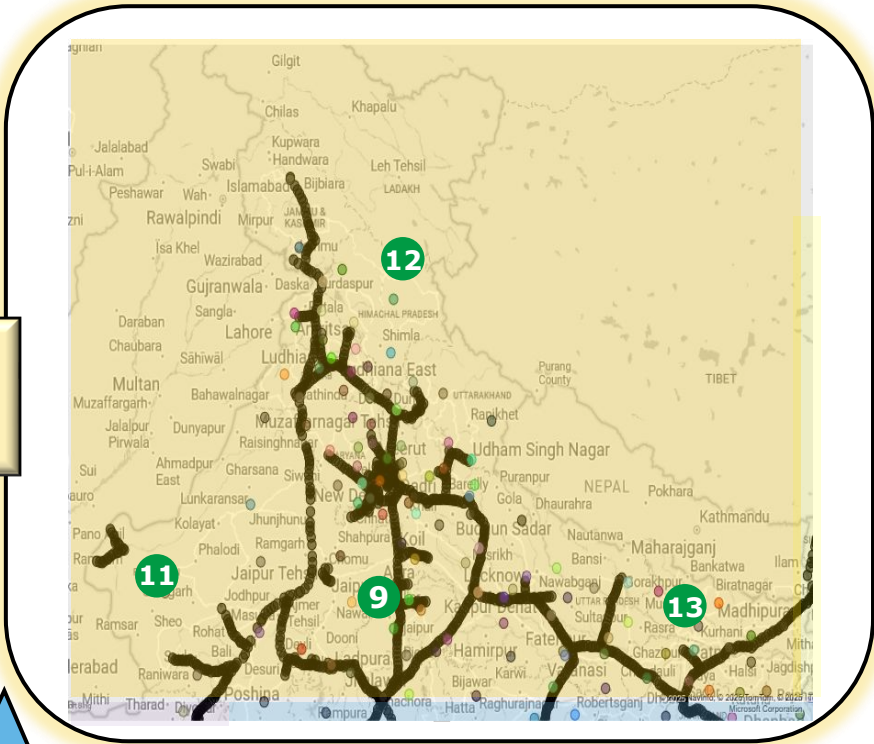
Note: Refinery-BPCL/HPCL Mumbai, IOCL Koyali/Haldia, BPCL Bina; Fertilizers: Bharuch, Kribhco Hazira, RCF Trombay, NFL-Vijaypur; Power: Trombay, Hazira, Unosugen/Sugen,

Sources: 1. RRPCL Refinery-MOPNG; 2. CEA Fuels Report March 2025; 3. Business Standards; Notes Continued: Power: DGEN, Hazira, Baroda, Kawas, Paguthan, Gandhar CCPP

Section wise pipeline analysis | Northern Region



Northern Region



Northern Region has been further analyzed by dividing into 4 sections -9, 11, 12, and 13

Section wise pipeline analysis | Northern Region

Overall incremental demand in the Northern Region is projected to be ~58–62 MMSCMD by 2040, with 22 GAs currently unconnected to the pipeline network

Northern Region



Key Insights for Northern Region

1

Incremental Demand in this section is ~58-62 mmscmd

2

22 GAs are not connected through pipeline

3

Currently 3 natural gas pipelines- Mehsana-Bhatinda and Bhatinda-Gurudaspur (UC), HVJ, Dadri-Bawna-Nangal, Dandewala-Gamnewala-Ramgarh Pipeline Dedicated Pipeline (isolated) are passing

4

In this section, all power plants, refineries and fertilizer plants are connected to natural gas pipeline network except the powerplant in Rajasthan connected to localized gas fields

Section wise pipeline analysis | Northern Region | Section 11-(1/4)

Overall incremental demand in this section of Rajasthan is projected to be ~5–6 MMSCMD by 2040, with only 4 GAs currently not connected to the pipeline network

Section 11



Key Insights for Section 11

1

Incremental demand in this section is ~5-6 mmscmd

2

2 GAs are not connected through pipeline

3

Currently 3 natural gas pipelines- Mehsana-Bhatinda and Bhatinda-Gurudaspur (UC) and Dandewala-Gamnewala-Ramgarh Pipeline Dedicated Pipeline (isolated from NGPL grid) are passing through this section 11

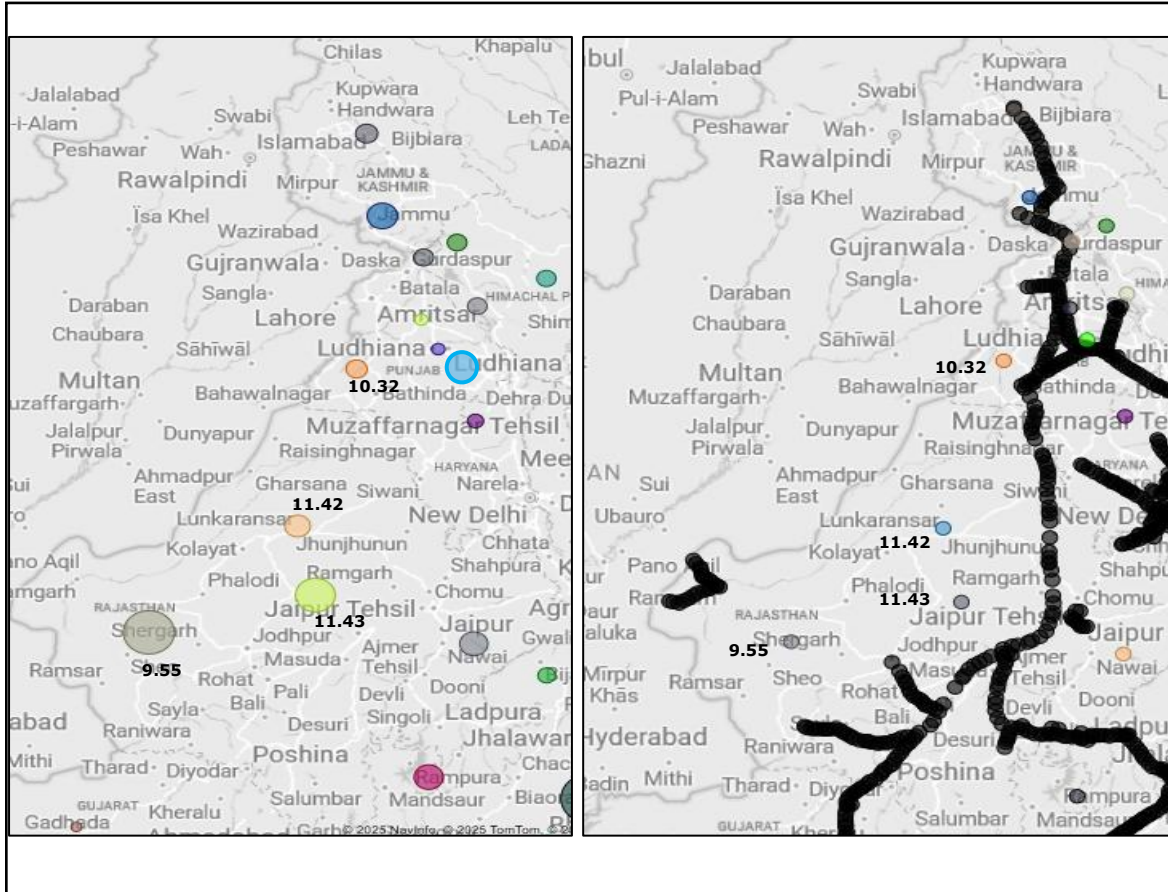
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network. HFCL Durgapur Fertilizer plant is dormant and Matrix fertilizer plant is under construction

Section wise pipeline analysis | Northern Region | Section 11-(2/4)

There are industrial hubs/clusters which are in the development phase, representing opportunity potential for industrial demand in areas of Jodhpur, Balotra and Bikaner

Section 11



List of GAs not connected through pipeline

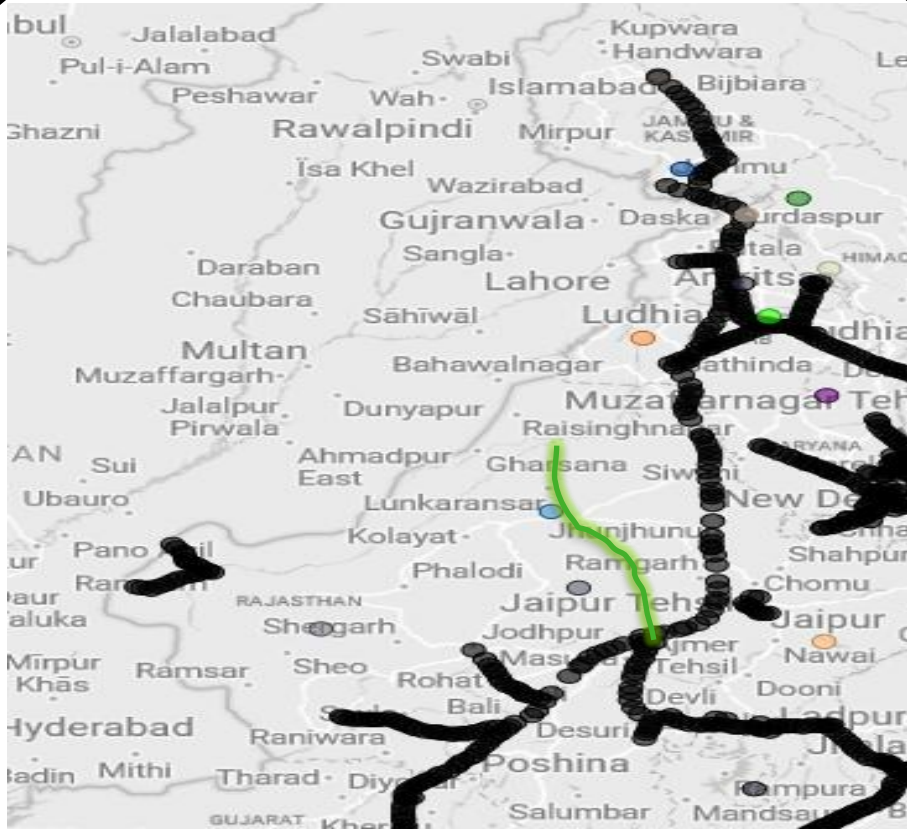
GA ID	Geographical Area	State/UT
9.55	Barmer, Jaisalmer & Jodhpur Districts	Rajasthan
11.42	Bikaner and Churu districts	Rajasthan

Section wise pipeline analysis | Northern Region | Section 11-(4/4)

Upcoming industrial clusters in Rajasthan presents an opportunity for this region to undertake pipeline connectivity to these clusters

Section 11

Key Takeaways



1

While all Geographical Areas (GAs) in this section are expected to be connected through pipeline infrastructure, there exist potential industrial demand opportunities in regions such as Balotra, Gajner, Bikaner, and Jodhpur. To harness this potential, development of new Natural Gas Pipeline (NGPL) infrastructure may be considered, especially as these areas are witnessing growth supported by the Rajasthan Government.

2

With ongoing exploration activities in the Bikaner-Nagaur basin, it may be prudent for PNGRB to ensure readiness to support any potential future gas evacuation plan.

Section wise pipeline analysis | Northern Region | Section 12-(1/4)

Overall incremental demand in this section of J&K, Uttarakhand, HP, and parts of Punjab is projected to be ~6–7 MMSCMD by 2040, with pipeline network of Bhatinda-Gurdaspur & Gurdaspur-Jammu under construction

Section 12



Key Insights for Section 12

1

Incremental Demand in this section is ~6-7 mmscmd

2

9 GAs are not connected through pipeline

3

Currently, natural gas pipelines Bhatinda-Gurdaspur (UC), Gurdaspur-Jammu (UC), Dadri-Bawna-Nangal are present in these regions

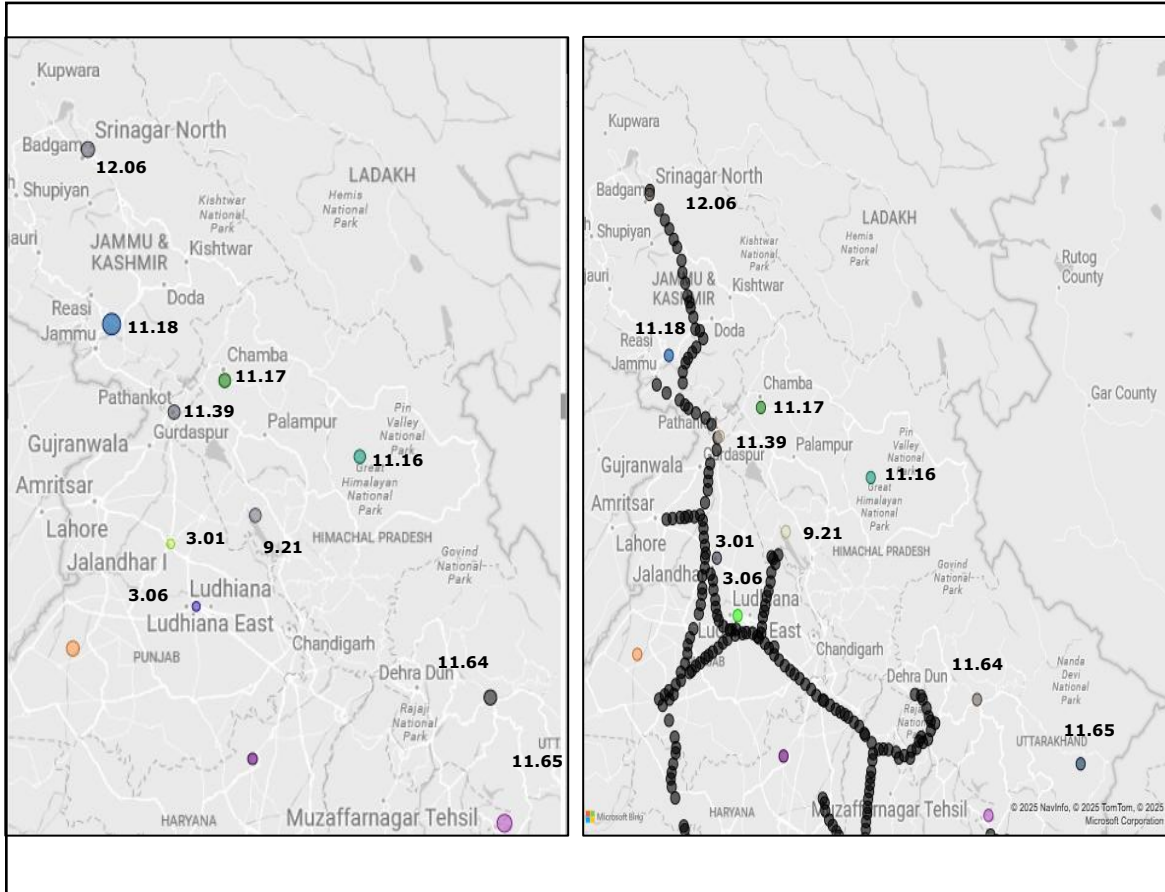
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network. HFCL Durgapur Fertilizer plant is dormant and Matrix fertilizer plant is under construction

Section wise pipeline analysis | Northern Region | Section 12-(2/4)

Terrains in these GAs present geographical challenges to the underlying section of J&K, HP and UK , presenting difficulty in connectivity of these GAs

Section 12



List of GAs not connected through pipeline

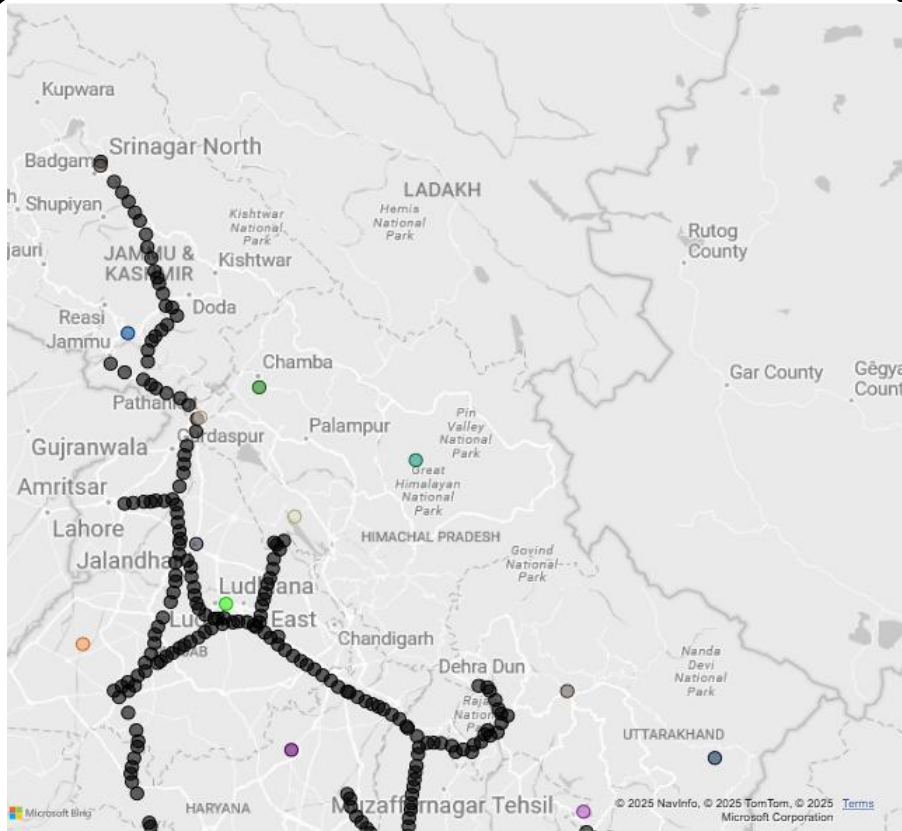
GA ID	Geographical Area	State/UT
3.01	Jalandhar	Punjab
3.06	Ludhiana	Punjab
11.16	Mandi, Kullu, Kinnaur and Lahaul & Spiti districts	Himachal Pradesh
11.17	Kangra and Chamba districts	Himachal Pradesh
11.18	Jammu, Udhampur, Reasi, Samba and Kathua districts	UT of Jammu and Kashmir
11.39	Pathankot district	Punjab
11.64	Pauri Garhwal, Uttarkashi, Rudrapur and Tehri Garhwal districts	Uttarakhand
11.65	Pithoragarh, Champawat, Almora, Chamoli and Bageshwar districts	Uttarakhand
12.06	Anantnag, Bandipora, Baramulla, Budgam, Doda, Ganderbal, Kargil, Kishtwar, Kulgam, Kupwara, Leh, Poonch, Pulwama, Rajouri, Ramban, Shopian, Shrinagar	Jammu & Kashmir, Ladakh

Section wise pipeline analysis | Northern Region | Section 12-(4/4)

Underlying terrain presents a challenge to the connectivity of pipeline to GAs of Uttarakhand and Himachal Pradesh. Hence, GAs to be fed through setting up virtual pipelines i.e. other modes cascades

Section 12

Key Takeaways



1

For GAs 3.01, 3.06 and 9.21, tap-off to be taken from existing pipeline passing through these GAs

2

Completion of Bhatinda-Gurdaspur and Gurdaspur-Jammu Pipelines would establish connectivity in underlying GAs of Jammu and Pathankot. However, the Srinagar GA would still remain not connected 12.06 to the network

3

Terrain presents underlying challenges to the connectivity of pipeline to GAs (11.16, 11.17, 11.64 and 11.65) of Uttarakhand and Himachal Pradesh.

Section wise pipeline analysis | Northern Region | Section 9-(1/4)

Overall incremental demand is the highest ~34-35 mmscmd in this section of Rajasthan, Gujarat, UP, Haryana, and Delhi with 5 GAs not connected through pipeline

Section 9



Key Insights for Section 9

1

Incremental Demand in this section is ~34-35 mmscmd

2

5 GAs are not connected through pipeline

3

Currently 4 natural gas pipelines-HVJ, Mehsana-Bhatinda, Bhatinda-Gurudaspur, and Dadri-Bawna-Nangal are passing through section 9

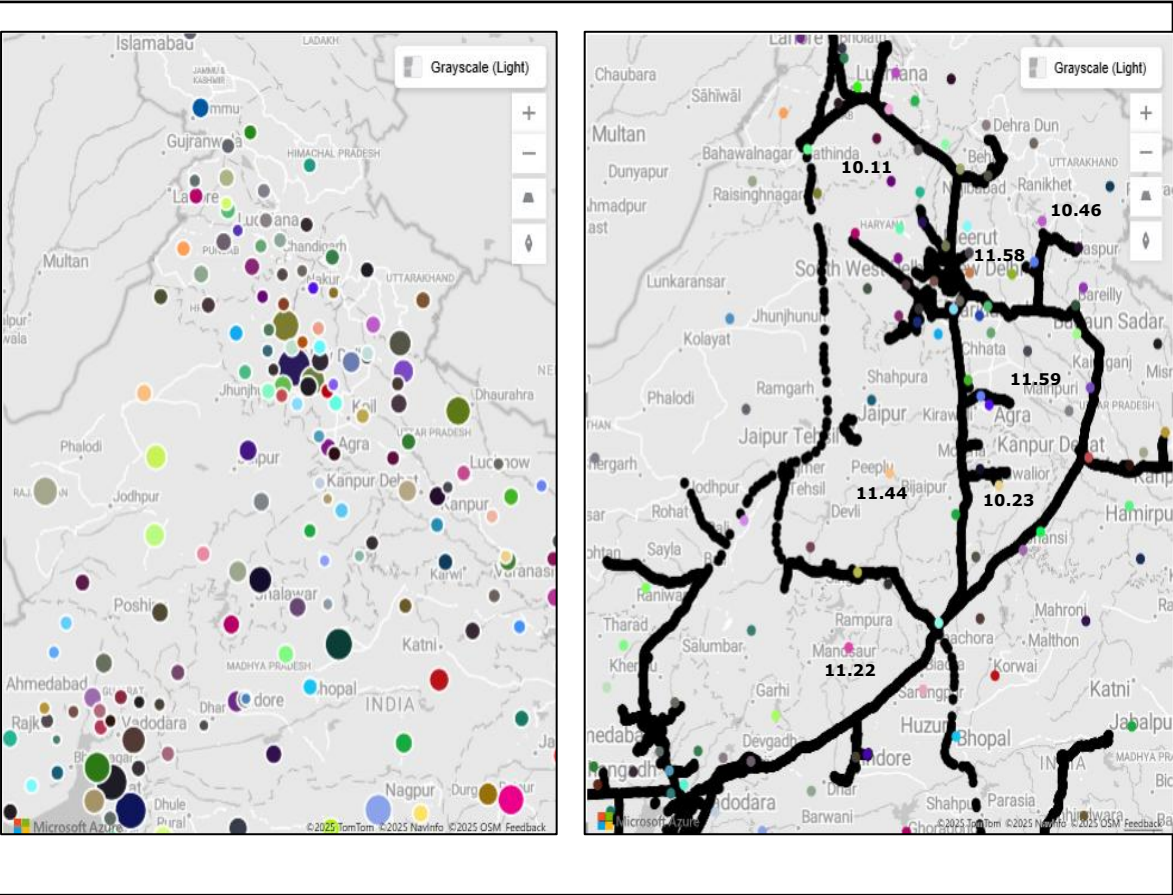
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network.

Section wise pipeline analysis | Northern Region | Section 9-(2/4)

Demand hotspots are highly concentrated in northern region, particularly around Delhi-Haryana region

Section 9



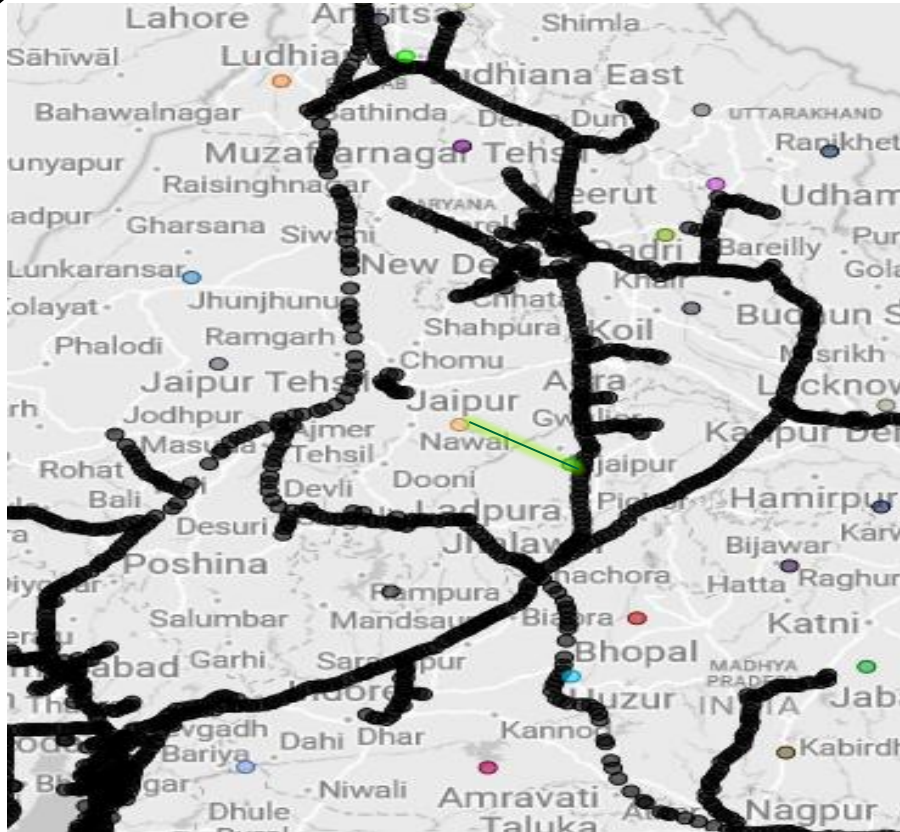
List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
10.23	Gwalior (EAAA) District and Sheopur District	Madhya Pradesh
10.46	Bijnor and Nainital Districts	Uttar Pradesh and Uttarakhand
11.22	Agar Malwa, Neemuch, Mandsaur and Jhalawar districts	Madhya Pradesh and Rajasthan
11.44	Dausa, Karauli, Sawai Madhopur and Tonk districts	Rajasthan
11.59	Kasganj district	Uttar Pradesh

Section wise pipeline analysis | Northern Region | Section 9-(4/4)

Connectivity for Dausi or Karauli can be taken by extending STPL from adjoining GA of Jaipur or as a spurline of 50 Km from HVJ Pipeline to Karauli district

Section 9



Key Takeaways

1

Only one GA — 11.44 (comprising Dausa, Karauli, Sawai Madhopur, and Tonk districts) — remains unconnected, for which connectivity can be extended from the adjoining GA of Jaipur or using spurline from HVJ pipeline to Karauli district

Section wise pipeline analysis | Northern Region | Section 13-(1/4)

Overall incremental demand is the highest ~12-13 mmscmd in this section of UP, Uttarakhand and Bihar with 5 GAs not connected through pipeline

Section 13



Key Insights for Section 13

1

Incremental Demand in this section is ~12-13 mmscmd

2

5 GAs are not connected through pipeline

3

Currently, 2 natural gas pipelines-JHBDPL and Integrated HVJ are passing through this section 13

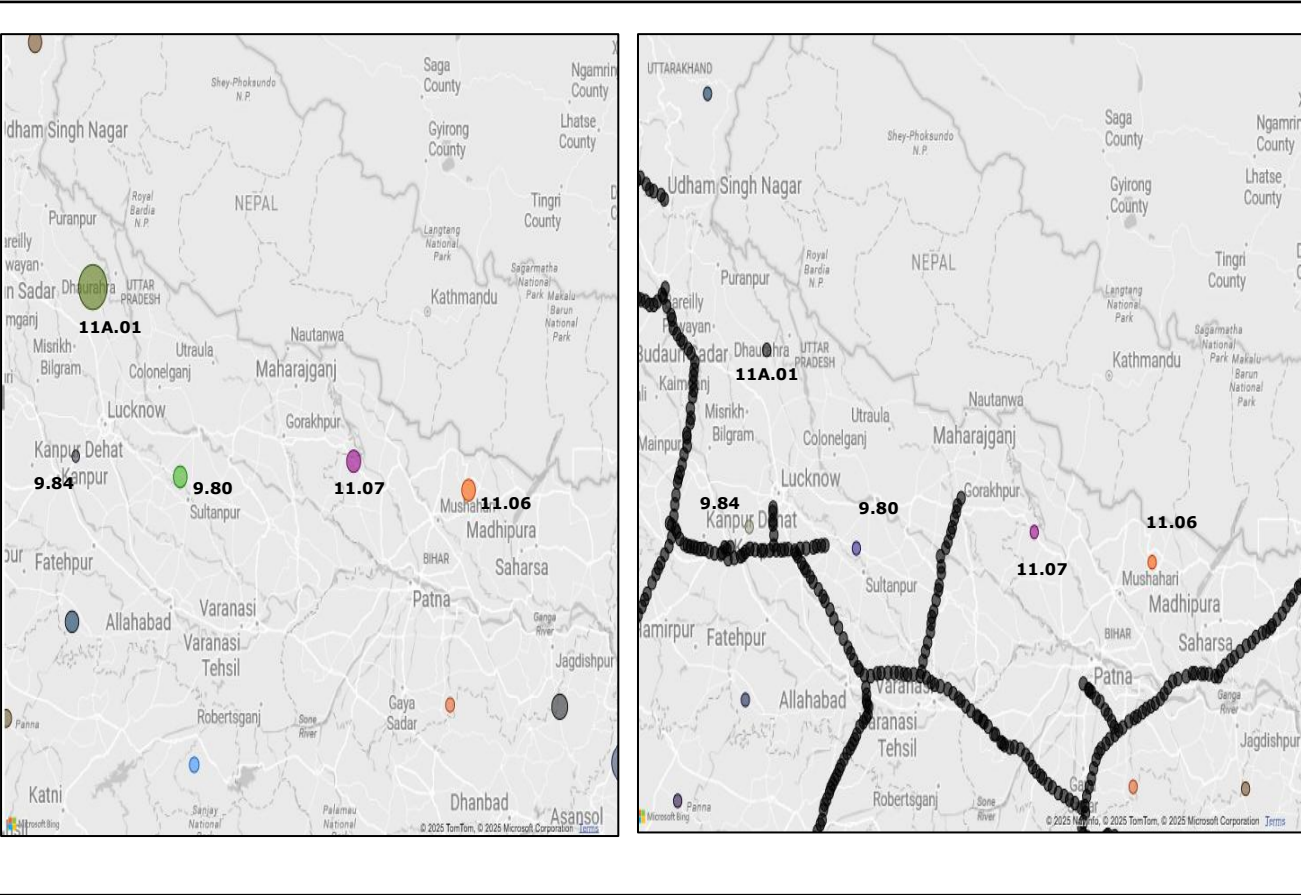
4

In this section, all Power plants, refineries and fertilizer plants are connected to natural gas pipeline network.

Section wise pipeline analysis | Northern Region | Section 13-(2/4)

Majority of the GAs in this section have pipeline coverage through HVJ or JHBDPL

Section 13



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.80	Faizabad & Sultanpur Districts	Uttar Pradesh
9.84	Unnao (EAAA) District	Uttar Pradesh
11.06	Darbhanga, Madhubani, Supaul, Sitamarhi and Sheohar districts	Bihar
11.07	Gopalganj, Siwan, West Champaran, East Champaran and Deoria districts	Bihar & Uttar Pradesh
11A.01	Lakhimpur Kheri, Sitapur, Bahraich, Shrawasti, Balrampur, Siddharth Nagar & Maharajganj districts	Uttar Pradesh

Section wise pipeline analysis | Northern Region | Section 13-(4/4)

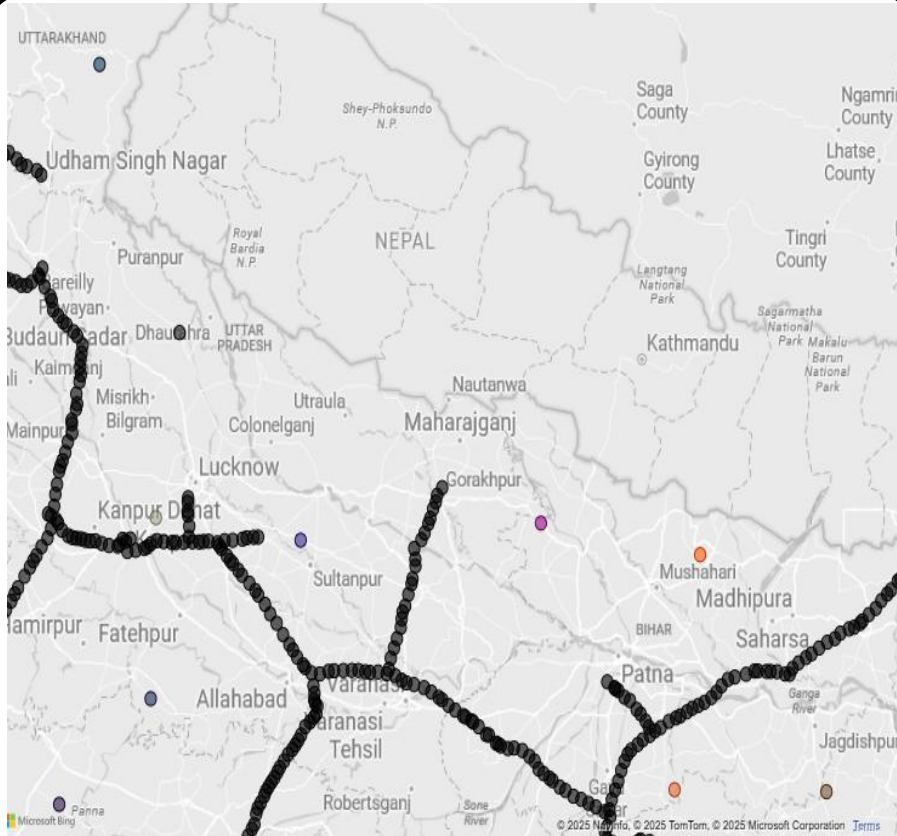
As CGD entities are extending pipeline connectivity to non-connected GAs in these regions, it is imperative to expedite the process and identify any potential bottlenecks to ensure timely execution

Section 13

Key Takeaways

1

All GAs would achieve connectivity provided all STPLs laid by CGD entities are completed



Key Takeaways | Northern Region (1/2)

CGD connectivity within respective GAs from existing NGPL will be key to ensuring comprehensive regional coverage. However, there are terrain challenges to connect GAs in hilly region

	<i>GAs Not connected</i>	<i>GAs being extended by existing PL</i>	<i>GA proposed to be connected by PL bid by PNGRB</i>	<i>GAs connected by new proposed PL</i>	<i>Total GAs remain unconnected</i>	<i>Pipelines</i>
Section 11	2 Nos	2 Nos	MBPL	0 Nos	0 Nos	• Jodhpur-Gajner for upcoming Industrial Area
Section 12	9 Nos	4 Nos	DBNPL/ BGPL/ GJPL	0 Nos	5 Nos	
Section 9	5 Nos	5 Nos	DBNPL/ HVJ/ MBPL	0 Nos	0 Nos	
Section 13	5 Nos	5 Nos	HVJ/ JHBDPL	0 Nos	0 Nos	
Total	21 Nos	16 Nos	0 Nos	0 Nos	5 Nos	2 GAs of Himachal, 2 GAs of UK and 1 GA of Srinagar

Note: GJPL: Gurdaspur-Jammu, DBNPL: Dadri-Bawna-Nangal ; HVJ: Hazira-Vijaypur Pipeline; JHBDPL: Jagdishpur-Haldia-Bokaro-Dhamra-Pipeline; MBPL-Mehsana-Bhatinda
Sources: PNGRB, Industry sources, Internal Analysis

Key Takeaways | Northern Region (2/2)

Connectivity is well established to major anchor load customers in northern region

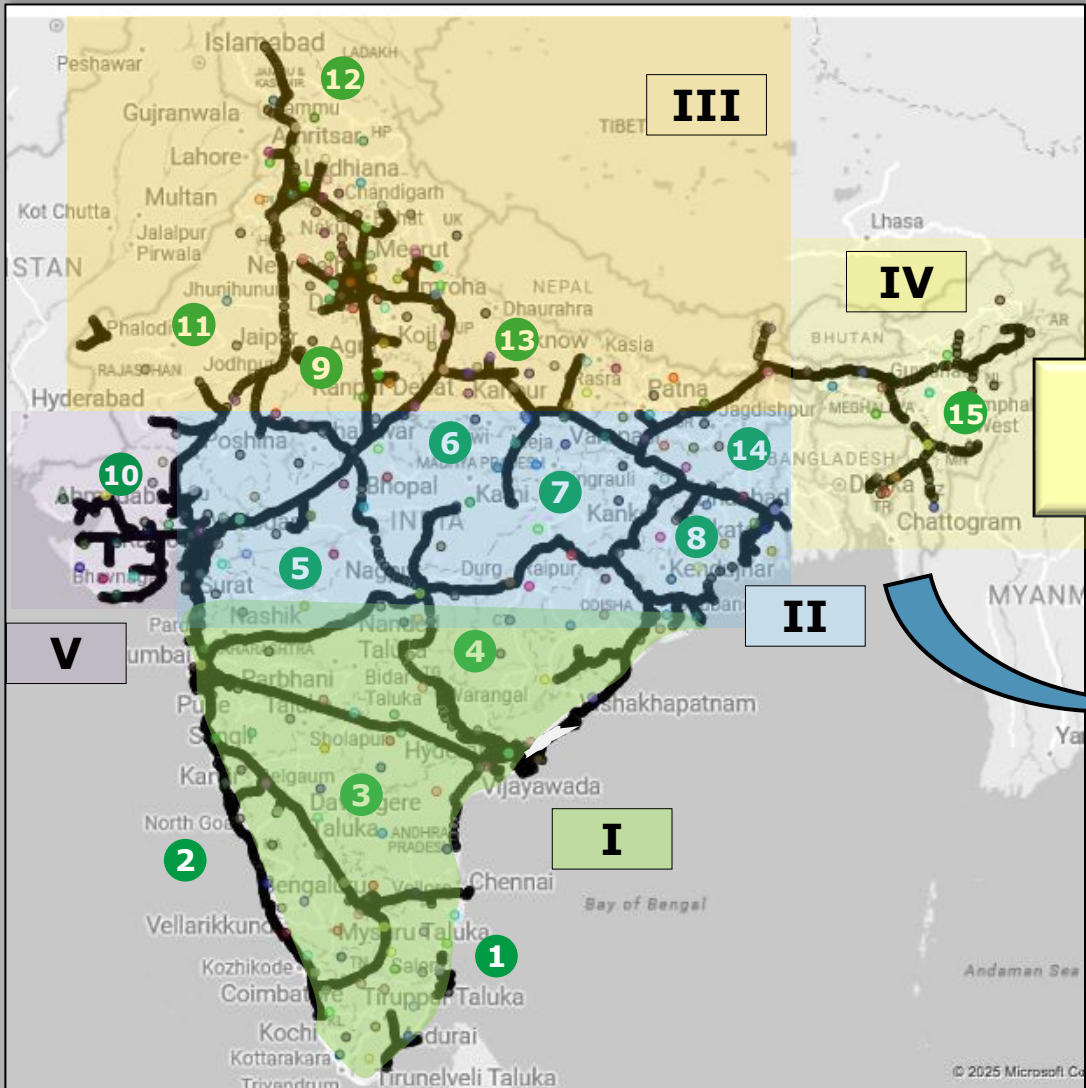
Other Focus Area for PNGRB in this Region

Sector	Total	Operational	Connectivity		Remarks
			O&C	O&NC	
 Refinery	5 Nos	4 Nos	4 Nos	0 Nos	• HPCL Barmer Refinery¹ is not operational however, the pipeline connectivity is present • ONGC Prayagraj is the refinery² under discussion for which connectivity to be explored post allocation of land for refinery
 Power	10 Nos	7 Nos	7 Nos	0 Nos	• All Power plants are connected through pipeline. However, many³ are not active.
 Fertilizers	18 Nos	18 Nos	18 Nos	0 Nos	

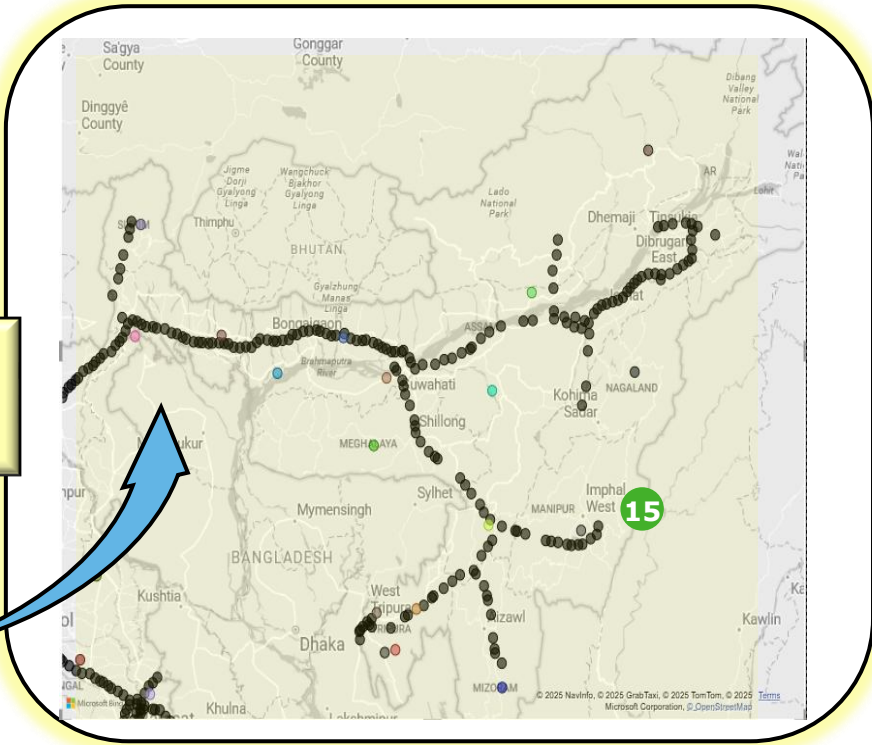
Note: O&C: Operational and connected and O&NC: Operational and Not connected

Note: Refinery-HPCL-Panchpadra, HMEL Bhatinda, IOCL Panipat/ Mathura/Barauni; Fertilizers: Phulpur, Vijaypur, Aonla, Gadepan, Panipat, Nangal, Gorakhpur, Barauni, Kota,
Sources: 1. Industry Sources, 2. Hindustan [Times](#); 3. CEA Fuel Report March 2025; Notes Continued: Fertilizers: Jagdishpur, Kanpur, Bhatinda, Shahjahanpur

Section wise pipeline analysis | Eastern Region



Eastern Region

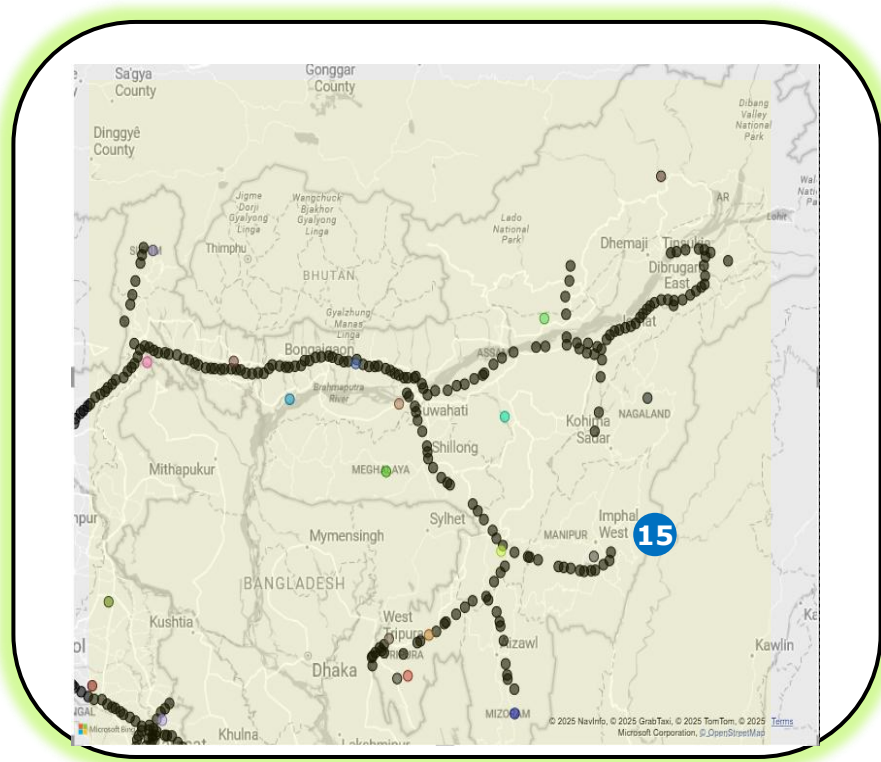


Eastern Region has been analyzed as section 15

Section wise pipeline analysis | Eastern Region | Section 15-(1/6)

Eastern Region is served by regional natural gas pipelines connected to localized gas fields with major anchor loads such as fertilizers, refineries and power plants connected to these gas sources

Section 15



Key Insights for Section 15

1

Incremental Demand in this section is ~13-14 mmscmd

2

15 GAs are not connected through pipeline

3

Currently 3 natural gas pipelines are passing through this section- Barauni-Guwahati, IGGL (Under construction), Duliajan-Numaligarh and Assam Gas Network and pipelines from localized gas fields

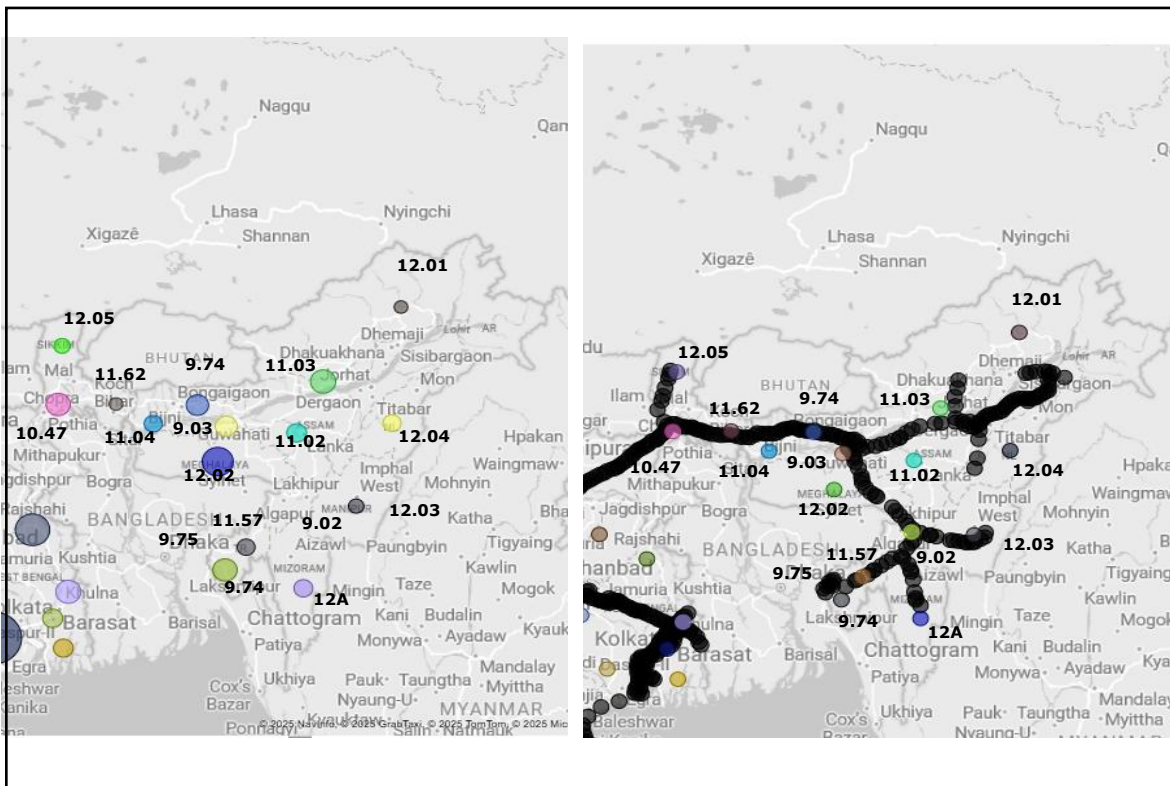
4

In this section, Power plants are connected to localized gas fields and fertilizer plant-Namrup is connected to Assam Gas Network. Only Refinery-IOCL Guwahati is not connected.

Section wise pipeline analysis | Eastern Region | Section 15-(2/6)

15 GAs are not connected to natural gas pipeline in this region

Section 15



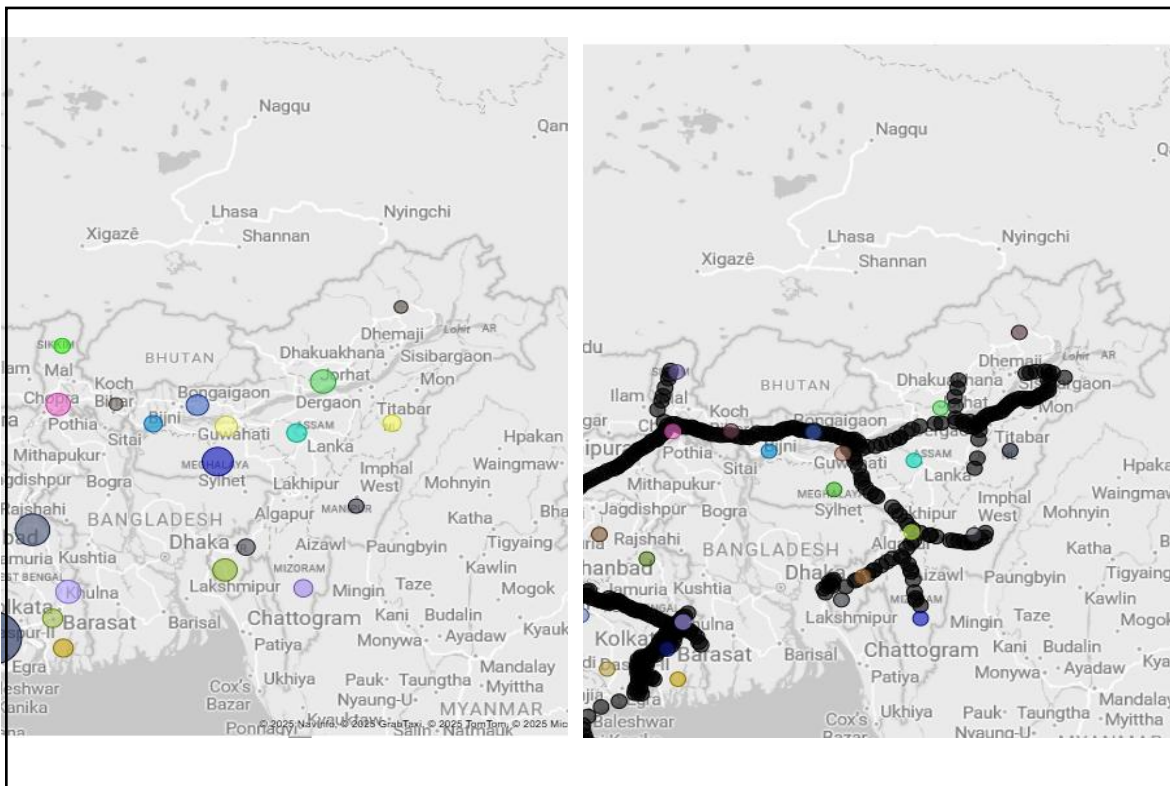
List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
9.03	Kamrup & Kamrup Metropolitan Districts	Assam
10.47	Darjeeling, Jalpaiguri and Uttar Dinajpur Districts	West Bengal
11.02	Nagaon, Morigaon, Hojai, Karbi Anglong, West Karbi Anglong and Dima Hasao districts	Assam
11.03	Lakhimpur, Dhemaji, Darrang, Udalgiri, Sonitpur and Biswanath Chariali districts	Assam
11.04	Kokrajhar, Dhubri, South Salmara-Mankachar & Goalpara	Assam
11.05	Baksa, Barpeta, Bongaigaon, Chirang, Nalbari and Bajali	Assam
11.56	South Tripura and Sepahijala district	Tripura
11.57	Dhalai, North Tripura, Unakoti and Khowai	Tripura
11.62	Alipurduar and Koch Bihar	West Bengal
12A	Mizoram State	Mizoram
12.01	Arunachal Pradesh State	Arunachal Pradesh
12.02	Meghalaya State	Meghalaya

Section wise pipeline analysis | Eastern Region | Section 15-(3/6)

Isolated gas fields Power plants are either not connected or in the process of getting connected to natural gas pipeline grid i.e. IGGL network being developed in the eastern region

Section 15



List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
12.03	Manipur State	Manipur
12.04	Nagaland State	Nagaland
12.05	Sikkim State	Sikkim

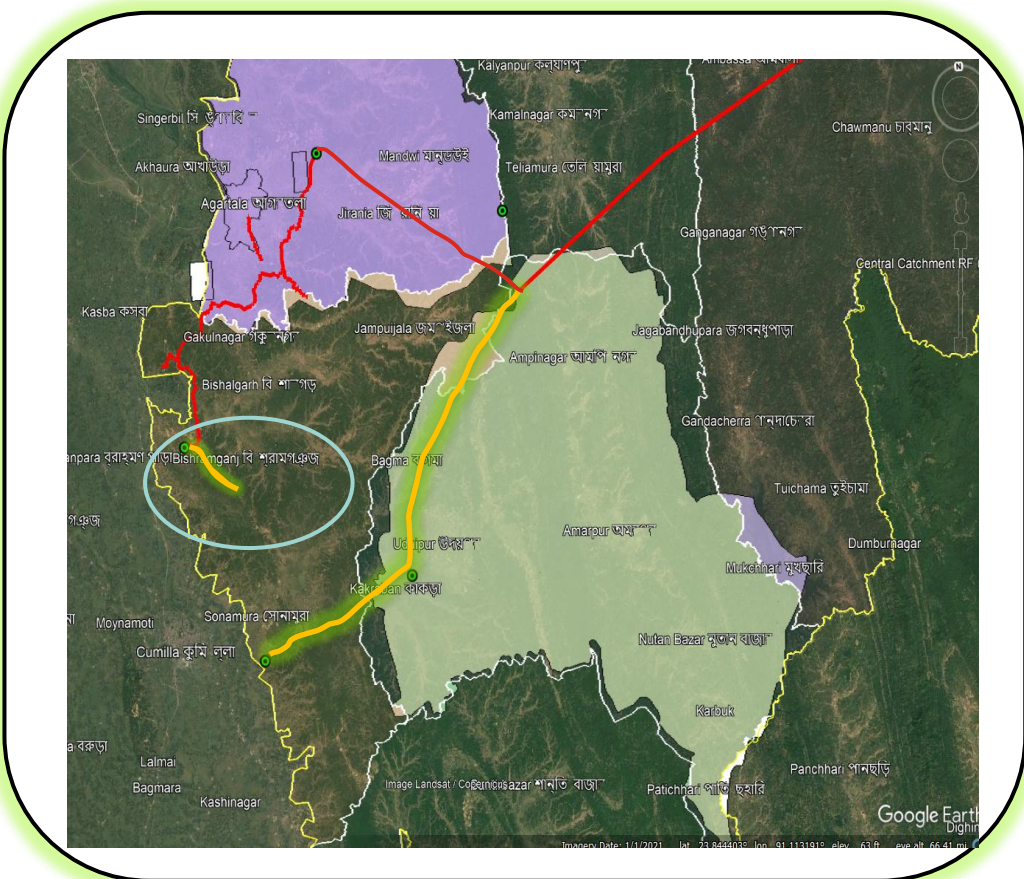
List of Demand centers not connected through pipeline

GA ID	Geographical Area/Demand center	State/UT
9.03	IOCL Guhawahti-Refinery	Assam
11.56	Monacrhk (NEEPCO)-Power Plant	Tripura
9.74	Tripura Power plant (OTPC)-Power Plant	Tripura
9.74	Baramura CCPP	Tripura

Section wise pipeline analysis | Eastern Region | Section 15-(6/6)

Isolated power plants in South Tripura currently connected to localized gas fields to be integrated with IGGL’s network through spur lines

Section 15



Pipeline Route (NGPL/STPL)	Length (Km)	Connectivity	Pipeline Selection
West Tripura-Tripura/Monarchk CCPP-Sepahajila	65	Isolated Power Plants/ 11.56	
West-Tripura-Baramura CCPP	14	Isolated Power Plant	

- 1

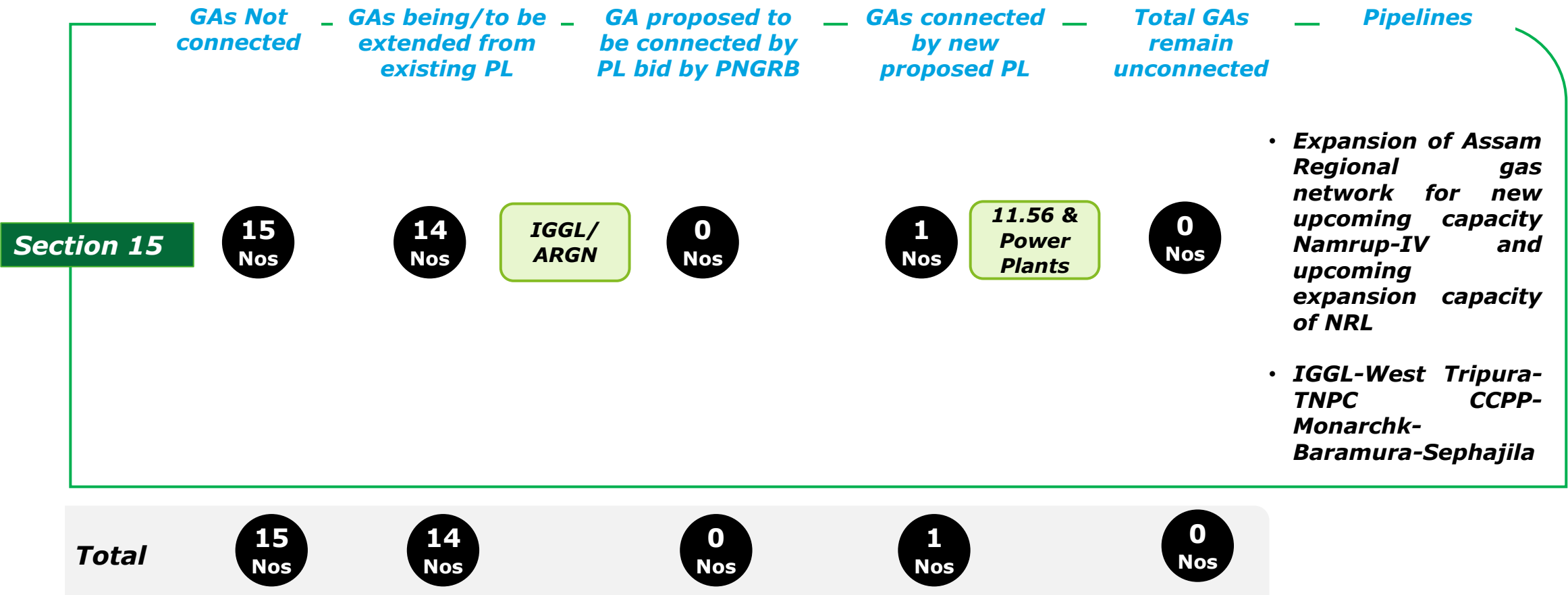
Localized Gas network to Power plants in Tripura (NEEPCO Monarchk and OTPC) can be connected to IGGL network for grid connectivity
- 2

Connectivity for GA-11.56 -Konaban-Anandnagar pipeline network of Agartala Gas Network extended to Rohika Power plant in Sepahijala GA can be used for this GA connectivity. Further, connectivity of Agartala has been proposed in IGGL (UC).
- 3

Connectivity for IOCL Guhawati refinery would be established once the Barauni-Guhawati section of JHBDPL is commissioned

Key Takeaways | Eastern Region (1/2)

Completion of IGGL in this region would play a key in ensuring comprehensive regional coverage. However, capacity expansions of existing Assam Gas pipeline and connectivity of isolated power plants to grid is crucial



Key Takeaways | Eastern Region (2/2)

Expansion of Assam regional network may be required due to increase in planned gas offtake owing to capacity expansions or project revival. Further, isolated power plants to be connected to gas grid

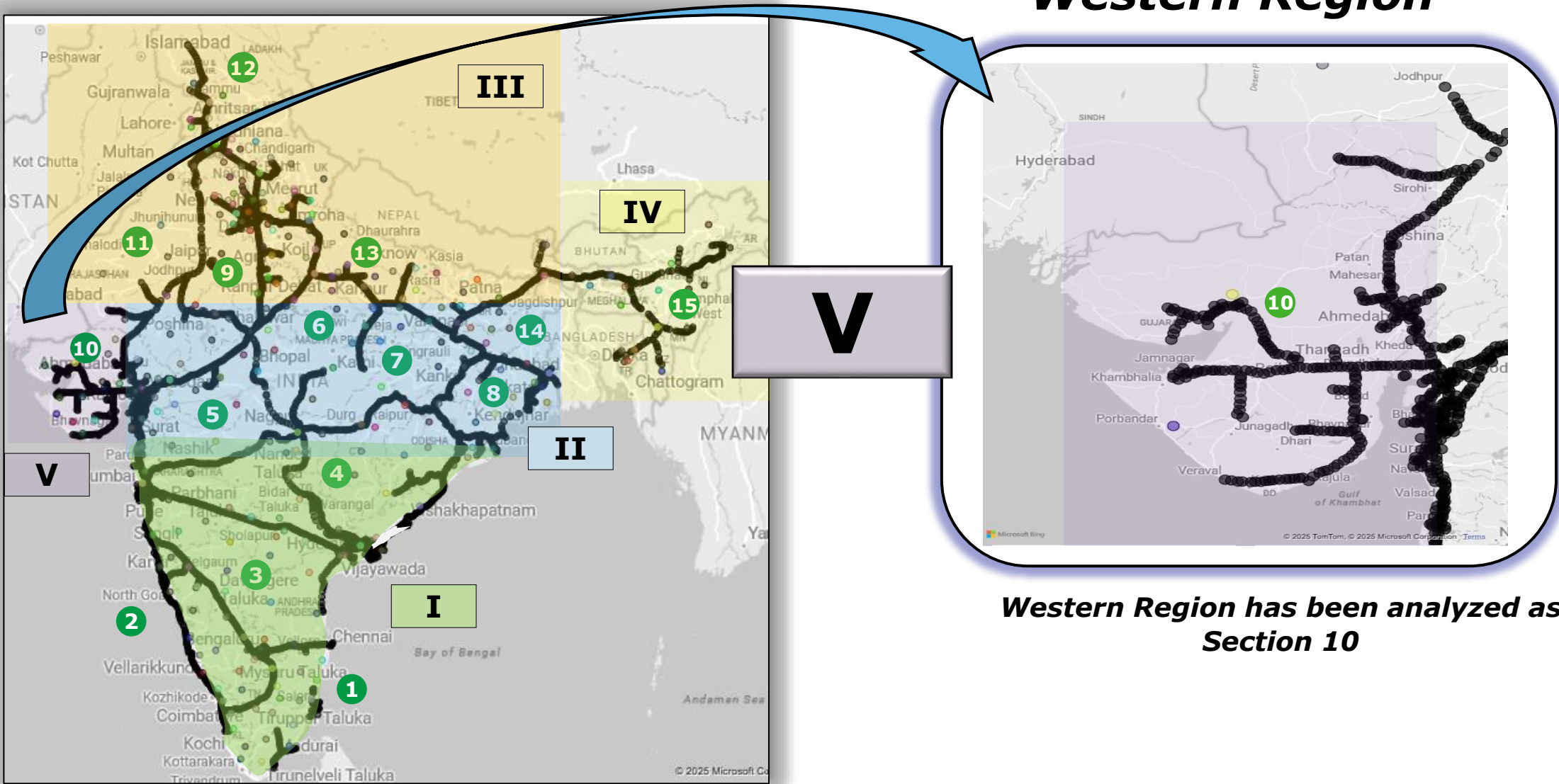
Other Focus Area for PNGRB in this Region

Sector	Total	Operational o	Connectivity		Remarks
			O&C	O&NC	
 Refinery	4 Nos	4 Nos	3 Nos	1 Nos	- Pipeline connectivity to be completed for IOCL Guwahati through Barauni-Guwahati - NRL Numaligarh is being expanded¹ to 9 MMTPA from 3 MMTPA, leading to increase in gas offtake. (Assam NG network -0.67 mmscmd remaining capacity)
 Power	9 Nos	9 Nos	9 Nos	0 Nos	Power Plants are connected to isolated gas fields², hence, these active power plants to be connected to IGGL gas grid either directly or connectivity of local network to IGGL
 Fertilizers	3 Nos	2 Nos	2 Nos	0 Nos	As Namrup IV is considered for Revival³ with capacity of 1270 TMT, expected incremental gas offtake is expected to rise beyond 1.5 mmscmd, hence, capacity provision to be created in Assam Network

Note: Refinery: IOCL Guwahati, Bongaigaon, Digboi, NRL; Fertilizers: Namrup I,II and IV; Power: Kathalgiri, Agartala, Monarchak, Tripura, etc. O&NC: Operational and Not Connected

Sources: 1. NRL expansions [Financial Express](#); 2. [CEA Fuel Report March](#) 2025; 3. Economic Times-Namrup IV-[Union Budget](#); Notes: O&C: Operational and Connected

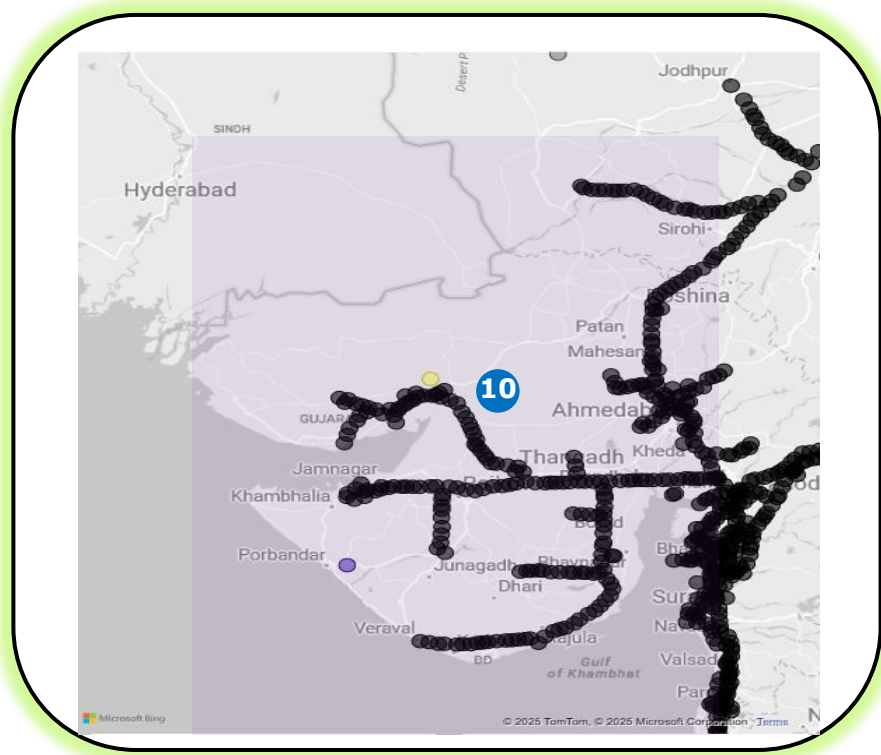
Section wise pipeline analysis | Western Region



Section wise pipeline analysis | Western Region | Section 10-(1/4)

Overall incremental demand in the Western Region is projected at ~5–6 MMSCMD by 2040, with only two GAs currently unconnected to the pipeline network

Section 10



Key Insights for Section 10

1

Incremental Demand in this section is ~5-6 mmscmd

2

2 GAs are not connected through pipeline

3

Currently 2 natural gas pipelines are passing through this section- GSPL HP network and Mehsana Bhatinda Pipeline. Further, a new section of Anjar-palanpur has been proposed

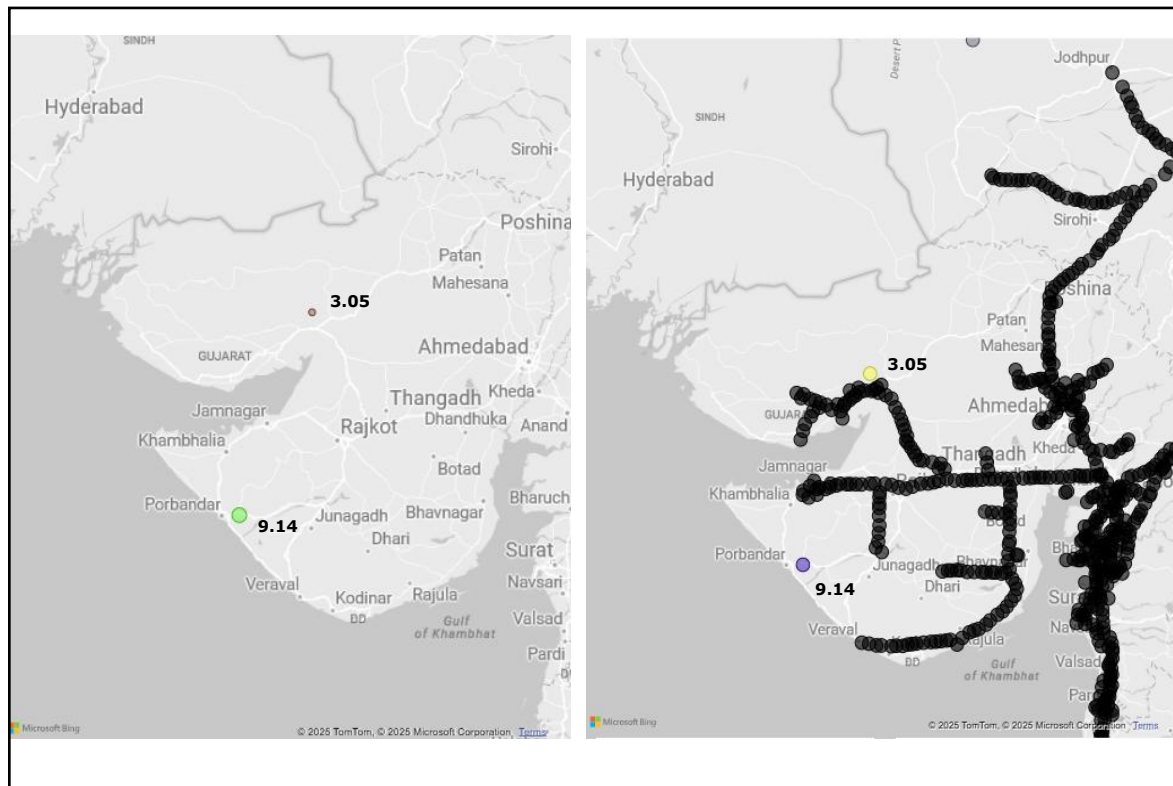
4

In this section, all major anchor loads –refineries, fertilizers and active powerplants are connected through pipeline

Section wise pipeline analysis | Western Region | Section 10-(2/4)

The Gujarat region is well connected through the GSPL-HP network. However, connectivity challenges in certain areas due to absence of pipeline need to be addressed through pipeline reach & connectivity

Section 10



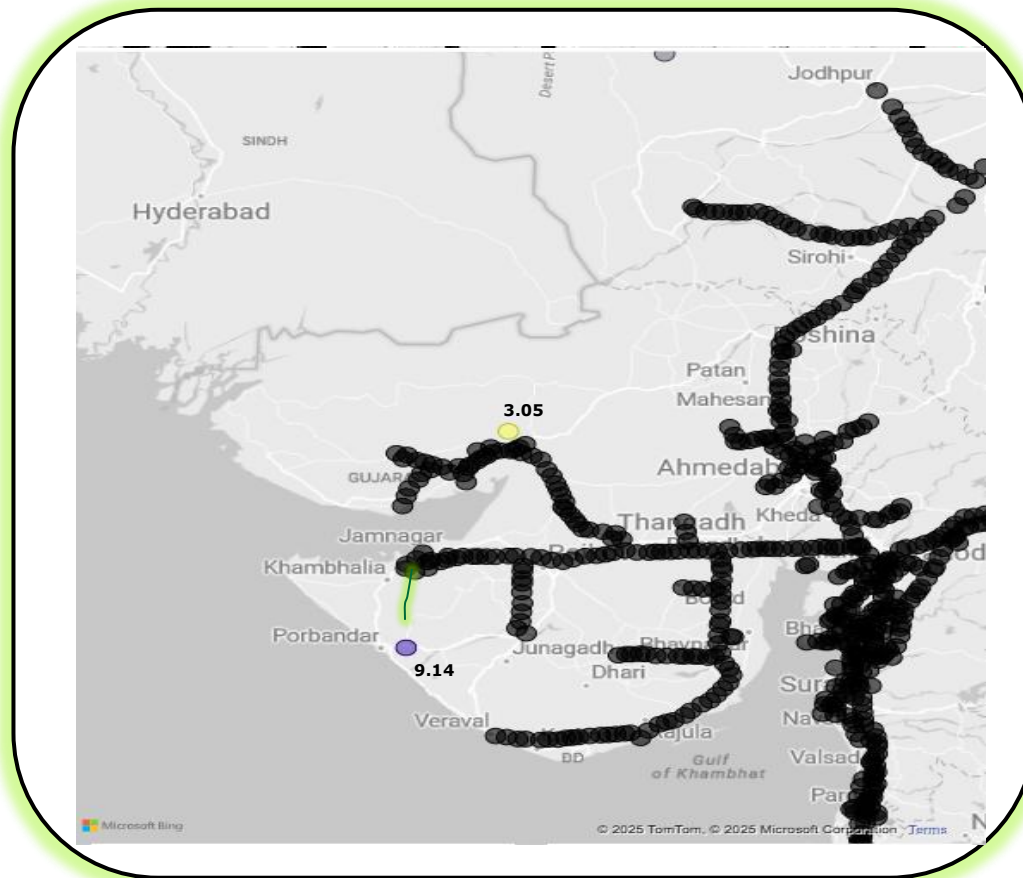
List of GAs not connected through pipeline

GA ID	Geographical Area	State/UT
3.05	Kutch (East)	Gujarat
9.14	Porbandar District	Gujarat

Section wise pipeline analysis | Western Region | Section 10-(4/4)

Spur pipeline from Jamnagar could be extended to cover western non-connected portion of Gujarat to enable connectivity to GAs

Section 10



Key Takeaways

Pipeline Route (NGPL/STPL)	Length (Km)	Connectivity	Pipeline Selection
Jamnagar-Ranpar	50	Western portion of Gujarat with GA-9.14	✓ ✓ ✓ ✓ ✓

1

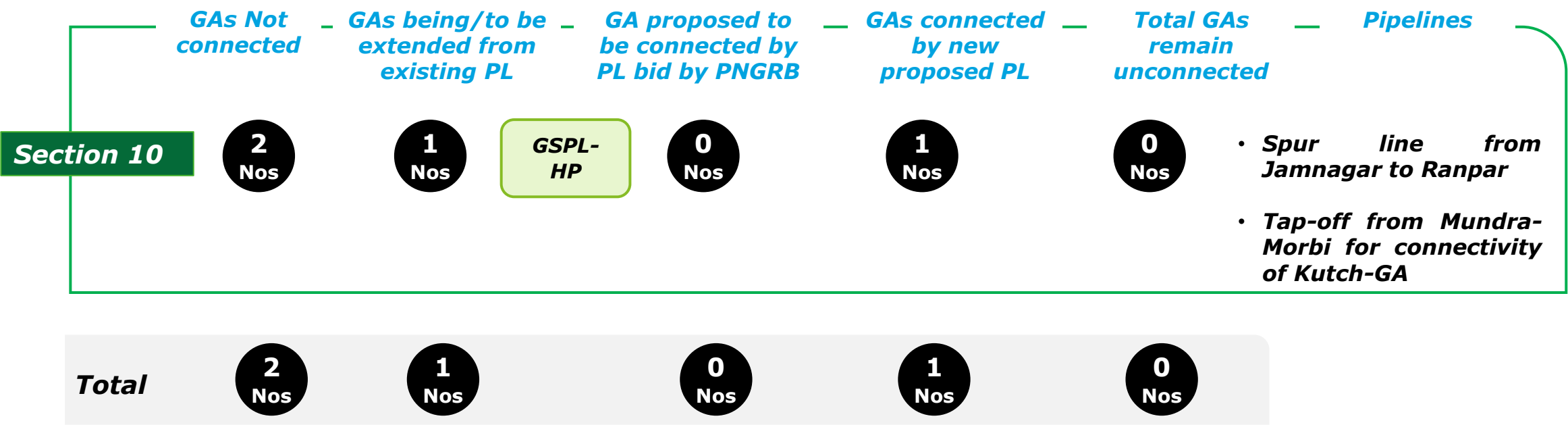
Connectivity for GA-**3.05** can be taken from either of two natural gas pipelines (GSPL-HP & Kandla-Samakhiali) passing through GA.

2

Connectivity for GA-**9.14**, **50 kms** of spur line can be extended from Jamnagar GA to Ranpar or from authorized Jamnagar-Dwarka pipeline and further STPL can be extended after installation of CGS

Key Takeaways | Western Region (1/2)

Wester region is well connected with GSPL HP network. However, capacity expansion of highly utilized GSPL HP network may be required considering the increase in demand in this region



Key Takeaways | Western Region (2/2)

All major anchor customers are connected however, the GSPL HP network may foresee an increase in the gas demand due to upcoming refinery expansions or change in refinery configuration for Petchem production

Other Focus Area for PNGRB in this Region

Sector	Total	Operational o	Connectivity		Remarks
			O&C	O&NC	
 Refinery	3 Nos	3 Nos	3 Nos	0 Nos	Currently, Nayara-Vadinar is considering expansion of its capacity by 1.5 MMTPA for Petchem integration¹. Further, earlier Nayara were considering refinery expansions² from 20 MMTPA to 46 MMTPA but currently there are no updates on the same.
 Power	3 Nos	2* Nos	2 Nos	0 Nos	CEA Fuel Report³ for gas-based power plants states nil gas consumption for Essar CCPPP
 Fertilizers	1 Nos	1 Nos	1 Nos	0 Nos	

Note: Refinery: Nayara-Vadinar, Reliance DTA, SEZ; Fertilizers: IFCO Kalol; Power Plants: Pipav CCPP, Essar CCPP, Dhruvan CCPP; O&C - Operational and connected

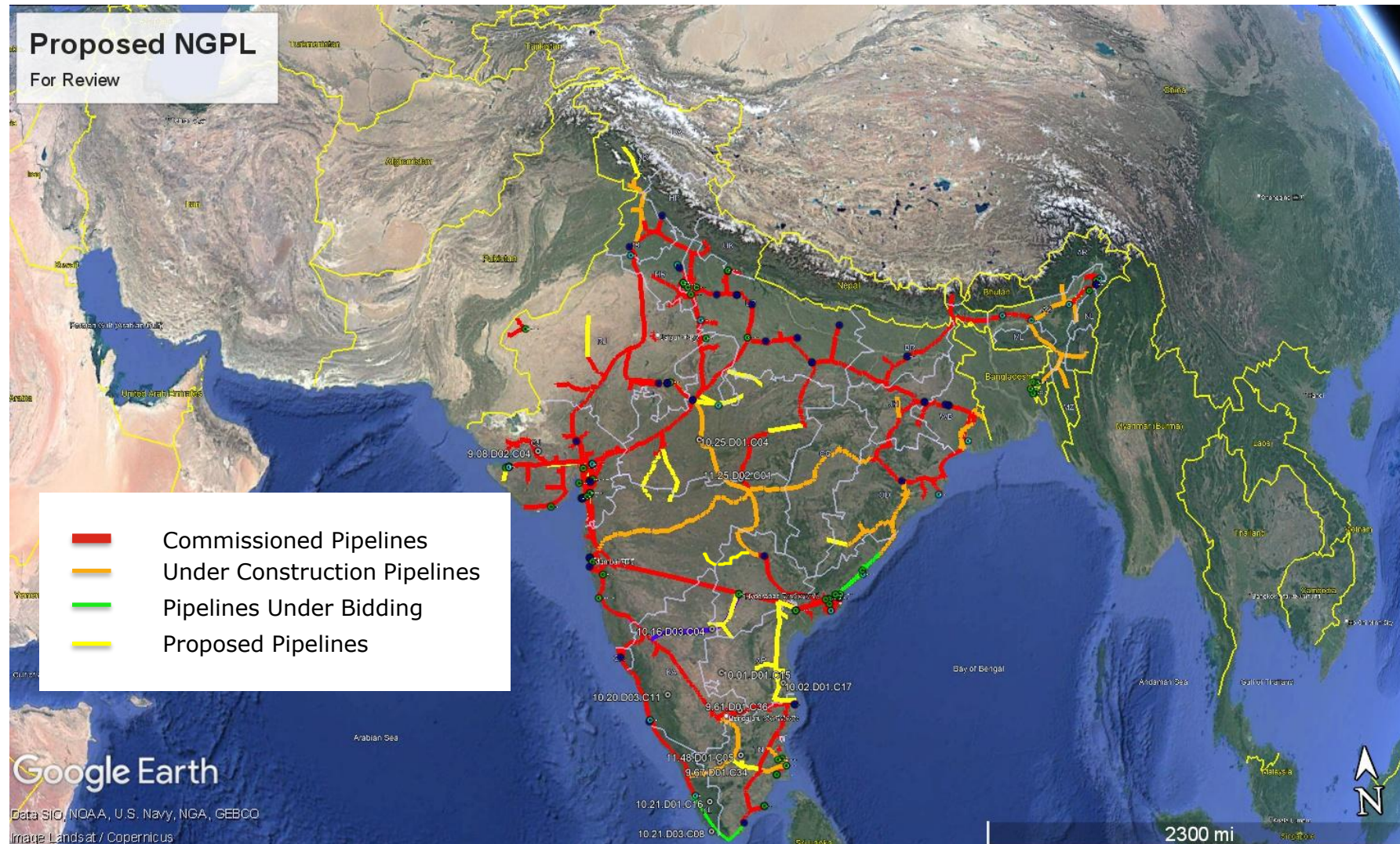
Sources: 1. Economic Times- [Nayara-8bn](#); 2. [Nayara Refinery expansion 20 to 46 MMTPA](#); 3. [CEA Fuel Report March 2025](#); Notes: O&NC: Operational and Not Connected

Natural Gas Pipeline Proposal

3

Summary of Proposed Natural Gas Pipelines (1/4)

Completion of pipelines under construction, under bidding, and newly proposed would ensure connectivity to over 300 GAs—covering more than 95% of total GAs—through the natural gas pipeline network in India



Summary of Proposed Natural Gas Pipelines (2/4)

The proposed pipelines aim to connect 9 new GAs, comprising over 600 km of spur lines and approximately 1000–1100 km of mainlines or expansion lines

PIPELINE	GA/DC CONNECTED	DISTANCE (KM)	CAPEX (Cr)	REMARKS
Ennore-Nellore-Kadapa-Kurnool-Suryapet	4	630	2500	GA/DC & Eastern corridor connectivity
Suryapet- Guntur (Spurline from Ennore-Suryapet)	2	80	320	GA connectivity of 11.01 from Ennore-Suryapet
Tirupati-Nellore (Spurline from Ennore-Suryapet)	3	70	280	GA connectivity of 10.02 from Ennore-Suryapet
Kurnool-Raichur/Jogulamba	1	65	220	GA connectivity of 11.01 and 11.55 from Ennore-Suryapet
HVJ/MBBPL-Bina-Refinery-Sagar	2	90	360	Connectivity of BPCL Bina Refinery and GA (11.27)
Spur line from Jamnagar to Ranpar	1	50	200	GA/DC connectivity from existing GSPL HP or authorized Jamnagar-Dwarka
Hyderabad-Wanaparthy-Raichur-Kurnool	3	180	720	Connectivity for GA/DC and interior regions with demand centers currently unconnected or served by RLNG

Note: Capex is taken to be Rs. 3.5-4.0 crore/Km basis for normal route and Rs 5 Cr/Km for hilly region and length of the pipeline is as per the tentative route

Summary of Proposed Natural Gas Pipelines (3/4)

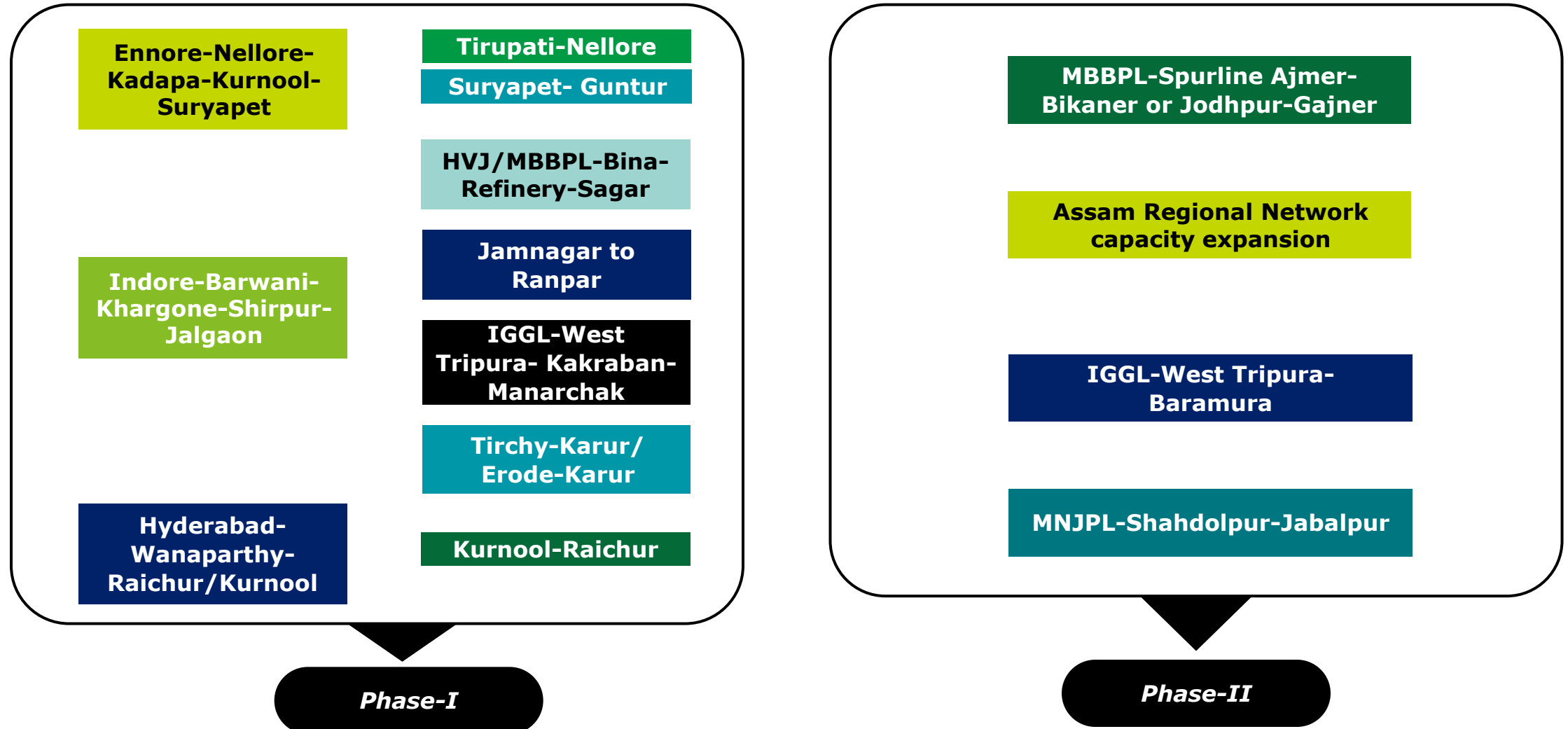
The proposed pipelines aim to connect 9 new GAs, comprising over 600 km of spur lines and approximately 1000–1100 km of mainlines or expansion lines

PIPELINE	GA/DC CONNECTED	DISTANCE (KM)	CAPEX (Cr)	REMARKS
Indore-Barwani-Khargone-Shirpur-Jalgaon	4	220	80	Connectivity for GA/DC and interior regions with demand centers currently unconnected or served by RLNG
Assam Regional Network capacity expansion	2	100	400	Capacity expansion to for demand from Namrup IV, CPP and IOCL Digboi
Tirchy-Karur/ Erode/Karur	1	25	100	GA/DC and inter pipeline connectivity
MBBPL-Spurline Ajmer-Bikaner or Jodhpur-Gajner	3 or 2	160	600	Upcoming Industrial zone and GA connectivity
IGGL-West Tripura-Kakraban-Manarchak	3	50	250	Isolated Power plants and GA connectivity to NGPL Grid
IGGL-West Tripura-Baramura	1	7	35	Isolated Power plants connectivity to NGPL Grid
MNJPL-Shahdolpur-Jabalpur	1	140	560	Source to MNJPL Pipeline Connectivity
Total		1700 Kms		

Note: Capex is taken to be Rs. 3.5-4.0 crore/Km basis for normal route and Rs 5.0 Cr/Km for hilly region and length of the pipeline is as per the tentative route

Summary of Proposed Natural Gas Pipelines (4/4)

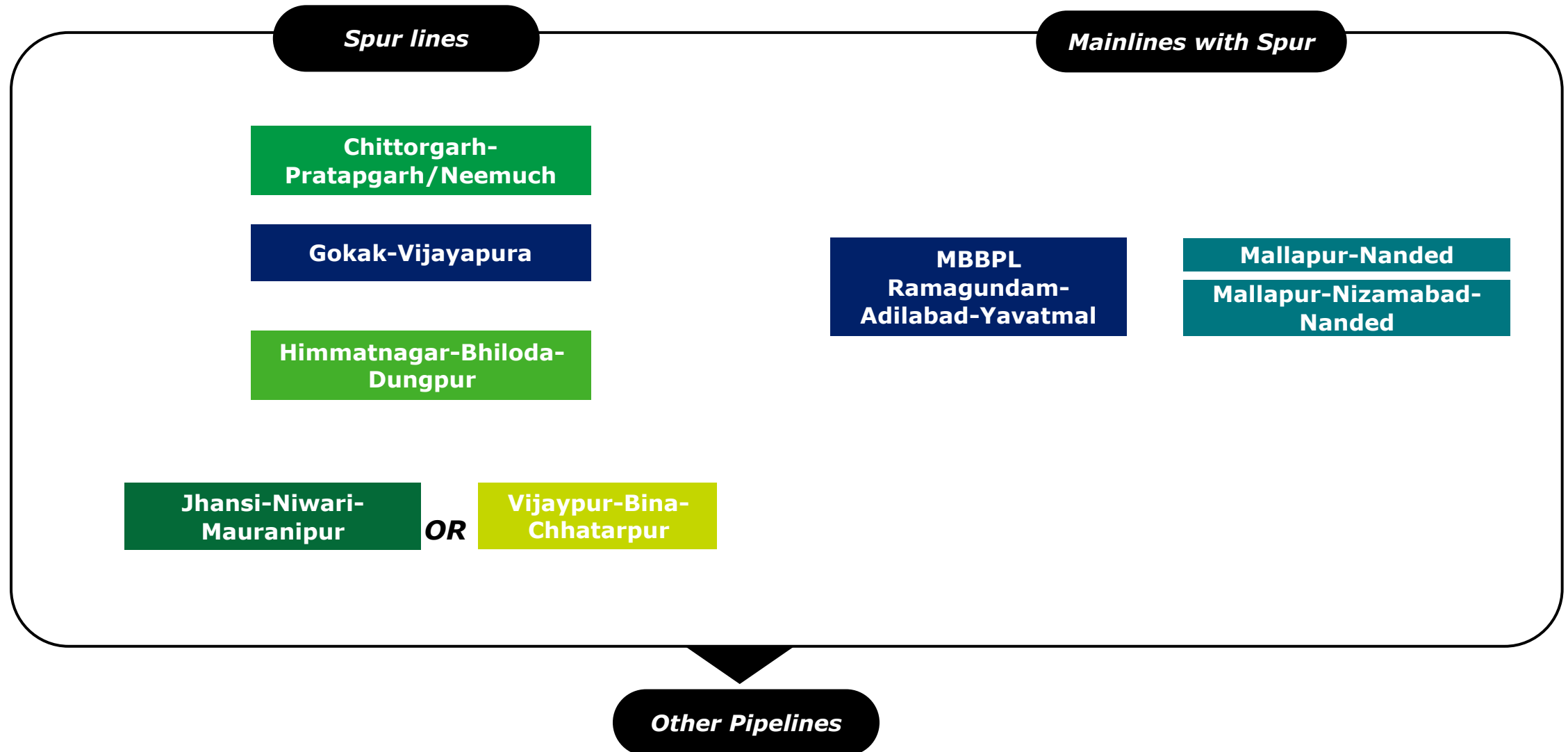
The proposed pipelines aim to connect 9 new GAs, comprising over 600 km of spur lines and approximately 1000–1100 km of mainlines or expansion lines



Note: Capex is taken to be Rs. 3.5-4.0 crore/Km basis for normal route and Rs 5 Cr/Km for hilly region and length of the pipeline is as per the tentative route

Summary of Proposed Natural Gas Pipelines (4/4)

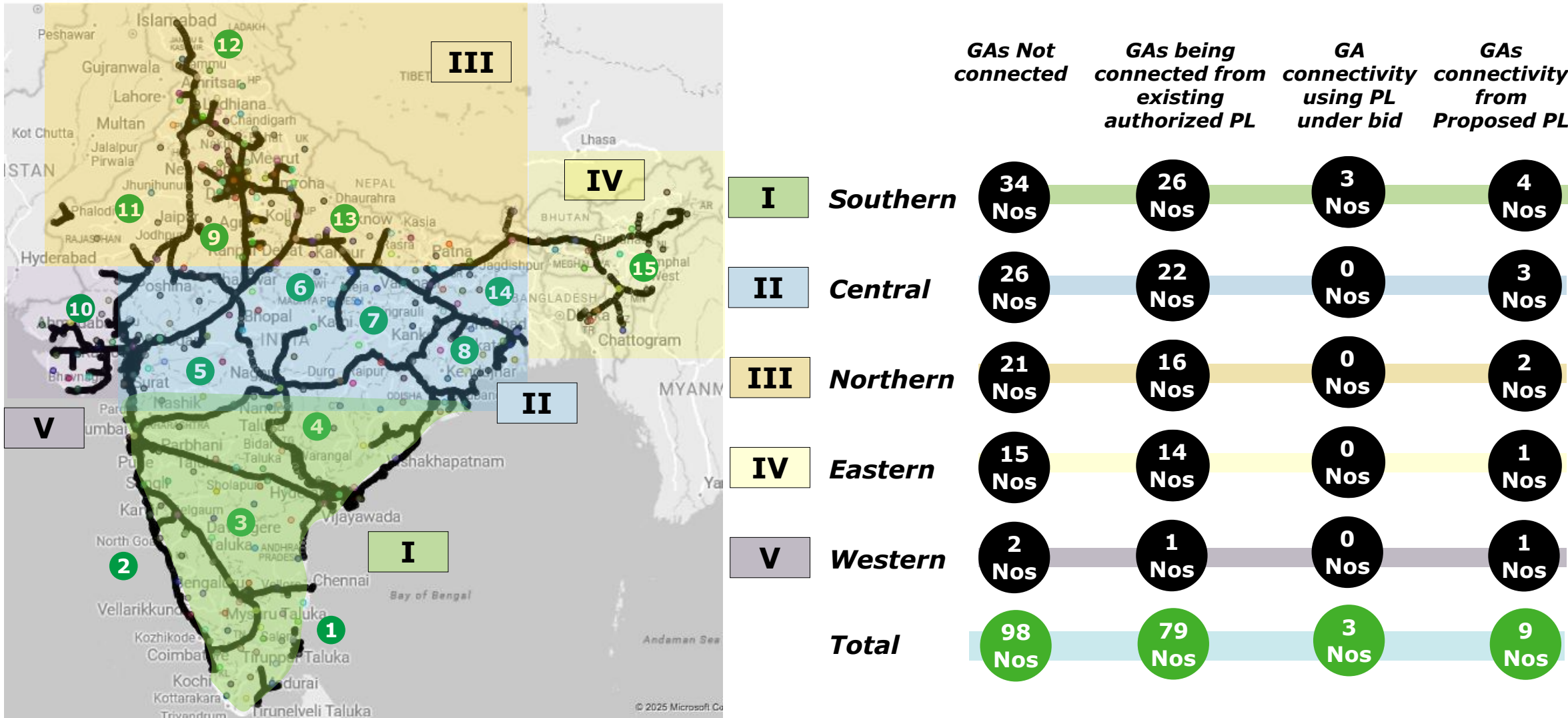
The proposed pipelines aim to connect 9 new GAs, comprising over 600 km of spur lines and approximately 1000–1100 km of mainlines or expansion lines



Note: Capex is taken to be Rs. 3.5-4.0 crore/Km basis for normal route and Rs 5 Cr/Km for hilly region and length of the pipeline is as per the tentative route

Overall Summary of Connectivity of Demand Centres Post laying of new pipelines

7 GAs are expected to remain unconnected due to terrain challenges or with the adoption of alternative modes of service by CGD entities, driven by a lack of economic viability

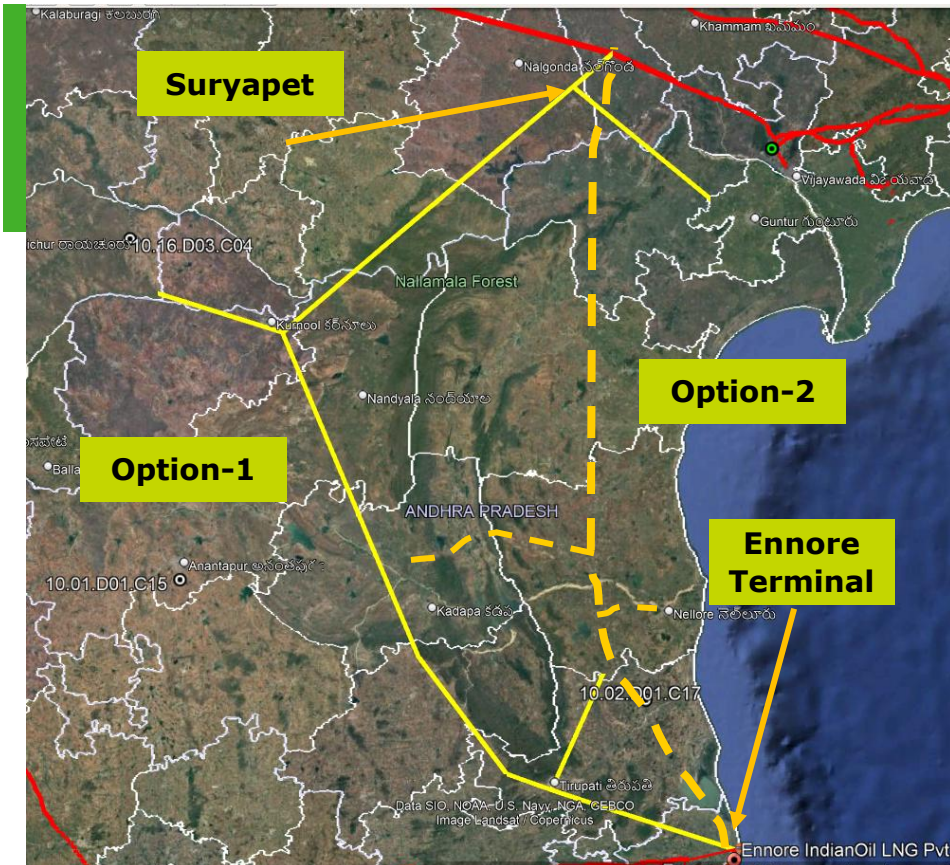


Note:
Sources: PNGRB, Internal Analysis

Proposed Pipeline 1 | Ennore-Nellore-Kadapa-Kurnool-Suryapet| Overview

The Ennore–Nellore–Kadapa–Kurnool–Suryapet pipeline is intended to evacuate natural gas from the existing Ennore LNG terminal and will traverse through the interior regions of the eastern part of the state

This pipeline will originate from Ennore – Terminal and would terminate at Suryapet



630 km
Pipeline Length



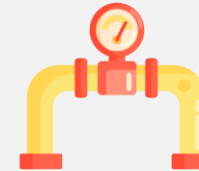
5 MMSCMD
Capacity of Pipeline



2500 INR cr.
Estimated capex

6

**Demand
Centre
Connected**



Source

- Ennore-LNG Terminal/ EWPL



Route: Ennore-Suryapet Option 1 / Option 2

Spur

- Spur from Tirupati to Nellore
- Spur from Kurnool to Raichur
- Spur from Suryapet to Guntur

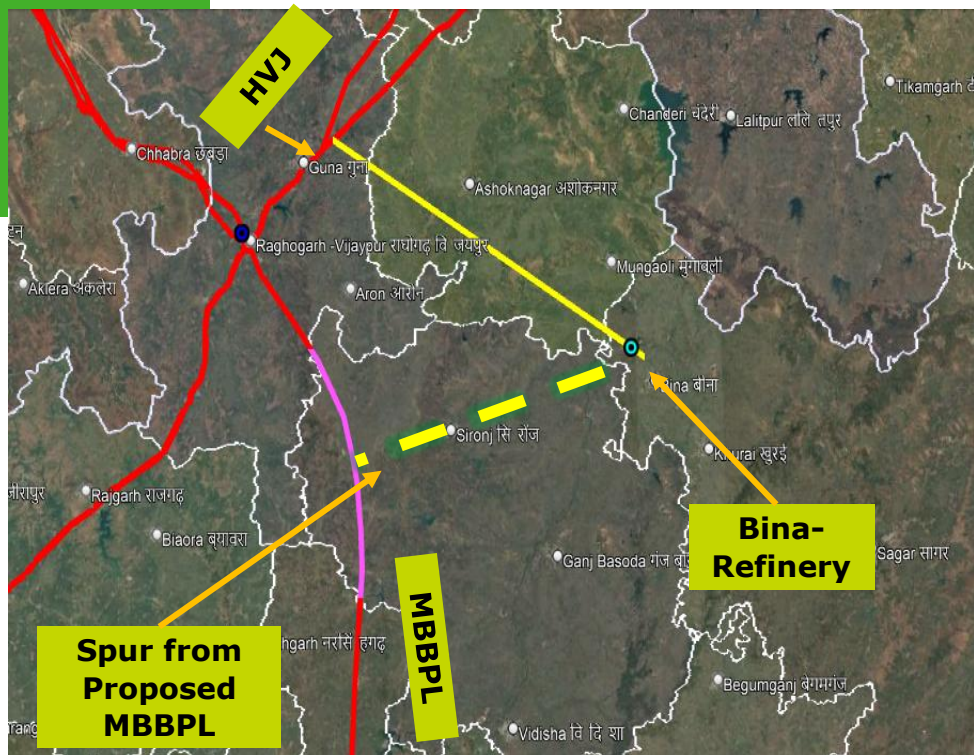
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 2| HVJ/MBBPL-Bina-Refinery-Sagar| Overview

Spurline from HVJ/proposed MBBPL to Bina-Refinery and Sagar district would provide connectivity of major anchor load and a GA. Connectivity to Bina-Refinery from authorized MBBPL could serve as anchor demand

This pipeline will originate from either HVJ-Guna or MBBPL-Bhopal and terminate at Bina Refinery connecting Sagar district



90 km
Pipeline Length



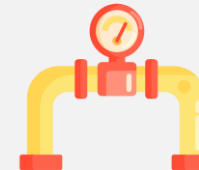
3 MMSCMD
Capacity of Depot /
Terminal Served



360 INR cr.
Estimated capex

1

**Demand
Centre (GA)
Connected**



1

**Refinery
(BPCL
Bina)**



Source

- HVJ-Guna or
MBBPCL Bhopal



Route: HVJ-Guna- Bina or MBBPL Bhopal-
BPCL Bina-Sagar

Spur

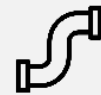
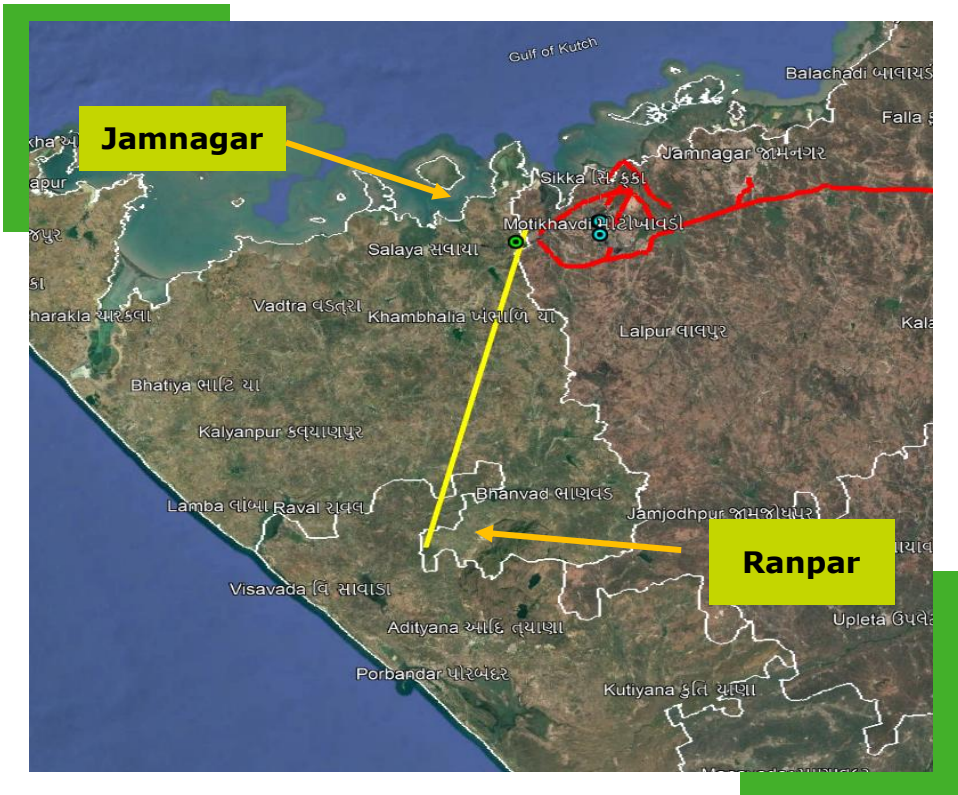
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 3 | Spur line from Jamnagar to Ranpar| Overview

50 Km Spurline from GSPL-HP at Jamnagar would provide seamless connectivity to western parts of Gujarat

This 50 km spur pipeline will originate from GSPL HP Jamnagar and could terminate at Ranpar for connectivity to GAs of Western parts of Gujarat



50 km
Pipeline Length



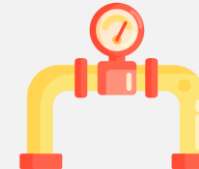
1 MMSCMD
Capacity of pipeline



200 INR cr.
Estimated capex

1

**Demand
Centre (GA)
Connected**



Source

- Jamnagar



Route: GSPLHP-Jamnagar-Ranpar

Spur

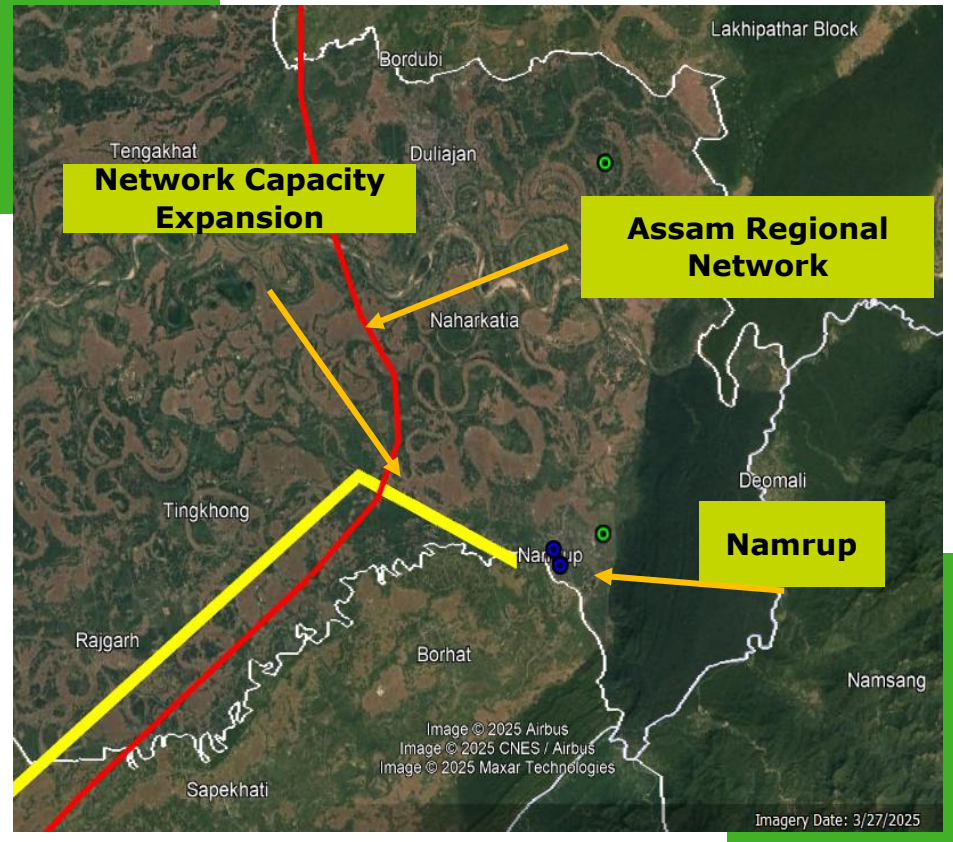
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 4 | Assam Regional Network capacity expansion | Overview

Revival of the Namrup plant will raise gas demand to ~2.0-2.2 MMSCMD, requiring augmentation of the existing gas supply network of Assam Regional Network

This pipeline will expand current connectivity to Namrup IV by additional 2-2.25 MMSCMD

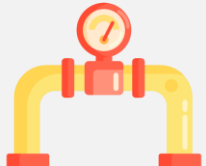


**100 km**
Pipeline Length

**3 MMSCMD**
Capacity of pipeline

**400 INR cr.**
Estimated capex

1 **Demand Centre Connected**

**Fertilizer Plant**

**Source**

- Assam Regional Network

**Route:** Assam Regional Network- Namrup

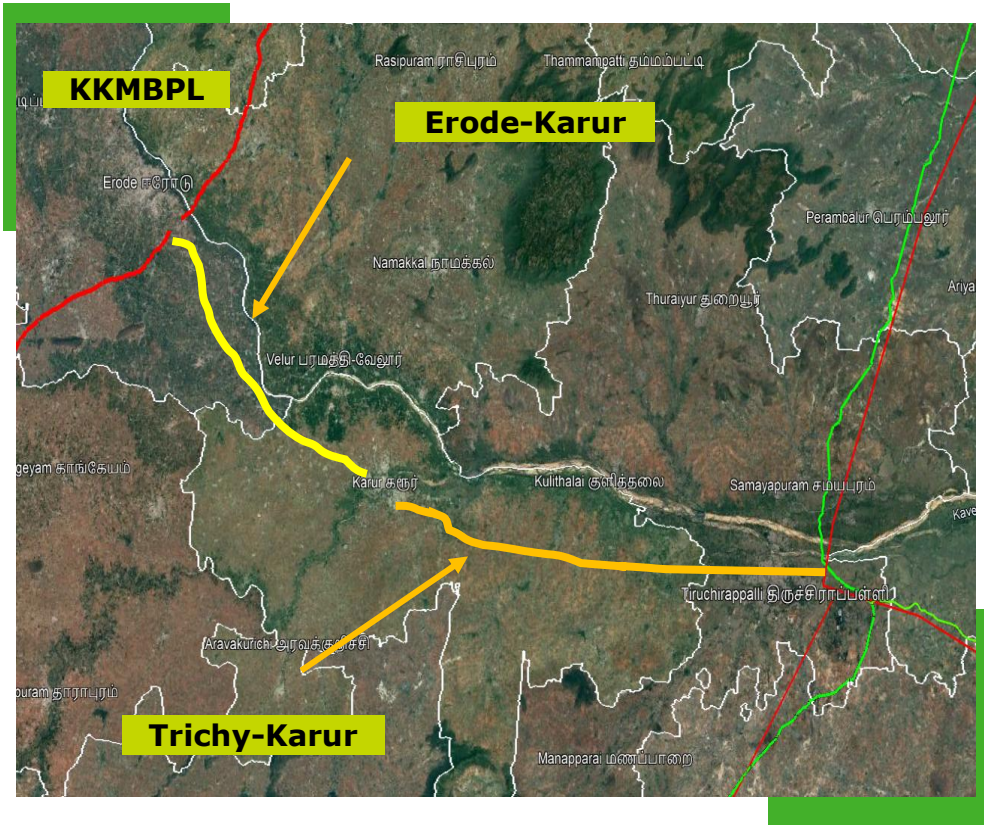
Spur

Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.
Sources: 1. Internal Analysis

Proposed Pipeline 5 | Tirchy-Karur/ Erode/Karur | Overview

For inter-grid connectivity, spur pipelines can be extended from either the KKMBPL or ETPL network to provide gas supply to Karur

This pipeline will originate from ETPL-Tirchy or KKMBPL Erode and terminate at Karur



20 km
Pipeline Length



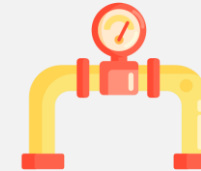
1 MMSCMD
Capacity of pipeline



80 INR cr.
Estimated capex

1

**Demand
Centre
Connected**



Source

- ETPL-Tirchy or KKMBPL-Erode



Route: Tirchy-Karur or Erode-Karur

Spur

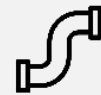
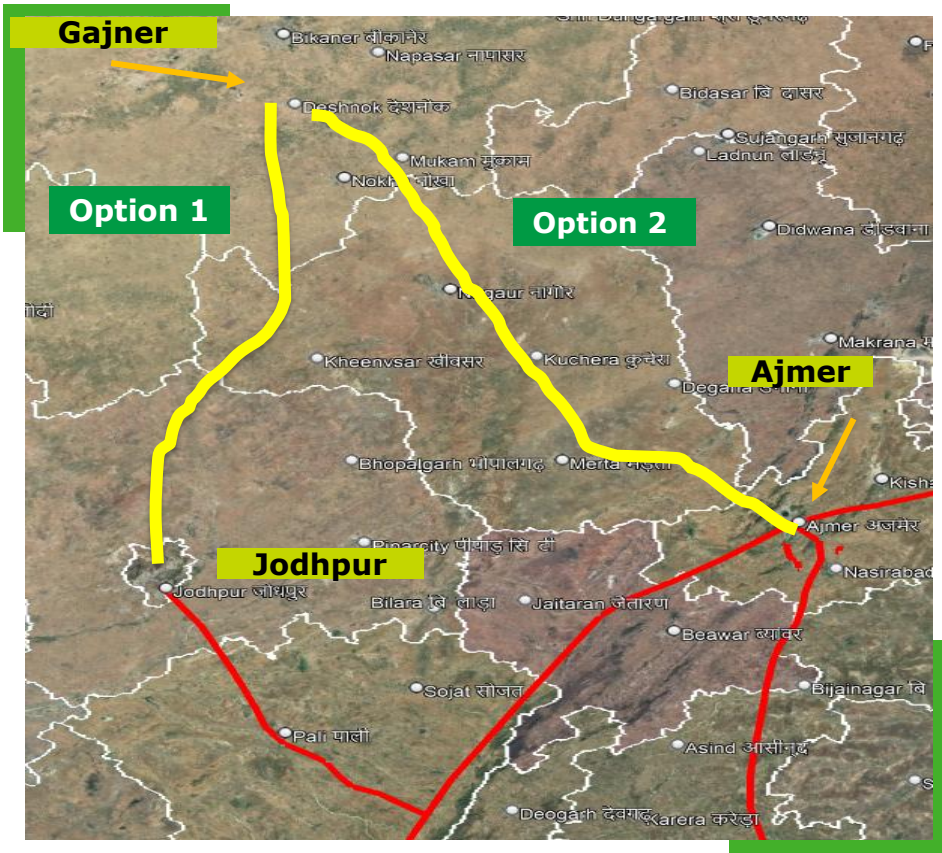
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 6 | MBBPL-Spurline Ajmer-Bikaner or Jodhpur-Gajner| Overview

Strong push from Rajasthan government has enabled the upcoming designated industrial regions in areas of Jodhpur and Gajner

This pipeline will originate either from MBBPL Ajmer or MBPL-Jodhpur and would connect to Bikaner/Gajner



160 km
Pipeline Length



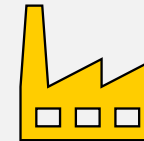
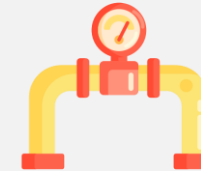
1.5 MMSCMD
Capacity of pipeline



600 INR cr.
Estimated capex

2

**Demand
Centre
Connected
(GA)**



**Industrial
Region**



Source

- MBPL-Jodhpur/MBBPL-Ajmer



Route: MBBPL Ajmer or MBPL-Jodhpur - Gajner

Spur

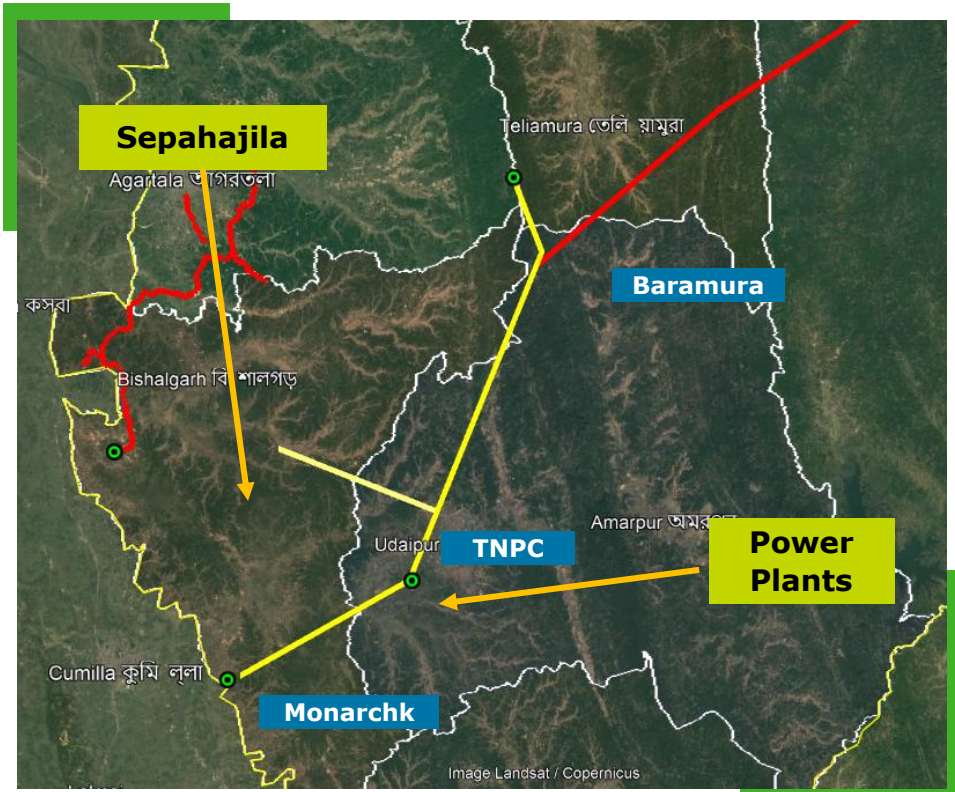
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 7 & 8 | IGGL-West Tripura- Kakraban-Monarchak| Overview

The extension of IGGL-West Tripura to Sepahajila would connect power plants TNPC, Monarchk and Baramura Currently connected by local gas network of ONGC

This pipeline will extend from proposed IGGL network in west Tripura and would connect west Tripura to Tripura, Monarchk and Baramura Power plants and GA-Sepahajila



50 km
Pipeline Length



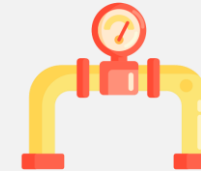
5 MMSCMD
Capacity of Pipeline



200 INR cr.
Estimated capex

1

**GA
Connected**



3

**Power
Plants**



Source

- IGGL West Tripura



Route: West Tripura- Monarchk/TNPC

Spur

- Spur from West Tripura to Sephajila

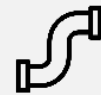
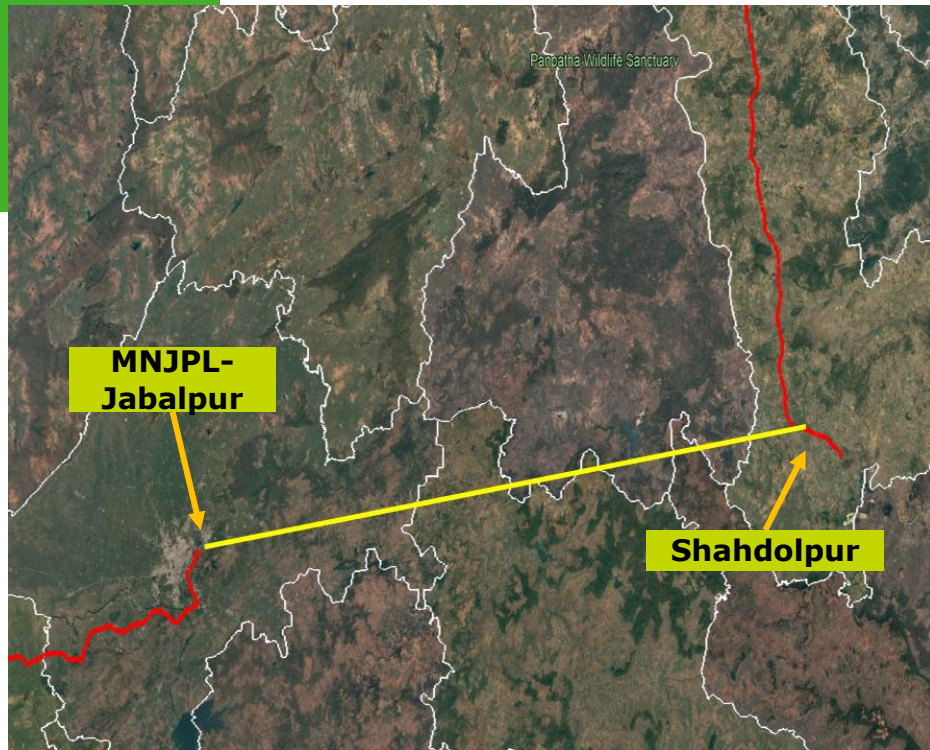
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 9 | MNJPL-Shahdolpur-Jabalpur| Overview

MNJPL could be connected from source of supply i.e. Shahdolpur

This pipeline will originate from Jabalpur and terminate at source field- Shahdolpur



140 km
Pipeline Length



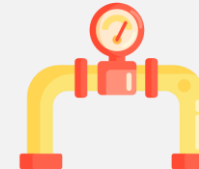
3 MMSCMD
Capacity of pipeline



560 INR cr.
Estimated capex

1

**Demand
Centre
Connected**



1

**Source
Connectivity**



Source

- Shahdolpur



Route: Jablapur- Shahdolpur

Spur

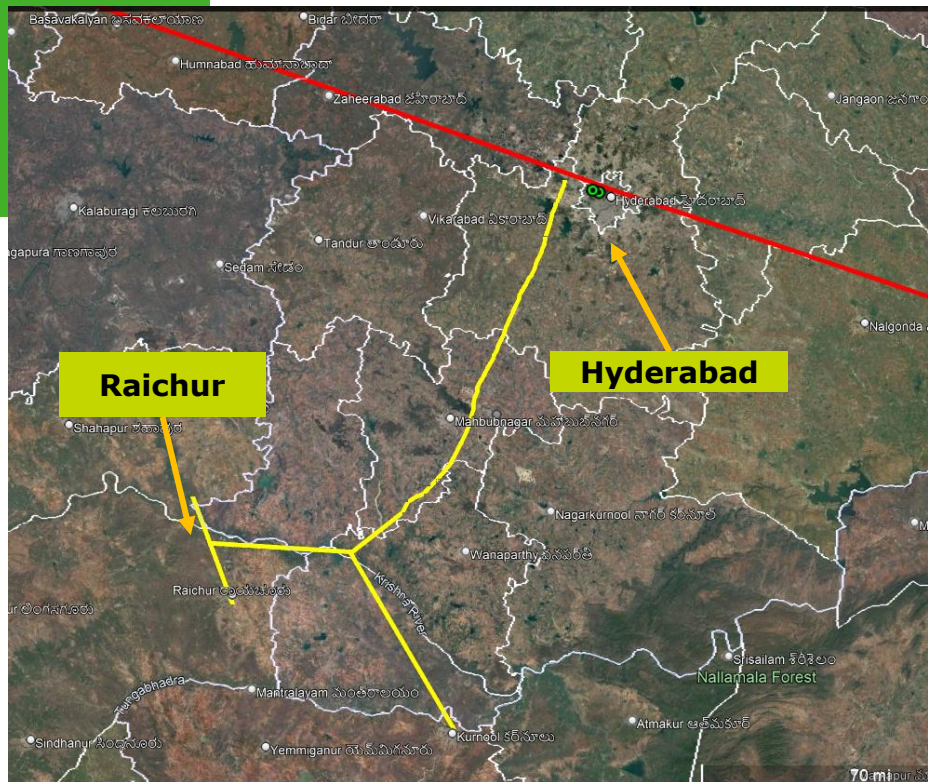
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 10 | Hyderabad-Wanaparthy-Raichur-Kurnool| Overview

This pipeline would connect interior unconnected districts of this region

This pipeline will originate from Hyderabad and terminate at Raichur/Kurnool



180 km
Pipeline Length



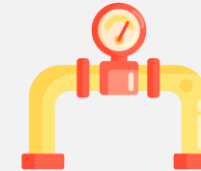
2 MMSCMD
Capacity of pipeline



720 INR cr.
Estimated capex

3

**Demand
Centre
Connected**



Source

- Hyderabad



Route: Hyderabad-Raichur-Kurnool

Spur

Jogulamba-Kurnool
Raichur-Yadgir

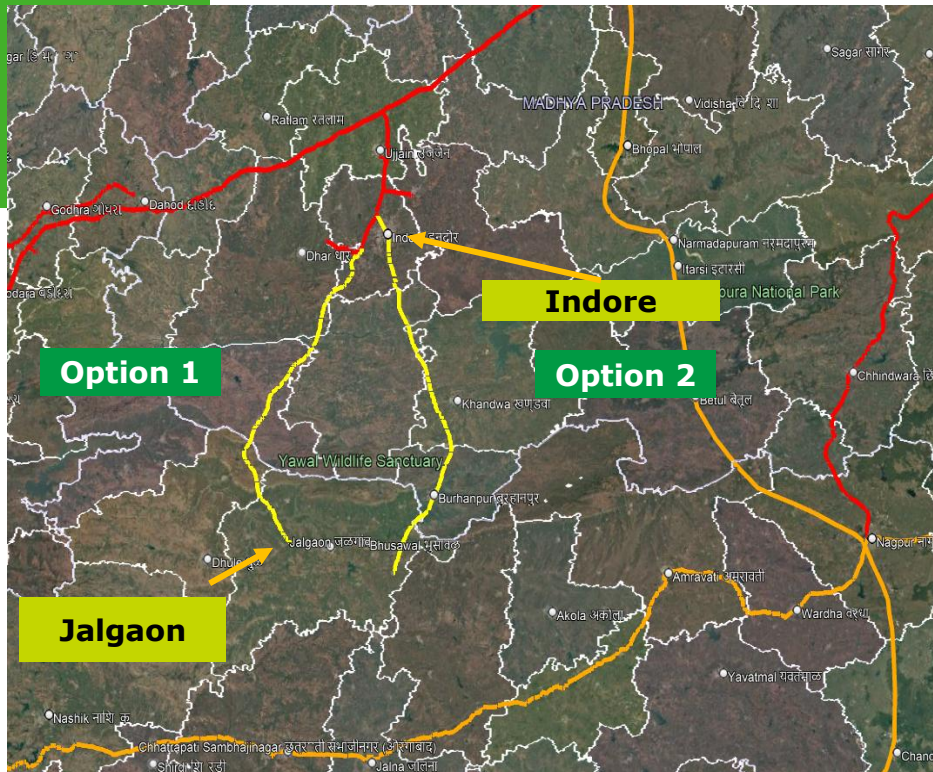
Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

Proposed Pipeline 11 | Indore-Barwani-Khargone-Shirpur-Jalgaon| Overview

This pipeline would connect interior unconnected districts of this region

This pipeline will originate from Indore JIPPL and terminate at Jalgaon



220 km
Pipeline Length



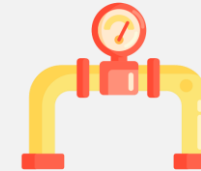
2 MMSCMD
Capacity of pipeline



880 INR cr.
Estimated capex

4

**Demand
Centre
Connected**



Source

- Indore



Route: Indore-Barwani-Khargone-Shirpur-Jalgaon

Spur

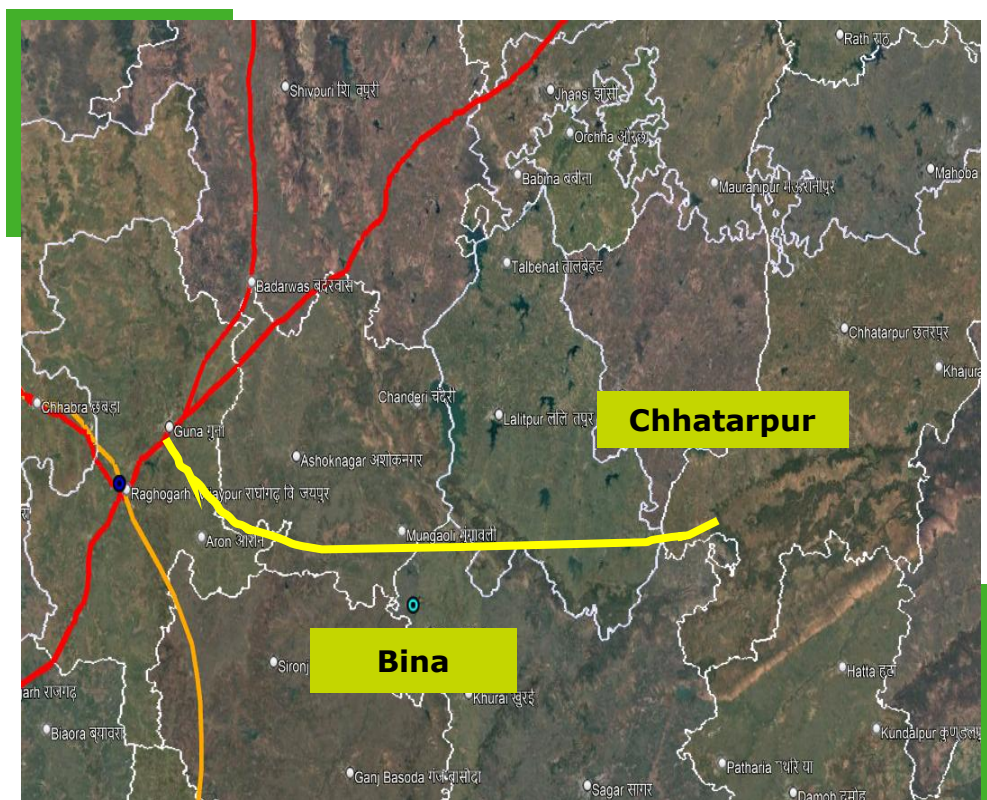
Jogulamba-Kurnool
Raichur-Yadgir

Notes: 1. Proposed route is tentative. Map is not to scale. 2. Capex is benchmarked; Option 1: Indore-Barwani-Khargone-Jalgaon; Option 2: Indore-Khargone-Khandwa-Jalgaon
Sources: 1. Internal Analysis

Proposed Pipeline 12 | Guna-Bina-Sagar-Chhatarpur| Overview

This pipeline would connect interior unconnected districts of this region

This pipeline will originate from HVJ-Guna and terminate at Chhatarpur, connecting Bina refinery and interior regions devoid of connectivity



200 km
Pipeline Length



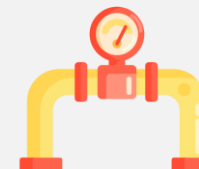
3 MMSCMD
Capacity of pipeline



800 INR cr.
Estimated capex

2

**Demand
Centre
Connected**



1

**Refinery
(BPCL
Bina)**



Source

HVJ-Guna



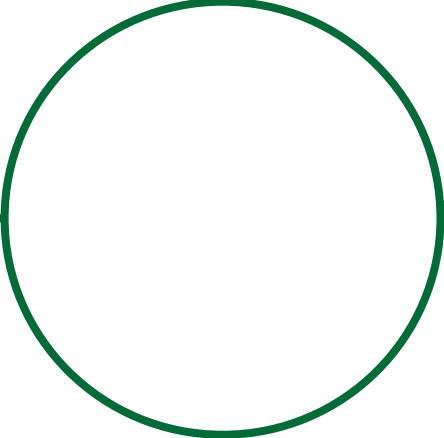
Route: Guna-Bina-Sagar-Lalitpur-Chhatarpur

Spur

Notes: 1. Proposed route is tentative. Map is not to scale. 2. Estimated Capex is based on previously benchmarked capex.

Sources: 1. Internal Analysis

End of the Report



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