

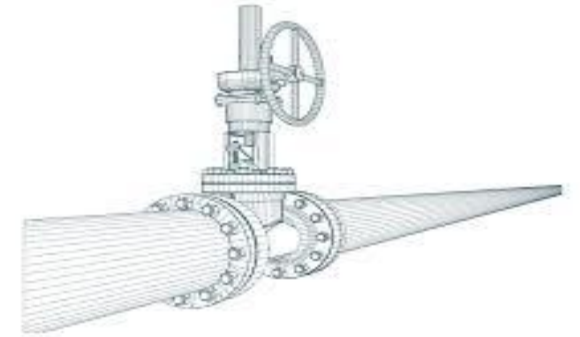


पी एन जी आर बी
PNGRB



INDIA'S NATURAL GAS DEMAND PROJECTION FOR 2030-2040

An exercise undertaken to
plan Natural Gas
Infrastructure





सत्यमेव जयते

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FOREWORD

PNGRB is charged with the responsibility of authorising infrastructure for transporting and delivery of oil and natural gas to different parts of India. With rising energy demand, there will be requirement for new infrastructure. At the same time, additional capacity is also needed to enable transition of hydrocarbons transport, from road and rail transport to pipelines. For PNGRB to strategise the above, we need demand projections with reasonable confidence. The present publication “Natural Gas Demand Projections – 2030 & 2040” fulfils this requirement.

The instant exercise was undertaken with inputs from the two knowledge partners, Deloitte and ICF. However, the projections in this Report, while based on their inputs, have been finalized by the Board internally. In undertaking this exercise, the Board has been cognizant of the Minimum Work Programme (MWP) commitments received from CGD entities towards DPNG connections and setting up of CNG stations. Furthermore, delivery of oil and natural gas to different parts of India in an efficient and assured manner, has been kept sight of. The recent trends in consumer preference for DPNG and CNG as well as Government’s focus on natural gas will be the major driver of demand. As price is also a major factor in determination of demand, the global outlook of likely abundance of LNG and softening of prices encourages a favourable demand outlook.

I do hope that this publication will be found useful by Government departments, stake-holders and academicians. As the projections have been made for a near distant future, and two demand scenarios have been taken into consideration, we may be confident that there will be not much variation with actual numbers. However, if there are any developments that may lead to major change in numbers, we will be open to revise the same with adequate explanation in the coming times.

I commend the Deloitte/ICF teams and Shri Madhoop Sah, Deputy Director, for painstaking work on this assignment, which will be a valuable reference document for internal planning and decision making by the PNGRB.


(Dr. Anil Kumar Jain)
19-5-2023

Acknowledgement

- ❑ I would like to begin by expressing our heartfelt gratitude to Dr. Anil Kumar Jain, IAS (Retd.) Chairperson, PNGRB, for his invaluable guidance, mentorship, and constructive feedback, which have played a pivotal role in shaping and completing this study.
- ❑ I extend our sincere appreciation to Shri A. Ramana Kumar, Member, PNGRB and Shri Anjan Kumar Mishra, Secretary, PNGRB, for their insightful contributions and unwavering support throughout this process.
- ❑ A special word of thanks to Shri S.C. Gupta, Director-Monitoring, PNGRB, whose extensive knowledge and invaluable guidance significantly enriched this study and contributed to a more constructive approach.
- ❑ I am grateful to PNGRB for providing us with the opportunity, resources, and platform to undertake this research. This report reflects a collective effort by the Monitoring Division, and we deeply value everyone's contribution for the completion of this report.

MADHOOP SAH
Deputy Director, PNGRB

CONTENTS

1	OVERVIEW
2	DEMAND PROJECTIONS 2030 2040
3	KEY TAKEAWAYS
4	PNGRB PIVOTAL ROLE IN INFRA DEVELOPMENT
5	SECTORIAL DEMAND
6	DOMESTIC GAS PRICING
7	LNG SCENARIO IN INDIA
8	CBG OVERVIEW
9	OUTCOME

OVERVIEW

- This study outlines the projected natural gas demand in various segments such as fertiliser, power, refineries, petrochemical, other industrial & commercial establishments, households as well as CNG and LNG as transport fuel in the energy basket, and infrastructural need through 2030 and 2040 under two scenarios.
- India's rapid economic growth, increasing urbanization, and the sharp rise in industrial and manufacturing activities under the '**Make in India**' initiative, shifting towards cleaner fuel, position natural gas to play an even greater role in the country's energy landscape. It is supported by Hon'ble Prime Minister call for increasing natural gas share in the energy basket.
- PNGRB plays a pivotal role in ensuring infrastructure development, which serves as the backbone of natural gas demand:
 - 307 Geographical Areas (GAs) authorized under various CGD rounds:-100% coverage of India's mainland.
 - ~33,500 km of Natural Gas Pipeline (NGPL) networks authorised and ~ 25,000 km of pipelines operationalised.
- CGD is a key growth driver considering infrastructure development and award of CGD rights. It is expected to be the key driver of natural gas demand by projection year 2030 & 2040.
- A favorable global ecosystem for LNG, especially with several LNG projects set to be commissioned in the USA, will create an influx of LNG. Adequate Regas capacity already existing in our terminals with expansion underway.
- This report aims to provide insights into probable future trends and aimed at planning gas infrastructure for delivering natural gas across the country.

NG Demand Projections

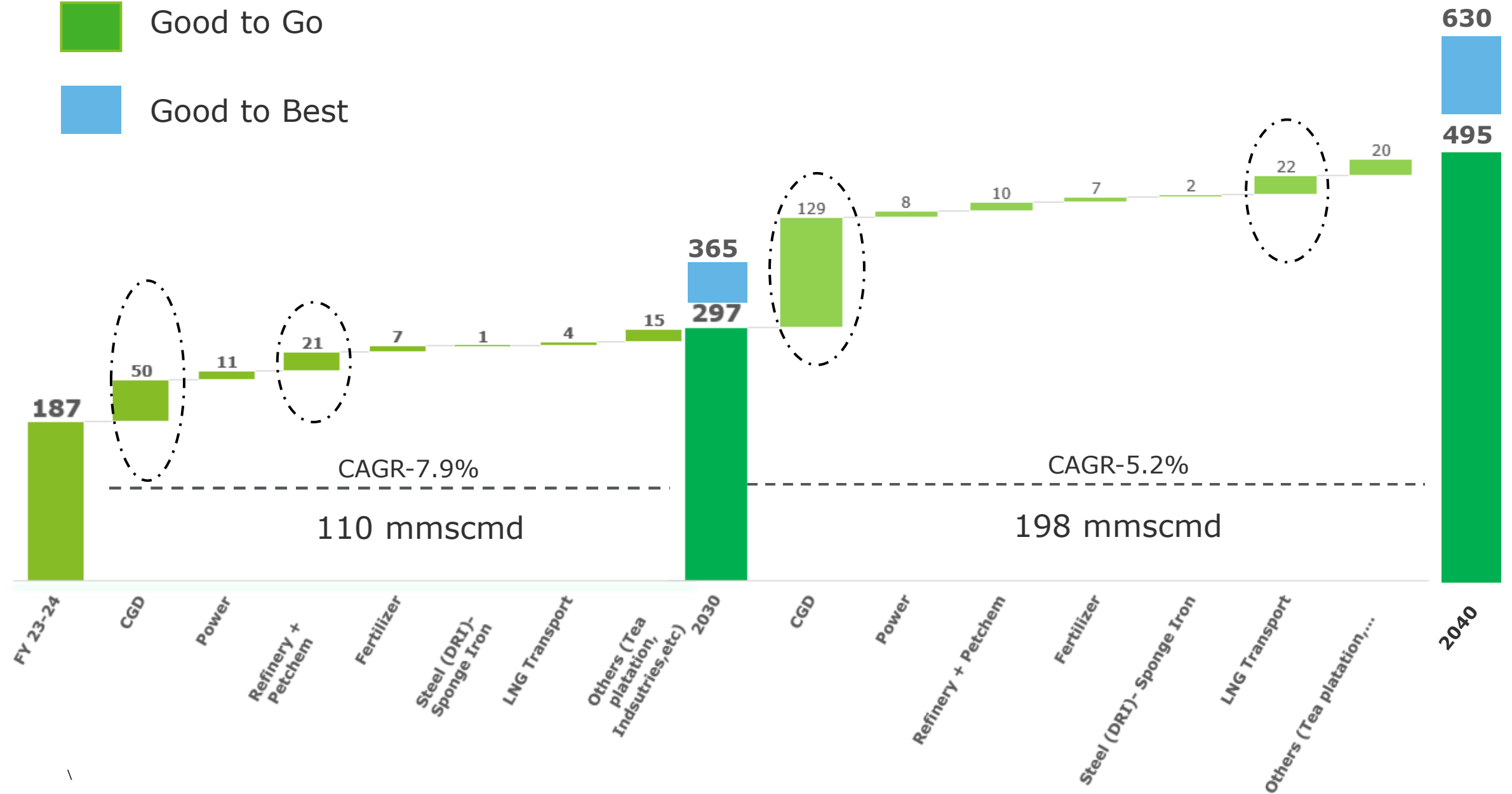
MMSCMD

2030

2040

Good to Go

Good to Best



Tabulation of Sectorial NG Demand Projections

Good to Go (GtG) scenario: Represents the **GtG** scenario, assuming moderate growth and expected developments based on current trends and commitments.

Good to Best (GtB) scenario: Represents the **GtB** scenario, considering accelerated progress, favourable policy implementation, and enhanced investments leading to higher-than-expected growth.

Sector	Sector Consumption (MMSCMD) 2024	2030		2040	
		Good to Go	Good to Best	Good to Go	Good to Best
CGD	36.9	87.1	126.1	216.4	270.8
Power	25.2	35.7	40	43.5	52.8
Refinery	22	43.4	50.9	52.4	57.8
Fertilizer	58	65.3	69.3	72.9	80.5
Steel	3.2	4.3	5.1	6.4	9.3
LNG Transport	0	3.9	6.6	26.3	65.7
Others (Tea plantation, Industries, LPG Shrinkage)	42	57.3	66.6	76.9	93.3
Total	187	297	365	495	630

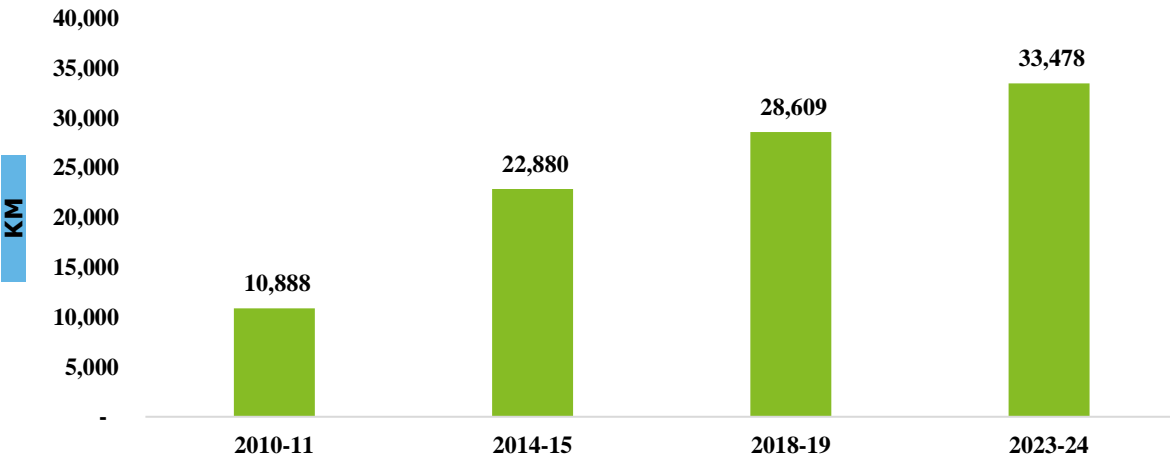
CGD to play a key role in both 2030 & 2040 demand projections. LNG is likely to emerge as preferred transportation fuel post 2030.

KEY TAKEAWAYS

- India's energy demand is expected to keep growing. Natural Gas being a convenient, clean and cheap with respect to other fossil fuels is likely to grow.
- India's natural gas demand is likely to rise ~8% annually to 297 mmscmd by 2030 under the "Good-to-Go (GtG)" scenario, and to reach 495 mmscmd by 2040 with CAGR of ~5% under the same scenario. Under a more optimistic "Good-to-Best (GtB)" scenario, NG consumption could jump to 365 mmscmd by 2030 and hit 630 mmscmd by 2040.
- CGD is set to be the largest natural gas demand driver by 2030, it will account for 29% of total consumption in 2030, and 44% of total consumption in 2040. It is expected to account for 50 mmscmd of the 110 mmscmd incremental demand by 2030 and 129 mmscmd of the 198 mmscmd increase between 2030 and 2040 in the GtG scenario.
- Consumption of gas by Refineries and Petrochemical complexes is also expected to nearly double to 43.3 mmscmd by 2030 from the current 22 mmscmd, helped by a growing focus on petrochemical integration. While growth in gas based power generation and fertiliser usage is expected to be moderate.
- LNG as a long-haul transportation fuel could be a game changer, with the potential to emulate China's success in reducing diesel dependency. Currently, China has more than 8 lakh LNG trucks with ~6000 LNG stations.
- Favourable global market trends for LNG availability, and availability of gas infrastructure such as LNG terminals and pipelines, and supportive policies of PNGRB is expected to play a significant role in increasing the adoption of natural gas.
- With global LNG supply expected to increase post 2027, this could present India with an opportunity for long-term supply deals at more competitive prices.

PNGRB pivotal role: Ensuring Gas Infrastructure development

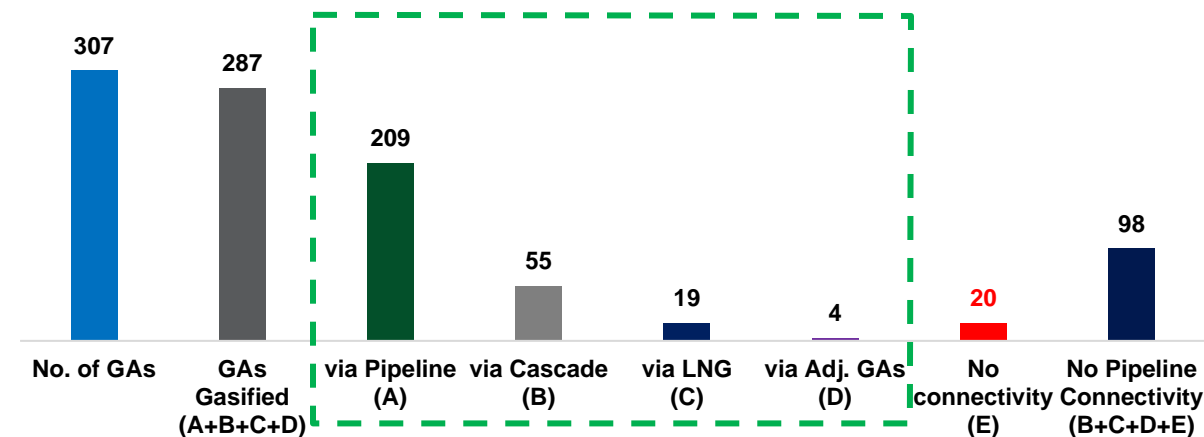
NGPL progress



Major NGPL Under Construction

S. No	P/L Name	Length (KM)	Current Status
1	Integrated JHBDPL	3,546	~92% of pipeline work has been completed
2	NEGG	1,656	~12% of pipeline work has been completed
3	Kochi Kootanad Bangalore Mangalore	1,104	~58% of pipeline work has been completed
4	Ennore Tuticorin	1,431	~75% of pipeline work has been completed
5	Mumbai Nagpur Jharsuguda	1755	~87% of pipeline work has been completed
6	Gurdaspur Jammu	160	~28% of pipeline work has been completed

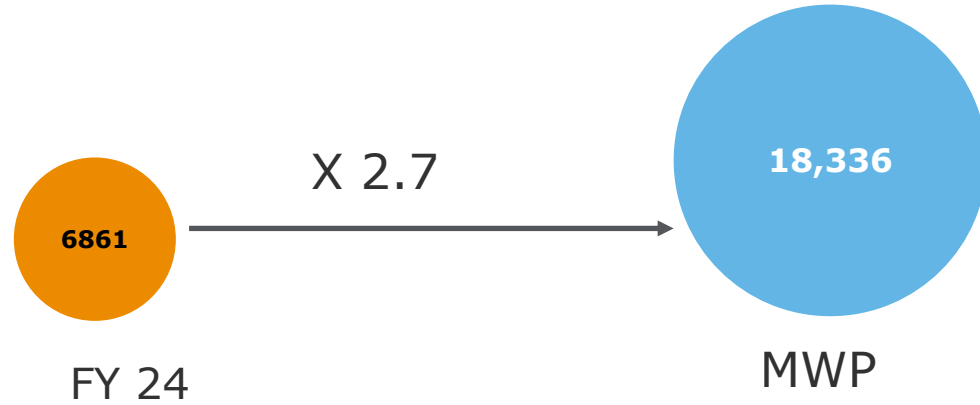
NGPL –CGD connectivity



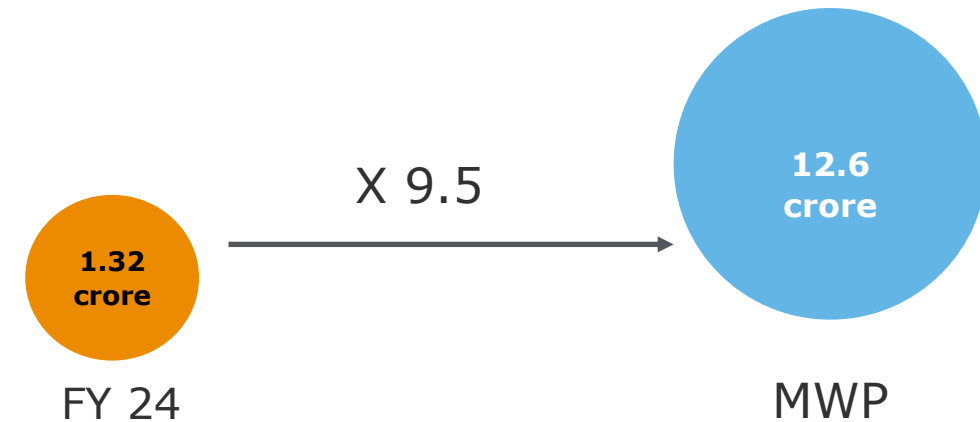
- Gas Pipeline infrastructure is the most economically feasible and safe mode of transporting natural gas.
- PNGRB has authorised ~33,500 km of Natural Gas Pipeline (NGPL) networks with operationalised of ~ 25,000 km of NGPL
- 307 Geographical Areas across India with commitments of distribution networks.
- The key to success depend upon the continuous infra development by authorised entities, and consumer awareness, backed by PNGRB's regulatory oversight.

CGD: NG infrastructure is a backbone to derive the NG demand

CNG infra progress



D-PNG progress

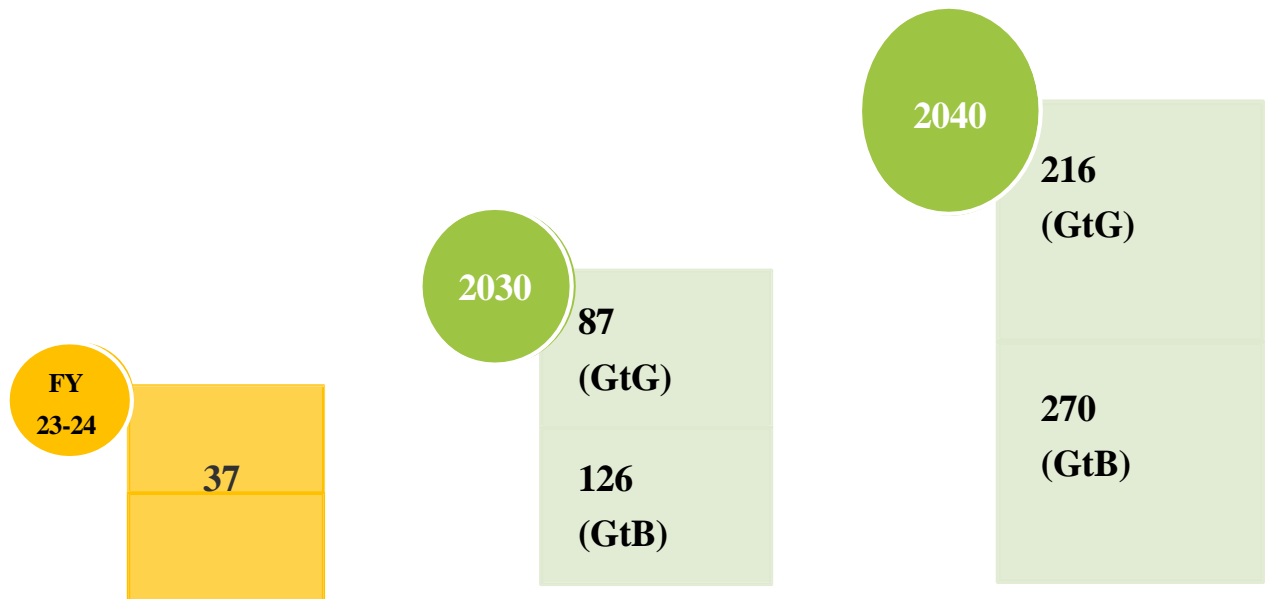


Round wise MWP details and status (as on Dec, 24)

Round/Regulation	No. of GA	Domestic PNG Connections (Nos)				CNG Stations (Nos)			Pipeline Infra (inch-km)		
		Total MWP Target	Pro-Rata Target	Achievement	Billed Connections	Total MWP Target	Pro-Rata Target	Achievement	Total MWP Target	Pro-Rata Target	Achievement
Round 1	6	4,40,000	4,40,000	2,45,875	1,43,835	30	30	93	2,605	2,605	3,385
Round 2	3	9,48,706	9,48,706	74,805	46,036	-	-	53	2,302	2,302	2,407
Round 3	6	16,51,200	16,51,200	1,42,309	1,37,285	-	-	97	1,26,013	1,26,013	1,804
Round 4	9	3,45,164	3,45,164	5,39,057	2,36,233	-	-	341	10,037	10,037	20,479
Round 5	8	2,99,013	2,99,013	2,58,419	1,44,931	-	-	119	12,271	12,271	12,781
Round 6	18	2,32,573	2,22,723	3,27,557	2,41,754	-	-	372	21,020	20,427	26,125
Round 7	1	43,658	43,661	34,619	113	-	-	23	1,800	1,800	1,018
Round 8	6	1,08,102	95,354	96,935	37,524	-	-	123	5,945	5,717	7,456
Round 9	86	2,21,16,702	50,52,029	11,45,857	2,93,685	4,603	1,575	1,962	1,16,171	55,196	62,269
Round 10	50	2,02,92,760	47,18,098	6,35,917	1,35,171	3,578	1,244	1,121	58,177	27,885	40,182
Round 11 & 11A	67	7,05,57,571	61,05,805	1,13,393	719	9,540	1,176	652	1,33,836	25,998	9,900
Round 12 & 12A	7	13,31,793	-	-	-	585	-	-	4,643	97	-
Regulation 17	20	48,24,378	37,74,989	71,89,875	50,40,105	-	-	1,728	26,777	21,692	43,739
Regulation 18	13	25,59,881	24,63,561	24,83,786	22,88,650	-	-	488	14,242	13,723	23,458
Section 16	1	4,03,853	2,87,330	1,35,221	1,03,474	-	-	32	673	-	5,213
Section 42 & 16	6	2,00,464	1,81,327	3,49,510	89,372	-	-	122	10,355	10,010	8,738
Grand Total	307	12,63,55,818	2,66,28,959	1,37,73,135	89,38,887	18,336	4,025	7,326	5,46,867	3,35,772	2,68,954

- The rapid expansion of CNG & PNG infrastructure has been a major driver of growth.
- The number of CNG stations have increased 9 times since FY 14. Further, to grow minimum 2.7 times to achieve MWP number, and yet higher.
- The number of D-PNG connections have increased 5.8 times since FY 14. Further, to grow minimum 9.5 times to achieve MWP number.
- To achieve the D-PNG targets, entities need to put in additional efforts towards establishing last-mile connectivity and enhancing consumer awareness. Entities may also like to avoid imposition of penalties by PNGRB.

Natural Gas consuming sectors : CGD



- It is projected to grow at a CAGR of 15% in the GtG scenario and CAGR of 23% in the GtB scenario by 2030 with FY 23-24 base of ~37 mmscmd

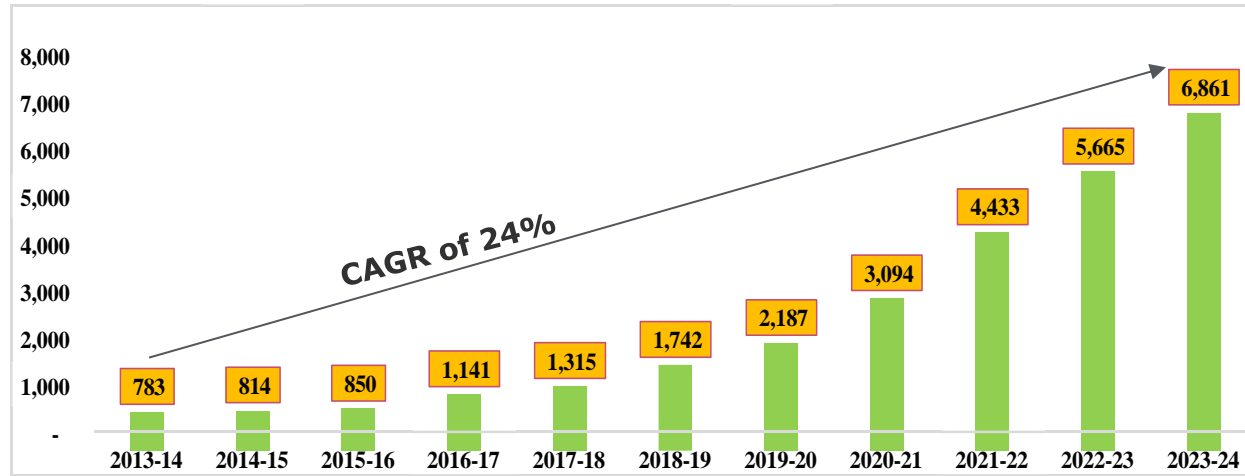
- It is projected to grow at a CAGR of 16% in the GtG scenario and CAGR of 21% in the GtB scenario by 2040

- CGD segment is growing with the CAGR of ~12%. The growth in CNG stations is higher than MWP commitment.
- The CGD sector is expected to be the primary growth driver, with consumption projected to grow 2.5 to 3.5 times by 2030 and 6 to 7 times from base of ~37 mmscmd in FY 24 by year 2030 and 2040 respectively
- D-PNG to grow continuously as convenience and affordability to play big role in major cities and town areas.(even 10 to 15% premium to LPG may work)
- I&C has potential to grow multifold considering concentrated narrative towards a cleaner fuel and competitiveness versus liquid fuels.

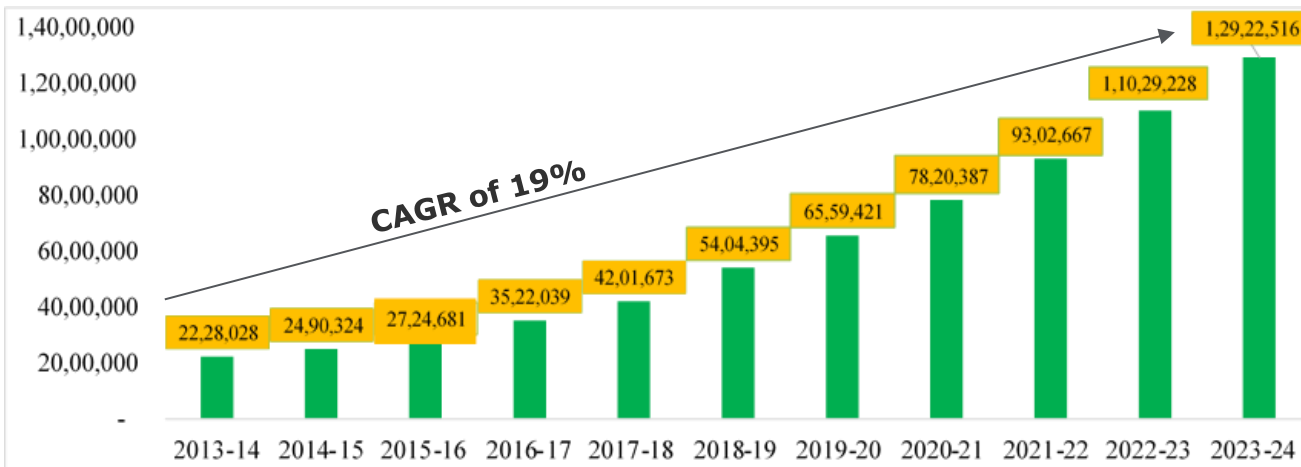
Natural gas prices below \$9.5/MMBtu (DES) may help offset the impact of reduced domestic gas allocation to CNG

CGD: the primary growth driver for NG demand projections for 2030 and 2040

CNG infra progress



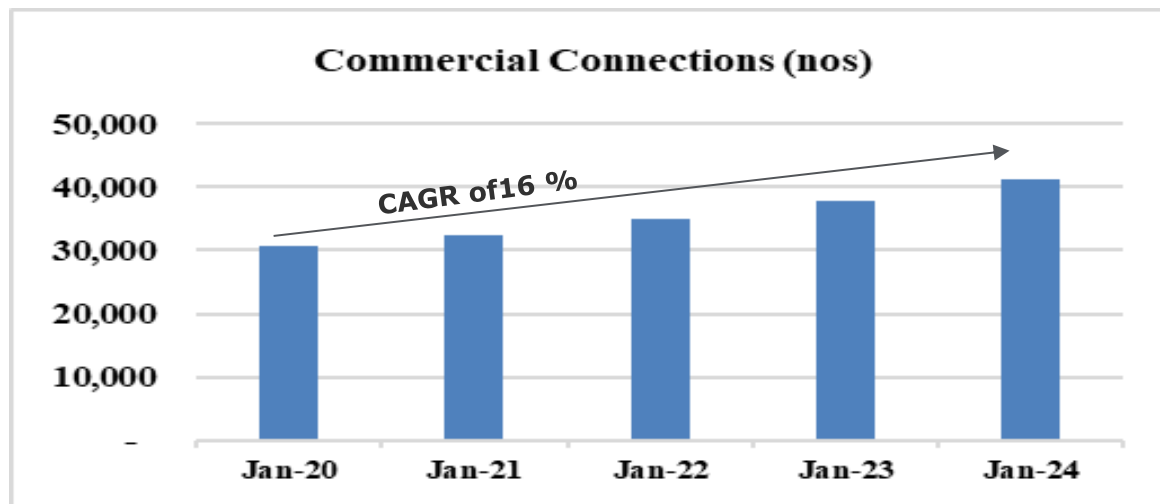
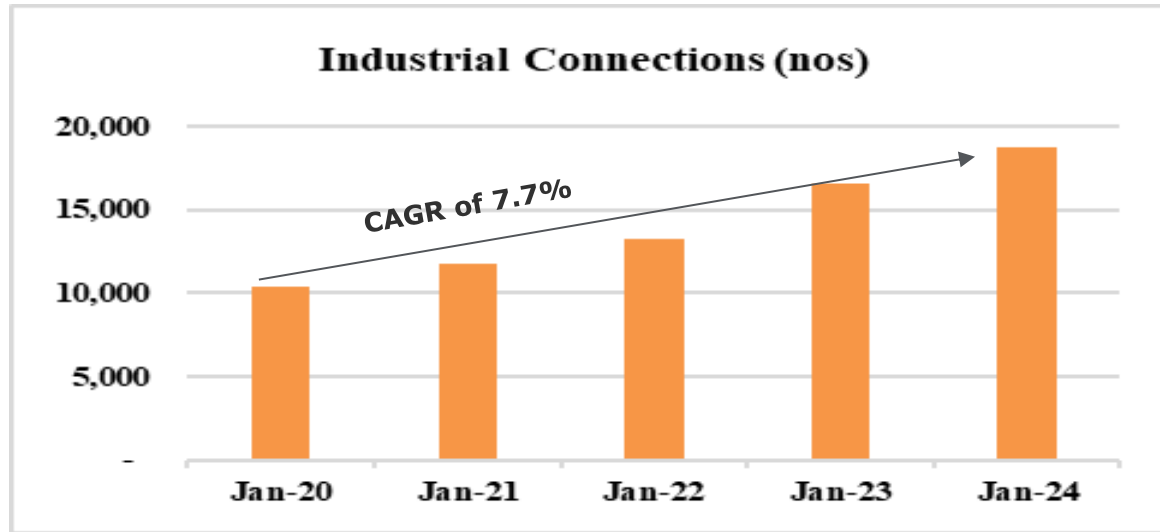
D-PNG progress



- Meeting MWP target, and increasing throughput per CNG station will derive Natural Gas demand.
- OEM are coming out with various CNG models, with adequate boot space to tap the demand.
- CNG demand is growing in four-wheeler, Light Good Vehicles and three-wheeler segment.
- Private vehicle, Passenger and Light Motor Vehicle segment to grow with expansion of infrastructure availability and cost economics. Heavy Motor Vehicle will gradually shift towards LNG, also boot natural gas demand.
- City/town areas will gradually shift towards more convenient and environment fuel, and remote areas will depend on LPG till network is made available.

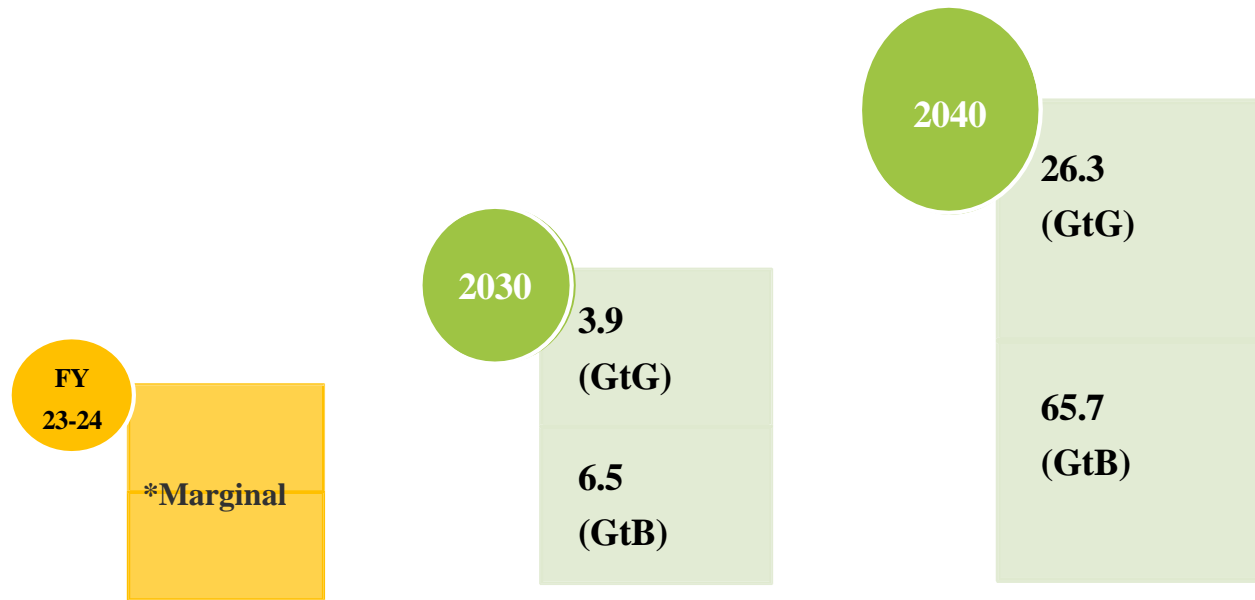
I&C: Potential to surprise

Shifting towards cleaner fuel will act as key growth driver



- I&C is expected to grow at a CAGR of 10% under Good to Go and 15% under Good to Best scenario in the projected year 2030.
- Industrial segment has a base of 18,700 units and 41,000 units of commercial consumer base with consumption of ~12.7 mmscmd FY 24.
- The throughput of avg Industrial connection is @700 scmd, and Commercial connection is @50 scmd.
- As per Industries estimate, there are more than 12,000 industrial clusters within GAs, with potential of 2.0 lakh small and medium industries and ~1.0 lakh commercial customers.
- NG can be expected to incrementally replace polluting (and expensive) fuel like Naphtha, FO, LPG, Propane etc

Natural Gas consuming sectors : LNG as trucking fuel



• By 2030, the number of LNG trucks is projected to reach **30,000** in the GtG scenario and **50,000** in the GtB scenario

• By 2040, the number of LNG trucks is expected to grow to **2,00,000** in the GtG scenario and **5,00,000** in the GtB scenario

LNG availability at prices below \$9/MMBtu assumed on a DES basis would likely boost demand, considering the price advantage over alternate fuels

- In the journey toward decarbonizing long-haul trucking, LNG emerges as a logical, efficient, and cheaper fuel source.
- Diesel-powered road transport contributes nearly 65% to 70% of freight and accounts for 35-40% of total road transport emissions.
- MoPNG has mandate opening of 50 LNG stations. To ensure price stability, allocation of Domestic Gas is the demand from some quarters. Plan to have 1000 LNG stations.
- India aims to transition one-third of its heavy-duty, long-haul trucking to LNG.
- Conducive ecosystem includes tapping collective demand for OEMs to establish dedicated manufacturing lines, free road tolls, and allocating domestic gas for LNG vehicles,

Comparative

	LNG vehicles	LNG stations	Consumption (mmscmd)
China	7,25,000	6,033	48
Europe	80,000	525	5.76
US	35,000	250	2.88
India	700	20	marginal

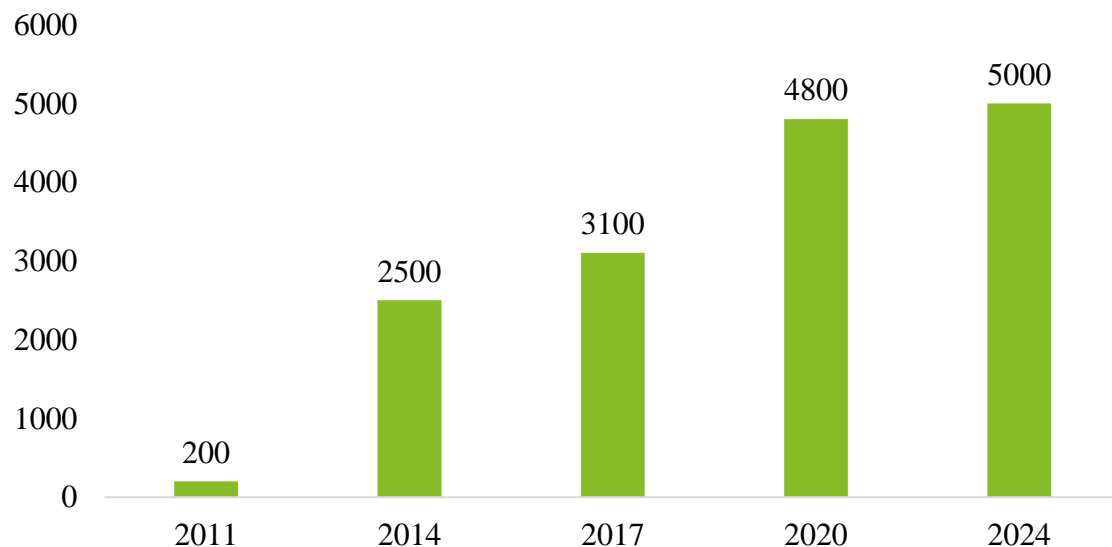
Working assumption:

- 1 LNG Truck travel – 320 KM/day.
- Avg: 3.2 Km/Kg
- Daily LNG consumption : 100 Kg of LNG
- 01 MT of LNG=1314 scm
- LNG consumption per truck day : $0.1 * 1314 = 131.4$ scmd

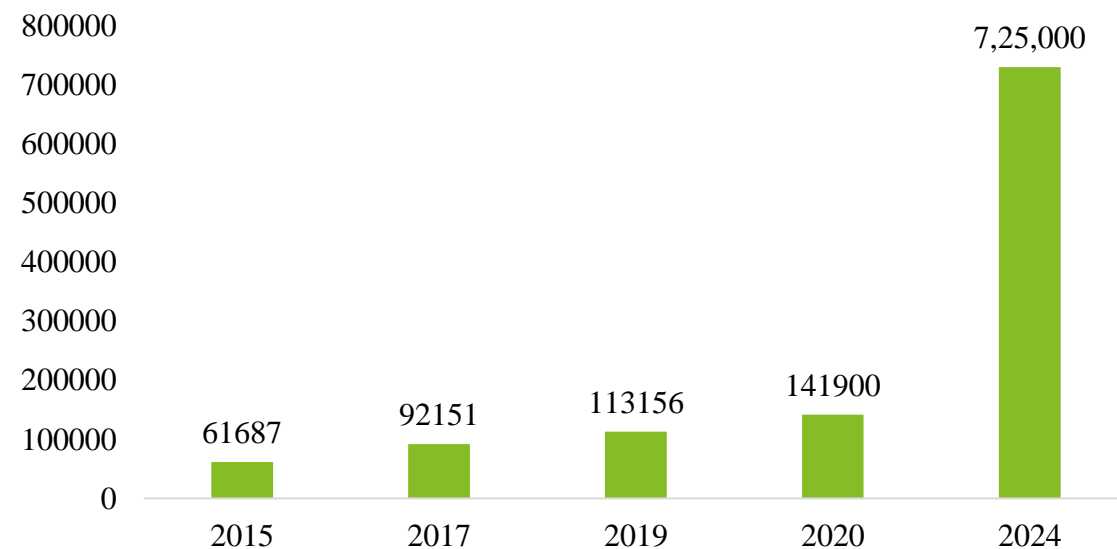
China-success story

China is the world's largest market for LNG heavy-duty vehicles, with over 8,00,000 trucks and ~6,000 fueling stations, driven by rapid growth since 2011.

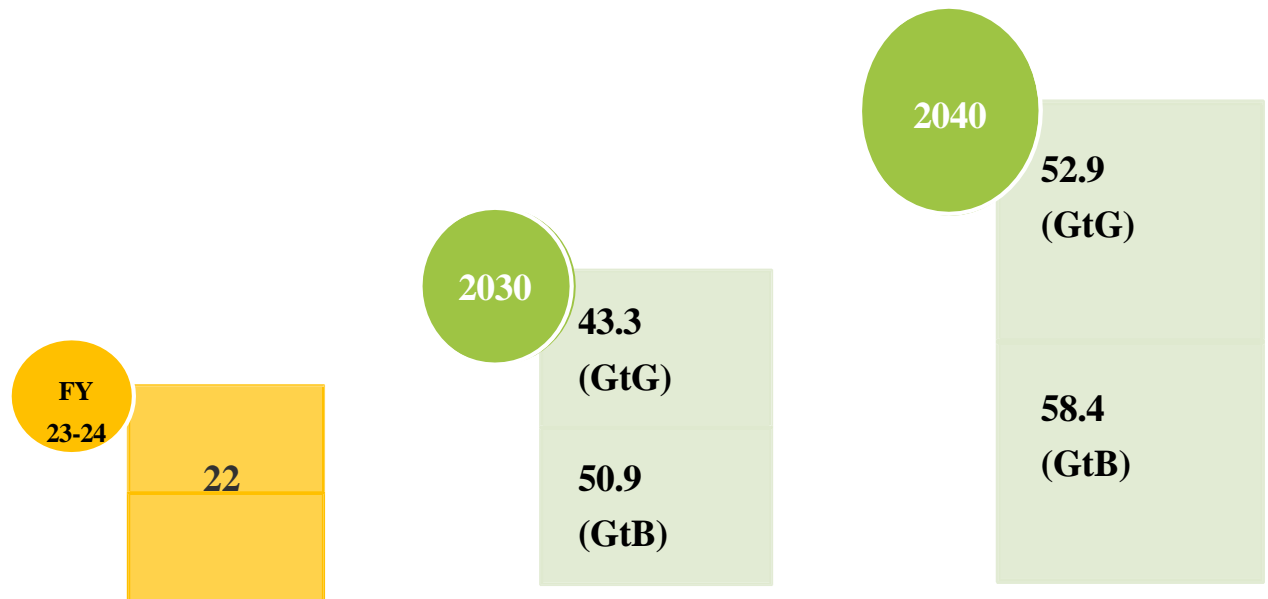
LNG Stations



LNG HDV



Natural Gas consuming sectors : Refinery + Petchem



- In Projections for 2030, it is expected to enhance installation capacity >300 MMTPA from existing 256 MMTPA in GtG and > 350 installed capacity in GtB.

- In 2040, it is expected to enhance installation capacity >370 MMTPA in GtG and > 390 installed capacity in GtB

NG demand for refinery process will depend on its connectivity with gas grid, competitiveness with other fuel used in Refineries, and environmental mandate.

- Pipeline connectivity to Refineries at Bina, Vizag, Haldia, and in the Northeast will drive gas demand by 2030.
- Expansion plans at existing refineries, including Panipat, Koyali, Barauni, and NRL, along with the new commissioning of HRRL, will further boost natural gas consumption
- New greenfield additions, such as BPCL (Machilipatnam), ONGC (Prayagraj) etc, will provide significant growth momentum.
- Refinery segment grows at a moderate rate, though next growth is expected from Petrochemical. As demand for Naptha feedstock is projected to increase for value added product, Natural Gas can be used for process heating and feedstock for H₂.
- India Petrochemical capacity is projected to increase from 29.62 Mt to 46 Mt by 2030. Self-reliance is a key driver, as 45% of petrochemical intermediates are currently imported.
- The Petroleum Intensity Index (PII), which measures the percentage of crude processed into petrochemicals, is expected to rise by 15% by 2030 and 25% by 2040

Natural Gas consuming sectors : Fertiliser



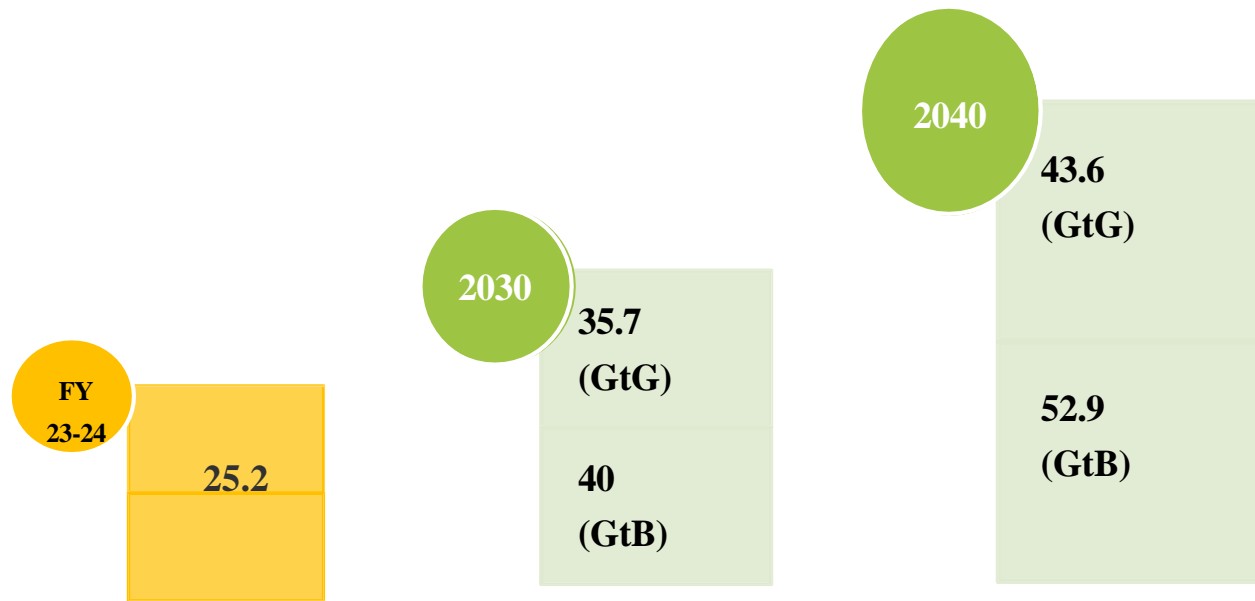
- A moderate growth is expected at CAGR of 2% in GtG, and 3% under GtB in Projected year 2030

- A moderate CAGR of 1% is expected in GtG, and 2% under GtB in Projected year 2040

This segment is price-agnostic, as the difference between the cost of manufacturing and the selling price of Urea is subsidised

- The fertilizer segment is the largest consumer of natural gas, consuming ~ 58 MMSCMD as a feedstock for ammonia-based urea production.
- The commissioning of Urja-Ganga pipeline sections, enable to connect Sindri Fertilizers Plant, Jharkhand, Barauni Fertiliser plant, Bihar, Gorakhpur Fertiliser plant, UP and Matrix Fertiliser plant, West Bengal (Greenfield project).
- There are 36 gas-based Urea plants having a capacity of 28.4 MMT.
- Currently, 15-20% of Urea demand is met through import, which may be substituted by domestic manufacturing.
- Moreover, there is a move to promote balanced soil nutrition in agriculture with a higher uptake of Phosphorus (P) and Potassium (K).

Natural Gas consuming sectors : Power



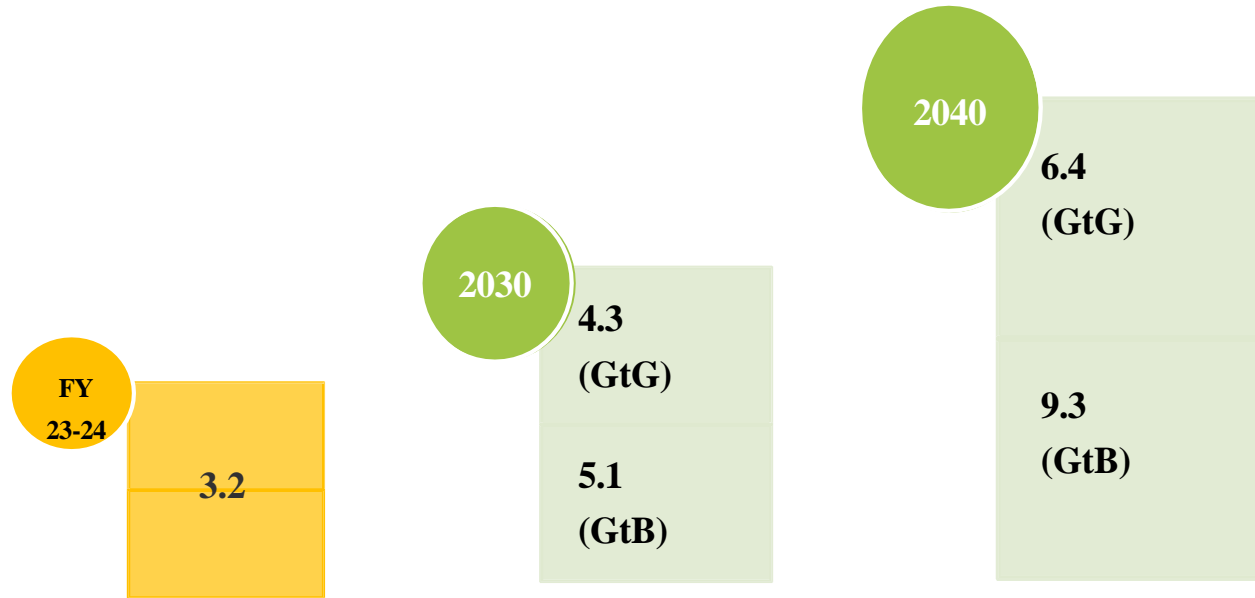
- It is projected to grow at a CAGR of 6% in the GtG scenario and CAGR of 8% in the GtB scenario by 2030 with FY 23-24 base of ~25.2 mmscmd

- It is projected to grow at a CAGR of 2% in the GtG scenario and CAGR of 4% in the GtB scenario by 2040

The high generation cost of gas-based power can be absorbed to meet seasonal demand, as coal-based thermal power is available below ₹5 per unit and renewable energy at around ₹2.5 per unit. In comparison, gas-based power exceeds ₹6 per unit even with APM gas priced at \$6.75/MMBtu

- The installed gas-based capacity is ~**23.8 GW with load factor (PLF)** of only 14.8% in FY 23-24.
- While power demand is primarily met through coal and renewables, gas-based power plants would play a key role in meeting peak power demand and to create reliability and flexibility of GRID.
- 31 plants with **14.3 GW capacity are stranded** are a key reason for reliance on higher-priced imported LNG.
- Merit Order dispatch mechanism allows cheaper units in pecking order. Therefore, peak power requirement drives gas based power demand.
- The overall drop in electricity cost due to renewable power cost, will improve consumer affordability and demand for gas-based power.
- The rising power demand will tap stranded gas-based capacities, while thermal capacity expansion gets delayed due to multiple factors

Natural Gas consuming sectors : STEEL (DRI- Sponge Iron)



- A moderate growth is expected until 2030 at CAGR of 5% in GtG, and 8% under GtB scenario from the exiting base of ~3.2 mmscmd in FY 24

- A stable growth is expected at CAGR of 4% in GtG, and 8% under GtB scenario in Project year 2040

Coal-based DRI production is considerably cheaper compared to gas-based DRI. However, the shift away from polluting fuels and the push for green steel make a strong case for transitioning.

- India's expanding natural gas pipeline connectivity.
- India is the world's **largest producer of sponge iron**, which serves as a key raw material for steelmaking.
- The country produces approximately 126 MMT of steel annually and 39-49 MMT of DRI (sponge iron), primarily through the **coal-based route (~80%), and remaining ~20% is gas-based**.
- Major gas-based steel plants consumers include ArcelorMittal Nippon Steel India (Hazira plant, Gujarat; Paradip plant, Odisha) and JSW steel, Maharashtra.
- Sponge iron and steel production consumes approximately 3.2 MMSCMD of natural gas, with a significant reliance on LNG imports.
- Shifting towards cleaner fuel will support the increased adoption of gas in the steel sector.

Natural Gas consuming sectors : Other Industries



- By 2030, it is expected to grow at CAGR of 5% in GtG, and 8% in GtB scenario
- By 2040, it is expected to grow at CAGR of 3% in GtG, and 5% in GtB scenario

- This category includes large manufacturing industries, agriculture, and consumption in oil and gas operations etc.
- The country is the second- largest tea producer globally, after China, and plays a crucial role in the global tea market. Gas is provided at subsidised rate to this sector.
- **Indradhanush Gas Grid Limited**, is developing the North East Gas Grid which will further improve to tap natural gas consumption demand required to industries.
- Urbanisation and increased manufacturing activities and shift to cleaner fuel under heavy industrial and manufacturing sectors, would drive natural gas demand

Gas pricing and affordability

- Revised mechanism for APM as post High-Pressure 2023. Linked with India crude basket. 10% of [75% of (Dubai crude + Oman crude) futures +25% of Brent futures].
- APM price ceiling; \$6.75 /mmbtu, with an increase of \$0.25 /mmbtu each fiscal year. This will support affordability of D-PNG and to the larger extent of CNG customers. Natural Gas from new wells in nomination fields qualifies for a 20% premium over APM rates.
- GoI grants marketing and pricing freedom to gas being produced from deepwater, ultra-deepwater blocks, and High Pressure High Temperature (HPHT) areas, the gas price ceiling for the period 01st April 2025-30th September 2025 is USD\$ 10.04/MMBTU.
- With new LNG stream coming on stream, LNG presents a strategic opportunity for Indian entities to secure long-term contracts, which can structurally provide lower pricing and mitigate price volatility and ensure a reliable supply for consumers.
 - Assumed LNG prices < \$ 9.5 /mmbtu at DES, will boost the CGD segment demand primarily in CNG considering reduction in APM allocation .
 - Assumed LNG prices < \$ 9.0 /mmbtu at DES will support replacing diesel in long haul trucking considering discount to alternate fuel.
- Favourable policies, rationalisation of taxes will further improve natural gas affordability and demand.

LNG Scenario in India

Growth of LNG Terminals in India

India's LNG journey began in 2004 with the establishment of the first regasification terminal at Dahej. This was followed by the Hazira terminal in 2005 with a capacity of 5 MMTPA. As demand for LNG grew, additional terminals were commissioned at Dabhol and Kochi (2013) and Ennore (2019). With Chhara commissioning, presently, the country has eight operational onshore LNG terminals, offering a combined regasification capacity of ~ 190 MMSCMD (52.7 MMTPA) against a near 50% utilisation.

LNG Terminal Capacity and utilisation

The performance of LNG terminals in India varies significantly. The table below presents a summary of their current capacity and utilisation levels:

Sl. No	Year Commissioned	Operator	Terminal	Capacity (MMTPA)	Utilization 2023-24	Average Utilization (2015-16 to 2022-23)
1	2004	PLL	Dahej	17.5	95.10%	98.23%
2	2013	PLL	Kochi	5.0	20.60%	13.14%
3	2005	Hazira LNG Pvt Ltd.	Hazira	5.2	30.30%	67.17%
4	2013	KLL	Dabhol	5.0	42.7%	57.50%
5	2019	Indian Oil LNG Pvt Ltd.	Ennore	5.0	18.30%	12.00%
6	2020	GSPC LNG Ltd	Mundra	5.0	14.60%	24.93%
7	2023	Adani Total	Dhamra	5.0	27.40%	-
8	2025	HPCL	Chhara	5.0	-	-
Total	-	-	-	52.7	50.50%	54.64%

While the country currently has a total regasification capacity of 52.7 MMTPA, several other land-based terminals and floating storage regasification units (FSRUs) are in various stages of development.

Strategic thinking is needed to ponder effective utilisation of LNG infrastructure, flexibility in destination-based LNG contracts and evacuation plan.

PNGRB is focused on ensuring that LNG terminals are well-integrated with demand centers to prevent non-performing assets as several terminals currently operate below their full potential due to challenges.

Compressed Bio-Gas (CBG):

India's biogas sector has a strong foundation, driven by its agricultural economy, which contributes 18% to GDP. Recognizing the strategic importance of compressed biogas (CBG), the GoI has introduced several initiatives to unlock its estimated potential of ~60 MMT (~200 mmscmd). **This fuel has the potential to supplement domestic natural gas production and enhance uptake of gas significantly.**

Currently, around 860 CBG plants are registered, with approximately 120 operational and about 200 under construction. However, the government aims to establish 5,000 CBG plants with a total output of 15 MMT (54 mmscmd).

Key government schemes include the **Sustainable Alternative Towards Affordable Transportation (SATAT) initiative**, launched in 2018 to enhance CBG production from biomass. SATAT facilitates private sector participation and ensures long-term offtake agreements with oil and gas companies to sell CBG via cascades to Retail Outlets (ROs) or mother stations. the government also introduced the **CBG-CGD synchronisation scheme**. Under this scheme, GAIL to sign a tri- partite agreements with CBG producers and CGD entities to offtake CBG through retail outlets and pipeline injection. PNGRB guidelines compliance is necessary for pipelines in addition to IS 16087.

Under Standalone Model, CBG producers own captive power plants or sell CBG to power generation companies. Producers can sell directly to consumers and industrial customers through their own retail outlets.

Further to promote CBG production, government is also providing financial assistance to lay and connect the pipeline with CGD network.

MoPNG DPI scheme, Government has approved Rs.994.5 Cr. for the development of pipeline infrastructure which connects the CBG Plants to the CGD Network.

The government has **mandated phased blending of CBG** with CNG and PNG, starting at 1% in FY 2025-26, 3% for fiscal year 2026-2027, 4% for fiscal year 2027- 2028, increasing to 5% from FY 2028-29 onwards.

Outcome

- In view of inter-play of several factors, it would be advisable to consider **NG demand under a scenario-based approach**. Therefore, PNGRB has estimated NG demand in the “**Good to Go scenario**” with current policy mechanism is **297 MMSCMD by 2030** and **495 MMSCMD by 2040**. Whereas, in an favourable policy framework and investments in the “**Good to Best scenario**”, it is expected to reach **365 MMSCMD by 2030** and **630 MMSCMD by 2040**.
- Favourable global market trends for **LNG availability**, continuous **infrastructure expansion**, rising economic activities, **decarbonization and supportive policies** are expected to contribute significantly to the increased adoption of natural gas across various sectors.
- This report aims to provide insights into probable future trends, with natural gas emerging as a key component of the energy mix. It serves as a thought-provoking guide for policymakers, infrastructure developers, LNG providers, and consumers to take strategic action, seize LNG influx opportunity, and align with broader energy security, decarbonisation, and sustainability goals. This projections will guide PNGRB in planning of gas infrastructure across country.
- Achieving India’s projected natural gas demand for 2030 and 2040 will require a continued commitment from entities towards infrastructure expansion, favourable LNG pricing, and conducive policies. However, geopolitics, policy uncertainty, and volatility in gas prices cannot be ignored

Abbreviations and acronyms

CBM - Coal Bed Methane

CGD - City Gas Distribution

CNG - Compressed Natural Gas

CBG - Compressed Bio-Gas

FSRU - Floating Storage Regasification Unit

GtG - Good to Go

GtB - Good to Best

GoI - Government of India

I&C - Industrial & Commercial

LNG - Liquefied Natural Gas

NG - Natural Gas

NGPL - Natural Gas Pipeline

PNG - Piped Natural Gas

MWP - Minimum Work Program

MMTPA - Million Metric Tonnes per Annum MMSCM Million Metric Standard Cubic Meter

MOPNG - Ministry of Petroleum and Natural Gas

PNGRB - Petroleum and Natural Gas Regulatory Board

PPAC - Petroleum Planning and Analysis Cell

RE - Renewable Energy

SATAT - Sustainable Alternative Towards Affordable Transportation

SCM - Standard Cubic Meter

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Disclaimer:

While every effort has been made to ensure the diligence and relevance of the projections, the dynamic nature of the market implies that actual outcomes may vary. Any decisions or actions taken based on this study should be made with caution. The findings are indicative and should be validated with detailed feasibility assessments and expert consultations before forming the basis for investment or policy decisions.

THANK YOU