



COUNTRY ASSESSMENT REPORT BRAZIL

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1.1 Country Assessment Report Template

Country Name	Brazil
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1.2 Production and Demand of Natural Gas, Biogas and Biomethane

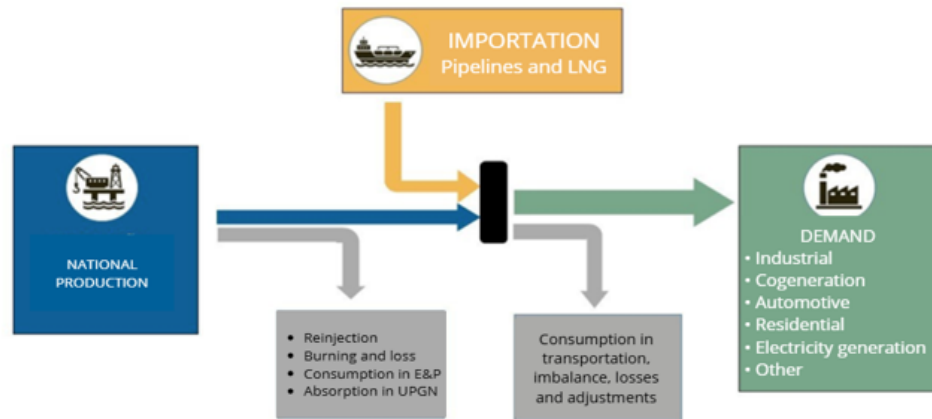
Production	Source	Number of plants or facilities	Annual production ¹ (MM BTU or Nm ³)
Natural Gas	Maritime / Land-based	270 ¹	16.899,5 mi m3/year ¹
Imported Natural Gas	Bolivia and Regasification GNL	---	8.051,9 mi m3/year ¹
Biomethane	Landfill biogas Agricultural and livestock waste biogas biogas from other sources	10 ¹	81,5 mi Nm3/year ¹ 307 mi Nm3/year - including self consumption and out of specification purified biogás outside ANP regulatory scope ³
Biogas	Agriculture Industry Sewage	1.268 ² 170 149	641 mi Nm3/year ²
1- Source: Boletim Mensal - https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis/publicacoes-1/boletim-mensal-de-acompanhamento-da-industria-de-gas-natural/2024 2- Source: Panorama do Biogás - https://materiais.cibiogas.org/panorama-do-biogas-2024 3- Source: https://www.cnnbrasil.com.br/branded-content/nacional/biometano-pode-substituir-gas-e-diesel-no-brasil-diz-ceo-da-copersucar			
Demand	Sector	Demand (MM BTU or Nm ³)	
	Industry	38,94	
	Transport	4,57	
	Residential	1,46	
	Commercial	0,90	
	Electric Generation	18,09	
	Co-Generation	1,32	
	Others (including GNC)	0,64	
	Total	66,22 MMm ³ /d or 24.170,3 mi m3/year	
(Source: Boletim Mensal de acompanhamento da indústria de gás natural 12/2024)			

SCHEMATIC BALANCE SHEET

¹ Clear conversion between volume and energy units enhances interoperability and enable global trade. For biomethane two key unit systems are commonly used:

Volume-based units: normal cubic meters (Nm³), adjusted for methane purity, reflect physical quantity and infrastructure compatibility.

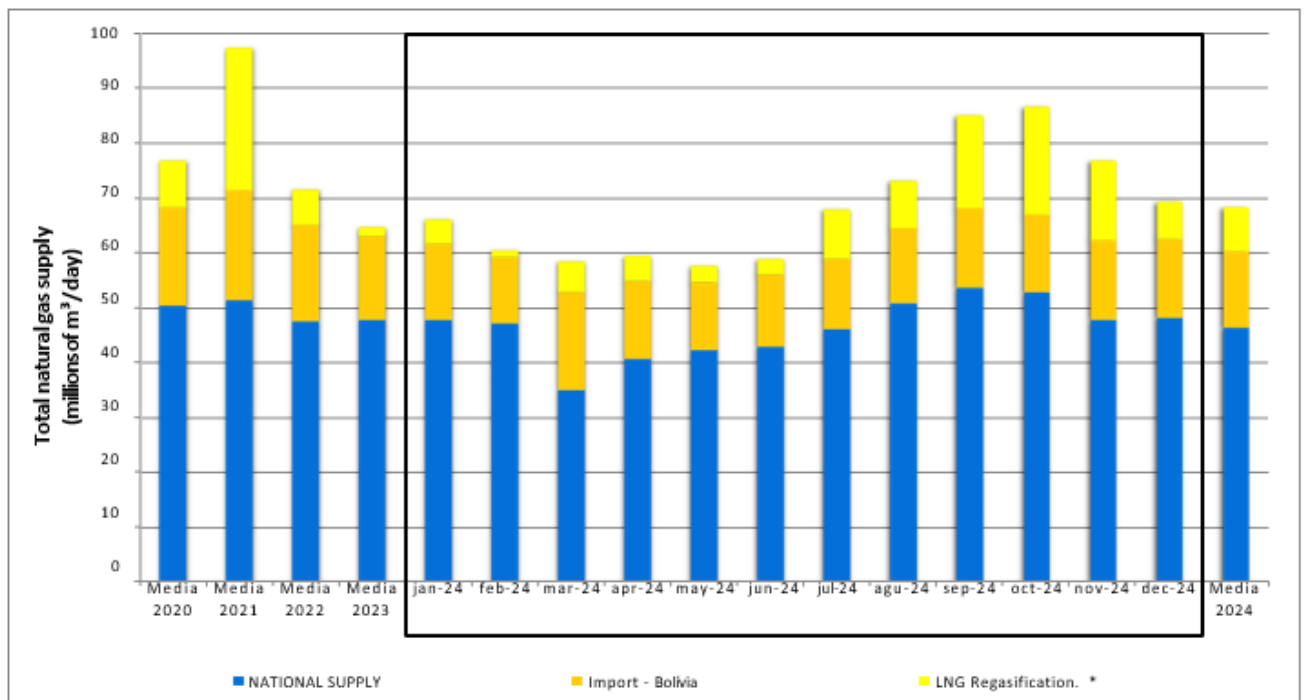
Energy-based units: MMBtu or GJ measure standardized energy content, according to the methane specific lower or higher heating value. According to the International Energy Agency, biomethane has a lower heating value (LHV) of around 36 MJ/m³.



MONTHLY MONITORING BULLETIN OF THE NATURAL GAS INDUSTRY

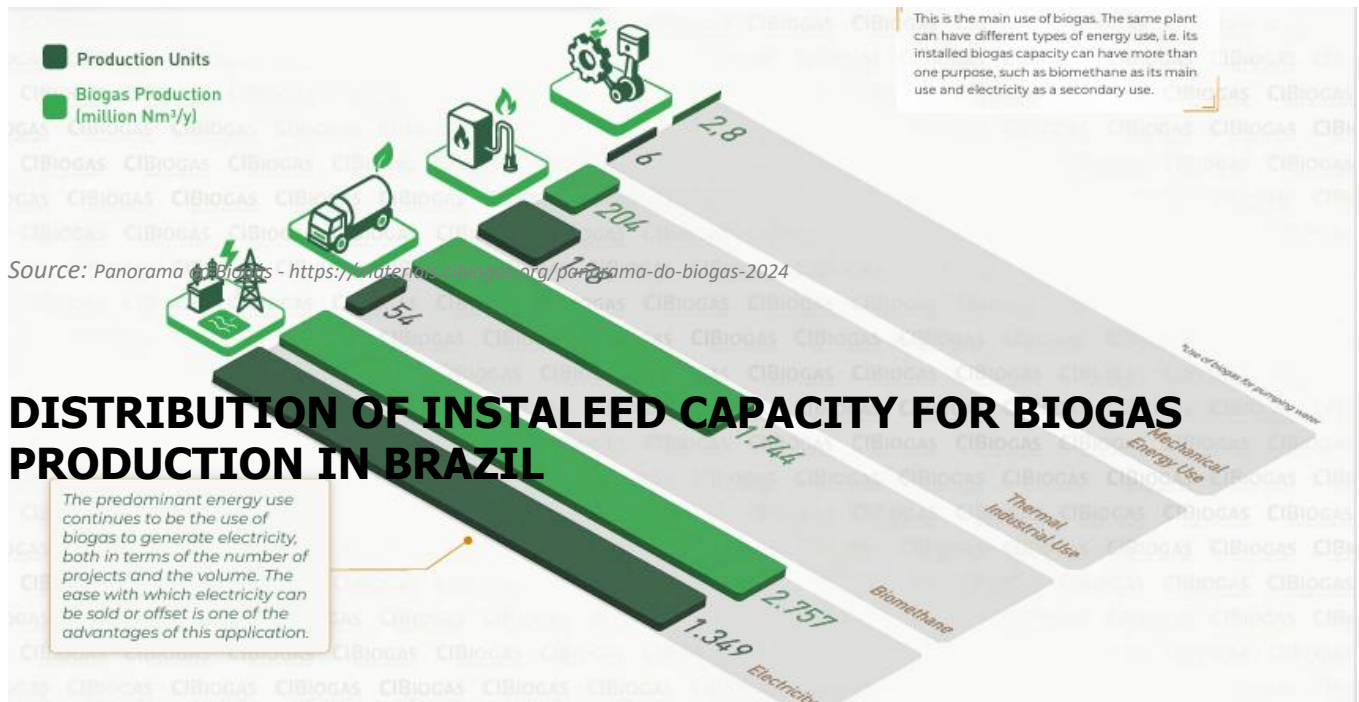
DECEMBER 2024

Source: Boletim Mensal de acompanhamento da indústria de gás natural 12/2024- <https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis/publicacoes-1/boletim-mensal-de-acompanhamento-da-industria-de-gas-natural/2024>



Source: Boletim Mensal de acompanhamento da indústria de gás natural 12/2024- <https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis/publicacoes-1/boletim-mensal-de-acompanhamento-da-industria-de-gas-natural/2024>

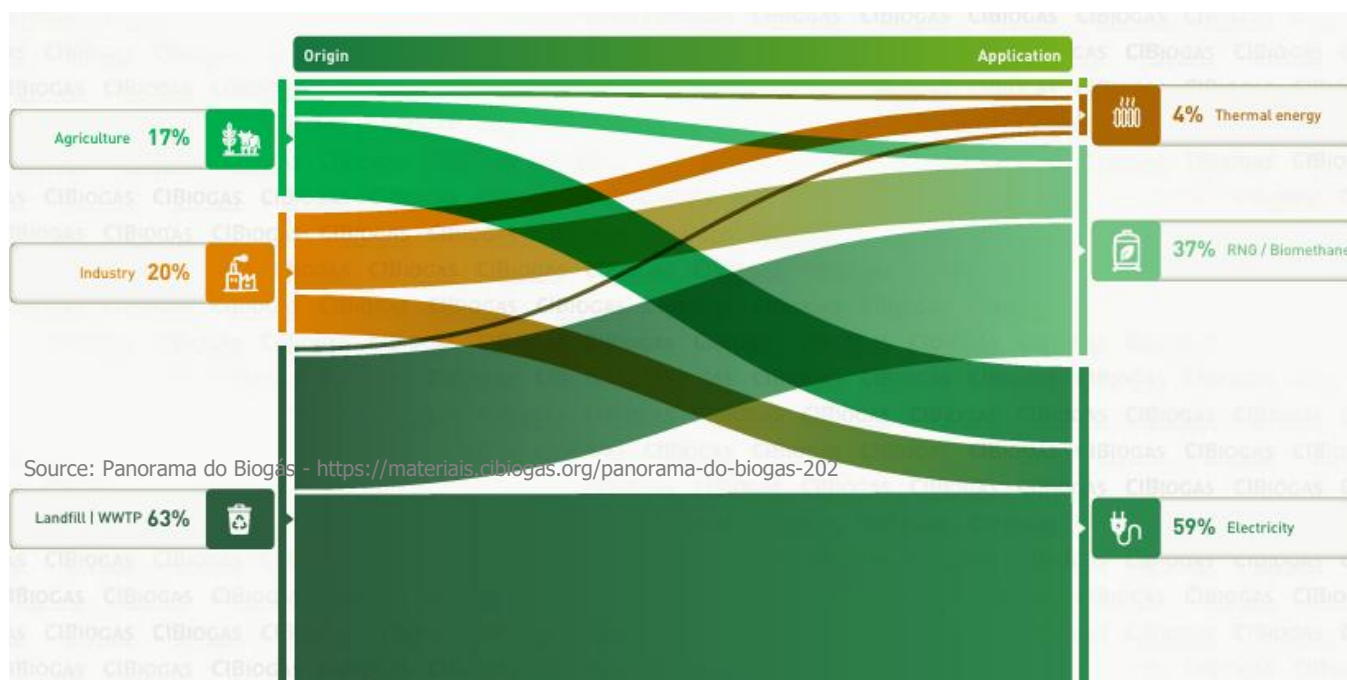
EVOLUTION OF THE SECTOR BETWEEN 2015 AND 2024



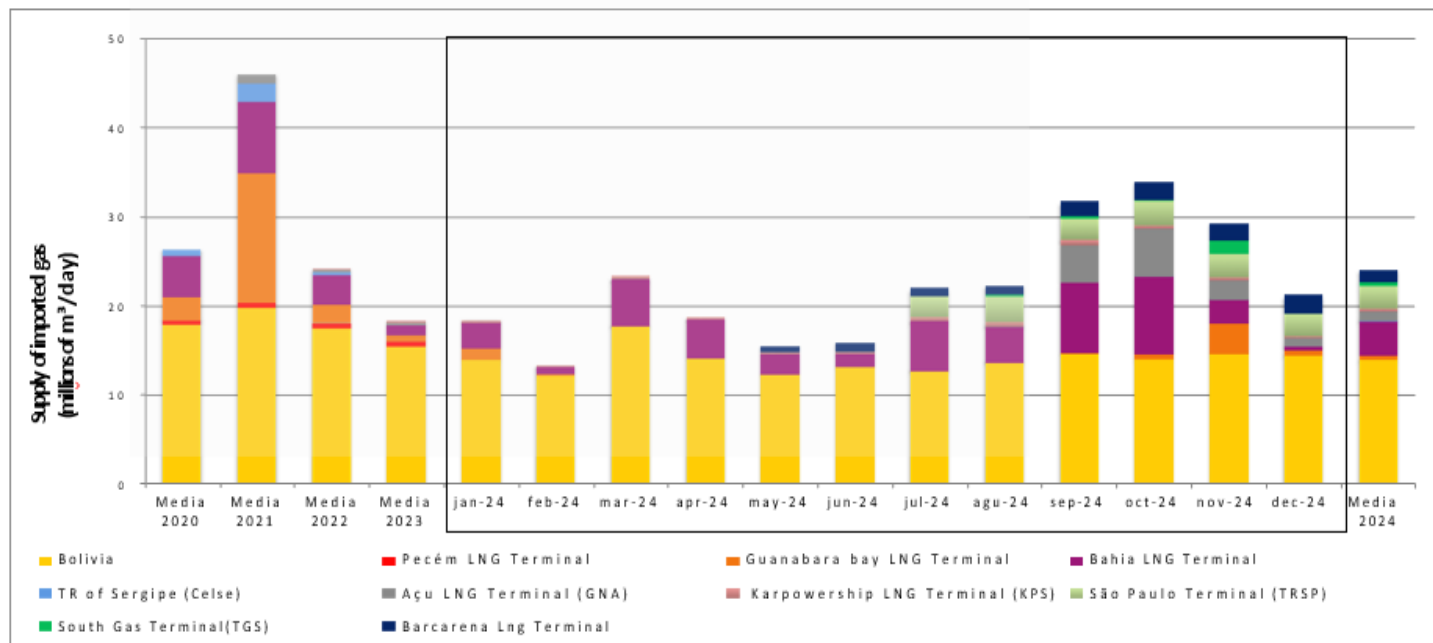
Source: Panorama do Biogás - <https://materiais.cibiogas.org/panorama-do-biogas-2024>

SANKEY (SOURCE VERSUS APPLICATION)

1.3 Gas Grid Interconnections and General Import/Export Activity		
Connected country	Annual import from country MMm ³ /d	Annual export to country (MM BTU or m ³)
Bolivia	13,84 mi m ³ /d	-
Other countries export liquified natural gas (USA, Spain, Nigeria, Catar, EAU, Guiné Equatorial, UK)	12,66 mi m ³ /d	-
others	-	Not relevant



Supply of Imported Natural Gas



Source: Boletim Mensal de acompanhamento da indústria de gás natural 12/2024- <https://www.gov.br/mme/pt-br/assuntos/secretarias/petroleo-gas-natural-e-biocombustiveis/publicacoes-1/boletim-mensal-de-acompanhamento-da-industria-de-gas-natural/2024>

IMPORT OF LIQUEFIED NATURAL GAS

The following table presents the imported volumes of LNG that appear on the portal for free access to foreign trade statistics of Brazil - Comex Stat of the Ministry of Economy (<http://comexstat.mdic.gov.br/pt/geral>). It is important to note that the information contained in Comexstat is based on the date of effective customs clearance, which can occur days/months after the GNL unloading.

Month	Total Amount (US\$ FOB)	Total Amount (US\$ CIF)	Net Weight (Kg)	LNG volume (m³)	GN irrigation volume (m³)	FOB1 Price (US\$/MMBTU)	CIF2 Price (US\$/MMBTU)	Origin	Port of Entry
Total January/2024	63.370.185	68.404.389	164.678.895	365.953	219.571.860	7,74	8,35	United States	Campos dos Goytacases - RJ, Bahia - BA, Rio de Janeiro - RJ
Total February/2024	77.250.420	80.661.376	132.728.380	294.952	176.971.173	11,70	12,22	United States, Spain	Bahia - BA, Rio de Janeiro - RJ, São Paulo - SP
Total March/2024	70.928.554	75.462.474	191.325.694	425.168	255.100.925	7,45	7,93	Spain, United States, Nigeria	Bahia - BA, Pará - PA
Total April/2024	113.243.613	123.415.281	313.300.656	696.224	417.734.208	7,27	7,92	United States	Bahia - BA, Santa Catarina - SC
Total May/2024	447.404.114	463.481.606	337.425.448	749.834	449.900.597	26,66	27,62	United States	Bahia - BA, São Paulo - SP
Total Jun/2024	113.551.468	116.882.962	121.700.618	270.446	162.267.491	18,76	19,31	United States, United Kingdom	Bahia - BA, Rio de Janeiro - RJ
Jul/2024	79.225.193	85.929.382	59.943.616	133.208	79.924.821	26,57	28,82	Qatar	Bahia - BA
Jul/2024	66.394.966	68.290.615	120.940.712	268.757	161.254.283	11,04	11,35	United States	Bahia - BA
Jul/2024	41.505.374	45.643.124	101.322.420	225.161	135.096.560	8,24	9,06	United States	São Paulo - SP
Jul/2024	16.896.082	18.403.196	53.623.275	119.163	71.497.700	6,34	6,90	United States	Pará - PA
Jul/2024	12.877.388	13.967.098	9.792.552	21.761	13.056.736	26,44	28,68	United Arab Emirates	Bahia - BA
Total Jul/2024	216.899.003	232.233.415	345.622.575	768.050	460.830.100	12,62	13,51	Qatar, United States, United Arab Emirates	Bahia - BA, São Paulo - SP, Pará - PA
Aug/2024	166.595.562	170.599.740	142.098.939	315.775	189.465.252	23,57	24,14	United States	Bahia - BA
Aug/2024	94.648.007	120.446.815	246.994.714	548.877	329.326.285	7,70	9,80	Qatar	Sergipe - SE
Aug/2024	26.565.981	28.995.981	62.230.172	138.289	82.973.563	8,58	9,37	United States	São Paulo - SP
Aug/2024	7.974.066	9.757.529	33.084.617	73.521	44.112.823	4,85	5,93	United States	Pará - PA
Total Aug/2024	295.783.616	329.800.065	484.408.442	1.076.463	645.877.923	12,28	13,69	Qatar, United States	Bahia - BA, Sergipe - SE, São Paulo - SP, Pará - PA
Sep/2024	225.235.932	230.845.260	308.490.087	685.534	411.320.116	14,68	15,05	United States	Bahia - BA
Sep/2024	19.071.189	19.423.994	31.734.251	70.521	42.312.335	12,08	12,31	United States	Rio de Janeiro - RJ
Sep/2024	30.267.900	34.068.106	65.916.678	146.482	87.888.904	9,23	10,39	United States	Sergipe - SE
Sep/2024	39.288.803	39.739.079	28.698.312	63.774	38.264.416	27,53	27,84	Equatorial Guinea	Bahia - BA
Sep/2024	35.526.005	37.562.865	109.478.526	243.286	145.971.368	6,52	6,90	United Kingdom	Rio de Janeiro - RJ
Sep/2024	31.917.131	33.321.328	38.024.000	84.498	50.698.667	16,88	17,62	United Kingdom	Rio de Janeiro - RJ
Total Sep/2024	381.306.960	394.960.632	582.341.854	1.294.093	776.455.805	13,17	13,64	United States, Equatorial Guinea, United Kingdom	Bahia - BA, Sergipe - SE, São Paulo - SP, Pará - PA
Oct/2024	35.304.883	36.895.883	100.898.740	224.219	134.531.653	7,04	7,35	United Kingdom	Campos dos Goytacases - RJ
Oct/2024	46.753.084	51.613.084	122.723.334	272.719	163.631.112	7,66	8,46	United States	São Paulo - SP

Oct/2024	139.644.588	143.199.078	213.609.356	474.687	284.812.475	13,14	13,48	United States	Bahia - BA
Oct/2024	19.251.124	20.407.124	60.248.269	133.885	80.331.025	6,42	6,81	United States	Pará - PA
Total Oct/2024	240.953.679	252.115.169	497.479.699	1.105.510	663.306.265	9,74	10,19	United States, United Kingdom	Campos dos Goytacases - RJ, São Paulo - SP, Bahia - BA, Pará - PA
Nov/2024	21.712.534	22.163.327	54.382.115	120.849	72.509.487	8,03	8,19	United Kingdom	Campos dos Goytacases - RJ
Nov/2024	35.783.397	37.132.418	54.265.664	120.590	72.354.219	13,26	13,76	United States	Bahia - BA
Nov/2024	16.232.010	19.272.135	59.350.517	131.890	79.134.023	5,50	6,53	United States	Pará - PA
Total Nov/2024	73.727.941	78.567.880	167.998.296	373.330	223.997.728	8,82	9,40	United Kingdom, United States	Campos dos Goytacases - RJ, Bahia - BA, Pará - PA
Dec/2024	23.548.137	26.271.487	63.802.630	141.784	85.070.173	7,42	8,28	United States	São Paulo - SP
Dec/2024	29.540.818	30.348.140	63.694.553	141.543	84.926.071	9,32	9,58	United States	Sergipe - SE
Total Dec/2024	53.088.955	56.619.627	127.497.183	283.327	169.996.244	8,37	8,93	United States	Sergipe - SE and São Paulo - SP
Total 2024	2.147.508.508	2.272.604.876	3.466.507.740	7.703.351	4.622.010.320	12,46	13,18	Qatar, United States, Spain, Nigeria, United Kingdom, Equatorial Guinea, United Arab Emirates	Campos dos Goytacases - RJ, Bahia - BA, Rio de Janeiro - RJ, São Paulo - SP, Pará - PA, Santa Catarina - SC, Sergipe - SE

Source: Comex Stat (Ministry of Development, Industry and Foreign Trade)

1 - FOB (Free on Board): goods delivered shipped at origin, does not include freight and insurance.

2 - CIF = FOB + FREIGHT + INSURANCE

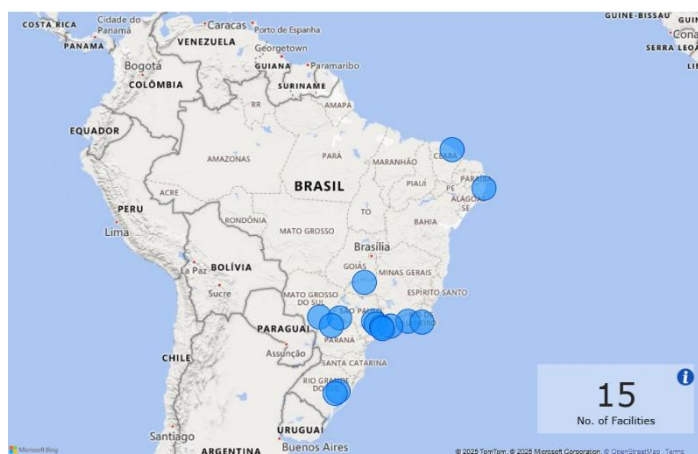
1.4 Market Structure

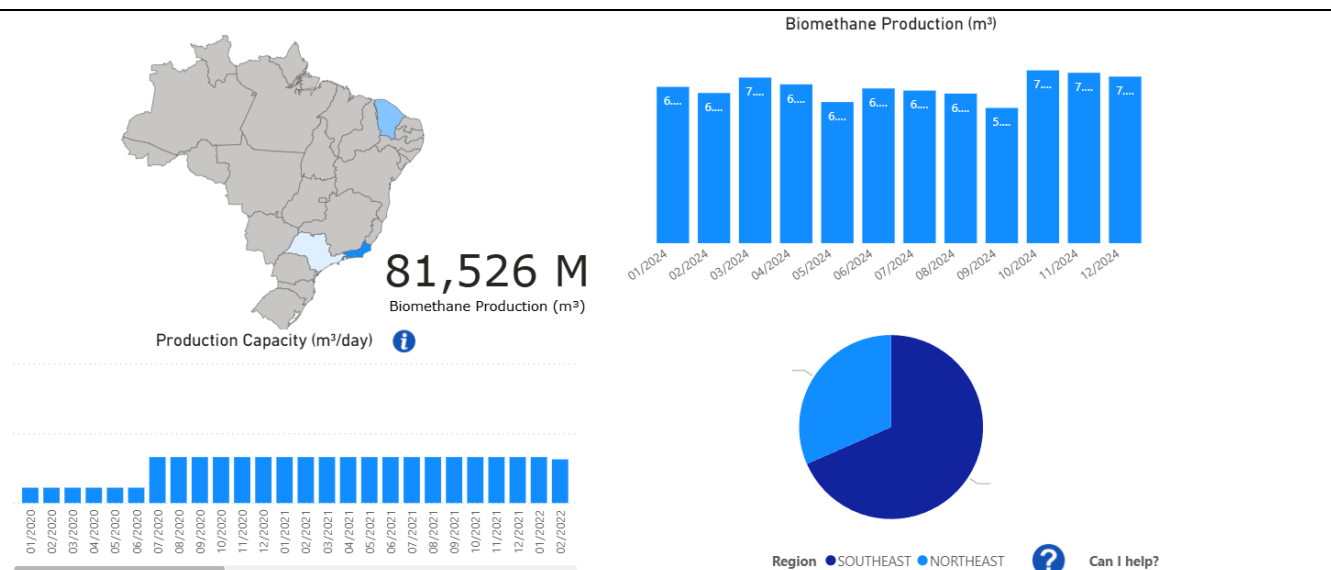
The Brazilian energy and fuel market is undergoing a period of intense transformation, driven by the opening up of the Natural Gas (NG) sector and the consolidation of gaseous biofuels, biogas, and biomethane as strategic vectors of the national energy transition.

Although the biogas and biomethane market is still considered incipient and underexploited, Brazil is experiencing rapid growth, with the potential to position itself among the leading global producers. The diversification of raw materials, the strengthening of public policies, and the economic and environmental benefits associated with these fuels are driving the country towards industrial maturity and international competitiveness.

Among the main sources of production are sugarcane bagasse, vinasse, and rice straw, residues widely generated by the national sugar-energy and agricultural sectors. In addition, the use of livestock waste (cattle, pigs, and poultry) and urban waste (organic and sewage) reinforces the versatility and scope of the biogas production matrix. Currently, about 77% of Brazilian biogas plants use agricultural waste as their main source of thermal energy; however, 74% of annual production still comes from the sanitation sector, especially landfills, which account for approximately 96% of the volume generated. Over the last ten years, national biogas production has grown by 87%, consolidating its position as one of the most dynamic areas of the Brazilian bioeconomy.

Biomethane





Source: Paineis Dinâmicos de Produtores de Biometano - <https://www.gov.br/anp/pt-br/centrais-de-conteudo/paineis-dinamicos-da-anp>

Today, the country has 1,365 biogas and biomethane plants, totaling an installed capacity of 4.6 billion cubic meters per year. Despite this, the estimated technical potential exceeds 84 billion cubic meters per year, showing ample room for expansion. This scenario has attracted significant investments from national and multinational companies, focused on the implementation of new units, expansion of existing infrastructure, and incorporation of technologies aimed at energy efficiency and biomethane purification. Looking ahead, it is estimated that by 2033, Brazil will occupy a strategic position in the global energy market, contributing decisively to the achievement of net-zero emissions targets, consolidated in international climate commitments.

Brazil's biomethane market is moving from pilots to scale thanks to a mix of policy signals and emerging price references. On price, the first Argus indicators (Mar/2024) put São Paulo/Rio de Janeiro parity for biomethane at R\$ 2.45–2.77/m³, incorporating both local natural-gas benchmarks and RenovaBio CBIO revenues for certified producers—useful as a public proxy for dealmaking and offtake planning. On volumes, a recent U.S. USDA brief reports 81.5 million m³ of biomethane produced in 2024, with 25 plants in authorization that could add ~1.1 million m³/day of capacity. (Investing.com Brasil)

On incentives, Brazil's Fuel of the Future Law (Law 14.993/2024) created the CGOB (biomethane Guarantees of Origin) and a national biomethane program, paving the way for mandates starting in 2026; drafts and guidance indicate compliance either by physical consumption or by purchasing and retiring CGOBs, with penalties for non-compliance. RenovaBio continues to set compulsory CBIO targets (e.g., 40.39 million CBIOs for 2025), providing an additional revenue stream to certified producers.

States are layering fiscal support—e.g., ICMS reductions/waivers enabled by CONFAZ Convênio 129/2024 and specific decrees like Paraná's and Mato Grosso do Sul's ICMS exemption for the biogas/biomethane chain. Prospectively, the combination of CGOB-based compliance, CBIO income, and state-level tax relief underpins bankability; dedicated auctions or national feed-in tariffs are not the primary tool today, with policy momentum centered on certificates and mandates. (planalto.gov.br)

According to "Argus Brazil Gas Market" from Argusmedia.com, Issue 25-43 (November 2025), biomethane average prices is R\$ 3,28/m³ (US\$ 0,61/m³); CBIO prices is R\$ 35,35/CBIO (US\$ 6,58/CBIO). There are no listed prices for CGOB and GAS-REC. Anecdotal market information places certificate prices at around R\$1/m³, but there is no indication that prices will remain at this level when the regulated market is implemented.

Brazil's natural gas market

Brazil has a hybrid model: regulated captive market and a gradually opening free market.

Captive market: Small/medium consumers buy from state distribution utilities (LDCs) at regulated tariffs and standard contracts. LDCs source gas via long-term supply (domestic, Bolivia via Gasbol, and LNG regas) and pay state-approved network charges.

Free market (market livre): Eligible large users (industry, power plants, some commercial) can choose suppliers, negotiate prices/indexation, and contract transport capacity directly (entry/exit tariffs on federal pipelines). Unbundling and "Novo Mercado de Gás" reforms promote open access, third-party gas processing, and competitive supply.

Supply stack: Offshore pre-salt associated gas + onshore output, Bolivian pipeline gas, and LNG via regas terminals.

Swaps & flexibility: To manage pipeline constraints and location mismatches, agents use virtual swaps (title transfers without physical redirection), backhaul/displacement arrangements, and commercial swaps between suppliers/LDCs to net positions at different city-gates. These reduce transport costs, unlock stranded demand, and hedge seasonal volatility.

Overall, the captive segment ensures universal service, while the free market and swaps improve efficiency, liquidity, and price discovery.

Notable associations:

- **Brazilian Biogas and Biomethane Association (ABiogás):** Founded in 2013, ABiogás represents the entire biogas and biomethane value chain in Brazil. It organizes events such as the Biogas Forum, considered the largest biogas event in Latin America, and develops tools such as strategic mapping platforms to assist in the expansion of the sector.

- **CIBIOGAS: Science, Technology, and Innovation Institution** – dedicated to the development of biogas as a renewable energy resource. It operates throughout the biogas chain, offering solutions in planning, plant design and operation, technical consulting, laboratory analysis, fundraising, and professional training.

- **ABRACE (Brazilian Association of Large Industrial Energy Consumers and Free Consumers)** represents the country's intensive energy demand, connecting industry and large-scale energy transport. In natural gas, it is a central voice for openness and competition (access to pipelines, tariff transparency, flexible contracts, and swaps), expanding supply and reducing costs for industry. In biomethane, it acts as a demand driver by advocating for traceability rules and integration into the free market, favoring PPAs, certificates of origin, and corporate decarbonization goals.

- **ABEGÁS (Brazilian Association of Piped Gas Distribution Companies)** represents state distribution companies, coordinating regulation, safety, and network expansion. In the natural gas sector, it plays a key role in issues such as tariffs, access, and infrastructure investment, enabling high-quality, continuous industrial, commercial, and mobility (NGV) demand. In the biomethane sector, it works on grid injection (technical standardization, connection and metering contracts), integrating local producers into the market, and unlocking landfill, agribusiness, and sanitation projects with traceability and environmental attributes.

PIPELINE IN OPERATION – BRAZIL



Map of Natural Gas Distributors



Source: <https://www.abegas.org.br/concessionarias>

1.5 Responsible Government Department

The natural gas, biogas, and biomethane sector in Brazil is regulated by a combination of federal and state agencies, which work together to ensure market supervision, incentives, and regulation. Below are the main entities involved:

National Agency of Petroleum, Natural Gas, and Biofuels (ANP)

The ANP is the main regulatory agency for the natural gas, biogas, and biomethane sector. It establishes technical norms and quality standards for the production and use of these fuels, including the interchangeability of biomethane with natural gas. The ANP also supervises the market, certifies the origin of biomethane through Certificates of Origin Guarantee (CDOB), and promotes the development of policies to encourage the sustainable production and commercialization of these gases.

Ministry of Mines and Energy (MME)

The MME formulates public policies related to energy in Brazil, covering natural gas, biogas, and biomethane. The ministry sets expansion targets, regulates incentives, monitors the integration of these fuels into the energy matrix, and promotes public consultations on the use of biomethane and renewable sources, in line with the country's decarbonization goals.

State Regulatory Agencies

State agencies, such as ARSESP in São Paulo, regulate the operation of biomethane plants and their integrated distribution into the piped gas system, in addition to enforcing compliance with regulations in their respective regions.

1.6 Existing/Planned Legislation

The Brazilian regulatory framework for biogas, biomethane, and natural gas is constantly evolving, with various federal and state regulations structuring the sector. Among these, the following stand out:

Law No. 14,993/2024 (Fuel of the Future)

Creates the National Program for the Decarbonization of Natural Gas Producers and Importers and for the Promotion of Biogas and Biomethane, establishing the CGOB as a traceability certificate. The CGOB allows for verification of the renewable origin of biogas and biomethane, ensuring their contribution to the reduction of greenhouse gas emissions and promoting the transition to cleaner energy sources.

Decree No. 12,614/2025

Regulates Law No. 14,993/2024, defining concepts and responsibilities for program agents, such as primary issuers, registries, and registration entities. The decree establishes rules for the issuance, registration, trading, retirement, and public disclosure of CGOB and similar fungible certificates.

It allows CGOB to be traded as an environmental attribute separate from the physical biogas or biomethane molecule, provided that there is proof of the molecule's destination without using the environmental attribute, thus avoiding double counting. It also recognizes the retirement of CGOB when the attribute is incorporated into products, processes, or inventories. CGOB is in the final stages of regulation by the ANP and will be fungible with I-TRACK(G). According to the article below:

“Art. 12. A ANP regulamentará os procedimentos para garantir a rastreabilidade, a transparência e a credibilidade do CGOB, e a sua fungibilidade com outros certificados, quando aplicável.”

Translated version:

“Article 12. ANP shall regulate the procedures to ensure the traceability, transparency, and credibility of the CGOB, as well as its fungibility with other certificates, when applicable.”

Law No. 14,120/2021 – National Biofuels Policy (RenovaBio)

Although focused on liquid fuels, the law sets carbon intensity reduction targets for the transportation sector, which can be achieved through the use of biofuels, including biogas and biomethane. The legislation provides for the issuance of Decarbonization Credits (CBIOS) to producers, with biogas and biomethane contributing to the fulfillment of these targets. There are still discussions about the risk of double counting between CBIOS and CGOBs, creating possible ambiguities in the application of these instruments.

ANP Resolutions

The ANP establishes technical specifications for biogas and biomethane, ensuring their quality and safety in the market. Highlights include:

- Resolution No. 886/2022 – standards for biogas and biomethane from landfills and sewage treatment plants;
- Resolution No. 906/2022 – requirements for biogas and biomethane from agricultural, forestry, and commercial organic waste.

State Legislation – State of São Paulo

The State of São Paulo has made progress in regulating biogas and biomethane. Technical Note No. 0075935683/2025-53 proposes guidelines for the creation of the São Paulo Biogas and Biomethane Guarantee of Origin Certificate, encouraging the production and consumption of these gases and promoting traceability and transparency in the market.

In addition, CETESB (Environmental Company of the State of São Paulo) has updated environmental licensing standards for biogas and biomethane plants, streamlining processes and strengthening the sector's sustainability. These proposals are still at an early stage, and only after they are fully implemented will it be possible to establish links with CGOB and I-TRACK(G).

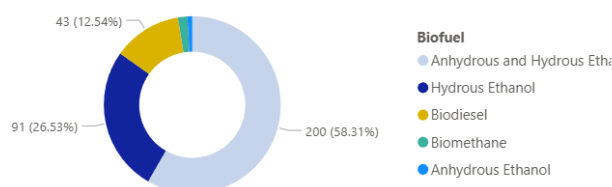
1.7 Existing/Planned Certificate or Support Systems

Snapshot of current initiatives in Brazil impacting the biomethane market

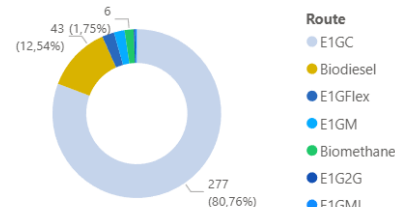
1. **RenovaBio (CBIOS)**

National policy that rewards biofuel efficiency via **C BIO** decarbonization credits. For biomethane sold as a **biofuel**, CBIOS remain a relevant revenue stream alongside gas sales.

Biofuel Certified Processes



Certified Processes by Route



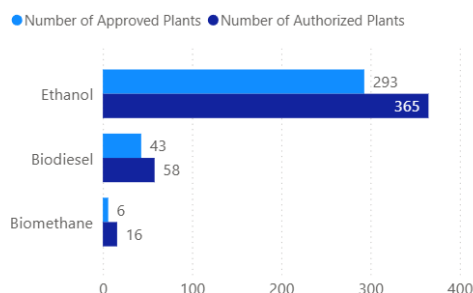
% Certified Mills in Relation to Usinas Authorized

77,90%

% Mills in Process Certification against Authorized Plants

82,46%

Biofuel Producers



Authorized Plant: plant authorized by the ANP to carry out the activity of biofuel production.

Certified Plant: plant authorized by the ANP that has a Certificate of Efficient Production of Biofuels and is qualified to request the issuance of a Decarbonization Credit.

2. Future Fuels Act (Law 14,993/2024) & Decree 12,614/2025

Creates a **biomethane incentive program**, sets **mandatory GHG-reduction targets for natural-gas producers/importers** (to be set by CNPE), and introduces the **CGOB** (Biomethane Guarantee of Origin Certificate) for traceability and environmental attributes (issuance, registry, retirement).

Biomethane purchase mandate

Decree 12,614/2025 directs **CNPE** to set annual GHG-reduction targets for obligated parties (gas producers/importers), to be met using **biomethane/CGOB**—in practice, a **biomethane mandate**. MME Ordinance No. 874, dated October 16, 2025, proposes a target of 0.25% by volume, equivalent to approximately 240,000 m³ per day. The ANP (National Agency of Petroleum, Natural Gas and Biofuels) conducted a public consultation regarding this value, and the final value is expected to be announced by the end of 2025.

CGOB – design and regulation

The decree defines key roles (obligated parties, registry operator, retirement rules). Use of **CGOB** becomes the official way to prove biomethane participation in the obligated parties' mix. Some states (e.g., São Paulo) are also discussing a **state-level CGOB**. The law permits use of similar fungible certificates, as GAS-REC.

3. State and sub-national initiative

4. **Mato Grosso do Sul:** fiscal incentives (ICMS base reductions and credits) and a state committee (AGEMS) dedicated to biogas/biomethane;

5. **Municipality of São Paulo:** BioSP program to deploy **biomethane buses** and enable public procurement of biomethane.

6. **State of Rio de Janeiro:** pilots with gas/biomethane buses on intercity routes.

7. Carbon markets (voluntary and future regulated)

Projects on **avoided methane** (landfills/WWTPs) and **fuel switching** (natural gas → biomethane) are eligible in the **voluntary market** under active methodologies. Brazil's forthcoming **SBCE** (regulated ETS) is being designed and may interact with these instruments later.

8. Private certification & traceability

- **GAS-REC** (Instituto Totum): private certificate to track **biogenic origin** and chain of custody for biogas/biomethane.

GAS-REC IN NUMBERS

- ✓ 7 approved units;
- ✓ 2 under Certification.

Year of generation (mmbtu):

2021	943.009,00
2022	1.070.833,00
2023	1.748.059,00
2024	596.556,00
Total	4.358.457,00

End-users:

- Heineken;
- Pepsico;
- Metso.

Feedstocks

- Vinasse;
- Landfill;
- Animal waste.

Market Players:

- Pipeline operators;
- Landfill operators;
- Sugarcane units;
- Liquefied Gas Distributors.

- **BioREC (Gás Verde):** Proprietary certificate for environmental attributes of biomethane. These certificates coexist with the public Certificate of Origin Guarantee (CDOB); some states are studying the creation of a complementary green seal of origin. The data for this certification is not public, but anecdotal information indicates that it represents less than 5% of the volume of GAS-REC.
- **City-level decarbonization with biomethane buses :** Proprietary certificate for biomethane environmental attributes. These coexist with the public CDOB, and some states are studying a complementary “green seal” of origin. The data from this certification are not publicly available, but anecdotal evidence indicates that it represents less than 5% of the total GAS-REC volume.
Momentum in São Paulo (BioSP) and Rio de Janeiro for deploying bus fleets running on biomethane, creating stable public demand and signaling market scale for producers.
- **GHG Protocol – watch-outs:** The GHG Protocol has a local structure called the Brazilian GHG Protocol Program, which has a certain degree of autonomy to define specific rules related to the use of certificates of origin. Despite the Interim Note published by the GHG Protocol in August 2023, the Brazilian structure has been more reticent about accepting certificates for Scope 1 emissions. This position, however, may change due to national legislation, which recently established the mandatory use of the Certificate of Origin Guarantee to prove biomethane consumption.

1.8 Extent of Engagement and Response with Government

In Brazil, engagement with national authorities for the implementation of environmental attribute traceability systems for biogas and biomethane has intensified in recent years. The interaction involves different levels of government, regulatory agencies, and industry associations, with an emphasis on consolidating and regulating certificates of origin and organizing the sector as a whole. The main forms of engagement include:

- **Technical meetings and workshops:** Meetings held with the ANP (National Agency of Petroleum, Natural Gas and Biofuels), the Ministry of Mines and Energy (MME), and the Ministry of the Environment (MMA), with the aim of discussing regulatory requirements, traceability standards, and international interoperability.
- **Official correspondence and public consultations:** Participation in public consultation processes related to Decree No. 12,614/2025 and CDOB regulations, with the submission of technical contributions and suggestions for improvement.
- **Formal working groups:** The ANP and MME formed technical groups to define certification criteria for biogas and biomethane.
- **Industry associations:** Promote events, forums, and technical discussions, strengthening dialogue between government and private initiative and contributing to the development of public policies and good traceability practices. Instituto Totum is working closely with each initiative.

1.9 Proposed Restrictions

Currently, specific regulations for tracking the environmental attributes of biomethane and biogas in Brazil are still under development. To date, GAS-REC is the main system used to ensure the traceability of these environmental attributes, guaranteeing that there is no double counting of credits or emissions. In spite of this, there are a lot of environmental assets related to biogas and biomethane that could potentially become a double counting or double beneficiary issue.

The list below is not intended to be definitive or exhaustive, but those responsible for implementing I-TRACK(G) in Brazil should consider the aspects listed.

The use of a single database for certificate issuance, provided by ANP, ensures no duplication for the same underlying event—similar to the

CCEE Origens platform used for electricity certificates.

There is still a pending regulatory issue: whether CGOB, I-Track(G), and CBIO can be issued for the same volume of biomethane produced or self-consumed. I-Track(G) should follow the same restriction applied to CGOB (if defined by legislation) to guarantee fungibility.

Guardrails (apply to all instruments)

- Single boundary per unit: each unit must have a unique ID, time window, physical origin (site/meter), and a defined end-beneficiary. Never reuse the same volume/energy/abatement for two instruments serving the same purpose.
- Official registries & audit trail: issue/transfer/retire only in recognized registries; keep metering, mass-balance, invoices, lab reports and API logs. No “shadow spreadsheets.”
- Use sequence (“cascade”): issue → transfer → retire → claim. Retirement must happen before any public claim (inventory, target, report).
- Full disclosure: if the same thermal MWh or MMBTU generate more than one environmental asset, each of them should disclose that information or at least include the information regarding the certification on the certificate.
- Identified beneficiary: the retirement must name the final beneficiary (entity/ID), period, and purpose (compliance vs voluntary) to avoid double beneficiary risk.
- Monthly cross-reconciliation: reconcile what left the meter with what became attributes in each registry (sum $\pm$ net eligible production). Mismatches $\Rightarrow$ block and investigate.

Instrument-specific notes

CGOB (Biomethane Guarantee of Origin) – compliance

- Regulatory precedence: for obligated parties (natural gas producers/importers), CGOB is the compliance instrument.
- If the same thermal MWh or MMBTU generate CBIO and CGOB, each of them should disclose that information.
- Fiscal/accounting linkage: tie e-invoice/meter/contract to the CGOB lot; apply mass balance for grid injection (book-and-claim for gas)
- Use specific markings for regulatory discharge and retirement for the purpose of appropriating the environmental attribute.

GAS-REC (renewable gas attribute) – voluntary

- Scope: proves biogenic origin and chain of custody for gas.
- The existing guarantee of origin certification, known as GAS-REC, a proprietary methodology of the Totum Institute, is the main current tool in Brazil for guaranteeing the origin of biomethane. This five-year-old initiative involves approximately 10 biomethane and biogas production plants and has already produced the equivalent of over 120,000,000 m3 of biogas/biomethane.
- Anti-overlap: if the same volume has been retired as CGOB for compliance, do not use GAS-REC for the same claim in the same period/consumption. It can be used for retirement purposes of appropriating the environmental attribute. The current GAS_REC program allows the issuance of GAS-REC and CBIO for the same volume of biomethane produced or self-consumed. Due to the CGOB regulation (still pending), the proposition is that GAS-REC and future I-TRACK(G) follow the same restriction as the CGOB (if so defined).
- Grid vs dedicated line: on grid, enforce strict mass balance and short time windows; on dedicated lines, keep physical traceability evidence where appropriate (book and claim declaration can be accepted by beneficiary).
- Use specific markings for regulatory discharge and retirement for the purpose of appropriating the environmental attribute.
- Currently, the gas-rec program does not restrict the issuance of GAS-REC and Carbon Credits for the same volume of biomethane produced. What the GAS-REC program requires is the transparency of information to the consumer. The proposition is that the same rule be followed for I-TRACK(G), unless regulation limits this procedure. If the CGOB regulation prevents the simultaneous issuance of carbon credits and guarantee of origin certificates, gas-rec (and future i-track(g)) must follow the same restriction to ensure fungibility.

I-REC (electricity)

- Electricity only: not for gas molecules. If biomethane is used to generate power, I-RECs may be issued by the plant, but:
 - Do not claim the same benefit with both the GAS-REC of the consumed gas and the I-REC of the electricity for the same client/scope.
 - If the client buys I-REC from a biomethane-fired plant, they claim renewable electricity (Scope 2); the gas attribute stays with the generator (do not duplicate into the client’s Scope 1).

CBIO (RenovaBio)

- Different purpose: measures fuel efficiency/CI along production & circulation.
- Do not conflate with CGOB mandate: you may sell gas and generate CBIOs (if eligible).

- *Regulated trail: certified plant, accredited auditor, invoice linkage, dossier renewal. CBIOS do not cover electricity claims (I-REC) nor gas origin (GAS-REC/CGOB).*

Carbon credits (voluntary or future regulated)

- *Scope & additionality: Projects are normally certified under methodologies for avoided methane (landfills/WWTPs) or fuel switching, which clearly isolates the abatement source.*
- *if the same thermal MWh or MMBTU generates Carbon Credit and other environmental assets, each of them should disclosure that information, as mentioned in the GAS-REC section.*
- *Beneficiary-linked retirement: retirement must name beneficiary, use and period; avoid “sold to A and also to B.” Currently, under the GAS-REC program, there is no restriction on issuing GAS-REC and carbon credits for the same volume of biomethane produced. GAS-REC program requires transparency of information to the consumer. The proposal is that the same rule should apply to I-TRACK(G), unless regulation limits this procedure. If CGOB regulation prevents the simultaneous issuance of carbon credits and guarantees of origin certificates, GAS-REC (and the future I-TRACK(G)) must follow the same restriction to ensure fungibility.*

Biomethane mandate: avoiding legal pitfalls

- *CGOB can be lowered to regulatory target and still be retired for the purpose of allocating the environmental attribute by another organization.*
- *Contract clauses: enforce attribute exclusivity, ban re-use of the same lot for equivalent purposes, and require retirement confirmations to clients.*
- *Consistent disclosure: reports must cite registry, retirement ID, period, and purpose (compliance/voluntary). No “100% renewable” without retirement evidence.*

GHG Protocol & corporate claims

- *Scope 2 (I-REC from biogas): widely accepted (with correct market boundary).*
- *Scope 1 (biomethane via certificates): grey area; use transparent disclosures, align with auditor/target program, and prefer physical consumption over book-and-claim when possible.*
- *No double claiming: the same energy/abatement must not appear in two companies’ accounts.*

1.10 Any Other Relevant Information

Implementation of I-TRACK(G) will be achieved through the accreditation of the GAS-REC program as an I-TRACK(G). The local issuer will be Instituto Totum and the Registry to be used will be the SIS-REC owned by Instituto Totum. Through the transfer of GAS-REC contracts to new I-TRACK(G) contracts, which is the responsibility of the Local Issuer and owner of the SISGASREC Registry. Currently, the regulatory process for the federal CGOB certificate is being defined, and legislation has permitted equivalence with similar fungible certificates (which is the case with GAS-REC).

1.11 Authors and contributors

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