Regulatory Challenges in India's CBG Sector: A Critical Review

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Introduction

India's growing economy has led to a sharp rise in energy demand. India currently meets nearly fifty percent (50%) of its natural gas requirement through imports, making energy security a strategic priority. Recent geopolitical developments and disruptions along the Strait of Hormuz, a route that carries nearly fifty five percent (55%) to sixty percent (60%) of India's liquefied natural gas ("**LNG**") imports, have underscored the importance of strengthening domestic energy production.[1] To this end, compressed biogas ("**CBG**"), a carbon-negative fuel that displaces imported crude and gas while turning waste into value, could open new frontiers for energy infrastructure, promote rural employment, and support waste management.

CBG typically refers to biogas produced through the anaerobic digestion of organic waste, including agricultural residue, cattle dung, sugarcane press mud, municipal solid waste, sewage and food waste, which is thereafter purified to remove impurities such as hydrogen sulphide (H2S), carbon dioxide (CO2) and water vapour, so as to achieve a methane content exceeding ninety percent (90%), and is subsequently compressed to a pressure not exceeding two hundred and fifty (250) bar.[2]

[1] PIB Release dated August 6, 2026.
[2] Petroleum and Natural Gas Regulatory Board Report titled '*Compressed Biogas Integration in India's Gas Economy: Progress and Prospects*', August, 2025.

The Ministry of Petroleum and Natural Gas ("**MoPNG**") through its report 'Vision 2040 - Natural Gas Infrastructure in India' ("**Vision 2040 Report**") assesses India's potential at approximately seventy two (72) million metric tonnes per annum ("**MMTPA**") of CBG and around one hundred and forty (140) MMTPA of fermented organic manure ("**FOM**") from some five hundred and fifty (550) MMTPA of surplus agricultural residue, organic municipal waste and livestock dung, a large part of which is presently burnt or landfilled. According to the Vision 2040 Report's estimates, meeting Sustainable Alternative Towards Affordable Transportation's ("**SATAT**") target of fifteen (15) MMTPA of bio-CNG could reduce India's LNG imports by around fifty five percent (55%).

However, this sector continues to face significant operational challenges. Irregular feedstock supply can disrupt continuous digester operation and microbial stability, leading to lower and unpredictable methane output, while seasonal fluctuations in agricultural residue availability may force plants either to idle capacity or to switch to sub-optimal alternative feedstocks with different biochemical properties, reducing gas yield per tonne of input. Lack of a well-developed pipeline infrastructure network in the country for ensuring cost-effective offtake and transportation of CBG generated at generation site is a serious challenge for the growth of the CBG sector. These issues, together with the applicable regulatory requirements, are material considerations for project developers, investors, and other stakeholders. This note examines the key regulatory challenges currently constraining the growth of the CBG sector in India.

Applicable Framework- Legislative Competence

Under the Constitution of India ("Constitution"), the Parliament has exclusive power to legislate on matters pertaining to the Union List while the State Legislatures have exclusive power to legislate on matters pertaining to the State List. Both the Parliament and the State Legislatures have competence to legislate on matters falling in the Concurrent List.

While there is no specific mention of CBG, biogas or bio-energy in the Constitution, the Parliament has been empowered to legislate over '*regulation and development of oilfields and mineral oil resources; petroleum and petroleum products; other liquids and substances declared by Parliament by law to be dangerously inflammable*' (Entry 53, List I) whereas State Legislatures are empowered to legislate on '*gas and gas-works*.' (Entry 25, List II). It is currently unclear whether CBG should be classified as a 'petroleum and petroleum product' placing it within Parliament's exclusive legislative competence, or as 'gas and gas-works' placing it within the legislative competence of the State Legislatures.

While no judicial precedent has directly addressed which legislature has the competence to regulate CBG, Indian courts have considered this question in the context of natural gas, a gas with chemical properties similar to CBG and their reasoning offers useful guidance. In Special Reference No.1 of 2001[3] ("**Special Reference**") the Supreme Court examined whether the State Government of Gujarat had the legislative competence to enact the Gujarat Gas (Regulation of Transmission, Supply and Distribution) Act, 2001 ("**Gujarat Act**") for regulating transmission, supply and distribution of natural gas in the state of Gujarat.

[3] (2004) 4 Supreme Court Cases 489.

The Supreme Court held, *inter alia*, that natural gas is a subject pertaining to the Union List and the Parliament has exclusive legislative competence to enact laws on natural gas. As a corollary, the States have no legislative competence to make laws on the subject of natural gas. Accordingly, the Gujarat Act, so far as the provisions contained therein relating to natural gas, was ultra vires of the Constitution.

To reach this conclusion, the Supreme Court held that production of natural gas was not independent of production of other petroleum products, therefore, regulation of oilfields and mineral oil resources necessarily encompasses regulation as well as development of natural gas. Based on its review of the legislative history and definition of the terms 'petroleum', 'petroleum products' and 'mineral oil resources' contained in various legislations and books, and national interest involved in the equitable distribution of natural gas amongst the States, the Supreme Court held that natural gas in its raw and liquefied form would qualify as a 'petroleum product' and was therefore subject to the Parliament's legislative powers. The Supreme Court was of the view that the term 'gas' in 'gas and gas works' would take colour from 'gas-works' and would therefore be construed as 'manufactured gas'. Accordingly, competence of State Legislatures is limited to gas manufactured and used in gasworks and would not encompass natural gas within its ambit.

While the chemical attributes of CBG are similar to natural gas, there is an important distinction between CBG and natural gas. CBG is in essence a 'manufactured gas' being a by-product of anaerobic decomposition of organic matter such as agricultural residue, cattle dung, press mud and municipal organic waste. This distinguishes it from natural gas, which has its origin in naturally occurring hydrocarbon reservoirs. The Supreme Court's conclusion that natural gas falls exclusively within the legislative competence of the Parliament proceeds on the fundamental assumption that production of natural gas is inextricably linked with production of petroleum products. However, this assumption breaks down in the context of CBG, given that production of CBG is independent of and de-linked from production of petroleum products.

While it could be contended that CBG qualifies as a 'manufactured gas' based on its manner of origin, the governance of CBG by the State Legislature may lead to fragmentation of the regulatory framework across States with respect to generation, supply, distribution and transmission of CBG. This will have significant legal implications for the growth and development of the CBG sector in the country as a whole. While CBG could be brought within the Parliament's competence if the Parliament declares it a 'dangerously inflammable' substance, no such notification has been issued yet. Further, for matters that have not been expressly included in the legislative powers of either the Parliament or State Legislatures, the Parliament has the residuary power to legislate. It is necessary to address this question, in order to ensure that the development of CBG proceeds smoothly and is not mired in legislative disputes.

Jurisdiction of PNGRB

The Petroleum and Natural Gas Regulatory Board Act, 2006 ("**PNGRB Act**") establishes the Petroleum and Natural Gas Regulatory Board ("**PNGRB**"), for regulating the refining, processing, storage, transportation, distribution and marketing of petroleum, petroleum products and natural gas. The term 'natural gas' has been defined under the PNGRB Act to mean gas obtained from bore holes which is comprised of hydrocarbons and includes within its ambit natural gas in various forms such as compressed natural gas ("**CNG**"), LNG, regasified LNG and methane obtained from coal seams. The PNGRB has been vested with extensive powers under the PNGRB Act for regulation of natural gas, construction and operation of pipeline and infrastructure projects related to the downstream natural gas sector.

CBG is produced through anaerobic decomposition of organic matter and it is not extracted from bore-holes. Consequently, CBG falls outside the definition of 'natural gas' under the PNGRB Act, meaning that PNGRB does not currently have jurisdiction to regulate CBG. Various guidelines issued by PNGRB which are built on the PNGRB Act's definition of natural gas currently do not automatically apply to CBG. Thus, currently there is a vacuum with respect to regulation of various critical aspects of the CBG ecosystem.

By way of illustration, on February 28, 2025, PNGRB notified the Guidelines for Road Transportation of Hazardous Petroleum Products, LPG and Natural Gas **("Road Transportation Guidelines").** These do not extend to cascade-based road transportation of CBG. In the absence of dedicated guidelines addressing the specific risks associated with cascade-based road transportation of CBG, stakeholders remain exposed to significant operational risk. Notably, PNGRB has since notified guidelines dated February 11, 2026 governing injection of CBG into natural gas pipeline and city gas distribution ("**CGD**") networks ("**February 11 Guidelines**"). PNGRB has not been vested with jurisdiction to regulate CBG as such. The February 11 Guidelines are instead anchored in PNGRB's statutory powers under the PNGRB Act to regulate CGD networks

The CBG sector currently lacks a regulator with clear jurisdiction and adequate powers over the industry. Left unaddressed, this vacuum risks producing fragmented, ad hoc growth rather than a coordinated sector. There is a critical need for establishing a dedicated regulatory authority, one with oversight across the full CBG value chain, from production and supply to marketing, transportation, and distribution to ensure the sector develops in a structured and coherent manner.

Segregation of Municipal Solid Waste

Segregated municipal solid waste ("**MSW**") constitutes a critical feedstock input for CBG plants, given that the biomethanation process underlying CBG generation depends on a consistent supply of organic, wet waste substantially free of inorganic contaminants. The efficiency of anaerobic digestion and, consequently, the gas yield and operational output of a CBG plant is directly correlated with the qualitative purity and quantitative volume of segregated wet waste received by the CBG plant as feedstock. Where MSW is inadequately segregated at source, the resultant feedstock stream is likely to carry high concentration of non-biodegradable contaminants, which can damage the digester equipment, disrupt the microbial digestion process, and may potentially necessitate a shutdown of the CBG plant.

Against this backdrop, the Solid Waste Management Rules, 2026 ("**SWM Rules**") recently notified by the Ministry of Environment, Forest and Climate Change and which took full effect from 1 April 2026, assume particular relevance for CBG project stakeholders.

The SWM Rules require every waste generator to segregate and store the waste generated by them in four separate streams at source, namely wet waste, dry waste, sanitary waste and special care waste, and hand over segregated waste to authorised waste pickers or waste collectors. The term 'waste generators' has been defined in an expansive manner under the SWM Rules to mean every person or group of persons, every residential premises and non-residential establishments including Indian Railways, defense establishments, which generates solid waste.

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Under the SWM Rules, 'bulk waste generators' ("**BWG**") (specific entities which satisfy at least one of the following criteria: (a) buildings with floor area of twenty thousand (20,000) sq.m. or above; or (b) water consumption of forty thousand (40,000) litres per day; or (c) solid waste generation of one hundred (100) kg per day) are required to hand over dry, sanitary, and special care waste to the local body or its authorised agency, while processing wet and horticulture waste in a decentralised manner through composting, biomethanation, or other approved technology. New BWGs are required to set up and operate their own wet waste processing facility (including for horticulture waste) with adequate capacity to handle the entirety of their generated wet waste. Existing BWGs unable to set up such decentralised processing may seek an exemption from the local body, but are required to procure Extended Bulk Waste Generator Responsibility ("**EBWGR**") certificates equivalent to the full quantum of wet waste generated by them.

The SWM Rules also mandate that local bodies (including any concessionaire or third party authorized by such local bodies) are responsible for waste collection, segregation, and transportation and should register on the centralised portal and carry out these functions in an environmentally sound manner as per applicable guidelines. Further, local bodies are required to hand over collected waste to registered processing facilities and issue EBWGR certificates to BWGs. Further, waste must be routed to the relevant registered facility by category: wet waste to wet waste processors, dry waste to Material Recovery Facilities ("**MRF**")/processing facilities, and sanitary/special care waste to recyclers, incinerators, biomedical waste facilities, or transfer stations.

The SWM Rules provide for levy of environmental compensation, on a polluter-pays basis, on persons in breach of their provisions, including entities engaged in the collection, segregation, sorting, transportation, processing, and disposal of solid waste. However, there is lack of clarity as to how this overarching principle of environmental compensation would apply in the specific context of segregation of MSW, and, more particularly, whether CBG producers suffering a loss in operational yield on account of poor segregation or contamination of feedstock would have effective legal recourse against the obligated entities responsible for such segregation. Consequently, there is a material risk that contamination and rejection risk in respect of MSW supplied for CBG generation may devolve directly upon the CBG plant, thereby eroding the assured tonnage of feedstock in the absence of properly segregated waste.

While the SWM Rules mark a progressive step by casting a segregation obligation on a wide array of stakeholders, the absence of a well-defined, pre-determined penalty regime for non-compliance risks diluting their overall effectiveness.

Assured Supply of Feedstock

Availability of consistent, good quality feedstock supply at a definite and predictable price point through the year is critical for ensuring commercial viability of CBG projects. CBG plants are structured on a specific feedstock composition, moisture content, and calorific value and material variance in these parameters whether arising from seasonal crop cycles, agricultural residue availability, or inconsistent segregation of municipal solid waste directly impacts digester efficiency, gas yield, and consequently the plant's ability to meet its rated capacity utilisation.

Feedstock costs typically constitute the single largest variable component of the operating cost structure of a CBG project and any unbudgeted escalation in feedstock price, or shortfall in supply of feedstock necessitating procurement from costlier alternate sources, can erode profit margins. This risk is further compounded by the fact that offtake pricing under schemes such as the Synchro Scheme (*as defined below*) is de-linked from input costs. Against this backdrop, it is important to evaluate the legislative framework governing contract farming in India and impact of minimum support price of agricultural crops on commercial viability of the CBG project.

India has no unified central statute on contract farming. Contract farming is therefore governed by state specific enactments such as agricultural produce marketing committee acts (as amended to permit contract farming) and, where adopted, the Model Contract Farming Act, 2018 and Model Agricultural Produce and Livestock Marketing Act, 2017. Adoption and implementation of the model statutes has not been uniform. While some states require registration of the sponsor and recording of individual farming agreements with a designated authority others have no operative registration mechanism at all. For a CBG developer sourcing feedstock across multiple states, enforceability and formality requirements of the underlying feedstock supply agreements vary by state, and diligence has to be done state-by-state basis.

A significant commercial risk in structuring CBG feedstock supply arrangements also arises from the interplay between the state-mandated minimum procurement price regime, typically notified under state-specific agricultural produce market legislations and the price at which agricultural produce would need to be supplied to a CBG plant for the plant to be commercially viable. Where the feedstock in question (such as paddy straw, sugarcane trash, or other notified agricultural produce/by-products) falls within the scope of a state minimum support price notification, the price floor so mandated may not always align with the financial model of the CBG project particularly given that CBG offtake prices are themselves benchmarked/capped under various schemes notified by the Central Government and complete pass-through of fluctuations in feedstock costs may not be granted to the CBG producer.

Foreign Direct Investment in Agriculture

Under India's Consolidated FDI Policy Circular of 2020, 'Agricultural Activities' (other than floriculture, horticulture, development and production of seeds and planting material, animal husbandry, pisciculture, aquaculture, apiculture, and cultivation of vegetables/mushrooms under controlled conditions, and services related to agro and allied sectors) remain on the negative list, with foreign direct investment ("**FDI**") prohibited under both the automatic and government routes. Since CBG production is feedstock driven and, in several project models, reliant on dedicated cultivation of crops / biomass, the prohibition on 'Agricultural Activities' creates regulatory hurdles in how CBG projects must be capitalised and structured.

While the CBG plant itself (the anaerobic digestion, purification, and compression facility) is likely to be characterised as a manufacturing/industrial activity eligible for hundred percent (100%) FDI under the automatic route, any entity whose activities extend into cultivation of feedstock crops could risk being characterised as engaged in a prohibited agricultural activity thereby triggering penalty regime under Foreign Exchange Management Act, 1999.

Foreign investors and their Indian joint venture partners would need to ring-fence feedstock aggregation (particularly where it involves farmer contracts, land use, or crop cultivation) into a separate domestically-owned entity or enter into arm's-length supply/offtake contracts with local farmer producer organisations or aggregators, rather than housing it within the FDI-invested project company in order to de-risk the transaction structure.

CBG Schemes – Key Issues

The Central Government, through its ministries and departments, has introduced multiple schemes to administer and incentivize production of CBG in the country. Set out below is an analysis of some of the key schemes that have been notified by the Central Government pertaining to the CBG sector.

A. SATAT

SATAT was launched on October 1, 2018 to establish an ecosystem for the production and use of CBG as a cleaner alternative to conventional fossil fuels. Pursuant to SATAT, oil marketing companies ("**OMCs**") invite entrepreneurs to establish CBG plants using feedstocks such as agricultural residues, cattle dung, municipal solid waste, sugarcane press mud and other forms of biomass. The CBG produced by these plants can be supplied for use as automotive or industrial fuel.

SATAT seeks to address multiple objectives simultaneously, including converting organic waste into a useful energy resource, reducing dependence on imported natural gas and crude oil, lowering pollution and carbon emissions, and creating employment and income opportunities, particularly in rural areas. By connecting waste management, renewable fuel production and the existing gas and fuel distribution network, the initiative is intended to support the development of a more circular and sustainable energy economy in India.

Under SATAT, OMCs invite expression of interest from potential entrepreneurs to set up CBG production plants for a term of fifteen (15) years, under which they "*shall try to off-take and market the entire amount of CBG produced.*" However, actual offtake "*shall entirely depend on the actual quantity of CBG sold in a particular market*". Critically, there is no take-or-pay commitment and OMCs are not obligated to guarantee a minimum purchase volume because they receive no corresponding commitment from end-users. If the OMC is unable to offtake in accordance with the supply plan for a period of three (3) months, it will only "*endeavour to facilitate*" sales at other outlets or to industrial bulk customers, failing which the CBG producer has the liberty to sell to third parties.

Since SATAT does not impose a binding legal obligation on OMCs to off-take CBG produced by CBG producer, it has proven insufficient to meaningfully incentivise development of the CBG sector. CBG plants entail substantial capital investment, and in the absence of assured offtake, CBG producers remain exposed to the risk of default on their financial commitments to banks / financial institutions.

B. Compulsory Blending Obligation of CGD Entities

MoPNG, through its office memorandum, dated February 27, 2024, has notified introduction of mandatory blending obligations for CGD entities. Pursuant to this, CGD entities are mandated to blend CBG as a prescribed percentage of natural gas consumed in the CNG(T)/PNG(D) segments for that financial year ("**CBO Direction**"). The blending percentages in respect of total CNG / piped natural gas ("**PNG**") consumption of a CGD entity for a relevant financial year as prescribed under the CBO Direction are as follows:

Financial Year ("FY")	Blending Percentage
FY 2024-25	Voluntary
FY 2025-26	1%
FY 2026-27	3%
FY 2027-28	4%
FY 2028-29 onwards	5%

While the CBO Direction seeks to drive demand for CBG by casting a binding obligation on CGD entities to blend CBG with CNG/PNG on and from FY 2025-26 the framework suffers from certain shortcomings.

The CBO Direction is an executive direction, not a statutory instrument. In the absence of a statutory enactment codifying its provisions, CBG producers are unlikely to commit substantial capital investment on the strength of an executive order alone. Further, the CBO Direction does not prescribe any penalty for non-compliance by CGD entities with the provisions of the CBO Direction.

The CBO Direction links the quantum of CBG to be blended to the total CNG/PNG consumed by a CGD entity in a relevant financial year, but does not set out objective benchmarks for computing that consumption figure. As a result, the method for calculating blending thresholds remains unclear.

Until a CGD network is "operationalised" CBG marketed by CGD entities will itself count as blending of CBG with CNG. However, the CBO Direction does not define the term 'operationalisation of the CGD network,' nor does it cap the quantum of CBG marketed by CGD entities that can count toward the blending obligation. This allows CGD entities to meet their obligations under the CBO Direction without taking concrete steps to increase the volume of CBG injected directly into the CGD network by CBG producers.

The CBO Direction does not establish any mechanism to report or verify whether CGD entities are actually meeting their blending obligations, which weakens its overall enforceability. Further, the Petroleum Planning and Analysis Cell ("**PPAC**") is required to issue operational guidelines setting out a detailed implementation framework for the blending obligation; these guidelines have not yet been notified. PPAC shall act as a central repository body ("**CRB**") to monitor and implement the blending mandate based on these guidelines, but the CRB has not yet been constituted.

C. Development of Pipeline Infrastructure for facilitation of CBG Offtake

Lack of adequate pipeline infrastructure for facilitating evacuation and transportation of CBG generated is one of the primary factors impeding growth of the CBG sector. The Scheme Guideline for Development of Pipeline Infrastructure for facilitation of CBG Offtake ("**DPI Scheme**") has been notified by MoPNG on August 27, 2025 to facilitate offtake of CBG through cost-effective pipeline transportation of CBG from production facilities to consumption centres and ensure maximum utilisation of CBG produced. The DPI Scheme provides for milestone-based financial assistance ("**FA**") to eligible beneficiaries.

The DPI Scheme is divided into two components as set out below:

'**Component I**': under this component, FA is provided for laying a pipeline from a CBG plant to a CGD network and the beneficiary is a CGD entity. However, where the CGD entity is unable to lay the pipeline, the CBG producer may assume the responsibility of laying the pipeline on its own or through any other interested entity. Thus, both CGD entities and CBG producers can avail of FA under Component I.

Further, eligibility criteria for availing FA under Component I includes: (i) CBG plants must have installed CBG production capacity of at least two (2) Tonnes per Day ("**TPD**") and should be registered on GOBARdhan portal; (ii) existing and upcoming CBG plants should have executed gas supply / gas transportation agreement with the relevant CGD entity ensuring minimum fifty percent (50%) take or pay as well as supply or pay arrangement of the average CBG volume produced; and (iii) under construction plants should have completed at least twenty five percent (25%) of physical progress.

'Component II': under this component, FA is provided to the gas pipeline operator ("**GPO**") laying the pipeline connecting the CBG plant to the gas pipeline network. The term 'GPO' refers to those operators who are engaged in the development / laying / operating of the following: (i) natural gas pipeline as authorized by PNGRB; (ii) dedicated pipeline for transportation of natural gas; and (iii) captive pipeline for transportation of natural gas.

Under Component II, FA is provided to GPOs for establishing pipeline connectivity with those CBG clusters / plants which fulfil the following eligibility criteria: (i) the CBG plant should have been registered on the CBG portal; (ii) cluster / plant should have an installed capacity of at least ten (10) TPD; and (iii) under construction plants should have completed at least twenty five percent (25%) of physical progress. Further, the GPO should have executed gas supply / gas transportation agreement with CBG producers ensuring minimum fifty percent (50%) take or pay as well as supply or pay arrangement of the average CBG volume produced.

As gas pipelines typically operate at pressure higher than city gas distribution pipelines, gas pipelines require use of high pressure piping which is more expensive than standard low pressure pipelines. Consequently, the FA contemplated under Component II is relatively higher than the FA provided under Component I.

However, the DPI Scheme has certain inherent limitations. Under Component I, the FA is capped at an upper ceiling of Indian Rupees twenty eight point seventy five crore (INR 28,75,00,000) per project and FA is provided only for pipeline lengths up to seventy five kilometre (75 km). Any pipeline laid beyond this distance must be funded entirely at the beneficiary's own cost. This effectively means that to fully benefit from the DPI Scheme, a CBG producer must strategically locate its plant within approximately seventy five kilometre (75 km) of a CGD entity's network, while simultaneously ensuring that adequate quality feedstock is available in that area.

Balancing these two considerations presents a practical challenge that may limit the DPI Scheme's reach in remote or feedstock-rich areas that are farther from existing CGD infrastructure.

While Component I permits a CBG producer to assume responsibility for laying of pipelines where the relevant CGD entity is unable to do so, there is ambiguity as regards the regulatory regime that will be applicable to laying of pipelines by a CBG producer for transportation of CBG as opposed to a CGD entity which may in turn lead to escalation of the project cost. However, Component I does not make any distinction between the quantum of FA to be made available to the CBG producer *vis-à-vis* a CGD entity for laying of pipelines for transportation of CBG.

The DPI Scheme imposes an obligation on CGD entities connecting to multiple CBG plants to configure pipeline networks in the most optimal manner, including by achieving synergy with existing infrastructure and factoring in planned network expansion. Further, the relevant body responsible for processing of applications i.e., the project management agency is required to examine pipeline configuration to ensure optimal utilization of resources. However, the DPI Scheme does not prescribe any objective criteria or governing framework for determining what constitutes an 'optimal' pipeline configuration in a multi-plant connectivity scenario. This absence of defined parameters creates two distinct risks: first, the potential for disputes between CGD entities and CBG producers over routing decisions, particularly where competing plants have divergent commercial interests in pipeline alignment; and second, the risk of infructuous capital expenditure, where pipelines are laid on a sub-optimal or duplicate routes that could have achieved cost and capacity synergies with existing / future pipeline infrastructure had a clearer framework governed the routing decision.

D. CBG-CGD Synchronisation Scheme

The CBG-CGD synchronization guidelines were first notified by MoPNG on April 9, 2021 and have been amended from time to time ("**Synchro Scheme**") for synchronization of CBG produced by plants in the CGD network. MoPNG has vide policy guideline dated March 18, 2026 extended the tenure of the Synchro Scheme up to December 31, 2047.

GAIL has been designated as the relevant entity under the Synchro Scheme to operationalize the procurement and supply of biogas/CBG, co-mingled with domestic gas, to all CGD entities at a uniform base price ("**UBP**") for use in the CNG (transport) and PNG (domestic) segments. Under the Synchro Scheme, GAIL procures CBG from producers at a certain basic purchase price, adds applicable compression and pipeline charges and supplies it onward at UBP to CGD entities. The Synchro Scheme contemplates three modes for delivery of CBG: cascade delivery of CBG to CGD retail outlets or at the CBG plant gate, direct injection of CBG into the CGD pipeline network via a tie-in pipeline, and injection of CBG through a decompression unit where a direct tie-in is not feasible.

As regards pricing, the current basic purchase price of CBG (applicable from May 1, 2026 to October 31, 2026) is Indian Rupees one thousand four hundred and seventy eight per Metric Million British Thermal Unit ("**MMBTU**") (INR 1,478/MMBTU), with an additional compression charge of Indian Rupees eight per kilogram (INR 8/kg) for delivery through cascades or decompression units, and Indian Rupees two per kilogram (INR 2/kg) for tie-in pipeline delivery. A tabular representation of the pricing structure under the Synchro Scheme is set out below:

Pricing Structure under Synchro Scheme[4]

Commodity	Delivery Mode	GAIL Purchase Price	Sale Price of CBG by GAIL to CGD entity
CBG	Cascades	INR 1478 / MMBTU + compression charge (INR 8 / kg)	UBP+ compression charge
Biogas	Tie-in pipeline	INR 1478 / MMBTU + compression charge (INR 2 / kg)	UBP + compression charge (INR 2 / kg)
Biogas	Cascade decompression unit	INR 1478 / MMBTU + compression charge (INR 2 / kg)	UBP + compression charge (INR 2 / kg)

[4]Applicable from May 1, 2026 to October 31, 2026.

The basic purchase price of CBG is determined semi-annually and has been pegged at eighty five percent (85%) of the simple average of retail selling price of CNG of GAIL CGDs, GAIL's joint venture companies and GAIL Gas Limited on any working day between 16th-22nd day of the month (excluding GST at 5%) for the six-month period immediately preceding the date of determination of the basic purchase price.

Given that the basic purchase price of CBG is computed as a percentage of retail selling price of CNG of GAIL CGDs, GAIL's joint venture companies and GAIL Gas Limited, the basic purchase price is entirely de-linked from feedstock and other inputs costs, exposing CBG producers to input price volatility without a corresponding pass-through mechanism. Therefore, the CBG producer's revenue is a function of downstream CNG retail prices rather than input economics which substantially increases the risk of the CBG producer defaulting on its loan facilities.

Further, under the Synchro Scheme, for cascade transportation, a transportation charge is payable from the location of the biogas plant upto the delivery point and is required to be paid directly by the beneficiary CGD entity to the biogas producers. Set out below is a tabular representation of the applicable transportation charges.

Transportation Charges for supply through Cascades[5]

One-Way distance from Biogas Plant upto Delivery Point	Transportation Charges
0-50 km	Nil
>50 -75 km	INR 1.5 / kg
>75 km	INR 2.5 / kg

[5]Transportation charges 50 km is included in the procurement price.

Pertinently, transportation charges payable for cascade-based delivery are not indexed to a formula that accounts for fuel price fluctuations, creating an additional unhedged cost exposure for producers who rely on road transport for CBG evacuation.

While the tenure of the Synchro Scheme has been extended till 2047 in order to spur private investment in the CBG sector, there is a critical need for ensuring that the pricing methodology under the Synchro Scheme is reflective of the fluctuating price of key inputs.

E. GOBARdhan

GOBARdhan was launched by the Department of Drinking Water and Sanitation, Ministry of Jal Shakti, on April 30, 2018. It was introduced for the management and conversion of cattle dung and solid waste in farms to compost, fertilisers, biogas and bio-CNG. There are various other ministries that participate in this initiative, MoPNG being one of them. MoPNG provides a unified portal for registration of CBG plants. It will be implemented from FY 2026-27 to FY 2035-36 and will establish CBG as a major pillar of India's future energy mix.

Recently, in this context, the Union Cabinet approved GOBARdhan, the National Circular Bioenergy Scheme ("**Scheme**") with a total outlay of Indian Rupees twenty three thousand seven hundred and thirty one crores (INR 2,37,31,00,00,000) on August 6, 2026. To translate GOBARdhan's vision into measurable outcomes on the ground, the Government has structured it around six integrated components:

1.	**Offtake assurance**	**The procurement by CGD entities will support achievement of the notified CBG blending obligation trajectory of three percent (3%) in FY 2026-27, four percent (4%) in FY 2027-28 and five percent (5%) from FY 2028-29 onwards in the CNG (Transport) and PNG (Domestic) segments.**
2.	Pricing	The Scheme introduces an administered price of Indian Rupees two thousand one hundred and ten per MMBTU (INR 2,110/MMBTU) equivalent to Indian Rupees one hundred and five per kilogram (INR 105/kg) of CBG ensuring stable and remunerative pricing.
3.	Capital assistance	Eligible greenfield CBG projects will receive capital assistance of up to Indian Rupees two crore per TPD (INR 2,00,00,000/TPD) of installed CBG capacity.
4.	Credit guarantee support	The Scheme provides for a dedicated credit guarantee mechanism, which includes sharing a portion of lending risk, thereby improving access to affordable finance.
5.	CBG Ecosystem Challenge Fund	The Scheme contemplates establishing a dedicated CBG ecosystem challenge fund to accelerate district-level implementation.
6.	Pipeline infrastructure	The Scheme supports both cluster-based and standalone pipeline infrastructure connecting CBG plants with trunk pipelines and CGD networks.

[6]Please note that the detailed framework governing GOBARdhan is not available.

While the Scheme marks a promising start, particularly in that it offers long-term revenue visibility to CBG producers by introducing an administered price of Indian Rupees two thousand one hundred and ten per MMBTU (INR 2,110/MMBTU), the Central Government is yet to notify detailed implementation guidelines for the Scheme. Once notified, these guidelines will need to be scrutinised to assess their effectiveness.

Conclusion

India's CBG sector stands at an inflection point, with the policy trajectory of the past few years reflecting a clear shift from merely promoting CBG to actively incentivising its production. Key policy measures discussed in this article, the CBO Direction, the DPI Scheme, the revamped Synchro Scheme, and the recently approved GOBARdhan National Circular Bioenergy Scheme, collectively signal a strong policy-level commitment to building a durable demand and infrastructure base for CBG.

However, the sector's growth remains constrained by unresolved legal and regulatory questions that go to its foundations. These include the absence of clarity on whether the Union or the States have legislative competence over CBG, ambiguity regarding PNGRB's jurisdiction over the CBG ecosystem, and the challenges posed by contract farming laws across states to aggregation of good quality feedstock. Together, these gaps leave project developers and lenders having to price in a degree of regulatory risk disproportionate to the sector's underlying commercial promise.

To accelerate the pace of growth and development of the CBG sector, it is essential that: (a) there be clarity on whether the Union or the States have exclusive legislative competence over CBG; (b) a dedicated regulator be vested with clear jurisdiction over the sector; and (c) key government schemes discussed in this article be further reformulated to address their underlying shortcomings. Until the regulatory framework governing the CBG sector is fundamentally overhauled, its promise as a driver of energy security and circular waste management will continue to be tempered by the legal uncertainty that presently surrounds it.

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