

Brochure - PIL Annual Gas Forum 2026

**Pathways to increase share of gas to 15% in
the Indian Energy Mix**

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Introduction

As India strives to meet its growing energy needs while advancing toward its decarbonization goals, the role of natural gas has never been more critical. The PIL Annual Gas Forum 2026 centers on the theme “**Pathways to Increase the Share of Gas to 15%¹ in the Indian Energy Mix**”, reflecting the nation’s ambition to position gas as a key pillar of its cleaner, more resilient energy future.

Building on years of policy focus, infrastructure expansion, and market evolution, India’s gas sector now stands at a defining juncture. Achieving the 15% target will require more than incremental growth. It will call for coordinated action across supply, infrastructure, pricing, and demand creation. This year’s forum brings together senior leaders from government, industry, and finance to deliberate on practical pathways that can unlock this potential.

From addressing affordability and access to fostering innovation and investment, discussions will explore how India can develop a robust gas ecosystem that supports industrial competitiveness, urban growth, and a balanced energy transition. The forum continues to serve as a trusted platform for dialogue, insight, and collaboration, charting the road ahead for India’s gas-based economy.

Key takeaways PIL Annual Gas Forum 2025

Insights from the 2025 forum highlight opportunities and challenges that remain central to India’s gas transition.

#	Insight	Description
1	Reframe gas policy to reflect full value	Shift gas policymaking to factor in air-quality gains, system flexibility, and coal’s external costs, supported by incentives and a merit order that reflects gas’s true value.
2	Accelerate infrastructure and storage build-out	Expand and modernize pipelines, regasification, and commercial storage beyond current capacity to ensure reliability and integration with renewables.
3	Drive sector-wide gas penetration	Use consumption incentives, cleaner-fuel mandates, PNG expansion, CNG promotion, and LNG trucking corridors to boost adoption across residential, transport, and industrial sectors.
4	Implement pricing reforms for affordability	Bring natural gas under GST and ensure transparent, competitive pricing with full marketing freedom to reduce costs and stabilize usage charges.
5	Tighten emissions norms and methane control	Adopt emission benchmarking, scale carbon capture with gas applications, and enforce strict methane detection and mitigation
6	Position gas as a strategic bridge fuel	Develop a National Energy Roadmap clarifying gas’s transitional role and promote it as a cleaner, flexible option in domestic and global forums.
7	Expand CGD networks rapidly	Streamline approvals and invest to triple CGD volumes by 2040 while incentivizing CNG uptake in major urban markets.
8	Improve market liquidity and pricing	Enable trading of domestic and contracted gas on exchanges and establish a virtual hub free from state taxes to enhance transparent price discovery.
9	Strengthen supply chain resilience	Encourage diversified procurement, reliable sourcing, and stability in APM gas allocation to protect affordability, especially for CNG.
10	Foster cross-sector partnerships	Promote industry collaboration and public-private partnerships to accelerate innovation, infrastructure build-out, and decarbonization solutions.

¹ Press Release: [Press Information Bureau](#)

Together, these insights from the 2025 forum underscore both the urgency and the opportunity before India as it seeks to elevate the role of natural gas in its energy mix. They outline the key structural, policy, and market shifts required to unlock gas's full potential and clarify the areas where focused action will be essential in the years ahead. Building on this shared understanding, the sessions for the 2026 forum will explore the macro trends, policy pathways, demand-side strategies, and infrastructure imperatives that can help India move from intent to implementation and chart a credible path toward achieving the 15% gas target.

Session Overview

Session #1: Macro Trends and Outlook for Indian Gas sector to 2050

This session will explore how the global energy system is evolving, with shifting geopolitics, new technologies, and changing policy priorities reshaping how countries produce and consume energy. In this evolving landscape, natural gas continues to play a critical, though changing, role as a bridge between today's fossil fuel-based systems and a cleaner energy future. This session will unpack key global trends using S&P Global's long-term energy scenarios to understand how different transition pathways could influence gas demand, trade, and investment across regions. It will also explore what these global shifts mean for India, where gas remains essential to balancing economic growth, energy security, and decarbonization goals. As India expands its infrastructure and adapts to a more volatile global market, the discussion will highlight what lies ahead for the country's gas sector and how it can stay resilient through the transition.

Session #2: Pathways to Creating Affordable & Sustainable Gas Demand

India's journey toward net-zero emissions by 2070 will depend not only on how rapidly renewables expand but also on how effectively cleaner fuels like natural gas can scale in an affordable and sustainable way. This session will explore how India can make gas both a competitive and climate-aligned choice, strengthening its role in reducing urban pollution, complementing renewables, and supporting low-carbon hydrogen production. The discussion will delve into strategies to improve affordability through domestic production growth, pricing and taxation reform, and innovative contracting structures. It will also highlight emerging demand opportunities in industrial clusters, MSMEs, transport, and city gas networks, alongside the integration of biogas, hydrogen, and CCUS to enhance sustainability. By bringing together policymakers, industry leaders, and financiers, the panel will focus on how coordinated policy, market design, and investment action can turn intent into implementation, building a resilient and sustainable gas market for India's energy transition.

Session #3: Special Roundtable on Women in Energy Sector

The energy sector in India, spanning oil, gas, power, and renewables, remains one of the least gender-diverse industries, with women representing less than 10% of the workforce. Yet, as the energy transition gathers pace, it presents a unique opportunity to reshape this narrative. This roundtable will explore how greater gender inclusion can drive innovation, improve decision-making, and strengthen sustainability outcomes across the energy value chain. It will spotlight the growing role of women entrepreneurs in renewable energy, clean technology, and green finance, whose leadership is redefining how communities access and benefit from energy. At the same time, the session will address persistent barriers ranging from access to finance and mentorship to biases in recruitment and promotion and discuss actionable pathways to overcome them. Bringing together leaders from industry, policy, and civil society, this roundtable will highlight how empowering women is not only a question of equity but a strategic imperative for India's energy transition.

Session #4: Is Gas Infrastructure Supporting the Development of Gas Markets?

India's natural gas infrastructure has expanded rapidly over the past decade with a growing national gas grid, additional LNG terminals, and city gas networks now reaching most of the population. These developments mark important progress toward building a unified and resilient gas ecosystem under the vision of One Nation, One Gas Grid. Yet, the question remains: is this infrastructure truly enabling the growth of a competitive and dynamic gas market? This session will explore the gaps between infrastructure expansion and market development, examining challenges such as uneven regional connectivity, variable terminal utilization, and limited third-party access. It will also discuss how better integration between physical networks and trading platforms like the Indian Gas Exchange can unlock transparency, efficiency, and fair price discovery. As global market volatility reshapes supply and demand dynamics, the panel will address how India can balance new investments in pipelines and terminals with emerging opportunities in low-carbon gases ensuring its infrastructure remains both future-ready and commercially viable.

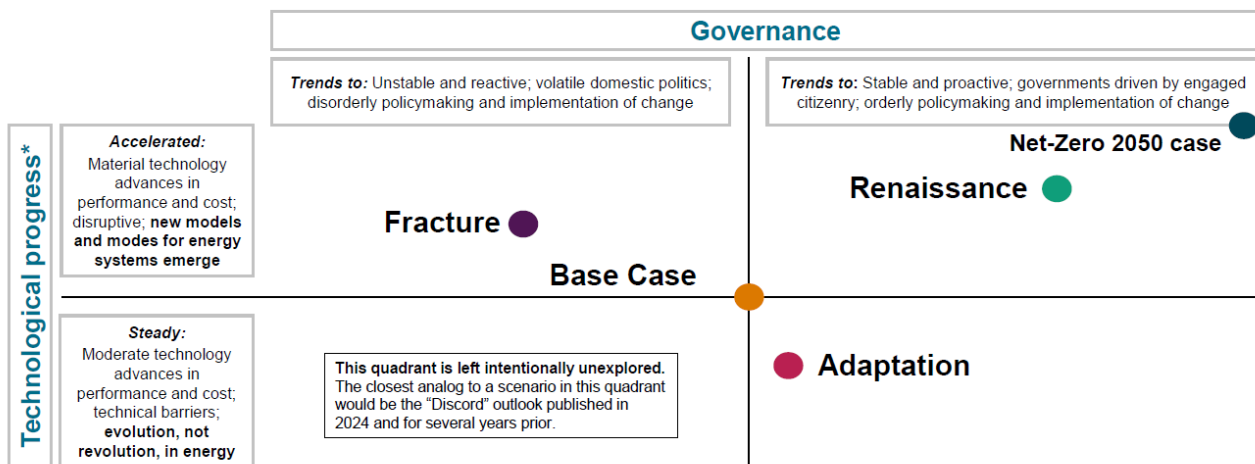
Presentation - Macro Trends and Outlook for the Indian Gas sector to 2050

Global Energy Market Outlook

The global energy landscape is undergoing a profound transformation, shaped by a complex interplay of economic growth, technological innovation, policy shifts, and geopolitical dynamics. While energy demand continues to rise, especially in emerging markets, there is a growing emphasis on decarbonization, electrification, and energy security. The transition from fossil fuels to cleaner energy sources is gaining momentum, but the pace and nature of this shift vary significantly across regions and sectors. Key drivers include advancements in renewable technologies, evolving climate policies, and the strategic priorities of nations balancing economic development with environmental sustainability.

To explore how these forces might shape the future, S&P Global Energy has developed five distinct long-term scenarios: **Base Case**, **Adaptation**, **Fracture**, **Renaissance**, and **Net-Zero 2050**. Each scenario reflects a different set of assumptions about governance, technological progress, and international cooperation. The Base Case envisions a pragmatic, moderately paced transition with continued reliance on fossil fuels. Adaptation prioritizes economic resilience over emissions reduction, leading to sustained fossil fuel demand. In contrast, Fracture imagines a world of rapid technological change but weak governance, resulting in uneven progress. Renaissance presents a late but accelerated clean energy shift, driven by emerging markets and improved global collaboration. Finally, the Net-Zero 2050 case models a highly ambitious pathway to eliminate global greenhouse gas emissions by mid-century.

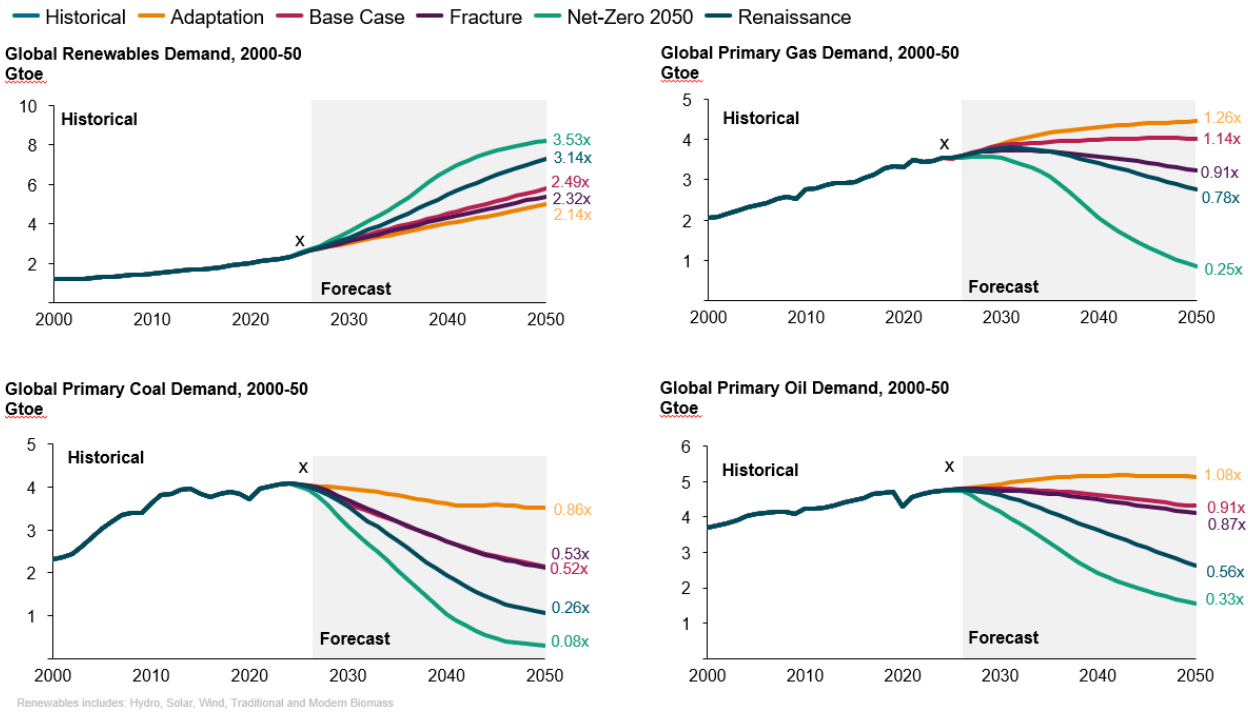
Technology and governance trend matrix and locations of new scenarios and Net-Zero 2050 case



In the **Base case**, fossil fuels remain a significant part of the global energy mix, accounting for approximately 60% of total primary energy demand by 2050, down from 82% in 2024. Renewables grow steadily, driven by cost competitiveness and policy support, reaching 33% of the mix by 2050. Electricity becomes increasingly important, supplying 33% of final energy demand, up from 22% in 2024. While global greenhouse gas emissions decline by 24% over the outlook period, the pace is insufficient to meet the 1.5°C target, with projected warming of around 2.5°C by 2100. The Base Case reflects a world that makes meaningful progress on energy transition, but not at the speed or scale required to fully decarbonize.

In contrast, the **Adaptation scenario** envisions a world where economic resilience and domestic priorities take precedence over climate action. Countries scale back or delay decarbonization efforts to maintain competitiveness and energy affordability especially in the face of geopolitical tensions and inflationary pressures. As a result, fossil fuels maintain a dominant role, comprising 68% of primary energy demand in 2050. Although renewables expand in absolute terms, their share remains constrained, reaching only 26%. Electricity's share of final energy demand grows more slowly, reaching 31%, while hydrogen and other clean fuels see limited uptake. Global emissions remain high, with only a 1% reduction from 2024 levels, and

and warming is projected to exceed 3°C by the end of the century. This scenario highlights the risks of deprioritizing emissions mitigation, particularly for regions vulnerable to climate impacts, and underscores the long-term costs of short-term economic decision-making.



Source: S&P Global Energy and Climate Scenarios

The **Renaissance scenario** presents a more optimistic trajectory, where a delayed but ultimately decisive energy transition gains momentum in the 2030s. This shift is driven by a wave of political reform, generational change, and a resurgence of global cooperation, particularly among emerging markets. Countries like India, Brazil, and others in Southeast Asia and Africa become central players in the global energy transition, leveraging affordable clean energy technologies and forming new intra-EMDE (Emerging & Developing Economies) investment and trade networks. By 2050, renewables account for approximately 48% of global primary energy, while fossil fuel use declines to 42%, a dramatic reduction from 80% in 2024. Electricity becomes the dominant energy carrier, supplying 42% of final energy demand. Hydrogen and other clean fuels also gain traction, contributing 6% to final energy use. Global GHG emissions fall by 53%, reaching ~25 GtCO₂e, and the world remains on a pathway to limit warming to around 1.9°C. The Renaissance scenario highlights the potential for a just and inclusive energy transition, where innovation, governance, and international collaboration converge to deliver meaningful climate outcomes.

The **Fracture scenario**, by contrast, envisions a world of geopolitical fragmentation and weak governance, despite rapid technological progress. In this outlook, the global energy transition is highly uneven. While some regions, particularly China and parts of the developing world, benefit from cheap and widely available clean energy technologies, others - including the U.S., Russia, and parts of the Middle East - remain heavily reliant on fossil fuels. Renewables grow significantly in some markets, reaching 34% of global primary energy by 2050, but fossil fuels still account for 60%, reflecting persistent regional disparities. Electricity's share of final energy demand increases to 33%, but the lack of coordinated policy support and regulatory clarity hampers the deployment of advanced technologies like CCS and hydrogen. Global emissions decline by only 22%, settling at ~41 GtCO₂e, and the world is on track for a temperature rise of approximately 2.5°C. Fracture underscores the risks of a disjointed transition, where technological potential is undermined by political instability and institutional weakness.

At the most ambitious end of the spectrum lies the **Net-Zero 2050 case** - a modeled scenario designed to illustrate what would be required to meet the Paris Agreement's 1.5°C target. This pathway assumes a globally coordinated effort to decarbonize all sectors of the economy by mid-century. Fossil fuel use is reduced to just 22% of primary energy by 2050, while renewables surge to 65%, supported by rapid advances in solar, wind, batteries, and nuclear. Electricity becomes the backbone of the energy system, supplying 48% of final energy demand. Hydrogen plays a major role, contributing 9% of final energy, while carbon capture and storage (CCS) scales up to remove 1.5 GtCO₂e annually. Total primary energy demand declines by 18% from 2024 levels, despite global GDP more than doubling, due to aggressive efficiency gains and electrification. Emissions reach net-zero by 2050 and fall to net-negative levels, thereafter, stabilizing global temperatures at 1.5°C. While this scenario is technically feasible, it is widely considered politically and economically challenging, requiring unprecedented levels of investment, innovation, and global solidarity.

Global Gas outlook

Global natural gas demand is set to follow divergent paths depending on the pace of the energy transition, regional policy choices, and the evolution of clean energy technologies. In the Base Case, gas demand continues to grow and peak in the mid-2040s, at approximately 167 Tcf supported by its role in power generation, industrial use, and hydrogen production. Emerging markets particularly in Asia, the Middle East, and Latin America drive this growth, while demand in OECD countries and China begins to decline in the 2030s. In the Adaptation scenario, where economic growth and energy security are prioritized over emissions reductions, gas demand rises steadily through 2060, reaching 190 Tcf, making it the only fossil fuel to grow continuously across the outlook. Conversely, in the Fracture and Renaissance scenarios, gas demand peaks in the early 2030s and declines thereafter, as renewables and energy efficiency gains erode its market share. The Net-Zero 2050 case sees the steepest contraction, with gas demand falling to 36 Tcf by 2050 and becoming marginal by 2060, in line with a 1.5°C climate trajectory.

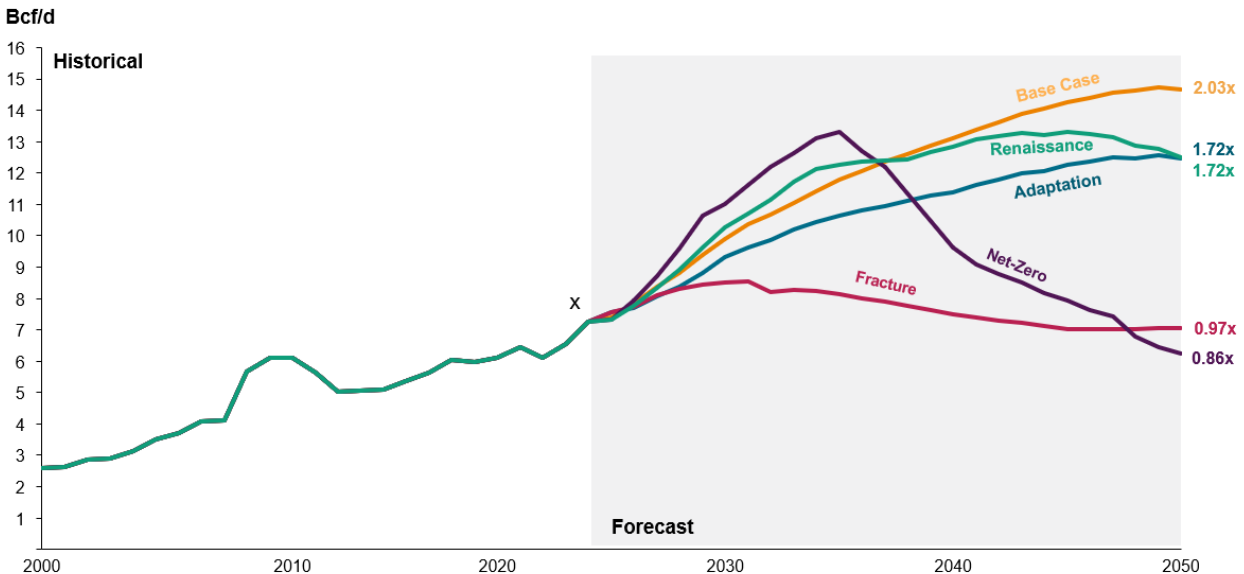
Sectoral and regional dynamics further shape the outlook. Power generation remains the largest source of gas demand in most scenarios until mid-century, except in Net-Zero 2050, where battery-backed renewables displace gas rapidly. Industrial demand remains relatively stable in the Base Case and Adaptation but declines in Fracture and Renaissance as electrification and alternative fuels gain ground. Hydrogen production emerges as a key growth area for gas in the Base Case and Renaissance, while its role diminishes in Net-Zero due to a shift toward green hydrogen.

Regionally, Europe leads the decline in gas use across all scenarios except Adaptation, where a partial return of Russian pipeline gas and lower renewable penetration sustain demand. In contrast, non-OECD Asia and the Middle East remain resilient demand centers, though even these regions see gas plateau or decline in the more climate-ambitious scenarios. Ultimately, the future of natural gas hinges on how quickly and equitably the global energy system transitions toward low-carbon alternatives.

Outlook for Natural gas in India

India's natural gas demand is expected to expand steadily over the long term, though the pace and scale of growth vary across different energy transition pathways. In scenarios such as the Base Case and Adaptation, where economic growth and energy security are prioritized, gas consumption could more than double by 2050. These outcomes assume robust industrial expansion, wider access to pipelines and city gas networks, and sustained government support for gas as a cleaner fuel in transport, manufacturing, and fertilizer production.

India Primary Gas Demand, 2000-50

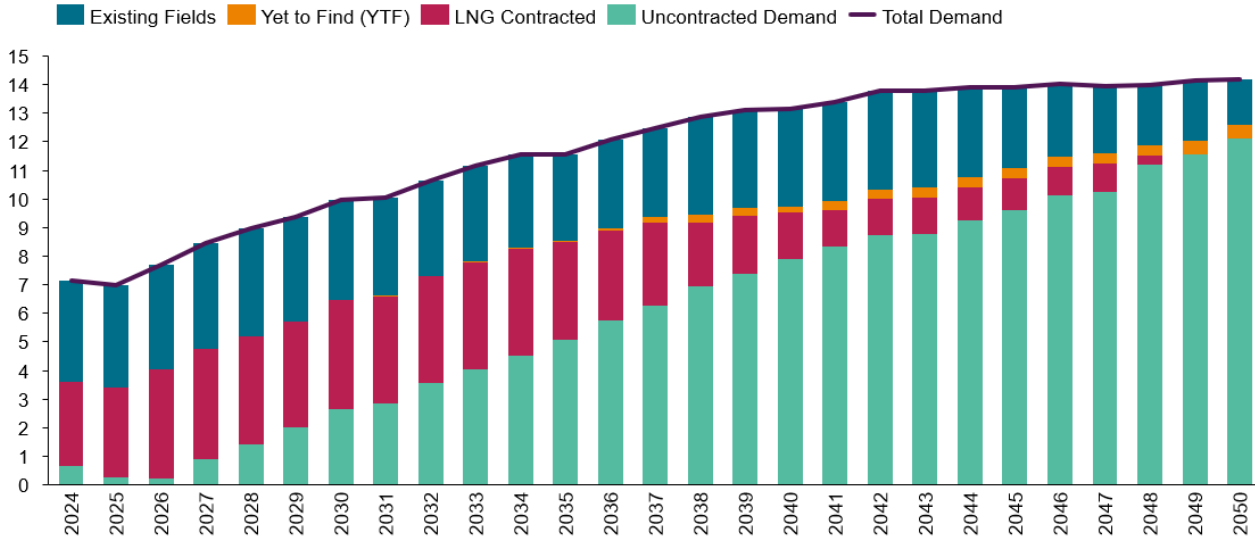


Source: S&P Global Energy and Climate Scenarios

In contrast, scenarios like Renaissance, Fracture, and Net-Zero 2050 see a more moderate outlook, with demand stabilizing between 6.5 and 9.5 bcf/d by 2050. Faster renewable adoption, accelerated electrification, and the scaling up of hydrogen and biofuels reduce the long-term role of gas, particularly in the power sector, where cost competitiveness remains a challenge. Moreover, affordability will differ sharply across user segments: while fertilizer and city gas sectors continue to benefit from allocations of lower-cost domestic gas, industrial and power users, who rely heavily on imported LNG, face exposure to volatile global prices. Even so, gas remains critical for hard-to-abate sectors such as refining, heavy industry, and petrochemicals, and may retain relevance in a net-zero context when paired with carbon capture and storage (CCS) technologies.

On the supply side, domestic production is projected to peak around 2027–28, led by new output from ONGC’s KG-DWN-98/2 and other offshore and DSF fields. Beyond this, output is expected to decline, widening the supply-demand gap and increasing India’s dependence on LNG imports. With a growing share of gas tied to market-linked and spot LNG, average prices are likely to gradually trend upward. Continued investment in regasification and pipeline capacity, particularly across southern and eastern India, will be vital to maintain supply reliability and market access in an increasingly volatile global environment.

India: Gas Balance Outlook (bcf/d)



Source: S&P Global Energy

Across all outlooks, natural gas remains a strategic pillar of India’s energy transition balancing growth and decarbonization, supporting cleaner industry, and enhancing system flexibility as the country moves toward a lower-carbon future.

Key Questions to be addressed during this session

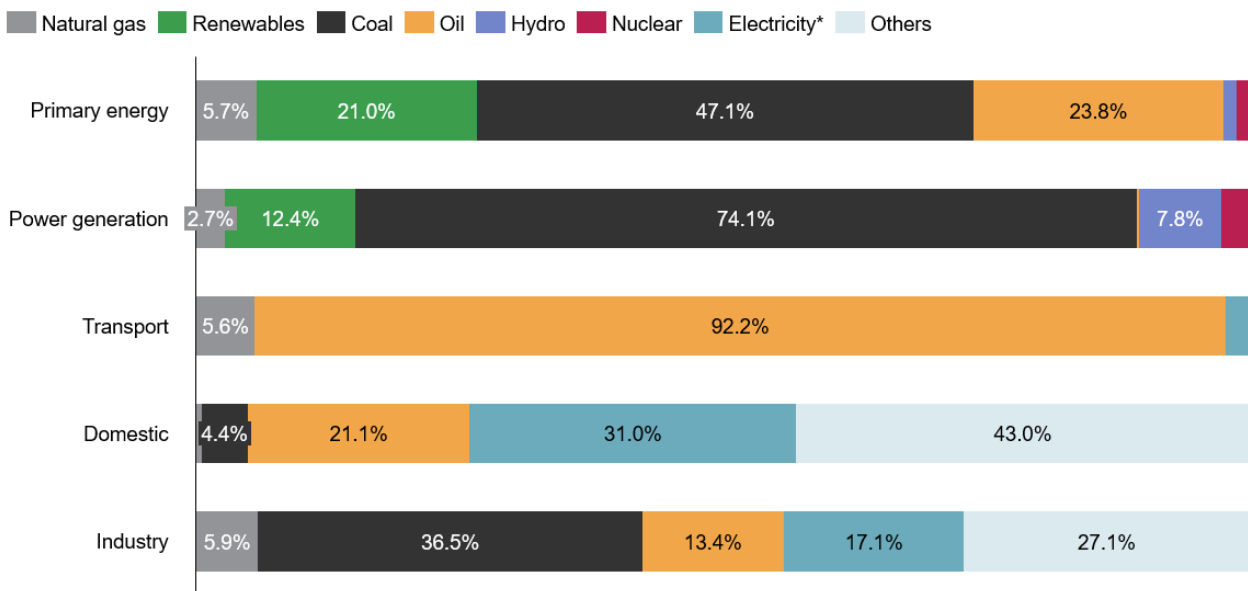
- How are geopolitical developments and global trade dynamics influencing energy security and investment flows?
- What are the major technological and policy drivers shaping the global energy transition across the five S&P scenarios?
- How is the role of natural gas in power generation, industry, and hydrogen production expected to evolve?
- What are the implications of India’s net-zero 2070 target for the long-term role of natural gas in its energy mix?

Panel discussion - Pathways to Creating Affordable & Sustainable Gas Demand

Natural gas today accounts for a modest 5.7% of India’s primary energy mix, well below coal and oil, which continue to dominate. Natural gas uptake across sectors is uneven: in power generation, gas contributes less than 3%, underscoring India’s continued dependence on coal; in transport, a higher share of around 5–6% reflects the growing adoption of CNG; and in households, its penetration remains negligible. Industry stands out as the largest consumer at nearly 6%, led by fertilizer production and manufacturing. These patterns reveal both the constrained role of gas in India’s current energy system and the untapped potential for expansion, particularly in sectors where it can enable cleaner, more efficient growth if pricing, infrastructure, and policy align.

India’s ambition to raise the share of natural gas in its primary energy mix to 15%² has been a consistent policy goal for over a decade. Yet, despite progress in infrastructure, domestic production, and city gas expansion, this target remains elusive. The challenge lies not in intent but in bridging the gap between investment, affordability, and demand creation.

Share of Natural gas in India’s primary energy, power generation and final energy mix 2024



*Category relevance varies by segment, the electricity category is only applicable to transport, domestic, and industry segments

Source: S&P Global Energy and Climate Scenarios

Gas remains vital to India’s energy story helping reduce urban pollution, complement renewables, and support low-carbon hydrogen production with CCUS. But to unlock its full potential, India must move from incremental growth to systemic transformation. Affordability remains the single biggest bottleneck. Domestic gas supplies cannot fully meet rising demand, and reliance on imported LNG exposes consumers to price volatility. Complex taxation and regulatory structures further erode gas’s competitiveness. Bringing gas under the Goods and Services Tax (GST) framework and ensuring transparent, market-based pricing could provide the clarity and confidence that investors and consumers need. Equally important is creating sustainable demand beyond traditional segments like power and fertilizers. Industrial clusters, MSMEs, transport corridors, and city gas networks represent the next growth frontier. Expanding the use of CNG, LNG, and compressed biogas (CBG) can reduce emissions while improving energy efficiency across sectors. Policy coherence and targeted incentives can accelerate adoption where the economics are most favourable. The task before policymakers and industry leaders is therefore to chart credible pathways that make gas demand both affordable and sustainable.

² Press Release: Press Information Bureau

First, affordability must be tackled through a mix of domestic production enhancement, pricing and taxation reform, and contractual innovation. Greater production from the east coast and deepwater fields can moderate import dependence, while rationalizing the burden of tariffs, and state-level levies can help lower end-user costs. More flexible, shorter-term LNG contracts and improved price discovery through gas exchanges can also enable consumers to manage volatility better.

Second, demand creation needs a sharper focus on anchor sectors that can absorb gas efficiently and at scale. Fertilizers and refining will remain foundational users, but new opportunities lie in industrial clusters, MSMEs, transport corridors, and distributed power generation. Targeted policy support such as blended fuel mandates, gas-based captive power incentives, and priority grid access can drive adoption in these segments. The expansion of the city gas network can further unlock demand in mobility and residential uses, provided affordability concerns are addressed.

Third, sustainability can only be achieved when the gas sector is developed as part of a broader, connected energy system. The gas sector must be linked to India's broader decarbonization agenda through low-carbon gases, carbon capture and storage, and methane abatement. Co-firing hydrogen or biomethane in industrial boilers, promoting biogas in city gas networks, and building CCUS-ready infrastructure can extend the long-term viability of gas assets. Over time, India's gas system can evolve into a clean molecule ecosystem, supporting the transition from natural gas to low-carbon and renewable gases.

Fourth, market design and coordination will be critical. A clear, stable, and predictable policy environment where upstream, midstream, and downstream reforms move in tandem can build confidence among investors and users. Rationalizing pipeline access, improving trading liquidity, and encouraging state-level participation in gas infrastructure planning can reduce friction and uncertainty. Policy coherence across ministries covering energy, environment, and industry will be key to sustaining momentum.

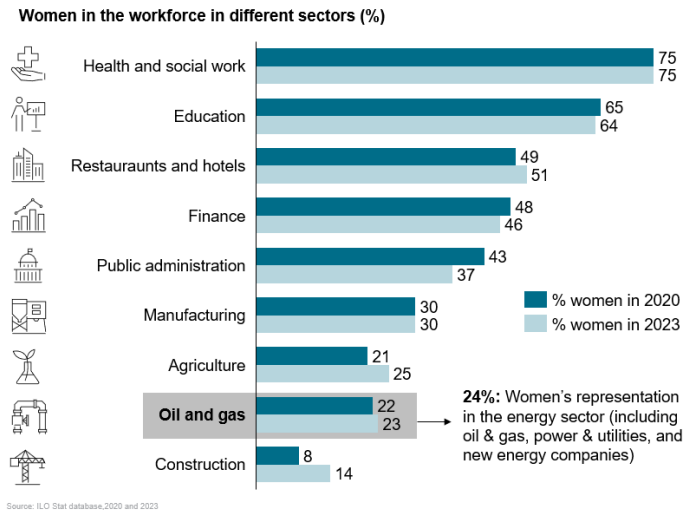
Finally, the pathway forward requires a strategic narrative that positions gas not as a short-term bridge, but as a pragmatic enabler of India's energy transition. By aligning gas with national priorities clean air, Make in India, and Net Zero India can rebuild confidence in gas as an essential part of its energy expansion toolkit.

Key Questions to be addressed during this session

- How can India's gas market design evolve to improve transparency, liquidity, and investor confidence?
- How can domestic gas production, LNG contracting reforms, and trading mechanisms work together to improve price stability and supply security?
- What is the role of low-carbon gases like biogas, biomethane, and hydrogen with CCUS in shaping a sustainable gas ecosystem that supports long-term decarbonization?

Panel discussion - Special Panel on Women in Energy Sector

The energy industry spanning oil, gas, power and renewables has historically been one of the least gender-diverse sectors. Women constitute less than 10%³ of India's energy workforce, one of the lowest shares among major industries and significantly lower than the global average of 24%. The gap is particularly visible in leadership, field operations, and technical positions, reflecting deep-rooted structural barriers and legacy perceptions about gender roles in industrial work.



This underrepresentation originates from multiple causes. The core technical disciplines that supply much of the industry's talent pipeline, such as engineering and geosciences, have traditionally seen limited female participation. Those who enter the sector often face restricted access to mentorship, slower career progression, and workplace cultures that remain challenging for women in remote or site-based assignments.

However, the transition toward renewable energy and low-carbon technologies presents an opportunity to reshape this dynamic. Across India, women entrepreneurs are beginning to shape new frontiers in solar deployment, energy access, and green finance. Their stories demonstrate how gender inclusion can translate into better

community outcomes, improved governance, and stronger innovation ecosystems.

Gender balance is not only a matter of equity but a strategic imperative for energy organizations. The International Renewable Energy Agency (IRENA) and other global bodies emphasize that women's meaningful participation in the clean energy transition is critical to meeting Sustainable Development Goals (SDGs) related to affordable and clean energy (SDG 7), climate action (SDG 13), and gender equality (SDG 5). Greater gender diversity in the energy sector has been shown to enhance innovation, improve decision-making, and strengthen organizational performance. Studies by institutions such as the OECD, UNDP, MSCI and World Bank have shown that Women leaders are more likely to advocate for ambitious environmental goals, drive sustainability initiatives, and improve stakeholder engagement, making gender diversity an accelerator for the energy transition

Yet, systemic barriers persist - limited access to funding, lack of mentorship networks, unconscious bias in hiring and promotion, and the perception of energy as a "male-dominated" technical field. These issues not only hinder equity but also limit the sector's potential to attract and retain diverse talent at a time when creativity and cross-disciplinary thinking are crucial. Greater inclusion in leadership and technical roles can unlock new ideas, foster innovation in clean technologies, and drive more resilient and equitable growth.

To power a sustainable and inclusive energy future, India's energy sector must commit to bold, sustained action on gender diversity. The companies that rise to this challenge will lead the energy transition and shape a more prosperous, sustainable world.

Key Questions to be addressed during this session

- What are the most critical barriers preventing greater female participation in India's energy workforce, and how can institutions address them?
- How can mentorship, leadership development, and sponsorship programs help women advance to senior positions in the energy sector?
- What specific policy and financial interventions are needed to empower women entrepreneurs in clean energy and green infrastructure?

³ CII Roundtable Report

Panel discussion - Is Gas Infrastructure supporting the development of Gas markets?

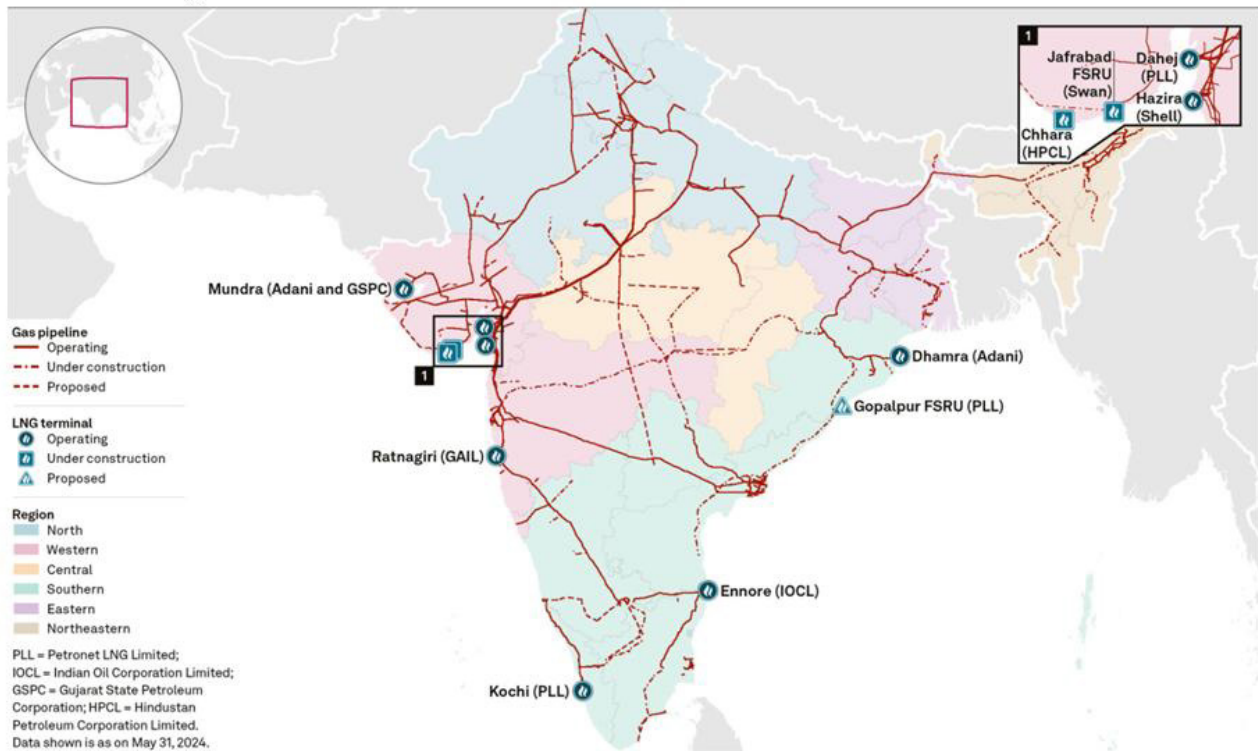
Over the past decade, India has made significant investments to expand its gas infrastructure. It has built more pipelines, added LNG import terminals, and rapidly expanded its city gas distribution networks. These efforts have created the backbone needed for India's gas markets to evolve into a more connected, transparent, and competitive ecosystem. However, the expansion of physical assets is only part of the story. To truly unlock the potential of gas markets, the infrastructure must support seamless movement of gas across regions, enable fair and open access for all market participants, and align with fast-changing demand patterns and energy transition goals.

Expanding Pipeline Networks and Market Connectivity

India's national gas grid has almost doubled since 2014, reaching approximately 25,000⁴ kilometers, with over 10,800 kilometers of new pipelines planned by 2030 to complete a comprehensive grid of about 35,000 kilometers. This expansion connects major demand centers with LNG terminals along the Eastern and Western Coasts; and plans include improving integration with the underserved eastern and northeastern regions via key corridors like the Jagdishpur-Haldia-Bokaro-Dhamra pipeline.

This pipeline buildout is critical because a physically connected network underpins a functioning market. Without contiguous infrastructure, regional gas pockets have limited access to supplies, fragmenting markets and restricting liquidity. Despite vast progress, about 91 authorized City Gas Distribution (CGD) areas remain unconnected to the main grid as of mid-2025, with many served only by gas tankers rather than pipelines. These gaps constrain the seamless flow and pricing efficiency necessary for a liquid market.

India's natural gas infrastructure



Data compiled Jan. 2, 2025.
 Sources: PNGRB; Upstream Content, a product of S&P Global Commodity Insights: IC-250165-01.
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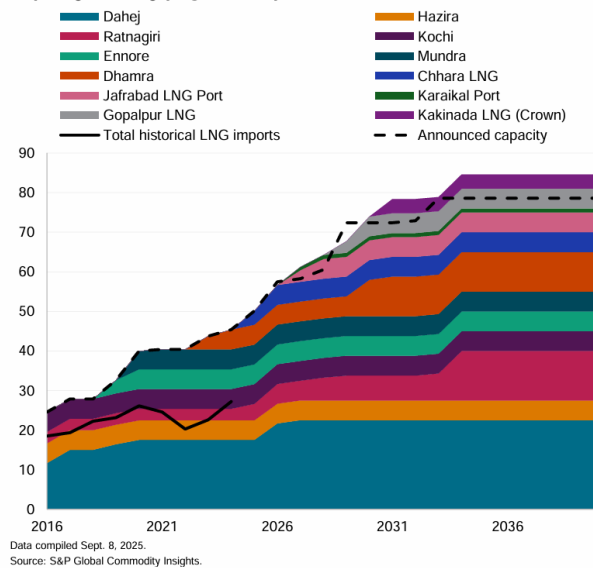
⁴ PNGRB MIS_25-06.xlsx

LNG Terminals Supporting Supply Flexibility

India's LNG regasification capacity has scaled from about 25 MMtpa in 2016 to 53 MMtpa by 2025, with additional terminals being commissioned. By 2027, total capacity is expected to reach approximately 61 MMtpa, sufficient to meet projected LNG demand into the early 2030s. This increase broadens India's supply sources and enhances import flexibility, a vital factor given global LNG price volatility and shifting contract patterns. More terminals mean improved negotiation power, diversified supply chains, and opportunities for spot LNG trading, all conducive to vibrant market dynamics.

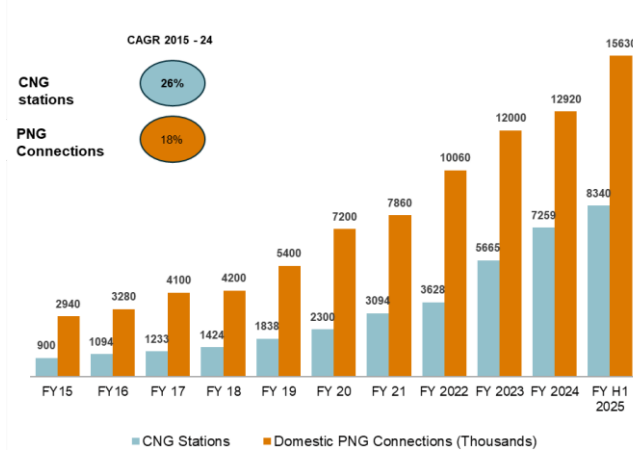
Nonetheless, terminal utilization has been variable, influenced by demand uncertainties. Ensuring optimal throughput requires transparent access protocols, fair capacity booking, and tariffs incentivizing usage. The introduction of Liquefied Natural Gas (LNG) Terminal Regulations in 2025 aims to fill long-standing regulatory gaps by formalizing licensing, operations, and compliance, further fostering investment confidence.

Capacity build by project (MMtpa)



City Gas Distribution Networks and Market Demand Expansion

Growth of CNG stations and PNG connections across India 2015-25



India's CGD expansion is impressive, authorized to cover nearly 100% of the mainland geographical area with over 307 authorized areas. More than 15 million PNG (piped natural gas) connections and over 8,000 CNG stations serve urban and semi-urban consumers. The government targets an ambitious 126 million domestic PNG connections and 18,336 CNG stations by 2034, envisioning a tenfold increase in annual connections from current levels.

CGD networks are a vital demand driver, catalyzing gas use in households, transportation, and commercial sectors. Growth here translates directly into enhanced market liquidity meaning more buyers, diversified consumption patterns, and demand certainty for suppliers. However, CGD expansion

faces challenges: many authorized areas remain grid-disconnected, land acquisition hurdles delay pipeline laying, and infrastructure financing models require optimization. Addressing these issues is crucial to transform infrastructure potential into active market demand.

Gas Storage Capacity for System Stability

Beyond pipelines and terminals, storage infrastructure remains an underdeveloped yet essential component of a mature gas market. India currently lacks large-scale underground gas storage. PNGRB's Vision 2040 highlights the need for strategic storage development including depleted fields, salt caverns, and LNG tank-based storage to enhance system resilience and provide flexibility for CGD operators, industries, and gas-fired power plants. Expanding storage capacity will also support smoother integration of spot LNG cargoes and improve gas supply reliability during price spikes or geopolitical disruptions.

Integration Between Physical Infrastructure and Market Platforms

The launch of the Indian Gas Exchange (IGX) in recent years signifies a landmark toward market liberalization and transparent price discovery. However, for the gas market to mature, tighter integration with physical infrastructure is essential. Open access to pipelines, non-discriminatory third-party usage policies, and tariff harmonization must be operationalized.

India's gas pipeline operator GAIL's initiative to launch a capacity booking portal to facilitate third-party access in 2020 was a significant step. But capacity booking transparency and ease of access remain evolving. Without these enablers, infrastructure assets risk underutilization, limiting supplies available for trading and consequently market liquidity.

Prices, Contracting Models, and the Need for Market Innovation

India's gas market remains vulnerable to global LNG price volatility despite significant infrastructure growth. Traditional oil-linked contracts often lack the flexibility needed for this evolving sector. To increase resilience, the industry must adopt innovative models like hybrid indexation using gas hub benchmarks. Shifting toward shorter-tenure, seasonal, or portfolio-based supply structures would further mitigate risk. Simultaneously, expanded storage capacity is critical for enabling utilities to arbitrage seasonal price differentials. Regulatory reforms, including transparent transmission tariffs, are equally necessary to ensure market efficiency. Clearer principles for pipeline capacity allocation must be established to foster fair competition. Furthermore, introducing time-of-day or seasonal tariffs could incentivize optimized infrastructure usage. These structural shifts are essential to shield downstream consumers from international market shocks.

Gas Infrastructure and Energy Transition Alignment

India's energy transition goals targeting an increase of natural gas' share in the energy mix from around 5.7% to 15% by 2030 make robust gas infrastructure more critical than ever. Yet, global energy trends pose new questions. The rise of renewable gases such as biogas, green hydrogen, and synthetic methane requires infrastructure flexibility to accommodate blending and future fuels. Investments in pipelines and terminals today must anticipate this transition or risk stranded assets. Forward-looking strategies involve electrification of compressor stations, digital infrastructure upgrades for better system management, and continued policy incentives for green gas integration.

The Way Ahead

India's gas infrastructure expansion is undoubtedly robust and foundational to market development. It has increased supply options, expanded demand through City Gas Distribution growth, and laid the groundwork for price transparency via exchanges. However, infrastructure alone has not yet fully unlocked a liquid, competitive gas market because uneven regional pipeline presence and incomplete grid connections inhibit nationwide market integration. Moreover, transparent capacity allocation, tariff balancing, and open access policies remain works in progress, essential to optimize infrastructure use and market fluidity. Infrastructure growth must keep pace with rising and diversifying demand, particularly in the CGD and industrial sectors, while trading platforms like the Indian Gas Exchange need deeper integration with the gas transmission network to facilitate spot and forward markets. Lastly, infrastructure investments must be financially sustainable to incentivize private-sector participation and mitigate risks of stranded assets amid the energy transition.

Key questions to be addressed during the session

- Is India's current gas infrastructure including pipelines, LNG terminals, and CGD networks sufficient to support the vision of increasing gas's share in the energy mix to 15%? Where are the major regional or sectoral gaps?
- How can India ensure greater alignment between physical infrastructure and market mechanisms such as the Indian Gas Exchange? What regulatory or operational reforms are needed to facilitate open access and trading?
- Given uncertain demand growth and global price volatility, how can investors be incentivized to expand infrastructure in underdeveloped regions? Are current tariff and return structures conducive to attracting private capital?

Concluding thoughts

The themes explored in this booklet reflect India's evolving natural gas landscape. By examining the role of natural gas within a broader, integrated energy system, we aim to uncover pathways that enable a just, efficient, and technology-driven transition. The conference serves as a collaborative platform for thought leaders, policymakers, and industry pioneers to exchange insights, inspire innovation, and chart actionable strategies for advancing India's cleaner and more resilient energy future.