



# Gas Statistics Review



## Coal Bed Methane – An Unconventional Natural Gas



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**KNOW YOUR  
INDUSTRY LEADER**



**Akhil Mehrotra,**  
Managing Director,  
Pipeline Infrastructure Limited





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India's total gas consumption is close to reaching 200 MMSCMD. This could nearly double by 2030 if progress remains steady, policies are supportive, and investments continue to grow. It will likely increase to 297 MMSCMD by 2030, based on current global and domestic trends which are favouring cleaner energy sources and even further to 365 MMSCMD if conditions are very supportive, as per experts.

The primary driver of growth in the natural gas sector is likely to be the City Gas Distribution (CGD) sector. City gas distribution has expanded at a 12% compound annual growth rate (CAGR) between 2015-16 and 2023-24 while use of natural gas in the industrial segment has grown 12.7% CAGR in this period. Encouraged by consistent growth in this segment, the government is also supporting with necessary policy push and initiatives. PNGRB has already granted CGD authorisations covering almost entire area and population of the country and with expanding network, the goal of reaching 17,000 CNG stations (from current over 7500) and providing 12 crore domestic pipeline connections (from 1.5 crore) by 2030 doesn't seem very ambitious. Both the government and companies operating in the sector have lined up big investments in the sector. Currently, 10,000 km of natural gas pipelines have been approved for cross country networks, requiring an investment of ₹40,000-50,000 crore over the next three to five years. Additionally,

₹30,000 crore has been committed to city gas distribution infrastructure, with ₹400 crore allocated per district.

However, on supply side, India is meeting half of its gas requirements through high-priced imported LNG. While it is making efforts to increase the domestic output from the conventional gas sources, the unconventional gas sources are also being explored and supported through policy initiatives to be able to produce a significant amount to help reduce India's imports and meet additional gas demand. One such promising source is Coal Bed Methane (CBM). Though the current domestic output of CBM is small, efforts are ongoing to increase its contribution in the total gas supply. In this issue of GSR, we have included a **feature story on "Coal Bed Methane – An Unconventional Natural Gas"** which gives a brief overview of the CBM sector both in India and globally, covering its current status, trends and outlook.

As we move to the new financial year (FY 2025-26), I have pleasure in sharing with you that the **membership base of NGS is continuing to grow**. During the quarter (January-March, 2025), **M/s Pipeline Infrastructure Ltd.** have been enrolled as an Associate Member of NGS and **M/s Nawgati Tech Pvt. Ltd.** as a Non Voting Member. With this, **the total no. of organizational/institutional members has become 29** (twenty nine). Also, **with addition of 9 (nine) professionals as individual members, the cumulative No. of Individual members (including various categories) has reached 64.**



As communicated earlier, the **MoU between IGEM and NGS** was signed on 21st November, 2024. **The online ceremonial signing** was done on **21st January, 2025.**

**during the Technical Conference.**

Overall, it was a great opportunity for NGS team to interact with Energy Professionals from India & abroad and an enriching & learning experience.



*NGS set up a stall at IEW 2025 Exhibition.  
ED, NGS chaired two sessions during the Technical Conference.*

**The Natural Gas Society took active part in the India Energy Week (IEW) 2025** held at Yashobhumi, New Delhi. A stall was set up by NGS in the IEW 2025 exhibition which attracted hundreds of visitors from ONGC, GAIL, IOCL, HPCL, BPCL, IGL, PIL, Reliance, MGL, IGGL, Siemens, ATGL, EIL and many more organizations from within India and abroad. Myself, i.e. **ED, NGS had the honour of being a Member of the IEW Technical Committee.** Further, it was a pleasure and privilege for me to **Chair two sessions** (one on CGD and the other on NG Storage and O&M)

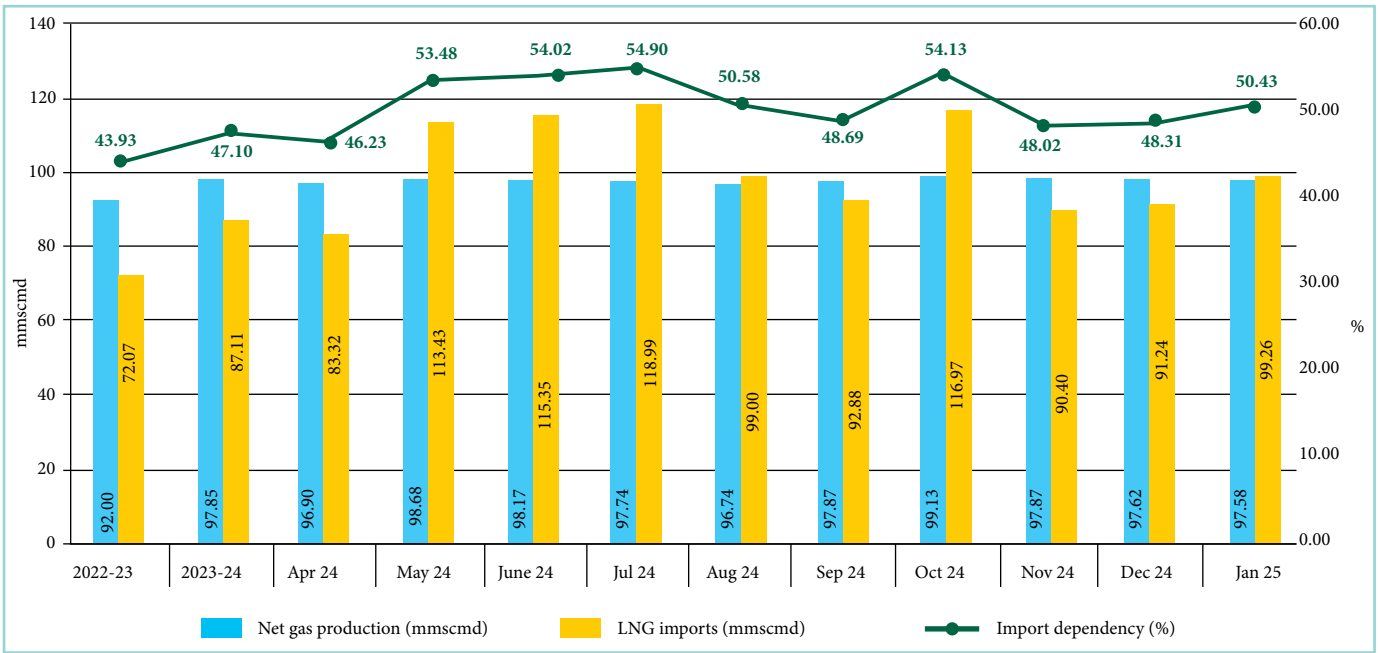
**We convey our sincere thanks to our member organisations and the individual members for their constant support and solicit the valuable suggestions, guidance & everyone’s support in meeting the objectives of NGS.**

**With greetings to you and your family for a happy & prosperous New Year (Vikram Samvat 2082/Gudi Padwa/Ugadi/Chaiti Chand), greetings on the occasion of Eid-ul-Fitr and with best wishes,**

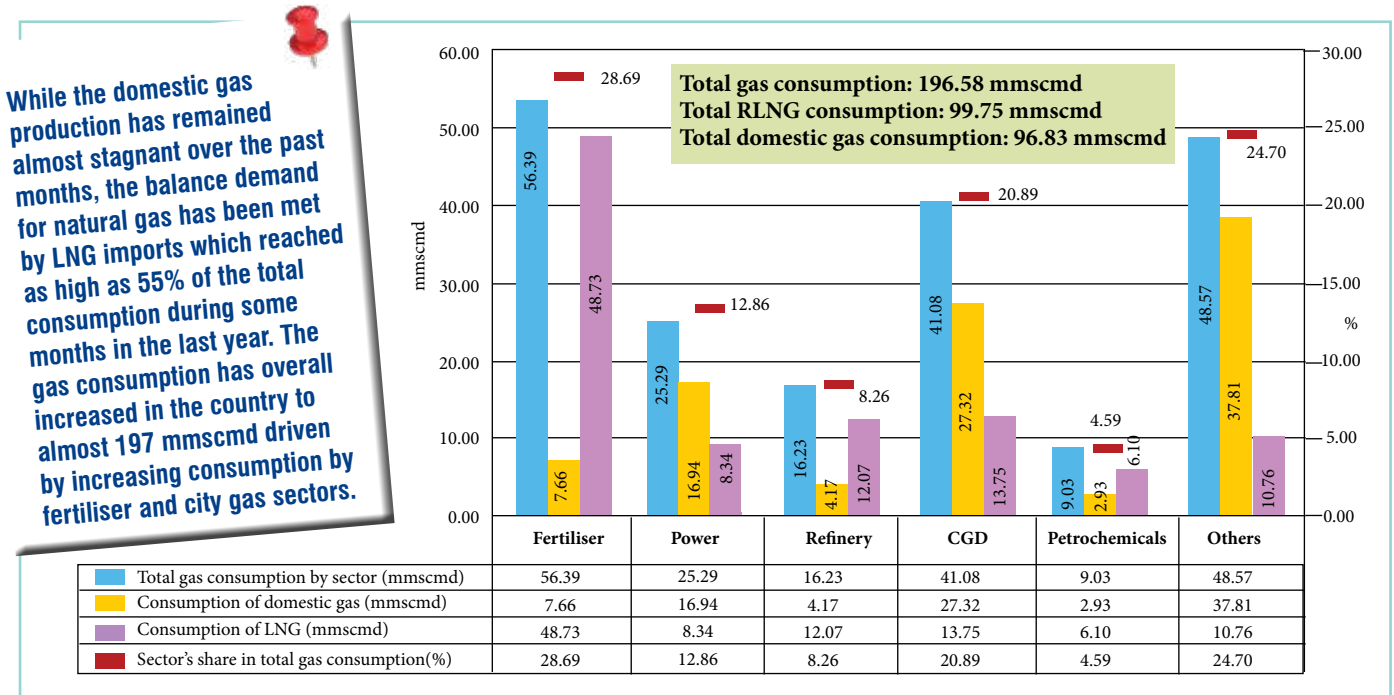
**D V Shastry**  
Executive Director

## Gas Production/Consumption/Imports (mmscmd)

### Trend in Gas Production/Imports (MMSCMD)



### Sector-wise gas consumption of domestic gas and RLNG (Apr-Jan 2025)



### Trend in Consumption of Petroleum Products

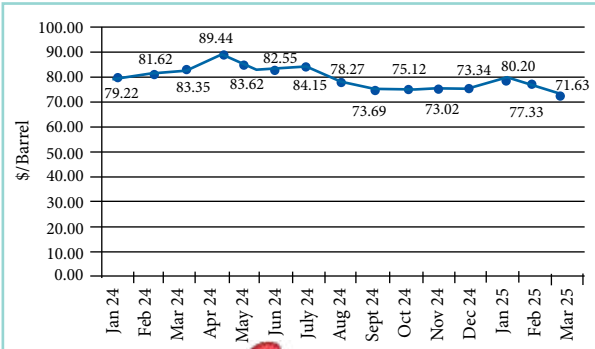
In '000 MT	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25
LPG	2373	2410	2319	2649	2664	2610	2721	2665	2781	2844	2573
Naphtha	1217	1090	1014	1224	1156	1018	1164	1098	1074	1149	954
MS	3285	3463	3296	3297	3360	3149	3412	3428	3320	3308	3129
HSD	7925	8412	7982	7193	6501	6369	7645	8166	8057	7739	7343
FO & LSHS	527	617	575	506	491	556	623	500	570	549	477
Petroleum coke	1805	1723	1532	2368	1725	1213	2035	2057	1928	1895	1838

Source: PPAC, NGS Research

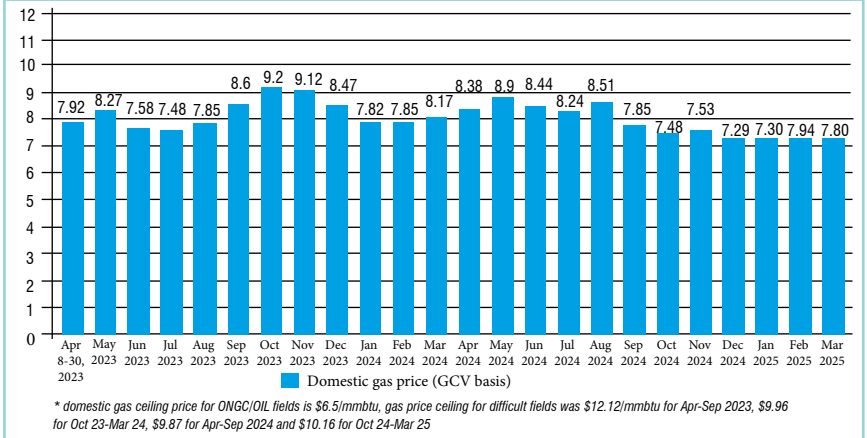
# GAS STATISTICS - DOMESTIC AND INTERNATIONAL

## Gas - Price & Analytics

### Crude price (Indian basket)

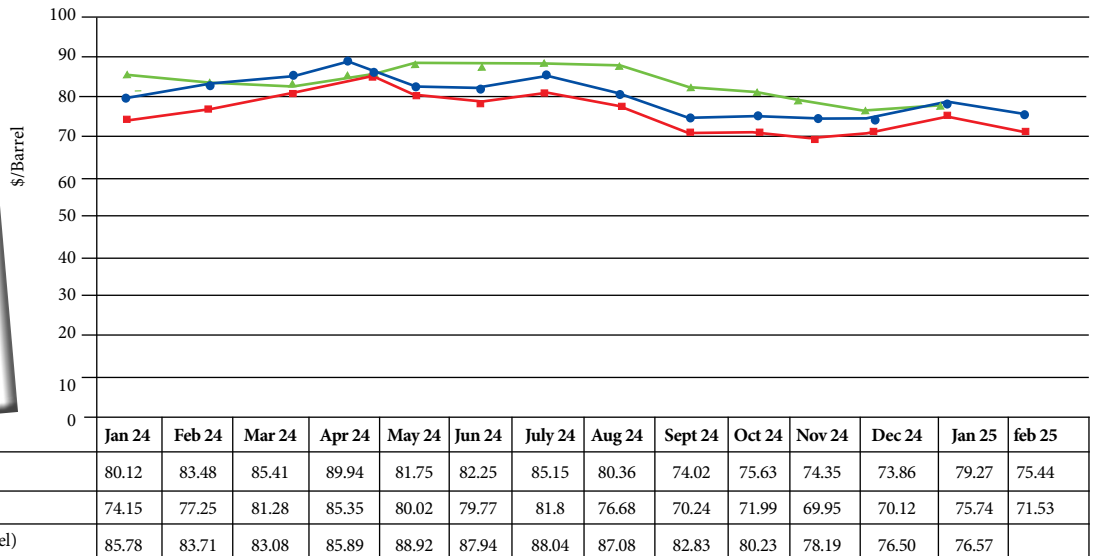


### Domestic gas price (\$/mmbtu)

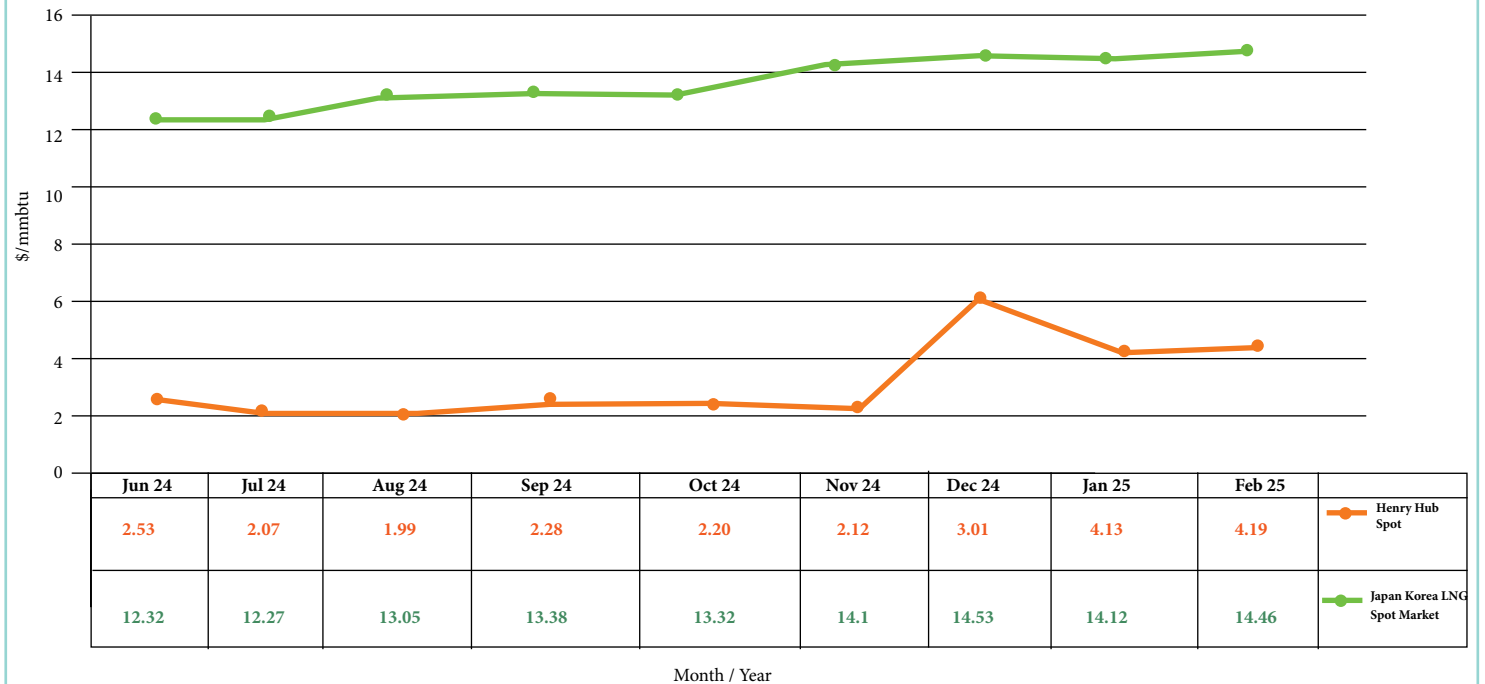


The Indian crude basket prices have more or less remained in the range \$70-\$90 while the Indian domestic gas prices have also hovered in \$7-\$9/mmBtu range. The US Henry Hub natural gas prices have been increasing primarily due to a combination of factors, including growing global demand for LNG, increased US LNG export capacity, and a tighter supply-demand balance.

### Brent/ WTI/ Japan oil import price (\$/barrel)



### International Gas/LNG prices (\$/mmbtu)



Source: NGS Research, PPAC, EIA, LNG Journal

# GAS STATISTICS - DOMESTIC AND INTERNATIONAL

## CNG / PNG



Status of CNG stations and PNG connections across India (Nos.) as on 31.01.2025(P)

State/UT (State/UTs are clubbed based on the GAs authorised by PNGRB)	CNG Stations	PNG connections		
		Domestic	Commercial	Industrial
Andhra Pradesh	199	2,78,802	681	78
Andhra Pradesh, Karnataka & Tamil Nadu	47	14,838	14	14
Assam	27	66,427	1,436	470
Bihar	169	2,05,253	184	31
Bihar & Jharkhand	18	9,856	11	0
Bihar & Uttar Pradesh	26	14,675	0	0
Chandigarh (UT), Haryana, Punjab & Himachal Pradesh	35	29,379	194	57
Chhattisgarh	34	9,045	0	0
Dadra & Nagar Haveli (UT)	6	13,097	60	67
Daman & Diu (UT)	5	5,342	99	59
Daman and Diu & Gujarat	16	9,014	37	0
Goa	14	17,716	44	52
Gujarat	1,029	35,10,251	24,106	5,836
Haryana	453	4,32,740	1,301	2,712
Haryana	25	31,409	146	73
Haryana & Himachal Pradesh	14	56	1	0
Haryana & Punjab	27	2,315	2	0
Himachal Pradesh	16	8,820	41	6
Jharkhand	108	1,48,025	70	12
Karnataka	425	4,86,742	925	494
Kerala	180	1,21,033	123	33
Kerala & Puducherry	26	9,634	0	0
Madhya Pradesh	331	2,72,007	588	579
Madhya Pradesh and Chhattisgarh	9	0	0	0
Madhya Pradesh and Rajasthan	37	1,150	2	0
Madhya Pradesh and Uttar Pradesh	20	105	0	3
Maharashtra	972	38,50,514	5,146	1,098
Maharashtra & Gujarat	76	2,15,722	11	46
Maharashtra and Madhya Pradesh	16	0	0	0
National Capital Territory of Delhi (UT)	499	16,97,473	4,453	1,906
Odisha	129	1,44,464	35	6
Puducherry	10	0	0	0
Puducherry & Tamil Nadu	8	467	4	0
Punjab	230	1,02,701	810	342
Punjab & Rajasthan	25	6,267	0	0
Rajasthan	369	3,80,703	441	1,786
Tamil Nadu	371	62,915	34	48
Telangana	202	2,23,598	196	171
Telangana and Karnataka	12	126	2	5
Tripura	22	64,923	508	62
UT of Jammu and Kashmir	2	0	0	0
Uttar Pradesh	1,047	17,97,456	3,178	3,751
Uttar Pradesh	29	10,001	50	9
Uttar Pradesh & Rajasthan	48	24,436	64	354
Uttar Pradesh and Uttarakhand	33	16,412	2	0
Uttarakhand	40	76,635	112	126
West Bengal	158	64,114	8	1
<b>Grand Total</b>	<b>7,594</b>	<b>1,44,36,658</b>	<b>45,119</b>	<b>20,287</b>

Note: 1. All the GAs where PNG connections/CNG Stations have been established are considered as Operational, 2. Under normal conditions, Operation of any particular GA commences within around one year of authorization. 3. State/UTs wherever clubbed are based on the GAs authorised by PNGRB

## CGD / LNG / PIPELINES

### Common Carrier Gas pipeline network (as of 31.09 2024)

Length in km & capacity in mmscmd		GAIL	GSPL	PIL	IOC	AGCL	RGPL	GGL	DFPCL	ONGC	GIGL	GITL	Others*	Total
Operational	Length	10996	2722	1483	143	107	304	73	42	24				15894
	Capacity	233.2	43	85	20	2.4	3.5	5.1	0.7	6				
Partially commissioned	Length	4933			1080						1302	364		7679
	Capacity	0												
Total operational	Length	15929	2722	1483	1223	107	304	73	42	24	1302	364	0	23573
Under Construction	Length	2605	100		65							220	2640	5630
	Capacity	26.3	3		1							36		42
<b>Total Length</b>		<b>18534</b>	<b>2822</b>	<b>1483</b>	<b>1228</b>	<b>107</b>	<b>304</b>	<b>73</b>	<b>42</b>	<b>24</b>	<b>1302</b>	<b>584</b>	<b>2640</b>	<b>29203</b>

Source: PNGRB; \*Others-APGDC, HEPL, IGGL, IMC, Consortium of H-Energy; Total authorized Natural Gas pipelines including Tie-in connectivity dedicated & STPL is 33 347 Kms (P) however total operational and Under Construction Pipeline length is 35 217 Kms (P)

### Existing LNG Terminals

Location	Promoters	Capacity (mmtpa) on 1.9.2024	Cap. Utilisation (Apr-Jan 2025) (%)
Dahej	Petronet LNG	17.5	98.8
Hazira	Shell Energy	5.2	37.3
Dabhol*	Konkan LNG	5	43.2
Kochi	Petronet LNG	5	22.3
Mundra	GSPC LNG	5	23
Ennore	Indian Oil LNG	5	25.1
Dhamra	Adani Total	5	41.6
<b>Total capacity</b>		<b>47.7</b>	

\* to be increased to 5 mmtpa with breakwater; only HP stream of capacity of 2.9 MMTPA is commissioned





# NATURAL GAS SOCIETY

A Voice for India's Natural Gas Industry

## VISION

The Natural Gas Society, a registered society under the Societies Act, seeks to represent the issues of the industry from time to time and provide critical inputs into sectoral policy through research, collaboration and dialogue. NGS, towards this end, promotes collaboration with similar organizations, so as to share information and best practices for the overall benefit of Natural Gas sector.

## MISSION & OBJECTIVES

To represent the collective interest and promote, facilitate and further sustainable growth of Natural Gas Industry in India (except E&P)

To serve as a nodal point for coordination of all efforts at generation and dissemination of information and technology, relevant to natural gas

Work on common interest issues like Safety Standards, Technical Standards, etc.

## ACTIVITIES

**SEMINARS / WORKSHOPS:** The Society organises Seminars / Conferences on O&M / Constructions / Safety etc. in NG/CGD industry. NGS also collaborations in various in national & international conferences / events.



India Energy Week (IEW) 2025



Safety Seminar 2024



7th O&M Conference 2024



2nd GPS 2024



India Energy Week (IEW) 2024



Mission Net Zero India Summit 2023



NGS Conclave on Construction Management 2023



FEA 2023



O&M Conference 2023



1st GPS 2023



1st Natural Gas (NG) Summit 2022



O&M Conference 2022



GasTech 2021

- **Voice for India's Natural Gas Industry** (Issue-based Policy Advocacy with a holistic & rational approach.
- **Collaborations with National & International Bodies / Forums** (PipeTech, LNG India Summit, NGV India Summit, MNZIS, IEW 2024, FEA 2024, etc.)
- **Knowledge & Experience Sharing.** (Annual O&M Conference, Conclave on Construction Management, Workshop on Safety in NG Transmission & CGD Industry)
- **Research studies; Data Analysis**
- **Industry Academia Collaboration** (RGIPT, PDEU, GGSIPU, SNU & CU are the Members of NGS)

### NG INDUSTRY FOCUSED PUBLICATIONS

(Gas Statistics Review (GSR)-Quarterly, Snapshot - Fortnightly and Annual)

The Society publishes a quarterly publication 'Gas Statistics Review(GSR)', highlighting the periodical gas data including production, consumption, imports, CNG, PNG, LNG prices both domestic and international and much more. NGS also publishes Snapshot-Fortnightly & Annual.

## Members

### PATRON MEMBERS

1. GAIL (India) Ltd
2. Mahanagar Gas Ltd
3. Indraprastha Gas Ltd
4. Petronet LNG Ltd

### PRIMARY MEMBERS

1. Maharashtra Natural Gas Ltd
2. Bhagyanagar Gas Ltd
3. Green Gas Ltd

### ASSOCIATE MEMBER

1. Central UP Gas Ltd
2. Pipeline Infrastructure Limited

### ASSOCIATE MEMBER (Academic Institutions)

1. Rajiv Gandhi Institute of Petroleum Technology
2. Guru Gobind Singh Indraprastha University
3. Pandit Deendayal Energy University
4. Shiv Nadar Institution of Eminence
5. Chitkara University

### NON VOTING MEMBERS

1. Aavantika Gas Ltd
2. Adani Total Gas Ltd
3. Alethe Labs India Pvt Ltd
4. ABB India Limited
5. Bharat Petroleum Corporation Ltd
6. Compac Industries India Ltd
7. IndianOil Corporation Ltd
8. Indradhanush Gas Grid Ltd
9. Nawgati Tech Private Ltd
10. Pietro Fiorentini DB
11. Respo Safety Solutions Pvt Ltd
12. SAGE 13. Secure Meters Ltd
14. Think Gas Limited
15. Tripura Natural Gas Company Ltd





**Akhil Mehrotra,**  
Managing Director,  
Pipeline Infrastructure Limited

**Natural Gas Society spoke to Akhil Mehrotra, Managing Director, Pipeline Infrastructure Limited, about his journey and achievements and his outlook on the gas sector...**

A business leader in the energy sector, Mr. Akhil Mehrotra currently heads Pipeline Infrastructure Limited (PIL) as a Managing Director. Mehrotra has over three decades of experience across oil & gas, power, and telecom industries and has spent more than 20 years in leadership roles leading P&L of multiple companies as well as M&A deals and has been instrumental in transforming business performance.

Before joining PIL as its CEO in July 2019, he was associated with Shell (including BG Plc) for 16 years and with Reliance Group for 9

years. He has also held the position of the Chairman of Mahanagar Gas Limited, the city gas distribution company in Mumbai. He has been on the Boards of various companies including Shell Energy India and Hazira Ports Private Limited.

He has been instrumental in the business development of various greenfield and brownfield projects in city gas distribution and transmission, conceptualisation of gas-based power plants to their financial closure, etc. He has also played a key role in the listing and stake sale of a few companies including Mahanagar Gas Limited.

Mehrotra’s strong business skills and acumen are supported by his solid educational background. A BE in Mechanical Engineering, an MBA in Finance, and a PhD in gas markets, Mehrotra has also done many specialised courses at reputed institutes including IIM Bangalore, Harvard Business School, Kellogg’s School of Management and the London Business School.

When asked about his take on the future of the energy sector, Mehrotra emphasised, “With India projected to be the fastest growing economy in the world, energy requirement will grow manifold. To meet the high demand for energy, all sectors of energy would play a role. Gas will be the only fossil fuel that will continue to grow for the next two decades, backed by the power sector for balancing the grid, mobility for clean air in cities, the MSME sector which does not

use gas currently and city gas companies. However, 50-60 per cent of gas in the near term needs to be imported and the price of LNG will play a key factor in its increased acceptance”.

“I think technology is going to play a vital role in future business transformation. Artificial intelligence & machine learning are working together to enhance the efficiencies across all sectors of the economy and it will definitely help fast track growth”, he opines. This according to him will create new job opportunities but may require reskilling on the part of workforce.

On the personal front, Mehrotra expresses his gratitude towards his wife, Priya Mehrotra, for consistently being his strong support system throughout his career. He says, “She has steadfastly stood by me during all the challenges I have encountered over the course of my professional journey”. They have two children who are working in the fields of medicine and law.

When asked what he likes doing in his free time, Mehrotra says, “I enjoy spending time with my family and I like reading books. I am also learning to play guitar”. He adds that reading and music help him alleviate stress from his demanding work environment, allowing him to relax and subsequently focus on his tasks with greater passion and dedication.

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*Disclaimer: The views and opinions on the gas sector are purely personal.*



# COAL BED METHANE – An Unconventional Natural Gas

India, the third-largest energy consumer globally, faces a rapidly growing energy demand driven by economic growth and urbanisation. With a population of over 1.4 billion and the fastest GDP growth among major nations (6-8% annually), the country's energy demand is projected to surge by 50% by 2030, outpacing all big economies. However, over 85% of India's crude oil and almost 50% of its natural gas are imported, costing the economy \$150-160 billion annually. This dependency leaves India vulnerable to geopolitical shocks, as seen during the 2022 Russia-Ukraine crisis, when global LNG prices soared to \$70/MMBtu disrupting industrial operations.

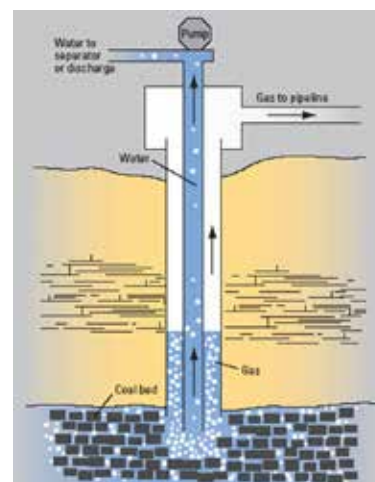
Amid this volatility and the transition to cleaner fuels, CBM has emerged as a strategic domestic alternative. India's 378 billion tonnes of coal reserves (April 2024), the world's fourth-largest, hold an estimated 92 trillion cubic feet (TCF) of CBM. Unlocking even 20% of this could replace 15% of LNG imports by 2030, according to NITI Aayog. Also, using CBM congruently aligns with the government's vision of making India a gas-based economy by increasing the share of natural gas in our energy mix from the current 6.3% to 15% by 2030.

In this feature story, we present to you an overview

of the Coal Bed Methane market, both globally and in India, covering the basics of coal bed methane, current production, policy framework, recent developments and challenges.

## What is Coal bed methane (CBM)?

CBM is a type of unconventional natural gas that is extracted from coal seams or coal deposits. CBM is formed when organic plants turn into coal, either through microbiological or thermal processes. Methane is absorbed into the coal's solid structure during this process.



## How do we extract CBM from coal?

It is mainly extracted through hydraulic and horizontal drilling techniques by drilling wells into coal seams, which

are usually filled with groundwater under high pressure. To extract CBM, wells are drilled into coal seams and water is pumped out. Removing the water reduces pressure and allows the methane to be released. Extracting it can help reduce the risk of explosions in coal mines.

**Why is CBM important?**

CBM is considered a clean-burning fuel and can be used as an alternative of natural

gas. Because India is dependent on expensive imported LNG for almost 50% of its natural gas consumption, CBM produced from domestic resources is a more inexpensive way to meet the growing demand for natural gas and reduce its import bills. Just like natural gas, CBM can be used to generate power and produce cement, methanol, and fertilisers. It can also be used for transportation needs as CNG or as PNG in the residential, commercial and industrial sectors.

## Global CBM Market

The global CBM market has grown strongly in recent years. Various research agencies differ on the global CBM market size estimations for 2024 but it falls in a range of USD 14-20 billion. The market is projected to further grow at a CAGR of about 5%-6% in the coming years according to the experts.

**FACTORS DRIVING CBM GROWTH**

Historical CBM growth has been influenced by various factors including concerns about energy security, a rising demand for natural gas, coal mining operations, governmental policies and incentives towards cleaner sources of energy and the perceived environmental benefits of using CBM as an energy source. The escalating demand for electricity is fuelling the need for cleaner energy alternatives that enable increased electricity production while minimising carbon emissions.

The carbon emissions have been increasing significantly owing to the rise in consumption of fossil fuels driven by the surge in population, urbanisation, and industrialisation. According to the IEA, global energy-related CO2 emissions rose by 1.1% in 2023, increasing by 410 million tons from 2022, reaching a record high of 37.4 billion tons. Governments across the globe and many international bodies are increasingly focusing on bringing down carbon emissions to help in mitigating climate change. The Paris Agreement set an ambitious target of keeping the global temperature “well below 2 degrees, preferably 1.5 degrees Celsius” compared to pre-industrial levels. Achieving

the 1.5°C goal requires global emissions to decline by 45% from 2010 levels by 2030 and to reach net zero by 2050. Countries across the world have committed to reducing emissions through Nationally Determined Contributions (NDCs) to reduce emissions, with over 140 nations also setting net-zero targets. Towards these objectives, CBM is seen as a cleaner burning fuel than coal or oil since it produces less CO2 per unit of energy.

In addition, with accelerating demand for natural gas but increasing natural gas prices governments are shifting the focus to producing natural gas through alternative means. Innovations in CBM extraction methodologies are also helping market growth of CBM.

**Electricity Generation (TWh)**

	2019	2022	2023
<b>World</b>	<b>21611</b>	<b>29145</b>	<b>29863</b>
<b>North America</b>	<b>5 230</b>	<b>6468</b>	<b>6390</b>
United States	4354	4473	4412
<b>Central and South America</b>	<b>1129</b>	<b>1372</b>	<b>1419</b>
Brazil	616	677	710
<b>Europe</b>	<b>4119</b>	<b>3980</b>	<b>3885</b>
European Union	2856	2793	2705
<b>Africa</b>	<b>687</b>	<b>901</b>	<b>913</b>
<b>Middle East</b>	<b>829</b>	<b>1342</b>	<b>1370</b>
<b>Euraia</b>	<b>1251</b>	<b>1457</b>	<b>1477</b>
Russia	1036	1140	1163
<b>Asia Pacific</b>	<b>8265</b>	<b>14625</b>	<b>15402</b>
China	4236	8947	9565
India	972	1814	1913
Japan	1164	1610	1016
Southeast Asia	685	1284	1307



### CBM MARKET TRENDS

With government-supportive policies and innovative practices in CBM extraction, reservoir management practices and investments in infrastructure for the distribution of CBM, CBM is likely to become an important energy going forward. Let us list out some broad trends which we can currently see in the market:

#### Global CBM production is small; North America and Asia Pacific dominate

The global production of CBM stood at 86 BCM (236 MMSCMD) in 2023, according to IEA. This accounted for just a little over 2% of the total natural gas supplies during the year.

#### Coal Reserves (as of 2023)

Coal (billion tonnes)	Proven Reserves	Resources
North America	257	8 387
Central and South America	14	60
Europe	137	930
Africa	15	343
Middle East	1	41
Eurasia	191	2 015
Asia Pacific	460	8 950
<b>Total</b>	<b>1 075</b>	<b>20 776</b>

Region-wise, North America (US & Canada) and Asia Pacific dominate the global coal bed methane market owing to the significant reserves of coal present in these regions. More specifically, country-wise, CBM accounts for almost a quarter of natural gas production in Australia, 5% in China and 2% in the U.S.



**US:** Rising investments in extraction technology, infrastructure, and government

### Remaining Technically Recoverable CBM Resources, 2023 (TCM) (IEA)

North America	7
Europe	5
Eurasia	17
Asia Pacific	20
<b>World</b>	<b>49</b>

policies promoting natural gas as a cleaner energy alternative are expected to drive growth in North America. The U.S. government is taking significant initiatives for curbing carbon emissions and promoting CBM as a key solution.

Numerous stringent measures have been implemented to control the carbon and methane emissions from coal mines. For instance, The Coalbed Methane Outreach Program (CMOP), a partnership between the US Environmental Protection Agency EPA and the coal mining industry, focuses on encouraging coal mine methane recovery. It maintains a database identifying top abandoned mines for methane recovery projects based on surveys and emissions data.

#### Asia Pacific:

Asia Pacific has established itself as the dominant regional market in the global CBM market, principally driven by accelerating energy requirements in numerous countries, particularly Australia, China, and India, and abundant reserves for coal. For this reason, the region is also projected to experience the fastest growth in the market. The rising demand for natural gas, mainly in the industrial sector owing to its low carbon emissions, is



### Estimated CBM production for few countries in 2023

Country	Estimated CBM production (MMSCMD)	% of share in country's natural gas production	Key CBM producing areas
Australia	112	25	Surat Basin (Queensland)
US	55	2	Powder River Basin (Wyoming), San Juan (Colorado)
China	33	5	Qinshui Basin (Shanxi), Ordos Basin

US Natural Gas Production by Source

	2019	2020	2021	2022	2023
<b>Production (Million Cubic Meters)</b>					
Gross withdrawals					
Natural gas wells	210,487	188,119	174,003	168,882	158,661
Oil wells	130,358	123,545	124,839	128,097	128,073
Coalbed wells	25,557	23,322	21,602	20,812	20,099
Shale gas wells	788,365	818,358	859,709	919,682	983,023
<b>Total gross withdrawals</b>	<b>1,154,767</b>	<b>1,153,343</b>	<b>1,180,154</b>	<b>1,237,472</b>	<b>1,289,856</b>

contributing to market expansion. In addition, there has been a significant inclination toward CNG-based vehicles, replacing gasoline and diesel-powered automobiles, further augmenting the demand for coal bed methane. India and China, particularly, are witnessing growing investments in CBM extraction ventures to address their increasing energy requirements while limiting emissions. In addition, Australia’s robust regulatory aid and leading-edge CBM infrastructure position it as a major player in the Asia Pacific’s market growth.

**Europe:** Europe is also witnessing a steady rise in the market owing to the limited CBM production in Poland, Germany, and Russia. Rising support from European Nations for addressing carbon & methane emissions from coal mining, coupled with technological advancement in drilling techniques, is estimated to boost market growth in the region. According to the United Nations Framework Convention on Climate Change (UNFCCC) 2021 report, the energy sector in the EU emitted 2,497 thousand tons of methane, making it the third largest emitter after agriculture and waste. Of this, coal mining accounted for 908 thousand tons, contributing 6% of the EU’s total methane emissions.



**Rest of the world:** The rest of the world, including regions such as Africa, South America, and the Middle East, displays sluggish upsurge in the market and holds a relatively low share compared to other regions. The CBM market is still emerging as the coal bed reserves are very limited in this region. However, government initiatives for

lowering the carbon and methane emissions during coal mining would play a key role in augmenting the market expansion in the forecast period. For instance, the endorsement of the Zero Routine Flaring by 2030 initiative by Mexico and its participation in the Global Methane Initiative and the Climate and Clean Air Coalition highlights the government’s commitment to limiting methane emissions in the atmosphere. Additionally, in its updated Nationally Determined Contribution (NDC) submitted in November 2022, Mexico committed to a 35% reduction in greenhouse gas emissions and a 51% reduction in black carbon by 2030 compared to a business-as-usual scenario, up from the previous 22% GHG reduction target.

**Innovative extraction technologies building CBM case**

Technological advancements are substantially improving the efficacy of CBM extraction, facilitating market expansion. Among the technologies available for extraction include horizontal drilling, hydraulic fracturing and CO2 sequestration. Technologies like horizontal drilling and hydraulic fracturing have enhanced cost-efficiency as well as the yield of CBM production. Such innovations elevate the overall productivity of CBM extraction processes and allow better access to deep coal seams. Horizontal drilling significantly enhances gas extraction efficacy by facilitating access to several coal seams from a single wellbore while reducing environmental impact. In addition, the capability of this technology to bolster production rates and lower operational costs has fortified its position as the extensively leveraged technology in the market. Similarly, hydraulic fracturing is gaining momentum due to its capability of significantly increasing permeability

in coal seams, thereby enhancing the flow of methane. CO2 sequestration is also growing at a fast rate in the market as it involves injecting CO2 into coal seams to displace methane, enhancing methane recovery while simultaneously storing CO2. This method contributes to methane production and aligns with environmental objectives by reducing greenhouse gases.

**Industrial and power segments dominate the market**

By end-users, CBM’s consumer market is divided into residential, commercial, industrial, power generation, and transportation. The industrial segment holds the largest market share (34% in 2023) owing to its utilisation as a fuel for various industrial processes and as a feedstock for chemical production. The surge of CBM usage in industrial applications is supported by increased industrial activity, higher energy demand, a preference for cleaner and more efficient fuel sources, and technological advancements that enhance CBM efficiency in industrial processes. Power

generation also accounts for a big market share as CBM is rapidly being utilised as a cleaner substitute of coal in power plants, assisting the reduction of greenhouse gas emissions and fostering the shift towards lower-carbon energy solutions. Furthermore, its role in producing electricity has increased, especially in regions with accelerating energy demands and large coal reserves. The capability of CBM to provide constant, dependable power generation while complying with environmental regulations establishes it as a good energy source in the power generation industry.

However, it is expected that its use will grow fastest in transportation in the coming years owing to the rising demand for CNG in various vehicles, such as buses and trucks. This shift is driven by the superior fuel efficiency and lower emissions of CNG compared to gasoline and diesel and the expansion of infrastructure for CNG refuelling stations. Additionally, government incentives and policies promoting alternative fuels aim to reduce carbon emissions.

**Important Industry Developments**

**FEB 2022**  
**ConocoPhillips**, a prominent US-based company specializing in hydrocarbon exploration and production, secured a majority stake in Australia Pacific LNG for a total of \$1.645 billion. This acquisition represents a strategic move by ConocoPhillips aimed at gaining increased control over its investments in Australia. Australia Pacific LNG, an Australia-based company, specializes in domestic gas operations and is recognized as a producer of coal bed methane.

**JAN 2023**  
 Australian engineering company **Verbrec** was awarded a front-end engineering study for **Comet Ridge’s Mahalo North** gas development. The study, jointly funded by **Denison**, would design and plan upgrades to **Denison’s** infrastructure to handle 10 terajoules of coalbed methane per day from Mahalo North, boosting gas supply to Australia’s east coast.

**OCT 2023**  
**NuEnergy**, through its subsidiary **Dart Energy**, received an environmental permit for the **Tanjung Enim Plan of Development 1**, Indonesia’s first CBM project. With this permit, NuEnergy is preparing for early gas production. The initial phase would sell 1 million standard cubic feet per day (mmscfd) of CBM to **PT Laras Ngarso Gede**, with plans to increase production to 25 mmscfd as approved under the development plan.

**JUN 2024**  
**Globaltec Formation Bhd’s** subsidiary, **NuEnergy Gas Ltd**, plans to sell CBM to Indonesia’s natural gas company, **PT Perusahaan Gas Negara (PGN)**. NuEnergy’s subsidiary, **Dart Energy (Tanjung Enim)**, signed a heads of agreement (HoA) with PGN, outlining the terms for a future Gas Sale and Purchase Agreement (GSPA). The agreement would cover the supply of CBM from Dart TE’s development project in South Sumatra, Indonesia.

**AUG 2024**  
**Shell and PetroChina**, through their JV with **Arrow Energy**, approved Phase 2 of the **Surat Gas Project** in Queensland, Australia. Over the next few years, 2,500 new gas wells will be drilled to supply the Queensland Curtis LNG plant. Phase 2, expected to start production in 2026, will produce up to 22,400 barrels of oil equivalent per day (130 million standard cubic feet of gas per day) to meet both domestic demand and long-term contracts.



### Mostly fragmented industry with few key players

The global market is mostly fragmented, with few key players operating in the industry. The market is represented by fierce competition among major industry players focused on technological advancements and expansion.

A few prominent companies in the sector include Halliburton, PETRONAS, Arrow Energy, Essar, PetroChina Company Limited, Royal Dutch Shell plc, British Petroleum Plc, Chevron Corporation, Tamboran Resources Limited, Reliance Industries Limited, ConocoPhillips Company, Comet Ridge Limited, Baker Hughes Company, Origin Energy Limited, AGL Energy Limited, Great Plains Energy Inc, Santos Limited, Western Gas Corporation, Far East Energy Corporation, Queensland Gas Company Ltd., Great Eastern Energy Corporation Ltd., Central Petroleum Limited, Metgasco Ltd., G3 Exploration Limited (G3E) and China United Coalbed Methane Corporation Ltd.

The companies are heavily investing in cutting-edge extraction technologies to enhance efficacy and lower their operational costs. Moreover, strategic joint projects and partnerships are highly prevalent, as various businesses seek to expand their market presence

in emerging economies. In addition, competitive dynamics are shaped by the pursuit of sustainability targets, with companies rapidly aligning their operations with environmental frameworks and clean energy ventures.

The companies are actively engaged in product launches aimed at innovative applications, such as the trial for continuous injection of CBM into blast furnaces. Continuous injection involves the uninterrupted introduction of CBM gas into various systems or processes, such as blast furnaces in steel production, with the goal of enhancing operational efficiency and reducing environmental impact. For instance, in January 2022, Tata Steel Limited, an India-based multinational steel-making company, initiated a ‘first-of-its-kind in the world’ trial for continuous injection of CBM in Blast Furnace to reduce emissions. The primary objective of this trial is to curtail the coke rate by 10 kg per ton of hot metal (thm), resulting in a reduction of approximately 33 kg of CO2 emissions per ton of crude steel produced. This pioneering initiative not only provides valuable insights into coke rate reduction but also demonstrates the potential of CBM as an injectant in the steel industry, marking a significant advancement in the CBM market and contributing to more sustainable steel production.

## Indian CBM Market

India has the fourth largest proven coal reserves in the world and thus holds significant prospects for exploration and exploitation of CBM. The total prognosticated CBM resources are currently estimated in the range of 91.8 Trillion Cubic Feet (2.6 TCM) while the reserves which have been already established are 10.4 Trillion Cubic Feet (0.3 TCM). However, the CBM gas production from the producing blocks during April-December 2024 was only a little over 2 MMSCMD (1.83 MMSCMD for 2023-24), a small percentage compared to the total natural gas production of about 98 MMSCMD in the country.

CBM Gas Development in India	
Prognosticated CBM resources	91.8 TCF (2600 BCM)
Established CBM resources	10.4-12.10 TCF (342 BCM)
Total CBM rounds completed	6
No. of CBM blocks awarded	40
No. of CBM blocks in development/production phase	8
No. of CBM blocks in exploration phase	7
No. of CBM blocks under relinquishment	12
No. of CBM blocks relinquished	12
No. of CBM blocks under arbitration	1
Total available coal bearing areas (India)	32760 Sq km
Total available coal bearing areas with MoPNG/DGH	12254 Sq km
Area covered under 40 blocks awarded	21177 Sq km
Present area for CBM operations (15 blocks)	7009 Sq km
Commercial production commenced	July 2007
Average CBM production in 2023-24	1.83 MMSCMD
Production of CBM in Apr-Dec 2024	2.026 MMSCMD
Cumulative CBM production upto 2023-24	6.4 BCM

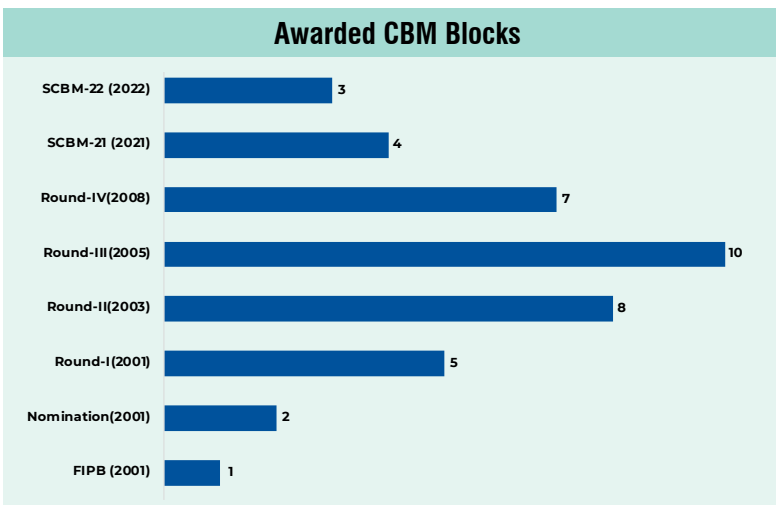
Source: DGH

## CBM RESOURCES AND AWARD OF BLOCKS

State wise Distribution of CBM Resources in India				
Sl. No.	STATE	Total GIIP (BCM)	Total GIIP (TCF)	Discovered (TCF)
1	Jharkhand	722.08	25.5	1.99
2	Rajasthan	359.62	12.7	0
3	Gujarat	351.13	12.4	0
4	Odisha	243.52	8.6	0
5	Chhattisgarh	240.69	8.5	0
6	Madhya Pradesh	218.04	7.7	3.64
7	West Bengal	218.04	7.7	4.85
8	Tamil Nadu	104.77	3.7	0
9	Telangana & Andhra Pradesh	99.11	3.5	0
10	Maharashtra	33.98	1.2	0
11	Northeast	8.50	0.3	0
<b>Total</b>		<b>2,599.48</b>	<b>91.8</b>	<b>10.48</b>

Note: GIIP: Gas Initially In-place, Conversion factor: 1 cubic meter = 35.3147 cubic feet

The vast majority of the best prospective areas for CBM development are in central and eastern India. CBM blocks were offered through international competitive bidding for the exploration and production of CBM in the country for the first time in May 2001. From 2001 to 2008, four CBM bidding rounds were held, resulting in the award of 30 CBM blocks.



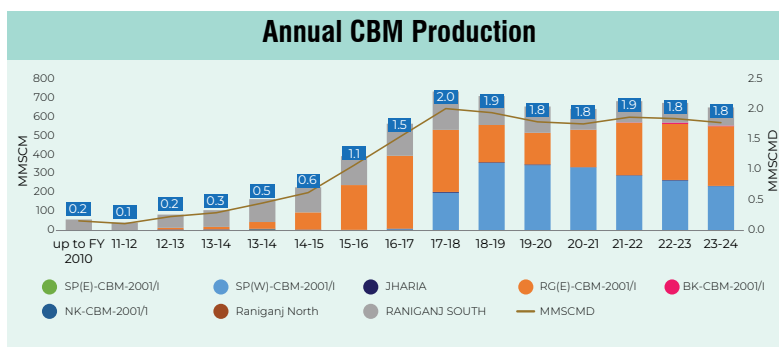
Additionally, 2 blocks were allocated on a nomination basis, and 1 block was awarded under the Foreign Investment Promotion Board (FIPB) in 2001. During this period (2001-2008), a total area of 16,598 sq km was awarded for CBM exploration and production. These awarded blocks were located across various States including Andhra

Pradesh, Assam, Chhattisgarh, Gujarat, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, and West Bengal. Further, GoI launched Special CBM bid rounds (SCBM) in 2021 and 2022. With attractive fiscal and administrative terms, bidding was made under OALP through international competitive bidding. During these two SCBM rounds, 7 blocks of area of 4,579 sq. km were awarded.

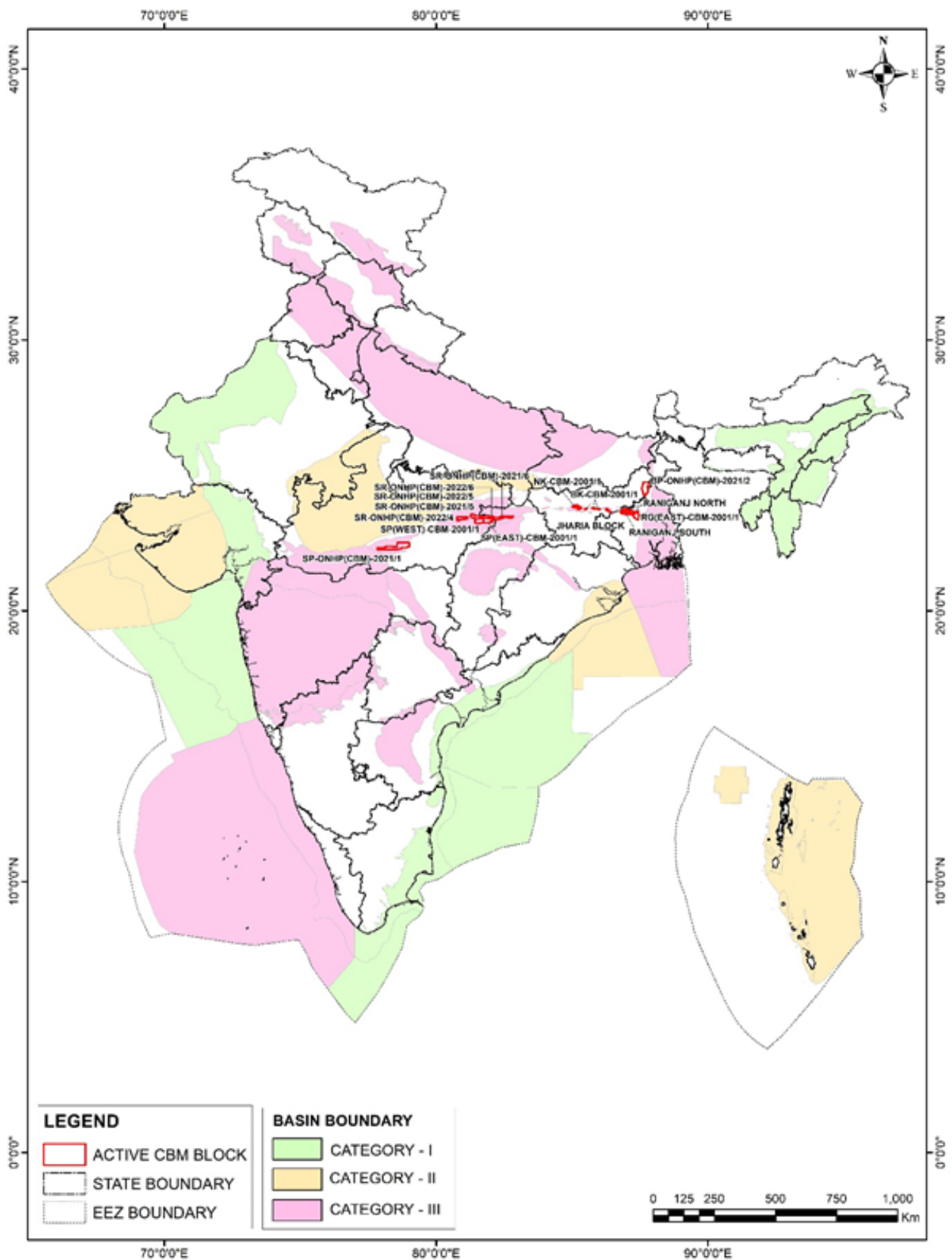
In total, 40 blocks have been awarded till date covering an area of 21177 sq km. However, at present, the active acreage for CBM exploration and production is 7,010 sq km and 15 CBM blocks are in operation. Of these, 7 are under exploration, 3 are under development and 5 are under production stage. The development of the other blocks has either been relinquished or is under the process of relinquishment.

## CBM PRODUCTION

Overall, the established CBM reserves of 10.4 TCF produce only around a little over 2 MMSCMD of fuel annually as of now. The first commercial production from the awarded CBM blocks commenced in 2007 from the Raniganj South block operated by Great Eastern Energy Corporation Limited (GEECL). Thereafter, three more CBM blocks, Raniganj (East), operated by Essar Oil & Gas Exploration & Production Limited (EOGEPL), Sohagpur (West) operated by Reliance Industries Limited (RIL) and Bokaro operated by Oil and Natural Gas Limited (ONGC) started its commercial production in 2016, 2017 and 2019 respectively. Additionally, incidental CBM gas is produced during the testing of CBM wells in the Jharia block operated by ONGC.



The geographical distribution of operational / active CBM blocks



**Note:** There are 26 sedimentary basins in India, covering a total area of 3.4 million square km. The area is spread across onland, shallow water up to 400 metre water depth and deepwater farther up to Exclusive Economic Zone (EEZ). Of the total sedimentary area, 49% of total area is located onland, 12% in shallow water and 39% in the deepwater area. There are 16 onland basins, 7 located both onland and offshore and 3 completely offshore. Tectonically, these basins are classified into 3 groups, based on origin from rifting (intra-cratonic and peri-cratonic), plate collision and crustal sag. These basins are divided into three categories based on maturity of hydrocarbon resources as under: 1) Category-I: Basins, which have reserves and already producing; 2) Category-II: Basins, which have contingent resources pending commercial production and; 3) Category-III Basins, which have prospective resources awaiting discovery.



**Company-wise production of CBM in India in 2023-24**

Sl. No.	Operator	Block Name	Gas (BCM)	O+OEG (MMT)
<b>COAL BED METHANE (CBM)</b>				
1	ESSAR	Raniganj East	0.3151	0.3151
2	GEECL	Raniganj South	0.0958	0.0958
3	ONGC	Bokaro	0.0039	0.0039
4		Jharia	0.0015	0.0015
5	RIL	Sohagpur East	0.0004	0.0004
6		Sohagpur West	0.2338	0.2338
<b>Total CBM</b>			<b>0.6505</b>	<b>0.6505</b>

work on a mutually agreeable framework and MoPNG was designated as the administrative ministry, while DGH was appointed as the nodal agency for CBM exploration and development in India.

In 2007, the CBM Phases & Extensions Policy was framed to provide a transparent and consistent

To date, most CBM exploration and production activities in India are pursued by domestic Indian companies including EOGPL, GEECL, ONGC and Reliance. Company-wise, EOGPL is the largest CBM producer in India, contributing almost 50% of the nation’s CBM output.

As part of its diversification plans to produce clean energy from coal, state-run Coal India has also recently started extracting CBM from its leasehold area under Bharat Coking Coal in Jharkhand. CIL and ONGC have entered an agreement for CBM development and operation in Jharia and Raniganj North CBM Blocks as a joint operation.

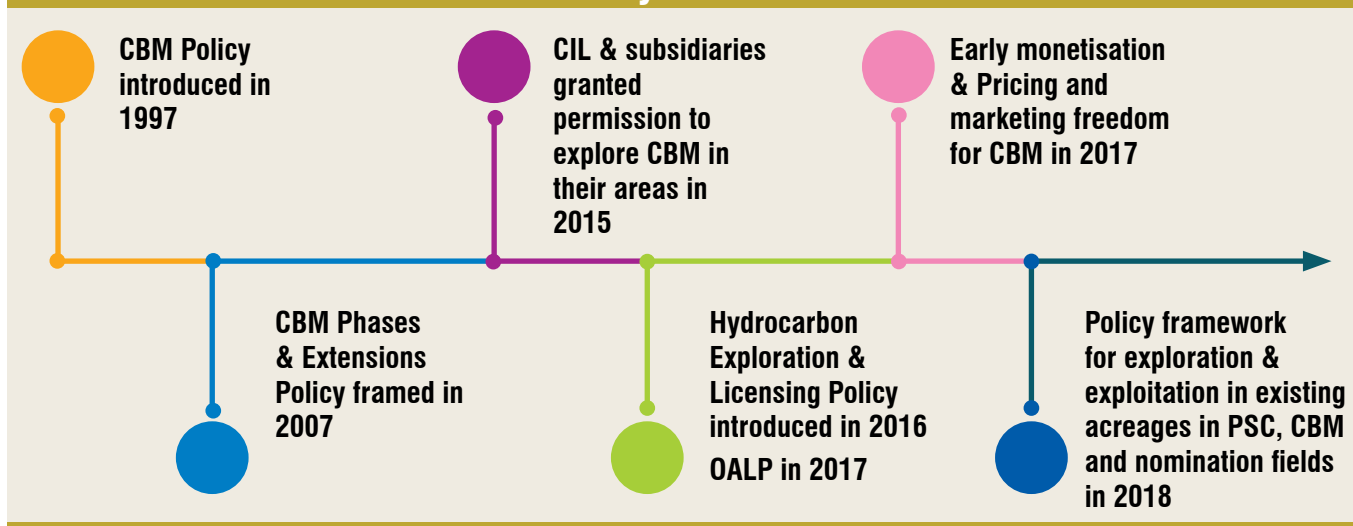
framework for granting extensions in exploration phases under CBM contracts. In 2015 (re-notified in 2018), the Government granted permission to Coal India Limited (CIL) and its subsidiaries to explore and produce CBM from its areas under Coal Mining Lease, thereby, dispensing the requirement of having an additional License from MoPNG. This was formulated to increase the area under CBM exploration and to accelerate CBM production from coal mining areas.

However, as the industry grew bigger it was felt that the CBM Policy 1997 was not able to achieve its objective of production of CBM to the promised potential and there was a need for a revised and new CBM policy to address issues such as (i) coordination between multiple agencies, (ii) simultaneous mining of coal and CBM, (iii) use of CBM from existing coal mines, and (iv) pricing of CBM. Since there were separate policies for oil and gas,

**GOVERNMENT’S POLICY PUSH**

The Government first formulated a CBM policy in 1997 in order to harness the CBM potential in the country, An MoU was signed between the Coal Ministry and MoPNG to

**Policy Timeline**



CBM and shale oil and gas, multiple policies caused inefficiencies in exploiting natural resources. For example, while exploring one type of hydrocarbon, if a different one was found, it needed separate licensing, adding to the cost.

And therefore, in 2016, a unified licensing policy ‘Hydrocarbon Exploration and Licensing Policy’ (HELP) was introduced wherein all types of hydrocarbon resources, both conventional and unconventional were allowed to be explored and exploited including gas from coal mining under a single license under MoPNG. HELP allowed explorers to select blocks of their choice under the Open Acreage Licensing Policy (OALP) introduced in 2017. In 2017, an additional policy framework for early monetisation of CBM was introduced to develop alternate sources of natural gas. This policy was formulated to provide marketing and pricing freedom for CBM and streamline the operational issues in the existing blocks incentivising new players entering the CBM industry. The CBM gas prices are now market-linked wherein the CBM producers invite price bids from potential CBM customers. MoPNG checks if these customers are not affiliated to the producer in any way so that the prices are fairly determined and once the Government approves the gas pricing formula of the producer, it can go ahead with the sale of the gas.

In 2018, the Government notified a policy framework for the exploration and exploitation of unconventional hydrocarbons in the existing acreages under existing Production Sharing Contracts (PSC), CBM contracts and nomination fields.

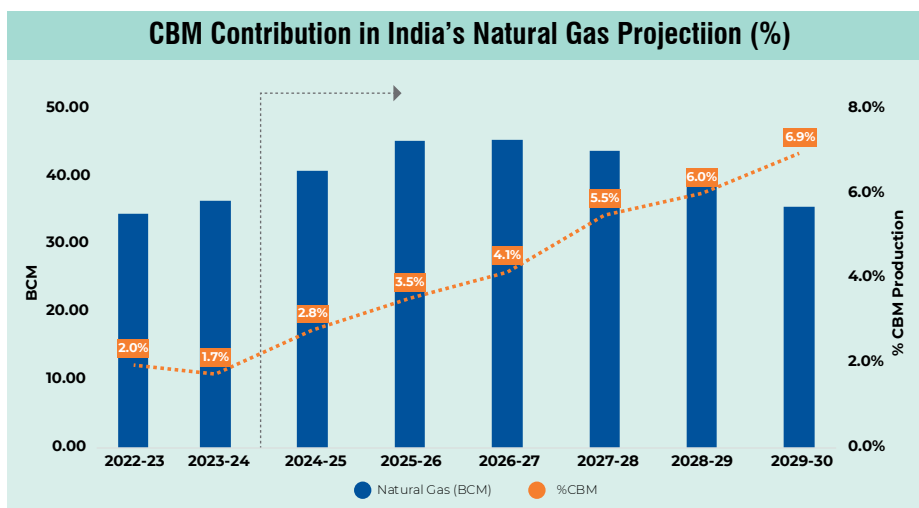
Though the Government has been proactively pushing CBM to achieve its objective of increasing natural gas share in energy, there could be lessons drawn from countries such as Australia, the US and China which have been successful in their attempts. Exploration and production of CBM need significant investments, and the imposition of royalty, production level payment rates, and revenue sharing mechanisms coupled with the risky nature of the business deter the inflow of capital in this area. Under such circumstances,

offering financial incentives such as subsidies, tax breaks, and production-linked royalty reductions to mitigate the risk and cut the cost of CBM development will surely go a long way in attracting investors to this business. The Government can also facilitate access to capital for CBM projects through loan guarantees and other financial instruments. Emulating what has been successfully implemented in China, collaborations among research institutions, universities, and CBM companies can lead to the development of innovative solutions to increase the efficiency of CBM production. Promoting the transfer of technologies or partnerships with other countries with established CBM industries, like Australia and China, will also fetch the desired result of strengthening India’s energy security.

For example, the Australian Government provides exploration and production grants for companies to explore CBM resources. The Chinese Government invests heavily in research and development for CBM technologies, particularly those aimed at improving methane capture and utilisation efficiency. In China, companies are exempted from prospecting and licensing fees on CBM development, and no royalties are levied on CBM. The value-added tax collected from coal mines recovering and utilising CBM and coal mine methane (CMM) is returned to the concerned companies. Also, no income tax is paid by enterprises developing technologies for CMM recovery and utilisation. Firms investing capital in CMM projects through loans or self-equity financing can claim 40% of the capital value to offset their income taxes in China. In 2016, the country also raised the national subsidy for each cubic meter of CMM used from 0.2 yuan to 0.3 yuan to avoid the insolvency of struggling CMM projects.

### **FUTURE OUTLOOK**

The growth of CBM in the coming years is likely to be further driven by the global transition towards cleaner energy, technological advancements in extraction, growing focus on unconventional gas resources, energy independence initiatives and



expansion of CBM infrastructure. The Government is working on exploration plans in pursuit of establishing CBM resources in unexplored coal-bearing areas. Additionally, GoI is looking into alternatives for CBM potential like analysis in abandoned or de-coaled mines, which are rendered unsuitable for coal mining.

CBM production share in domestic natural gas is envisaged to be up from 2% or around 2 MMSCMD to 7% (10

MMSCMD) by 2030 as per the CBM Vision 2030. Apart from the production from the existing 8 operational blocks, the 7 blocks under exploration could also add up production in coming years.

There are about \$4.5 billion of CBM investments planned, including ₹2,000 crore for R&D (IBEF, 2023) in the sector. This doesn't sound ambitious considering companies including Essar, GEECL and Reliance are embarking on multi-well expansion plans and have lined up expansive drilling campaigns, eyeing significant production boosts from their unconventional assets in the coming years. For example, EOGEPPL announced in 2024 that it will invest up to Rs 3,000 crore

in its flagship CBM block in Raniganj, West Bengal to raise gas production. It plans to increase the output to 4 to 5 MMSCMD by the financial year 2027 and raise its share in India's gas output from 1% to 5%. GEECL, the operator of the Raniganj (South) block in West Bengal, too has its eyes on a long-term expansion programme, targeting investments of Rs 6500-7000 crore over several years. The company will be targeting up to 650 additional wells in its West Bengal CBM asset over seven to eight years and on a long-term basis plans to go up to 5-8 MMSCMD of CBM production. The company has also initiated what it calls "an efficiency capex programme" for the current 156 wells that the

SI No	Block	CBM Production Projection (MMSCM)					
		24-25	25-26	26-27	27-28	28-29	29-30
1	SOHAGPUR WEST	384	397	337	300	275	256
2	RANIGANJ EAST	462	934	1303	1586	1727	1756
3	RANIGANJ SOUTH	133	191	264	270	285	290
4	Bokaro	64	105	132	316	313	297
5	JHARIA	7	63	121	118	116	114
6	SOHAGPUR EAST	0	0	4	65	146	226
7	NK-CBM-2001/1	15	27	157	197	196	195
8	Raniganj North	0	0	74	126	118	110
<b>Annual Production (MMSCM)</b>		<b>1,065</b>	<b>1,717</b>	<b>2,392</b>	<b>2,978</b>	<b>3,176</b>	<b>3,244</b>
Average Rate (MMSCMD)		2.9	4.7	6.6	8.2	8.7	8.9



company has drilled at Raniganj (South) in order to increase production. Reliance which is currently producing from its two Madhya Pradesh assets, also plans to invest more than Rs 1,000 crore to enhance production from its CBM blocks in Sohagpur. Facing a decline in CBM output, RIL aims to increase production to 1 MMSCMD within three years by drilling new wells.

**ISSUES AND CHALLENGES**

CBM extraction presents several challenges such as methane emissions and water management issues. Like natural gas, CBM production releases methane into the atmosphere, a potent greenhouse gas with a significant global warming effect, contributing to climate change and other safety issues. The extraction process poses safety risks, including the potential for methane explosions and other hazards associated with underground mining. The producers are trying various techniques and processes in order to minimise the methane leaks. For example, ONGC has collaborated with ISRO, India’s space research company to utilise its satellites for accurate and cost-effective methane leakage detection across its blocks. It is also using laser-based sensors to detect any methane leaks in real-time in its CBM blocks.

Another critical concern is water management involved during the extraction of coal bed methane. CBM extraction requires the removal of groundwater from coal seams to facilitate gas flow. Each CBM well produces 5,000-10,000 litres of water daily, often saline or contaminated with heavy metals. High salinity in Raniganj’s CBM water (4,000-6,000 TDS) risks soil degradation (MoEFCC, 2022).

The whole process can lead to various water management issues, including the risk of contaminating local water sources.

Companies have been opting for various methods to handle this challenge. For example, companies such as Essar and ONGC treat the water using reverse osmosis and then use for irrigation or supply to local industries etc. Through more innovative mechanisms such as zero liquid discharge, 100% of the water

produced in Adani’s Godda block (Jharkhand) is treated for reuse in coal washing.

Apart from this, the low extraction efficiency of methane also poses a limiting factor for its growth. In many coal seams, mainly those with low permeability, extracting a substantial volume of methane can be challenging, leading to the underutilisation of potential energy resources. Indian coal basins, particularly in Gondwana formations, have permeability rates of 1-5 millidarcies, far below the 10-100 millidarcies seen in the U.S. Powder River Basin (DGH, 2023). This limits recovery rates to 10-15% of gas-in-place, compared to 30-40% in Australia.

This inefficiency results in valuable energy being lost, ultimately leading to reduced economic viability of CBM projects and undermining their potential as a reliable alternative to conventional natural gas. Additionally, low extraction rates necessitate the drilling and maintenance of more wells to capture adequate methane, which drives up operational costs. The increased investment in infrastructure and technology needed to improve extraction efficiency can make CBM less competitive compared to other energy sources, further hindering the development of the CBM market.

By harnessing 92 TCF of CBM, with \$4.5 billion in investments and 10 MMSCMD production by 2030, India can offset 15 million tonnes of LNG imports and save \$8-10 billion annually, and empower rural communities through jobs and irrigation. However, challenges like land acquisition delays, water management, methane migration risks, and competition from renewables require agile policymaking. Also, incentivising producers to enter the sector could further drive the CBM growth in the country.

*Sources: MoPNG, NITI Aayog, TERI, ONGC, DGH, PPAC, PNRGB, IEA, NGS Research*



The author of this article is Deepika Lal. She has been the lead content writer for GSR since 2015. An economics graduate and an MBA (Finance), she has over 22 years of experience in research and analysis and content writing in the energy sector. She has produced several industry reports and research papers and has profiled many leading names in the oil and gas domain in her professional career.

## CBM Blocks Till Date

No.	Block	State	Present Area (SKM)	Contractor (PI%)	Contract signed on	Present Status
<b>CBM BLOCKS OFFERED ON NOMINATION/FIPB ROUTE</b>						
1	Raniganj (South)	West Bengal	210	GEECL (100)	31.05.2001	Production
2	Raniganj (North)	West Bengal	311.8	ONGC (74)-CIL (26)	06.02.2003	Development
3	Jharia	Jharkhand	67.1	ONGC (74)-CIL (26)	06.02.2003	Development/ Incidental production
<b>CBM ROUND-I</b>						
4	RG(East)-CBM-2001/I	West Bengal	500	EOGEPL (100)	26.07.2002	Production
5	SP(East)-CBM-2001/I	Madhya Pradesh	495	RIL (100)	26.07.2002	Development
6	SP(West)-CBM-2001/I	Madhya Pradesh	500	RIL (100)	26.07.2002	Production
7	BK-CBM-2001/I	Jharkhand	75	ONGC (80)-IOC (20)	26.07.2002	Production
8	NK-CBM-2001/I	Jharkhand	271.5	ONGC (55)-IOC (20)-PEPL (25)	26.07.2002	Development
<b>CBM ROUND-II</b>						
9	SH(N)-CBM-2003/II	Chhattisgarh	825	RIL (100)	06.02.2004	Relinquished
10	BS (1)-CBM-2003/II	Rajasthan	1,045	RIL (100)	06.02.2004	Under relinquishment
11	BS (2)-CBM-2003/II	Rajasthan	1,020	RIL (100)	06.02.2004	Under relinquishment
12	SK-CBM-2003/II	Jharkhand	70	ONGC (100)	06.02.2004	Under Relinquishment
13	NK(W)-CBM-2003/II	Jharkhand	267	ONGC (100)	06.02.2004	Relinquished
14	ST-CBM-2003/II	Madhya Pradesh	714	ONGC (100)	06.02.2004	Relinquished
15	WD-CBM-2003/II	Maharashtra	503	ONGC (100)	06.02.2004	Relinquished
16	BS (3)-CBM-2003/II	Gujrat	790	ONGC (70)-GSPC (30)	06.02.2004	Relinquished
<b>CBM ROUND-III</b>						
17	SP(N)-CBM-2005/III	Madhya Pradesh	609	R-Infra (55)-RNRL (45)	07.11.2006	Under Relinquishment
18	SR-CBM-2005/III	Madhya Pradesh	330	DIL (90)-Coal Gas (10)	07.11.2006	Under Relinquishment
19	RM-CBM-2005/III	Jharkhand	469	Dart Energy (35)-GAIL (35)-EIG (15)-TATA Power (15)	07.11.2006	Under Relinquishment
20	GV(N)-CBM-2005/III	Telangana	386	Coal Gas (10)-DIL (40)-Adinath (50)	07.11.2006	Relinquished
21	BB-CBM-2005/III	West Bengal	248	British Petroleum (100)	16.11.2006	Relinquished

22	MR-CBM-2005/III	Chhattisgarh	634	Dart Energy (35)- GAIL (35)-EIG (15)-TATA Power (15)	07.11.2006	Under relinquishment
23	TR-CBM-2005/III	Chhattisgarh	458	Dart Energy (35)- GAIL (35)-EIG (15)-TATA Power (15)	07.11.2006	Under relinquishment
24	BS (4)-CBM-2005/III	Rajasthan	1,168	REL (45)-RNRL (45)-Geopetrol (10)	07.11.2006	Under Relinquishment
25	BS (5)-CBM-2005/III	Rajasthan	739	REL (45)-RNRL (45)-Geopetrol (10)	07.11.2006	Under Relinquishment
26	KG (E)-CBM-2005/III	Andhra Pradesh	735	REL (45) – RNRL (45) – Geopetrol (10)	07.11.2006	Relinquished
<b>CBM ROUND-IV</b>						
27	AS-CBM-2008/IV	Assam	113	Dart Energy (10)- OIL (90)	29.07.2010	Under Relinquishment
28	MG-CBM-2008/IV	Tamil Nadu	667	GEECL (100)	29.07.2010	Under Arbitration
29	RM(E)-CBM-2008/ IV	Jharkhand	1,128	EOGEPL (100)	29.07.2010	Under Relinquishment
30	TL-CBM-2008/IV	Odisha	557	EOGEPL (100)	29.07.2010	Relinquished
31	IB-CBM-2008/IV	Odisha	209	EOGEPL (100)	29.07.2010	Relinquished
32	SP(NE)-CBM-2008/ IV	Madhya Pradesh & Chhattisgarh	339	EOGEPL (100)	29.07.2010	Under Relinquishment
33	ST-CBM-2008/IV	Madhya Pradesh	714	Dart Energy (80)- TATA Power (20)	29.07.2010	Relinquished
<b>SPECIAL CBM BID ROUND-2021</b>						
34	BP- ONHP(CBM)-2021/2	Jharkhand	991	ONGC	09.09.2022	PEL Awaited
35	SP- ONHP(CBM)-2021/1	Madhya Pradesh	1,771.5	Invenire Petrodyne	09.09.2022	PEL Granted
36	SR- ONHP(CBM)-2021/5	Madhya Pradesh	515	ONGC	09.09.2022	PEL Granted
37	SR- ONHP(CBM)-2021/6	Chhattisgarh	584	Vedanta	09.09.2022	PEL Granted
<b>SPECIAL CBM BID ROUND-2022</b>						
38	SR- ONHP(CBM)-2022/4	Madhya Pradesh	418	Transcontinental Natural Resources Ltd	03.01.2024	PEL Awaited
39	SR- ONHP(CBM)-2022/5	Madhya Pradesh	211	Transcontinental Natural Resources Ltd	03.01.2024	PEL Awaited
40	SR- ONHP(CBM)-2022/6	Chhattisgarh	88	Oillmax Energy Private Ltd.	03.01.2024	PEL Awaited

\*PEL- Petroleum Exploration License, granted by respective State Governments



## CBM CIIP, Reserves, Production and Development Wells

Sl. No.	Block Name	Put on Production	GIIP	GIIP	Rec. Reserves (BCM)	Rec. Reserves (TCF)	Cum. Production Up to FY 23-24	Cum. Production	Development Wells
			(BCM)	(TCF)			(MMSCM)	(BCF)	
1	RG(E)-CBM-2001/I	Jul-2016	106.84	3.77	22.12	0.78	2549.20	89.98	429
2	SP(W)-CBM-2001/I	Mar-2017	55.50	1.96	15.43	0.54	2035.50	71.85	327
3	BK-CBM-2001/I	Aug-2019	25.76	0.91	2.62	0.09	13.30	0.47	99
4	RANIGANJ (SOUTH)	Jul-2007	74.19	2.62	11.88	0.42	1749.80	61.76	156
5	SP(E)-CBM-2001/I	-	47.86	1.69	10.11	0.36	8.20	0.29	37
6	JHARIA*	Jan-2012	11.95	0.42	0.76	0.03	37.50	1.32	27
7	RANIGANJ (NORTH)	-	4.88	0.17		0.00	-	-	0
8	NK-CBM-2001/I	-	15.69	0.55	0.79	0.03	-	-	62
<b>Total</b>			<b>342.66</b>	<b>12.10</b>	<b>63.70</b>	<b>2.25</b>	<b>6393.50</b>	<b>225.68</b>	<b>1137</b>

## Year-on-year CBM Production

Sl. No.	Block Name	Production (MMSCM)														
		Till FY 2010	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24
1	SP(W)-CBM-2001/I	0	0	1.1	1.2	1.1	1.5	1.4	6.4	199.8	356.7	344.9	333.7	290.1	263.9	233.8
2	RG(E)-CBM-2001/I	0	0	9.1	12.8	35.4	91.3	236.5	385.5	328.4	197.7	166.9	197.1	277	296.3	315.1
3	RANIGANJ SOUTH	58.2	41.4	70	88	121.1	132.4	152.9	169.6	202.6	152.6	138.9	109.9	112.3	104.0	95.8
4	BK-CBM-2001/I	0	0	0	0	0	0	0	0	0	0	0.2	0.6	1.6	7.0	3.9
5	JHARIA	0	0	3.6	2.9	3.4	2.5	2	3.1	4	3.6	4.4	1.1	2.4	3.1	1.5
6	SP(E)-CBM-2001/I	0	0	0.4	2.2	4.5	0.6	0	0.1	0	0	0	0	0	0.0	0.4
7	NK-CBM-2001/I	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
8	Raniganj North	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0
<b>Yearly total</b>		<b>58.2</b>	<b>41.4</b>	<b>84.2</b>	<b>107.2</b>	<b>165.5</b>	<b>228.2</b>	<b>392.9</b>	<b>564.6</b>	<b>734.8</b>	<b>710.5</b>	<b>655.4</b>	<b>642.4</b>	<b>683.4</b>	<b>674.4</b>	<b>650.4</b>
Cumulative		58.2	99.6	183.8	291	456.5	684.7	1077.6	1642.2	2377	3087.5	3742.9	4385.3	5068.7	5743.1	6393.5



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## CITY GAS DISTRIBUTION



**Brihanmumbai Municipal Corporation signed an MoU with Mahanagar Gas Limited (MGL) for setting up a bio-CNG plant at Deonar dumping ground.** The plant will be run by using 1,000 tonnes of wet waste supplied by the civic body. **Meanwhile the corporation has issued a directive to roadside vendors, restaurants and eateries under its jurisdiction to shift to cleaner fuels - CNG or piped natural gas- or prepare for strict action.**

**Confidence Petroleum India Limited (CPIL) in collaboration with GAIL, announced the setting up of five CNG stations in Bangalore.**

**Indraprastha Gas Limited (IGL) signed agreement with Yamuna International Airport Private Limited (YIAPL) for development of CGD infrastructure at the upcoming Noida (Jewar) airport in Uttar Pradesh.**

**MoPNG ordered a cut in gas supplied to GAIL and ONGC diverting those volumes to city gas entities.** Out of a total 2.55 mmcmd gas, 1.27 mmcmd (0.637 mmcmd



each for GAIL and ONGC) was ordered to be diverted for consumption in the CNG/piped cooking gas segment in January-March quarter. GAIL and ONGC will have to use either higher-priced gas produced from new fields or rely on imported LNG to replace the lost volumes. The Ministry also ordered pro-rata allocation of gas from new wells and earmarked ONGC's Ramnad field for the city gas sector, which will make available about 1.7-2 mmcmd of gas to city gas retailers, according to the order.

## NATURAL GAS/ PIPELINES/ COMPANY NEWS

**AG&P Pratham and THINK Gas, group entities with two prominent brands in the CGD sector, will now operate under a single brand - THINK Gas, to leverage operational efficiencies and expand market reach. The reshaped entity will operate across 10% of India's mass, covering 50 districts across 10 states, and serve a population of more than 180 million.**

**GAIL plans to exit its shale gas investment in the United States, following Reliance Industries Ltd and Oil India Ltd in divesting shale assets.** The company invited bids to sell its 20% stake in the Eagle Ford Shale Assets in Texas, with a submission deadline of February 14.

**GAIL signed a MoU with Accelera by Cummins, the zero-emissions division of Cummins Inc., to collaborate on clean energy**

**initiatives and green technology in India.** The partnership will leverage Accelera's expertise in new energy solutions and GAIL's extensive natural gas infrastructure to explore opportunities in hydrogen production, blending, transportation, and storage, supporting India's energy transition goals.



**HPCL-Mittal Energy (HMEL) and Indraprastha Gas (IGL) entered into a strategic agreement to collaborate on meeting the CNG requirements for HMEL's upcoming retail outlets.** Under this agreement, IGL will supply CNG to select HMEL outlets in regions where IGL operates

its distribution network.

**IGX signed a MoU with Central European Gas Hub AG (CEGH), a gas hub operator in Central and Eastern Europe (CEE), to explore collaborative opportunities in trading of natural and renewable gases.** Renewable gases include green hydrogen, biomethane and e-methane that can be used in place of fossil fuels. The partnership aims to strengthen India's gas market by leveraging CEGH's European market expertise and IGX's deep expertise in the Indian gas market. Key focus areas of the MoU include trading of natural gas and renewable gases like hydrogen, biomethane, and e-methane, commodity-related certificates, market development, training programs and gas-hub operations.

**Mahindra Company introduced its Light Commercial Vehicle (LCV) – the Veero CNG – with a starting**





price of Rs 8.99 lakhs, ex-showroom. The Veero CNG was launched in India with two variants.

## The Tamil Nadu State Coastal Zone Management Authority

(TNSCZMA) has granted conditional approval for the Rs 5,000-crore project of Torrent Gas to expand the natural gas network in Chennai. The project has been recommended further for Coastal Regulation Zone (CRZ) clearance from the Union Ministry of Environment, Forest and Climate Change. As part of the project, Torrent Gas will lay three natural gas pipelines spanning a total of 466 km, with 260 km falling under the CRZ. The



pipelines will connect Vettuvankeni to Nettukuppam, passing through key localities such as Neelankarai, Kottivakkam, Thiruvanmiyur, Adyar, Chepauk, Parry's Corner, Royapuram, Tondiarpet, Tiruvottiyur and Ennore.

## POLICY MATTERS/ GAS PRICING/ OTHERS



**Bharat Petroleum Corporation (BPCL) informed that its Board has given in-principle approval for the initial public offering (IPO) of Maharashtra Natural Gas (MNGL), a joint venture of BPCL, GAIL and IGL. The company is preparing to list through an IPO of over Rs 1000 crore, subject to regulatory and other approvals.**

**The Centre's wildlife panel has approved Cairn Oil & Gas's proposal for exploratory drilling in the eco-sensitive zone of Assam's Hoollongapar Gibbon Wildlife Sanctuary. Officials have ensured minimal damage during exploration and restricted commercial drilling.**

**ONGC signed a contract with BP, under which BP will serve as the Technical Services Provider (TSP) for Mumbai High, India's largest and**

most prolific offshore oil field. ONGC will retain ownership and operational control of the field, while BP will provide technical expertise to stabilize the current production decline and restore the field to a growth trajectory.

**MoPNG stated in a latest update that gas-based plants in the country are operating at very low Plant Load Factor (PLF) and to enhance the availability of natural gas for power generation, Government has placed LNG under the Open General License (OGL) category, thereby allowing power plants to import LNG as per their requirements on mutually agreed commercial terms with suppliers. The gas imported by power plants during 2024-25 (Apr-Jan), was about 9.58 MMSCMD.**

**To encourage the use of eco-friendly fuel, the Karnataka Government permitted CNG providers in urban areas to lay pipelines at a nominal fee of Re. 1 per meter. This decision was not taken from a commercial perspective but in alignment with the Central Government's policy.**

## LNG USE / LNG DEVELOPMENT AND SHIPPING



**Abu Dhabi National Oil Company (ADNOC) will supply 2.5 million tons of LNG to BPCL, under a new five year deal. Indian's State refiner will receive 40 cargos of LNG under the 5-year contract with supplies beginning from April 2025.**

**Blue Energy Motors secured a new order from state-owned multimodal logistics firm Container Corporation of India (Concor) for 50 LNG-powered trucks.**

**Crown LNG signed a MoU with Indian Gas Exchange (IGX) to set up a LNG terminal at the Kakinada Deepsea Port in Kakinada in Andhra Pradesh. The LNG terminal will be set up at an estimated cost of ₹9,000 crore.**

**GreenLine Mobility Solutions Ltd, a part of Essar's Green Mobility initiative, has partnered with Mondelez International (India) to**

**introduce LNG-powered trucks for transporting products across India to support latter's sustainability goals and reduce its carbon footprint.**



**GAIL issued a swap tender offering 12 LNG cargoes for loading one in each month of the year, from Sabine Pass on a free-on-board (FOB) basis in the United States in exchange for 12 cargoes to be delivered to the Dhamra terminal on a delivered ex-ship (DES) basis in the same timeframe in India in 2026. The swap tender closed on Feb. 19.**

**Indian Oil Corporation (IOC) and Bharat Petroleum Corporation Limited (BPCL) signed multibillion**

**dollar pacts with a United Arab Emirates' (UAE's) state-owned oil company Abu Dhabi National Oil Co. (ADNOC) to import LNG over the next few years as the country gears up to meet the rising natural gas demand. Valued at \$7-9 billion, this deal will ensure IOC receives 1.2 million tonnes per year of LNG from the UAE firm beginning 2026. BPCL's term LNG offtake agreement with ADNOC covers procurement of 2.4 million tonnes of LNG over a period of 5 years, starting April 2025.**



**The 5 MMTPA LNG import terminal in Chhara, Gujarat, owned by State-owned HPCL, received its first cargo of the super-chilled fuel in January 2025 and was commissioned.**

The LNG carrier Maran Gas Coronis docked at the facility on January 6, unloading the commissioning cargo into onshore tanks by January 12. Developed by its subsidiary HPLNG at an investment of approximately ₹4,750 crore, the terminal features facilities for marine unloading, storage, regasification, road tanker loading, and integration with the national gas grid.

**Ship management services provider Anglo-Eastern has established a new LNG/ammonia bunkering station skid to provide hands-on training in safe and efficient fueling of LNG- and ammonia-powered vessels. The skid was set up at Anglo-Eastern Maritime Academy (AEMA) in Mumbai, India, and inaugurated on February 20, 2025, to offer real-world experience to industry professionals working with these fuel types.**

## ELECTRIC MOBILITY/ HYDROGEN/ BIO- METHANE

**Suzuki Motor Corporation has decided to acquire 26 per cent stake in NDDB Mirda Ltd, a bio-gas venture of National Dairy Development Board (NDDB), as part of its plans to use Compressed Bio-Gas (CBG) for longevity and performance of vehicles.**

**Singapore-based energy and urban development company Sembcorp through its subsidiary Sembcorp Green Hydrogen India**



**will build a facility in Odisha with a 720,000 metric tonne capacity.**

**NTPC and the Indian Army have signed a Power Purchase Agreement (PPA) for the sale of 200 kW Renewable Energy Round-the-Clock (RE-RTC) power from a solar-hydrogen based microgrid at Chushul, Ladakh, for a period of 25 years. The solar-hydrogen based microgrid aims to replace the Army's existing diesel generator sets, eliminating fossil fuel logistics and reducing carbon dioxide emissions by 1,500 tons per year.**

**Himachal Pradesh Chief Minister Sukhvinder Singh Sukhu laid the**



**foundation stone for a 1 megawatt (MW) green hydrogen plant at Dabhota in Nalagarh Tehsil of Solan district. The pioneering project, being developed by Himachal Pradesh Power Corporation Limited (HPPCL) in collaboration with Oil India Limited, is set to be established at a cost of Rs 9.04 crore and will be north India's first such project.**



**Indian Railways has taken up a state-of-the-art project to develop the country's first hydrogen train, which is slated to be among the longest and the maximum powered hydrogen trains in the world.**

**GAIL and Accelera by Cummins have signed a MoU to collaborate on hydrogen and energy transition technologies in India.** The agreement aims to explore opportunities in hydrogen production, blending, transportation, and storage, leveraging GAIL's natural gas infrastructure and Accelera's expertise in clean energy solutions.



**Advait Energy Transitions Limited (AETL), formerly known as Advait Infratech Limited, has signed an off-taker MoU with Haryana City Gas Distribution (Bhiwadi) Limited to establish a 2000 MTPA Green Hydrogen Plant.** The agreement marks a significant step in expanding green hydrogen applications and strengthening clean energy infrastructure.

**NTPC Green Energy Limited (NGEL) and Bharat Light and Power Private Limited (BLP) signed a MoU on February 19, 2025, to accelerate green energy initiatives and support India's carbon-neutral goals.** The agreement aims to jointly explore the off-take of green hydrogen and its derivatives from NGEL and its affiliates to third parties.

**The Government has launched five pilot projects to deploy hydrogen-based vehicles for trial as part of the National Green Hydrogen Mission.** As many as 37 hydrogen-fuelled



vehicles, including buses and trucks, will be deployed for trial run under the pilot projects across the country. These vehicles will run on 10 different routes across the country. The above projects are awarded to major companies like TATA Motors Ltd, Reliance Industries Limited, NTPC, ANERT, Ashok Leyland, HPCL, BPCL, and IOCL.



**Andhra Pradesh Chief Minister N Chandrababu Naidu virtually inaugurated Hero Future Energies' (HFE) Rs 1,000-crore green hydrogen plant at Rockman Industries in Tirupati.** The HFE plant blends green hydrogen with PNG and LNG for industrial heating.

**The first-ever trials of hydrogen-powered heavy-duty trucks launched by Tata Motors were flagged off to assess their viability for long haul transportation solutions.** Tata



Motors was awarded the tender for this trial, which is funded by the Ministry of New and Renewable Energy under the National Green Hydrogen Mission. The trial phase will continue for up to 24 months and involves deployment of 16 advanced hydrogen-powered vehicles with different configurations and payload capacities. These trucks, equipped with new age Hydrogen Internal Combustion Engines (H2-ICE) and Fuel Cell (H2-FCEV) technologies, will be tested on India's most prominent freight routes, including those around Mumbai, Pune, Delhi-NCR, Surat, Vadodara, Jamshedpur and Kalinganagar. The first batch of three hydrogen-powered heavy-duty trucks will operate on the Faridabad-Delhi NCR and Ahmedabad-Surat-Vadodara routes.

**In the first such find that can significantly contribute to the country's renewable energy landscape, the Geological Survey of India (GSI) has discovered natural hydrogen reserves in the rocks of Andaman and Nicobar Islands.**



**Mumbai-based CleanMax Enviro Energy Solutions and Japan's Osaka Gas have formed a joint venture, Clean Max Osaka Gas Renewable Energy (CORE), to develop 400 MW of renewable energy projects.** The first phase will begin with around 300 MW in Karnataka, offering long-term corporate Power Purchase Agreements (PPAs) for clean energy supply.



## NATURAL GAS / TRANSNATIONAL PIPELINES/ OTHERS



**Mauritania and Senegal:** BP has begun flowing gas from wells at the GTA Phase 1 LNG project to its floating production storage and offloading (FPSO) vessel for the next stage of commissioning. GTA, offshore Mauritania and Senegal, is one of the deepest offshore developments in Africa, with gas resources in water depths of up to 2850 m. Once

fully commissioned, GTA Phase 1 is expected to produce around 2.3 million tpy of LNG.

**Afghanistan:** Nearly three km of the Turkmenistan-Afghanistan-Pakistan-India (TAPI) gas pipeline have been laid in Afghanistan. The TAPI project is currently being implemented according to plan; construction of the pipeline began along the Serhetabad-Herat route in Afghanistan in September 2024.

**Nigeria:** Three West-African countries: Algeria, Nigeria, and Niger signed agreements aimed at



accelerating the development of the Trans-Saharan Gas Pipeline (TSGP) project. The agreements include a contract to update the project's feasibility study, a compensation agreement, and a non-disclosure agreement among the energy companies of the three nations.

**Iran:** Iran launched a pilot project to extract, purify helium from natural gas for the first time.

## NATURAL GAS / LNG UTILIZATION / BIO-LNG



**Nigeria:** Nipco Gas Limited announced the conversion of 15,000 vehicles to run on CNG, adding that the firm has also received Gas Distribution Licences from the Federal Government.

**US:** NRG Energy Inc. entered into a definitive agreement to acquire six power generation facilities from Texas-based Rockland

Capital, LLC, adding 738 MW of modern, flexible natural gas-fired capacity to its portfolio.

**Vietnam:** PetroVietnam Power (PV

Power), a subsidiary of state-owned PetroVietnam, has started initial operation of the first of two 812-MW LNG-fired units at its Nhon Trach power plant, located in Dong Nai province, near Ho Chi Minh City in southern Vietnam. The project is part of the first power plant in Vietnam to be built specifically to be powered by LNG.

## GLOBAL LNG DEVELOPMENT

**Bangladesh:** Bangladesh has entered into a significant non-binding agreement with US-based Argent LNG to secure an annual supply of up to 5 million tonnes of LNG.

**Bermuda:** Golar LNG Ltd announced that on 18 January 2025, FLNG Gimi received feed gas from the BP-operated FPSO on GTA project offshore Mauritania and Senegal. Full commissioning of the FLNG has now commenced.

**Ireland:** The Irish Government has approved a plan to develop an emergency gas facility, a floating LNG terminal, for beefing up energy security. The facility will be used to import, store and regasify fuel for use in the grid.

**Japan:** Tokyo Gas Co. Ltd. has acquired a 20 percent stake in FGEN LNG Corp., which owns one of two operational LNG receiving terminals

in the Philippines. The FGEN LNG facility in Batangas province, south of Manila, marks Tokyo Gas' first investment in a commercially operational overseas LNG terminal project.



**Japan: Adnoc (Abu Dhabi) has signed a 15-year sales and purchase agreement to supply Japan's Osaka Gas with LNG** from its Ruwais project. The deal to supply up to 0.8 MTPA is the fourth sales agreement signed for the Ruwais LNG project.

**Nigeria: State-owned Nigerian National Petroleum Company (NNPC) has begun construction of five mini-LNG plants** as part of Government efforts to drive economic growth and boost gas usage. Nigeria, Africa's top energy producer, holds the continent's largest gas reserves of more than 200 trillion cubic feet and seeks to develop the commodity to boost supplies to industries, power plants and for exports, and to end routine flaring by 2030.

**Philippines: Three major companies - Manila Electric Co.'s Meralco PowerGen Corp. (MGen), San Miguel Corp.'s San Miguel Global Power Holdings Corp. (SMGP), and AboitizPower's Therma NatGas Power Inc. (TNGP) - in the Philippines have announced the completion of their \$3.3b partnership to build an integrated LNG facility.**

**Philippines: Vitol Asia Pte Ltd. has signed a 10-year LNG supply agreement with LNGPH, a**

consortium of South Premiere Power Corporation (SPPC) and Excellent Energy Resources, Inc. (EERI). Starting in 2025, Vitol will supply up to 0.8 MMTPA of LNG, sourced from its global portfolio, to the LNGPH Terminal in Batangas, Philippines.

**Philippines: First Gen Corp. subsidiary FGen LNG Corp. received from the Department of Energy (DOE) the permit to operate and maintain (POM) its interim offshore LNG terminal in Batan gas.**

**UAE: Abu Dhabi National Oil Company (Adnoc) has finalised a third Sales and Purchase Agreement (SPA) for its lower-carbon Ruwais LNG project, partnering with Germany's EnBW Energie Baden-Württemberg AG (EnBW), a leading energy infrastructure operator in Europe. Under the 15-year agreement, Adnoc will supply 0.6 MTPA of LNG to EnBW.**

**UAE: Adnoc (UAE) has signed an LNG supply agreement with Japan's JERA Global Markets.** The cost of the three-year contract is \$450 million. LNG will be supplied from the ADNOC Gas plant on Das Island, which has a production capacity of 6 million tons per year.

**Ukraine: Ukraine's largest State-owned energy company, Naftogaz, and Poland's petroleum refineries company, Orlen, have signed a contract for the supply of approximately 100 million cubic meters (MCM) of LNG. As Russia continues targeting Ukraine's energy grid — specifically its gas infrastructure - domestic gas production has declined due to Russian strikes, forcing Ukraine to increase imports.**

**US: US DOE has granted export**



**permit extension to the Delfin LNG project, which is currently developing an up to 13.3 Mt/year floating LNG project off the coast of the US State of Louisiana. Delfin LNG had been seeking a five-year extension to its non-free trade area export (non-FTA) permit to allow it to export LNG to countries that do not have free trade agreements with the US.**

**US: Cheniere produced first LNG at its Corpus Christi Stage 3 Project.** Train 1, with a production capacity of 1.5 MTPA, is in the commissioning phase. Once operational, the expansion project has an expected total production capacity of approximately 10+ MTPA of LNG.

**US: Federal regulators gave Venture Global LNG permission to introduce natural gas into the seventh block of its Plaquemines plant** in Louisiana as the company continues to ramp up production of the superchilled gas. The Arlington, Virginia-based company is the second-largest US LNG exporter and has been quickly increasing production from its second LNG plant, Plaquemines.



**US: Argent LNG has selected Baker Hughes as the liquefaction solution and related services provider for its proposed LNG export facility in Port Fourchon, Louisiana.**

## LNG AS A MARINE FUEL/SHIPPING



**Bermuda: Golar LNG completes its exit from LNG shipping to focus on FLNG sector by executing agreements for the company's final LNG carrier, Golar Arctic making the end of its operations in the segment.** Despite strong demand in the LNG carrier segment, the company believes there are stronger opportunities in the floating LNG as it redirects all of its focus to that segment.

**China: Hanwha Ocean signed a letter of intent for the construction of LNG dual-fuel container ships with the German shipping company Hapag-Lloyd.**



**Germany: German shipping giant Hapag-Lloyd has revealed long-term financing totaling \$4 billion for the 24 LNG dual-fuel boxships that the company booked in October 2024 at two Chinese shipyards.**

**Japan: Mitsui O.S.K. Lines announced the signing of a long-term charter contract for a newbuilding LNG carrier with a vessel operation management company funded by JERA Co. (JERA). This is the eighth**

contract for LNG carrier signed with JERA. The vessel will be built at the Goje Shipyard of Samsung Heavy Industries Co. and is scheduled for delivery in 2026.



**Oman: Oman LNG announced the successful loading of its first LNG cargo to Shell under its new long-term agreements, marking a significant milestone in the company's strategy to expand its global market reach.**

**Singapore: Singapore-headquartered bio-LNG supplier Straits Bio-LNG has joined SEA-LNG, a multi-sector industry coalition promoting LNG as a marine fuel.**

**Spain: United European Car Carriers (UECC) performed the first-ever ship bunkering operation in Spain with a truck-borne shipment of liquefied biomethane (LBM), also known as bio-LNG, to widen access to supplies of the sustainable fuel. In the milestone event at the Port of Vigo, LBM supplied by green energy**



developer Naturgy from a biomethane production plant in the surrounding Galicia province was pumped directly from a tanker truck into the tanks of UECC's multi-fuel LNG battery hybrid Pure Car and Truck Carrier, Auto Advance. This is an important step as it was the first time LBM was delivered by truck to ship in the whole of Spain.

**UK: Portsmouth International Port announced the first bunkering transfer of LNG at the port. The Saint-Malo, the first of two new electric-hybrid ships from Brittany Ferries, took on LNG fuel from the Optimus, a bunkering barge operated by Titan Clean Fuels.**

**US: The Department of Energy announced an order that removes barriers for the use of LNG as marine fuel to power vessels or LNG bunkering. The modified order clarifies that DOE is withdrawing the exercise of its jurisdiction under the Natural Gas Act (NGA) for ship-to-ship transfers of LNG for marine fuel use at a US port, in US waters, or in international waters. The only bunkering-related activity that will continue to be considered an export is when there are ship-to-ship transfers of US LNG when the receiving ship is located in the territorial sea of a foreign country, including foreign ports.**

**US: Seaboard Marine announced the arrival of the Seaboard Victory, the second vessel in its cutting-edge LNG-powered V-Class fleet.**



## TECHNOLOGICAL DEVELOPMENT FOR CLEANER AND GREENER ENVIRONMENT HYDROGEN & BIO-METHANE

**China:** In a significant move towards sustainable shipping, Hapag-Lloyd announced a long-term offtake agreement with Goldwind, a prominent player in the clean energy sector based in Beijing, China. The agreement will see the delivery of 250,000 tonnes of green methanol annually, which will comprise a blend of bio- and e-methanol, reducing greenhouse gas (GHG) emissions.

**Czech:** ABB and Škoda Group announced a groundbreaking partnership to power the next generation

of Czech railways with battery-electric multiple units (BEMUs). The collaboration significantly advances railway electrification, with ABB supplying its state-of-the-art Traction Battery Pro Series for Škoda's newly developed fleet of BEMUs, commissioned by the Czech national railway operator, České dráhy.

**EU:** To help decarbonize the industry of the EU, the European Commission will allocate over €250 million in grants from the Connecting Europe Facility (CEF) to 21 hydrogen

infrastructure development studies.

**UK:** The BT Group announced a landmark order for approximately 3,500 EVs, marking the UK's largest-ever commercial EV fleet purchase.

**Spain:** BP and Iberdrola began construction on Spain's largest green hydrogen plant. The work, which begins with the adaptation of a plot of land close to the BP refinery in Castellón, will continue with the civil works and the subsequent arrival and assembly of the main equipment, including the electrolyzers.



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Smart Diaphragm

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RPD

Turbine

Ultrasonic

Ultrasonic-Mini

#### EVC, Data Logger and Microturbine



EVC

Data Logger

Microturbine

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# RECENT NGS ACTIVITIES



*Online Ceremonial signing of MoU between Natural Gas Society (NGS), India and Institution of Gas Engineers and Managers (IGEM), UK*



*NGS was an Association Partner for IEW2025. A stall was set up by NGS in the exhibition which attracted hundreds of visitors from Oil and Natural Gas Companies, Shri D V Shastry— our Executive Director was a Member of the IEW Technical Committee. He Chaired two sessions during the Technical Conference.*





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गेल (इंडिया) लिमिटेड



# भारत की अग्रणी प्राकृतिक गैस कंपनी एनर्जाइजिंग पॉसिबिलिटीज

देश में बेची जाने वाली प्राकृतिक गैस में 53% का योगदान

भारत में कुल प्राकृतिक गैस संचरण पाइपलाइनों के 3/4 भाग का संचालन



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