Opportunities for the Development of **Gas in Latin America and the Caribbean**

IGU
INTERNATIONAL GAS UNION
UNION INTERNATIONALE DU GAZ

arpel
ASSOCIATION OF OIL, GAS AND RENEWABLE ENERGY COMPANIES OF LATIN AMERICA AND THE CARIBBEAN

olacde

REPORT

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IGU PRESIDENT'S MESSAGE

Opportunities for the Development of Gas in Latin America and the Caribbean

Latin America and the Caribbean stand at a pivotal moment in their energy future. The region possesses abundant natural gas resources, yet much of this potential remains underdeveloped. Unlocking it responsibly can help advance energy security, economic growth, industrial competitiveness, regional integration, and social development.

This Report, *Opportunities for the Development of Gas in Latin America and the Caribbean*, reflects a shared commitment by IGU, ARPEL and OLACDE to contribute constructively to the global and regional energy dialogue. It provides a comprehensive assessment of how Gas can support the region's energy evolution while helping address persistent challenges such as energy poverty, infrastructure gaps and the need for secure and affordable energy supply.

The region enjoys extensive hydropower resources and strong potential to develop both renewable energy and low-emission gases. However, increasing climate variability and the growing impact of El Niño-related droughts have demonstrated the importance of flexible and reliable backup generation. Gas can provide the flexibility required to complement renewable energy sources, maintaining electricity security during periods of hydrological stress and underpinning the expansion of variable renewables.

Over the coming decade, the region can evolve from a largely self-balanced Gas market into a more internationally connected energy hub, interacting dynamically with global trade flows.

Unlocking the region's full potential requires developing cross-border infrastructure, harmonising regulatory frameworks, mobilising long-term investment and promoting transparent and stable market conditions.

Enhanced regional policy co-ordination and stronger collaboration among governments, industry, financial institutions and international organisations will play a critical role in enabling this next stage of development.

I would like to thank the authors and all the experts, institutions, and industry leaders who contributed to this landmark Report. I trust it will serve as a valuable resource for policymakers, investors and stakeholders across the region and beyond, and that it will help advance a practical and collaborative vision for the future of Gas in Latin America and the Caribbean. IGU will continue to positively engage with all relevant stakeholders to sustain the essential role of Gas in driving human progress and global growth.

Andrea Stegher
President
International Gas Union

ARPEL FOREWORD

This document is the continuation of the first white paper titled *“Natural Gas in the Transition to Low Carbon Economies – The Case for Latin America and the Caribbean,”* developed with OLACDE and IGU, and released in April 2023. Since then, the focus of the global discussion has shifted to energy security, while still recognising the importance of gas in curtailing carbon emissions. This second collaboration is a deeper dive into the opportunities and challenges for further developing the enormous gas resources of Latin America and the Caribbean, both to buttress the region’s development and to help address global climate change.

Argentina’s Vaca Muerta shale, Brazil’s Pre-salt play, the Guyana-Suriname fairway, Venezuela, offshore Colombia, and remaining opportunities in mature gas producers such as Trinidad and Tobago, Bolivia, and Peru, add up to a resource in the magnitude of roughly 500 Tcf, enough to assure current regional supply for seven decades.

Increasing gas production will help decarbonize even further the cleanest primary energy and electricity generation matrices in the world, strengthen regional infrastructure and energy integration, help abate energy poverty, and offer opportunities for increasing gas industrialisation into methanol, fertilizers and petrochemicals. Surpluses may be monetised as LNG and help reduce emissions in geographies where economic activity is still being fueled primarily by coal.

Our region is in an enviable position that offers an outstanding window of opportunity. Besides its *subsurface prospectivity*, it is shielded far away from international conflict hot points and strategic chokepoints, and, in general, welcomes private and cross-border capital. In some cases, *top-side competitiveness* can certainly be improved via reestablishing access to greenfield opportunities, tailoring contractual and fiscal regimes to each application, transparent licensing and permitting systems, well-adjusted regulation, and improving the overall perception of institutional quality. Investments in hydrocarbon exploration and development, renewable energies, enabling metals and critical minerals, and their related infrastructures, are sizeable and long-term. Capital exposure demands rules that are stable and/or predictable, and that exceed electoral cycles and ideological shifts.

Our region is under a favorable spotlight. Let’s not allow this new opportunity to go to waste.

Carlos Garibaldi
Executive Secretary
Arpel

OLACDE FOREWORD

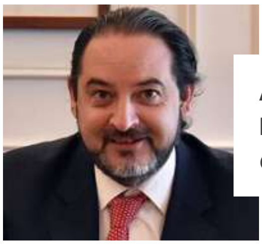
This report seeks to provide a practical outlook on the role that natural gas and lower-emission gases can play in Latin America and the Caribbean's energy transition. The starting point is a recognition of the diversity of our regional context: abundant resources, persistent energy poverty, infrastructure gaps, and the need to reduce emissions without undermining economic and social development.

Natural gas, for many countries in our region, can be a bridge toward cleaner and more secure energy systems. It can help reduce greenhouse gas emissions and local pollutants by replacing more carbon-intensive fuels, while also supporting industrial competitiveness, electricity reliability, and access to affordable energy.

The complementarity between natural gas infrastructure and renewable energy is also essential. Gas can provide flexibility and system reliability in power systems increasingly exposed to hydrological variability and the intermittency of wind and solar generation.

At the same time, Latin America and the Caribbean still have a significant gap between their geological potential and current levels of gas production. Developing and monetising these resources can strengthen regional integration, improve trade balances, attract investment, and generate employment across the energy value chain.

Advancing this agenda will require stable regulatory frameworks, long-term investment, regional coordination, and clear policy signals on the role of gas in the transition. If properly developed, natural gas and lower-emission gases can contribute to energy security, social inclusion, industrial development, and a more sustainable future for the region.



Andrés Rebolledo
Executive Secretary
OLACDE

EXECUTIVE SUMMARY

This Report assesses the opportunities for Gas[1] development in Latin America and the Caribbean and identifies the key challenges that must be addressed to fully unlock its potential. The Report contributes constructively to the regional and international energy dialogues by highlighting the role that Gas can play in supporting the region's energy evolution, strengthening energy security, and fostering sustainable socio-economic development.

The Report was jointly developed by the International Gas Union (IGU), the Association of Oil, Gas and Renewable Energy Companies of Latin America and the Caribbean (ARPEL), and the Latin American and Caribbean Energy Organization (OLACDE). Its preparation involved consultations with leading companies in the sector, national natural gas associations, and regional experts, reflecting a broad industry perspective on the opportunities and challenges facing the Gas sector in the region.

Latin America and the Caribbean hold abundant underdeveloped natural gas resources that, if effectively developed and monetised, can provide multiple benefits to the region and world.

In Latin America and the Caribbean there is a significant gap between geological potential and current natural gas production levels. The region holds abundant conventional and unconventional resources, including major shale formations, large offshore discoveries, and substantial underdeveloped associated reserves. Despite this potential, Latin America and the Caribbean account for a relatively small share of global natural gas production (approximately 5% in 2024). This share has been in decline in recent years. This gap reflects persistent structural challenges, including regulatory uncertainty, limited regional market integration, and difficulties in mobilising long-term investment. As a result, the region has struggled to fully monetise its resource base, expand domestic production, and strengthen both intra-regional Gas trade and international exports. Addressing these constraints is essential for enabling Latin America and the Caribbean to better leverage their natural gas potential, enhance their energy security, and play a more significant role in global natural gas markets.

In addition, Latin America and the Caribbean face a complex and heterogeneous set of energy challenges, shaped by the coexistence of abundant natural resources, persistent energy poverty, structural infrastructure gaps and growing pressure to reduce greenhouse gas (GHG) emissions. At the same time, the region must navigate a context of growing global energy uncertainty, geopolitical tensions, and the need to ensure secure and affordable energy supply. The challenge is therefore not only environmental, but also economic and social, particularly in countries where hydrocarbon production and exports play a significant role in national economies and public revenues.

Within this context, natural gas stands out as a strategically relevant energy source for the region. Latin America and the Caribbean have significant natural gas resources and infrastructure,

1. "Gas" is defined as natural, liquefied and low-emission, such as biomethane, hydrogen, e-methane etc.

including cross-border pipeline networks, large-scale reserves such as the Vaca Muerta formation in Argentina (as well as offshore conventional potential) and the Pre-salt fields in Brazil, mature production in countries such as Venezuela, Bolivia, Peru, and Trinidad and Tobago, and emerging exploration frontiers in Guyana and Suriname. These conditions position the region not only as a significant consumer, but also as a potential producer and exporter of piped and liquefied natural gas (LNG). Consequently, natural gas can provide multiple supply and demand-side benefits to Latin America and the Caribbean.

From the demand-side perspective, natural gas offers an immediate and scalable pathway to reduce emissions across multiple sectors of the economy.

In the power sector, natural gas generation plays a critical role in providing flexibility and system reliability, supporting the large-scale integration of intermittent renewable energy sources such as wind and solar. This role has become increasingly important as the expansion of hydropower faces growing constraints related to prolonged droughts, heightened hydrological variability, and social and environmental opposition to new large-scale reservoirs. For example, in Brazil in 2021, a severe drought reduced hydropower generation, requiring that natural gas generation nearly double to maintain system stability, highlighting that these plants were crucial to preventing power outages. In response to declining hydroelectric generation, the country increased its LNG imports and dispatched gas-fired power plants, highlighting the essential role of natural gas in safeguarding security of supply.

In addition, natural gas enables rapid emissions and air pollutants reductions by replacing more carbon-intensive fuels. According to the IPCC (2006a), the use of natural gas enables reductions of approximately 24%, 28%, and 42% in GHG emissions per unit of primary energy when substituting diesel, fuel oil, and coal in power generation, respectively. This substitution is particularly relevant in several countries in Central America and the Caribbean where electricity systems still rely heavily on petroleum products. Countries including Grenada, Haiti, Barbados, Cuba, Nicaragua, Belize, Guyana and Suriname depend on these liquid fuels for more than 50% of their electricity production. In these systems, switching to natural gas can deliver immediate environmental and economic benefits without requiring major structural changes in their power systems operation.

Beyond the power sector, natural gas also plays an important role in reducing emissions in hard-to-abate sectors such as heavy-duty transport and maritime shipping. The use of compressed and liquefied natural gas (CNG and LNG) in trucks, buses, and vessels provides a commercially available alternative to diesel and conventional marine fuels, capable of reducing GHG emissions by approximately 20%. Although low-emission fuels (e.g., methanol, ammonia, and hydrogen) hold promise for decarbonising the heavy transport segment, both the technology and the required infrastructure remain immature, and most current production relies on natural gas or coal feedstocks. Scaling up a low-emission pathway for these alternative fuels is therefore expected to require considerable time if they ultimately prove viable at scale. Consequently, natural gas represents a ready-to-go, technically mature pathway for achieving immediate emissions reductions.

The decarbonisation potential of natural gas can be further enhanced through the progressive development of low-emission gases, such as biomethane and hydrogen. Several countries in the region possess significant potential for these emerging energy carriers. For example, according to the IEA (2025e), Brazil has the largest biomethane potential worldwide, accounting for approximately 13% of the estimated global potential. By leveraging existing natural gas infrastructure, these solutions can reduce energy evolution costs while enabling the gradual transformation of the regional energy system toward lower emissions pathways.

From a supply-side perspective, the monetisation of the region's natural gas reserves can drive economic growth, strengthen the trade balance through higher exports and reduced imports, and support social development by expanding access to cleaner, more affordable, and reliable energy.

The primary benefit of natural gas for Latin America and the Caribbean lies in its potential to drive socio-economic development through the monetisation of domestic gas resources. Expanding natural gas production and associated infrastructure can stimulate economic growth by increasing the gross domestic product (GDP), attracting private investment, and generating employment across the value chain, from upstream activities to transportation, processing, and final consumption. Furthermore, higher domestic natural gas output can significantly boost exports and reduce energy import costs, particularly LNG imports used to complement regional Gas supply and diesel imports in the heavy transport sector (which has the potential to be replaced by domestic natural gas). By improving the trade balance, natural gas strengthens macroeconomic stability and enhances resilience to external shocks.

The development of natural gas reserves in Latin America and the Caribbean fosters deeper regional energy integration by promoting cross-border trade and shared infrastructure. This integration can optimise resource allocation, enhance supply reliability, and lower natural gas costs throughout the region. In particular, the development of the Vaca Muerta resources (combined with conventional offshore developments) has the potential to initiate a new phase of energy integration in the Southern Cone. This regional integration is expected to generate significant benefits for all countries involved. For Argentina, the expansion of production in Vaca Muerta enables a reduction of LNG imports and an increase in exports. For Brazil, the import of Argentine natural gas, in addition to enabling the expansion of unmet demand in the Southern region, could underpin the country's reindustrialisation. For Chile and Uruguay, greater integration would allow the replacement of high-cost LNG and pipeline imports with cheaper Argentine natural gas from the Vaca Muerta formation. Finally, Bolivia would benefit from greater domestic supply security amid declining natural gas production, as well as from the repurposing of its idle Gas pipeline infrastructure.

In addition, natural gas exports (via pipelines and particularly in the form of LNG) represent a major opportunity to generate foreign exchange revenues while contributing to global energy supply diversification. In Latin America and the Caribbean, Trinidad and Tobago, Peru, Argentina, Venezuela, Suriname, and Guyana stand out as the countries with the greatest potential to monetise their natural gas reserves through LNG. Argentina, with its vast Vaca Muerta reserves (together with the offshore conventional resources), could emerge as a major LNG exporter. In Peru and Trinidad and Tobago, the development of new resources (such as the Madre de Dios basin in Peru - particularly the Candamo field, Venezuela's Dragon field and cross-border fields between

Venezuela and Trinidad and Tobago such as Manatee) could significantly boost LNG exports. At the same time, Floating LNG (FLNG) units offer flexible and scalable solutions for monetising offshore natural gas reserves in countries with limited infrastructure and domestic demand, such as Suriname and Guyana.

At the same time, natural gas can play a meaningful role in reducing energy poverty and supporting social development by expanding access to cleaner, more affordable, and more reliable energy services. The development of Gas infrastructure enables households to replace expensive and polluting fuel sources, lowering energy expenditures, improving indoor air quality, and enhancing overall living conditions. Greater availability of natural gas also supports small businesses, stimulates local economic activity, and creates jobs across the energy value chain, particularly in underserved regions. Successful experiences, such as the expansion of Gas networks in Colombia, show that improved access to modern energy services can generate measurable social benefits and reduce multidimensional energy poverty. Evidence provided by the Multidimensional Energy Poverty Index (IMPE)[2] indicates that between 2022 and 2024 the incidence of energy poverty in Colombia declined from 16.9% to 15.4%, lifting more than 300,000 people out of energy poverty in a single year. Furthermore, integrating low-emission gases such as biomethane can strengthen local development, create rural income opportunities, improve waste management, and reduce emissions by leveraging existing infrastructure.

To fully capture the benefits of natural gas in Latin America, stakeholders must advance a clear and convergent policy and business agenda.

Despite this broad set of opportunities, the expansion and strategic use of natural gas in Latin America and the Caribbean face several challenges. Regulatory heterogeneity across countries, limited access to long-term financing, and infrastructure bottlenecks continue to constrain the development of regional Gas markets. Addressing these barriers will require stronger regional cooperation, more predictable energy policies, and innovative financing mechanisms that can mobilise both public and private capital.

Governments should establish attractive and stable upstream frameworks. Implementing competitive fiscal regimes, transparent licensing systems, and predictable contractual and regulatory conditions that encourage long-term exploration and production investments is essential to promote the monetisation of Latin American reserves. Ensuring the continuity and reliability of the legal and regulatory frameworks (independent of political cycles and policy shifts) is equally important for building investor confidence and sustaining capital inflows over time. In addition, improving access to geological data and reducing permitting delays can further stimulate activity in both mature and frontier basins.

Mobilising long-term capital through public-private partnerships, blended finance mechanisms, and multilateral development banks will be essential to monetise the natural gas reserves of Latin America and the Caribbean. The development of these resources requires the construction of strategic infrastructure across the entire value chain, including exploration and production, Gas processing, and transportation to consumer markets. These investments will not only meet domestic demand but also support both piped and LNG export projects, strengthening

2. Developed by Promigas (https://www.promigas.com/Paginas/Nuestra_Empresa/ESP/IMPE-2024.aspx).

regional integration. Expanding the region's natural gas market requires substantial investment, with estimates indicating that the funds needed solely for the expansion and the construction of new pipelines aimed at regional integration will exceed US$10 billion (OLADE & CAF, 2025b).

A deep regional integration also depends on greater regulatory harmonisation across countries. The goal is to minimise legal and operational uncertainty, lower transaction costs, and facilitate cross-border projects. Strengthening coordination among producers, transport operators, utilities, and major consumers can further improve system planning and infrastructure efficiency throughout the Gas value chain.

From an environmental perspective, clear and consistent policy signals regarding the role of natural gas in the energy evolution are crucial for guiding infrastructure planning and reducing investor uncertainty. Aligning natural gas development with climate objectives requires prioritising applications that deliver the greatest emissions reductions, such as replacing more carbon-intensive fuels and providing flexible capacity to complement intermittent renewable energy sources, such as wind and solar. Policymakers should also enable the gradual integration of low-emission gases, including biomethane and hydrogen, into existing infrastructure to support long-term decarbonisation at lower addition costs. Additionally, improved emissions monitoring and methane management are essential to ensure environmental credibility and sustainability.

In summary,

coordinated policy, regulatory, and investment actions are essential for Latin America and the Caribbean to unlock their vast natural gas potential while ensuring that sector development supports long-term energy evolution goals.

1. Introduction

Latin America and the Caribbean face a complex and heterogeneous set of energy challenges, shaped by the coexistence of abundant natural resources, persistent energy poverty, structural infrastructure gaps, and growing pressure to reduce greenhouse gas emissions. While the region has made important advances in renewable electricity generation (particularly wind and solar), significant segments of its energy system remain highly dependent on carbon-intensive fuels.

The region has vast natural gas resource endowments and significant infrastructure, including cross-border Gas pipelines, large-scale reserves such as in Venezuela, Vaca Muerta in Argentina and the Pre-salt fields in Brazil, mature production in countries such as Bolivia, Peru, and Trinidad and Tobago, as well as emerging exploration frontiers in Guyana and Suriname. Nevertheless, so far, Latin America and the Caribbean have not been able to realise their full potential to transform these resources into a key driver of economic development and integration, and to become a major player in the global natural gas market.

Image: Tecpetrol

The global drive toward sustainable energy systems provides new opportunities to reposition natural gas policy as a contributor to emissions reduction and energy security. At the same time, rapid shifts in global geopolitics are creating additional opportunities for Latin America and the Caribbean to attract private investment and reshape their energy infrastructure. In this context, it is crucial to reassess the potential for the development of the natural gas industry in the region, driven by the following key opportunities:

1. Its potential to lift citizens out of energy poverty
2. Its potential contribution to reduce emissions across multiple sectors;
3. The enhancement of power systems' security of supply and reliability;
4. The strengthening of regional integration within the evolving geopolitical landscape; and
5. Deeper integration into global Liquefied Natural Gas (LNG) markets.

Several challenges lie ahead in repositioning the natural gas industry in the region. This process requires substantial private-sector investment in a regional context marked by significant macroeconomic and regulatory heterogeneity across countries, as well as highly bureaucratic administrative systems. Access to long-term financing remains a major constraint in many countries in Latin America and the Caribbean and requires stronger coordination among the multiple actors involved throughout the natural gas value chain. From an environmental perspective, it is also essential to clearly identify the applications in which natural gas can effectively contribute to energy sustainability (such as providing system flexibility to support variable renewable generation and displacing more carbon-intensive fuels), in order to ensure that its role is aligned with long-term energy objectives.

This Report assessed opportunities for natural gas development in Latin America and the Caribbean and identified the key challenges that must be addressed to fully unlock its potential. Beyond this Introduction, the Report is structured into seven sections, each examining critical dimensions of the Gas sector and its contribution to the region's energy and socio-economic development. Section 2 provides an overview of the current state of the natural gas market in Latin America and the Caribbean. Section 3 explores the potential for regional Gas integration, with a particular focus on the Southern Cone (Argentina, Chile, Bolivia, Brazil, and Uruguay). Section 4 analyses opportunities related to LNG, both from the perspective of the region's export potential and its role in complementing domestic Gas supply through imports. Section 5 examines the potential of Latin America and the Caribbean to develop low-emission gases. Section 6 discusses the benefits of expanding the use of natural gas in heavy transport, both in road and maritime applications. Section 7 assesses the role of natural gas in reducing energy poverty and supporting social development, as measures to close social gaps. Finally, Section 8 presents the main conclusions and proposals of the Report.

2. Natural Gas Landscape in Latin America and the Caribbean

The Latin America and Caribbean region has significant natural gas potential due to its abundant conventional and unconventional hydrocarbon resources. Among the most illustrative examples is the Vaca Muerta shale formation in Argentina, where technically recoverable natural gas resources are estimated at up to 11.1 trillion cubic meters (Tcm), or 393 trillion cubic feet (Tcf), according to IAPG (2024)[3], highlighting the immense unconventional gas opportunity present in the Neuquén Basin. Another key component of Argentina's resource base is its conventional offshore oil and gas potential in the southern region of the country, particularly across basins such as the Austral Basin and the Malvinas Basin, which reinforce the country's broader hydrocarbon prospectivity.

3. Conversion to Tcf was added by the authors.

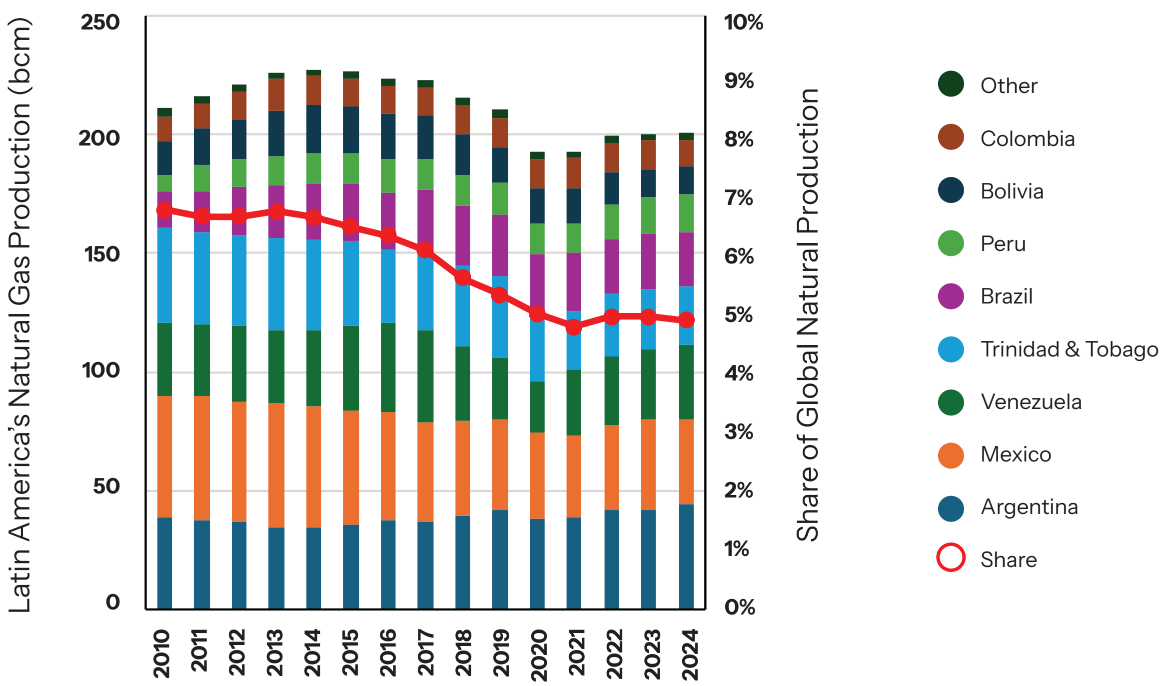
In Brazil, the prolific Pre-salt basins have already become the backbone of the country's offshore gas production, while other significant prospects, such as the Madre de Dios basin in Peru, further showcase the region's exploration potential. Additionally, emerging frontier plays in Guyana and Suriname point to expanding exploration activity along the Equatorial margin.

The Latin America and Caribbean region also features significant offshore natural gas accumulations near the maritime border between Venezuela and Trinidad and Tobago, most notably the Loran–Manatee cross-border natural gas field and the Dragón gas field (Venezuela). Together, these represent substantial underexploited conventional natural gas resources with potential implications for regional LNG supply chains. In addition to these offshore prospects, Venezuela possesses large proven natural gas reserves, ranking among the world's top holders with 3.3% of global proven natural gas reserves in 2020 (Energy Institute, 2025), though much of this remains underexploited.

Beyond its substantial resource endowment, the region benefits from a strategic geopolitical position that is relatively insulated from major conflicts and supply disruptions affecting global energy markets. Unlike key hydrocarbon exporters in the Middle East or major natural gas producers and transit routes in Eastern Europe, which have experienced prolonged instability, Latin American Gas resources are located in a region largely removed from such tensions. This favorable geopolitical positioning underscores the region's comparative advantage in energy security, creating conditions that are conducive to long-term investment (for both domestic markets and international supply chains), while simultaneously mitigating the risks associated with supply volatility that characterise other major natural gas-producing regions worldwide.

Despite these favorable conditions and abundant resources, the region's actual contribution to global natural gas production remains modest. Latin America and the Caribbean account for only

Figure 1 – Natural Gas Production in Latin America and the Caribbean

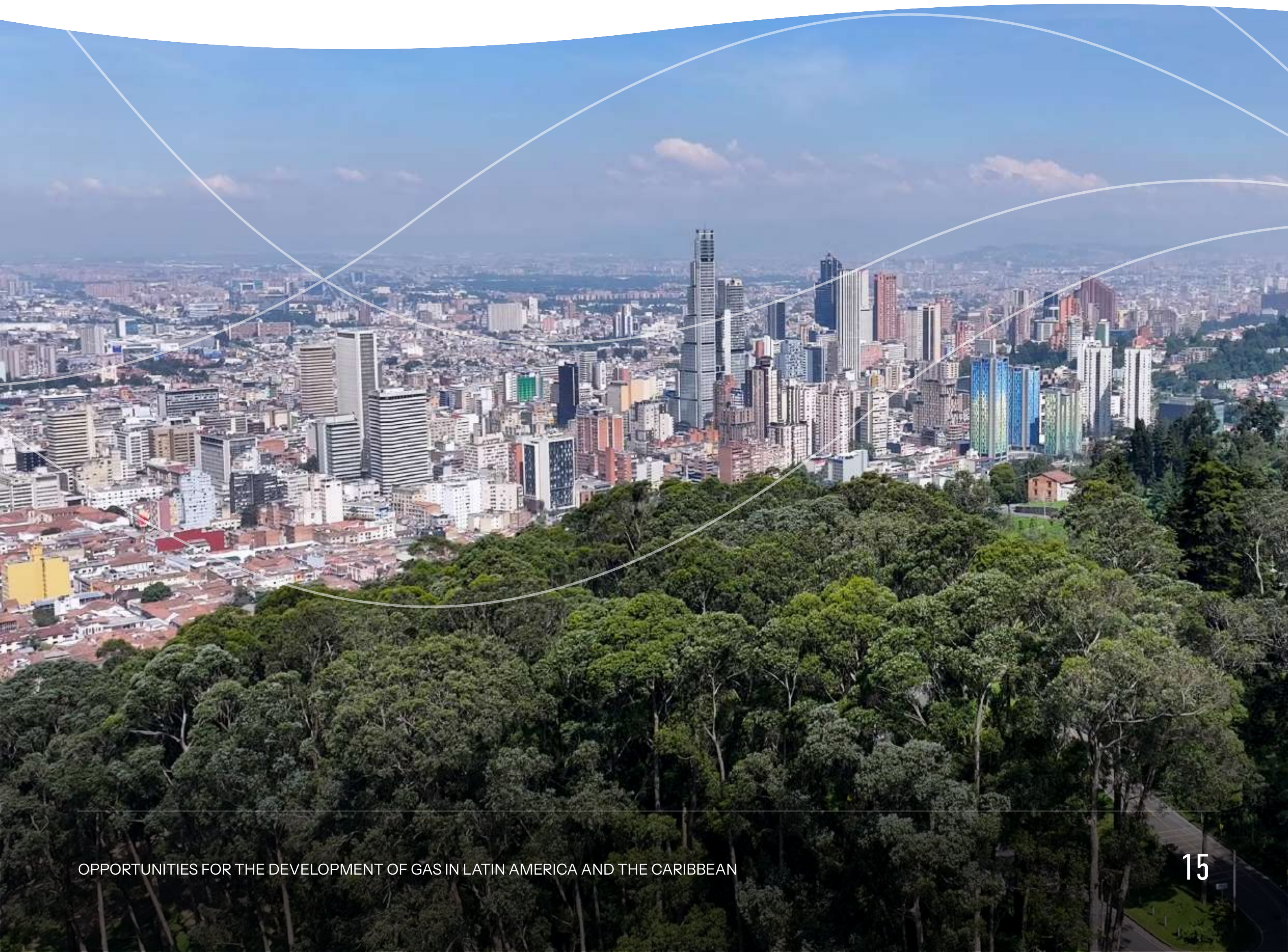


Source: Authors' elaboration based on data from the Energy Institute (2025).

a small share of total global Gas output, representing approximately 5 % in 2024 (see Figure 1). This share has declined in recent years, as regional production fell from 227 billion cubic metres (bcm) in 2015 to 201 bcm in 2024, while global Gas production expanded rapidly, driven in large part by the development of shale gas in the United States.

This scenario indicates the existence of a significant gap between the region's geological potential and its current level of natural gas production. This gap reflects persistent structural challenges, including regulatory uncertainty, limited regional market integration, and difficulties in mobilising long-term investment. As a result, the region has struggled to fully monetise its resource base, expand domestic production, and strengthen both intra-regional Gas trade and international exports. Overcoming these constraints is crucial for Latin America and the Caribbean to unlock their full natural gas potential, the development of which could generate substantial socio-economic benefits for the region.

Given the vast untapped natural gas potential in Latin America and the Caribbean, the region presents significant opportunities not only as a major consumer but also as a potential producer and exporter of natural gas and LNG. These opportunities span multiple dimensions: the potential of natural gas to contribute to decarbonisation across multiple sectors; the enhancement of power system security of supply by supporting intermittent renewable sources, such as solar and wind; the strengthening of regional Gas integration based on the existing and projected infrastructure; and deeper integration into global LNG markets through the development of significant export capacity. In the following sections, each of these opportunities will be examined in detail, highlighting their potential impact and strategic significance for the region's natural gas development.



3. Opportunities for Gas Market Development

3.1 Regional Integration Opportunities

Regional integration of the natural gas market in South America began in the late 1960s and has since been characterised by alternating periods of progress and setbacks, largely shaped by economic cycles, political decisions, and investment levels in the energy sector (EPE, 2017; Sabbatella & Serrani, 2021). Over the past decades, 15 pipelines have been built, connecting five Southern Cone countries — Brazil, Argentina, Bolivia, Uruguay, and Chile. It is also worth noting that in 2007, the Antonio Ricaurte Gas Pipeline was constructed to transport natural gas from Colombia to Venezuela[4], bringing the total number of cross-border pipelines in South America to sixteen (see Table 1).

4. In March 2026, Colombia and Venezuela agreed on a roadmap to repair a critical section of the Antonio Ricaurte Gas Pipeline (approximately 5 km on the Colombian side), aiming to restore cross-border natural gas flows after years of inactivity. Originally used to export natural gas from Colombia to Venezuela, the pipeline is now being evaluated for reverse operation, with the objective of supplying Venezuelan natural gas to the Colombian market. This initiative reflects a renewed effort to strengthen bilateral energy cooperation and advance regional Gas integration, although its implementation remains contingent on regulatory approvals and broader geopolitical conditions.

Table 1 – Cross-Border Pipelines in South America

Pipeline	Country of origin	Country of Destination	Capacity (mcm/day)	Online Year
Norandino	Argentina	Chile	5.0	1999
Gasatacama	Argentina	Chile	5.4	1999
Gasandes	Argentina	Chile	9.0	1997
Pacífico	Argentina	Chile	3.5	1999
Methanex YPF	Argentina	Chile	2.0	1999
Methanex SIP	Argentina	Chile	1.3	1999
Methanex PAN	Argentina	Chile	2.0	1997
Cruz del Sur	Argentina	Uruguay	6.0	2002
PetroUruguay	Argentina	Uruguay	1.0	1998
TGM	Argentina	Brazil	2.8	2000
Juana Azurduy	Bolivia	Argentina	22.0	2011
Pocitos-Campos Durán	Bolivia	Argentina	7.4	1980
Madrejones-Campo Durán	Bolivia	Argentina	4.3	1972
GASBOL	Bolivia	Brazil	30.08	1999
Lateral Cuiabá	Bolivia	Brazil	2.2	2001
Antonio Ricaurte	Colombia	Venezuela	13.0	2007

Source: Author's elaboration based on data from Arpel et al. (2023).

At present, all these pipelines are underutilised, primarily due to the near-complete halt of Argentina's Gas exports since the late 2000s and, more recently, the decline in Bolivian natural gas production. However, one of the main advantages of the South America region is that the most challenging step toward integration, that is, the construction of pipeline infrastructure, has already been largely accomplished, with most of the network already in place. To date, the primary barrier to regional Gas integration has been the lack of exportable surpluses. In other words, the limited integration observed in recent years is due more to Gas scarcity than to insufficient infrastructure, although further infrastructure expansion will be necessary to fully unlock the region's integration potential.

However, this situation is changing with the development of unconventional gas reserves in the Vaca Muerta formation within the Neuquén Basin in Argentina. A recent study by the Argentine Institute of Petroleum and Gas (IAPG) estimated that the technically recoverable natural gas resources in Vaca Muerta range from 4.1 Tcm to 11.1 Tcm, 144 to 393 Tcf, with a reference value of 7.2 Tcm, 255 Tcf (IAPG, 2024)[5]. For comparison, in 2024, the combined natural gas consumption of Brazil, Argentina, Bolivia, Uruguay, and Chile was approximately 90 bcm (Energy Institute, 2025). This implies that the Vaca Muerta resources could meet the region's current consumption for roughly 45 to 124 years. Therefore, it is expected that, with the development of these resources, Gas scarcity will no longer be a limiting factor for regional integration, and Argentina is likely to regain a leading role in the Southern Cone natural gas market.

> Therefore, the development of the Vaca Muerta resources (together with the conventional offshore potential in the southern region of Argentina) has the potential to initiate a new phase of energy integration in the Southern Cone, strengthening interconnections between the natural gas markets of Argentina, Brazil, Bolivia, Chile, and Uruguay.

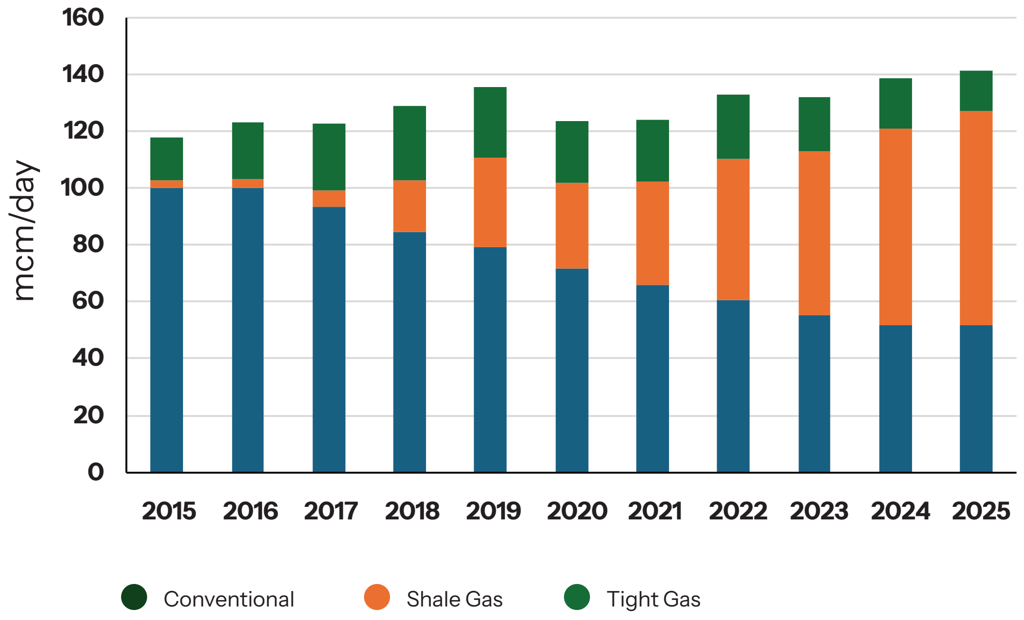
This regional integration is expected to generate significant benefits for all countries involved:

- For Argentina, the expansion of production in Vaca Muerta would enable the reduction of LNG imports and the increase of natural gas exports, generating foreign exchange earnings, strengthening its international reserves, and reducing the exposure to the volatility of the LNG market.
- For Brazil, the import of Argentine Gas, in addition to contributing to supply diversification and enabling the expansion of unmet demand in the southern region, could boost the country's reindustrialisation, provided that Argentine Gas reaches the Brazilian market at competitive prices.
- For Chile, greater integration would allow the replacement of high-cost LNG imports with cheaper Argentine natural gas, positively impacting the country's trade balance, and accelerating the decarbonisation of its energy matrix by encouraging the replacement of coal-fired power plants.
- For Uruguay, greater integration would also allow a reduction in import costs, by replacing natural gas imports from Argentina priced against LNG with cheaper natural gas from the Vaca Muerta formation.
- Bolivia would benefit from greater internal supply security at a time of declining Gas production, as well as from the monetisation of its idle infrastructure through international tolling services between Argentina and Brazil.

Since the mid-2010s, unconventional gas production in Argentina has increased significantly, rising from 17 million cubic meters per day (mcm/day) in 2015 to 90 mcm/day in 2025 (see Figure 2). Virtually, all this volume comes from the Vaca Muerta formation in the Neuquén Basin. Conversely, conventional gas production fell by half during the same period, declining from 100 mcm/day in 2015 to 52 mcm/day in 2025. This means that unconventional gas production more than offset the decline in conventional production, resulting in a net increase of 20% over the period.

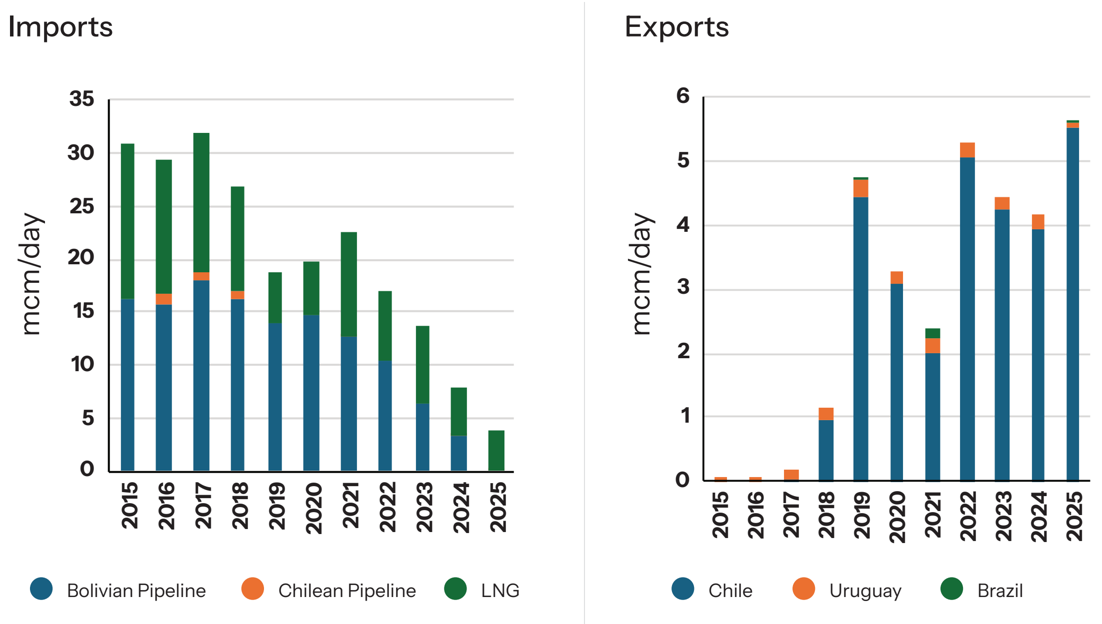
5. Conversion to tcf was added by the authors.

Figure 2 – Natural Gas Production in Argentina



Source: Authors' elaboration based on data from the Secretaría de Energía (2025).

Figure 3 – Argentina's Natural Gas Imports and Exports



Source: Authors' elaboration based on data from the Secretaría de Energía (2025).

These exports have been primarily directed to Chile, particularly through the GasAndes pipeline, due to the country's demand potential and the configuration of Argentina's Central-West Pipeline, as well as its proximity to the Neuquén Basin (OLADE & CAF, 2025a). Chile has even been replacing part of its expensive LNG imports with cheaper Argentine natural gas, positively contributing to the country's trade balance. On the other hand, exports through the GasAtacama and the Norandino Pipeline are heavily constrained by Gas availability in the Norte Pipeline, with only occasional deliveries in very small quantities (OLADE & CAF, 2025a).

Although the resumption of exports has generated benefits on both sides of the border, the volumes have not yet reached levels compatible with the available regional integration infrastructure or with overall Chilean Gas demand (OLADE & CAF, 2025a). There is export capacity of approximately 30 mcm/day, while the average natural gas demand in Chile over the past five years (2020–2024) has been 19 mcm/day (Energy Institute, 2025). The main constraint limiting deeper Gas integration lies in the limitations of Argentina's trunk Gas pipeline system, which has not yet adapted its infrastructure to the new distribution of productive resources (OLADE & CAF, 2025a).

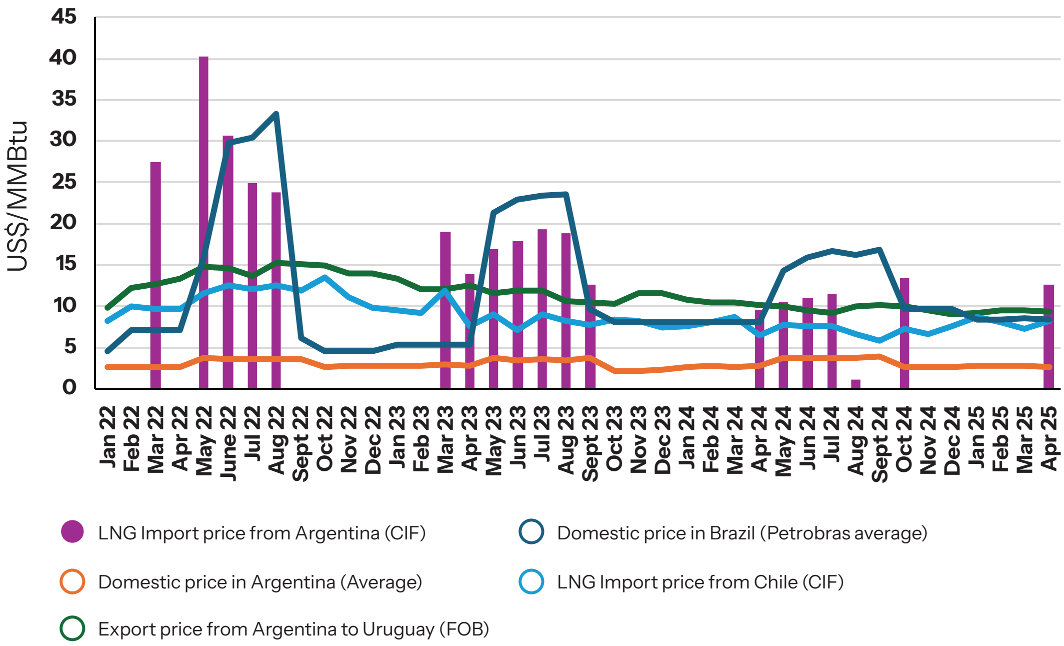
In recent years, Argentina's pipeline network has undergone several expansion projects, including the construction of the Perito Moreno Pipeline and the Mercedes–Cardales Pipeline. Additional developments include the ongoing construction of three compressor stations and the expansion of an existing one by tgs, along with other upgrades to the transport system, which are expected to enable the transportation of an additional 14 mcm/day starting in the winter of 2027. The system has also been reinforced by the reversal of flows in the Norte Pipeline, including the construction of the La Carlota–Tío Pujio Pipeline and the reversal of four compressor stations. These expansions have allowed the replacement of Bolivian supply on firm basis and ensured domestic demand fulfillment, but they are still insufficient to provide continuous Gas exports from the northern region without compromising domestic supply security (OLADE & CAF, 2025a).

This means that a significant portion of Chilean demand is still met by LNG, coal, and liquid fuels, which could be displaced by Argentine Gas, reducing costs and contributing to lower emissions in Chile by replacing more polluting fuels with cheaper natural gas. Estimates suggest that Chile could require up to 14.7 mcm/day of Argentine natural gas to replace its coal-fired power plants, particularly in the northern region of the country (OLADE & CAF, 2025a).

A study conducted by the Latin American and Caribbean Energy Organization (OLACDE) in partnership with the Development Bank of Latin America and the Caribbean (CAF, formerly known as Andean Development Corporation) identified that the expansion of the Transportadora de Gas del Norte (TGN) system and the optimisation of the Norte Pipeline reversal are key to increasing natural gas integration in the Southern Cone. This project is estimated to cost around US$2.3 billion and could generate approximately 5.5 mcm/day of firm exportable surpluses in northern Argentina, available for supply to Chile, Bolivia, Brazil, and potentially Paraguay (OLADE & CAF, 2025a). Another relevant project would be the expansion of the Central-West Pipeline and GasAndes, allowing up to 16 mcm/day of firm exports to Chile throughout the year at a cost of approximately US$1.4 billion (OLADE & CAF, 2025a).

For Uruguay, deeper regional Gas integration could also reduce import costs by replacing natural gas imports from Argentina indexed to LNG prices with more affordable natural gas from the Vaca Muerta formation. Figure 4 shows the wholesale natural gas prices in selected countries. It is noticeable that during the cold season (May to September), Uruguay pays a significantly higher price for Argentine natural gas. For example, during the cold season of 2024, Argentina's average export price to Uruguay was US$16 per Million British Thermal Unit (MMBtu), while the average domestic price in the Argentine market was only US$3.8 per MMBtu. This discrepancy is explained by the fact that the natural gas exported to Uruguay is priced based on the cost of LNG imported by Argentina. The growing surplus from Vaca Muerta, along with the resulting reduction or elimination of Argentina's LNG imports, could overturn this pricing structure, potentially lowering the cost of natural gas for Uruguay.

Figure 4 – Wholesale Natural Gas Prices in Selected Countries



Note: 1) Wholesale natural gas prices exclude transportation tariffs and reflect only the cost of the gas molecule. 2) The values for exported or imported volumes are calculated using an LNG specific gravity of 450 kilograms per cubic meter (kg/cm), a natural gas density of 0.75 kg/cm (implying a gas-to-liquid volume conversion ratio of 600 to 1), and a natural gas calorific value of 9,400 kilocalories per cm.

Source: Authors' elaboration based on data from Secretaría de Energía (2025), MME (2025) and Servicio Nacional de Aduanas (2025).

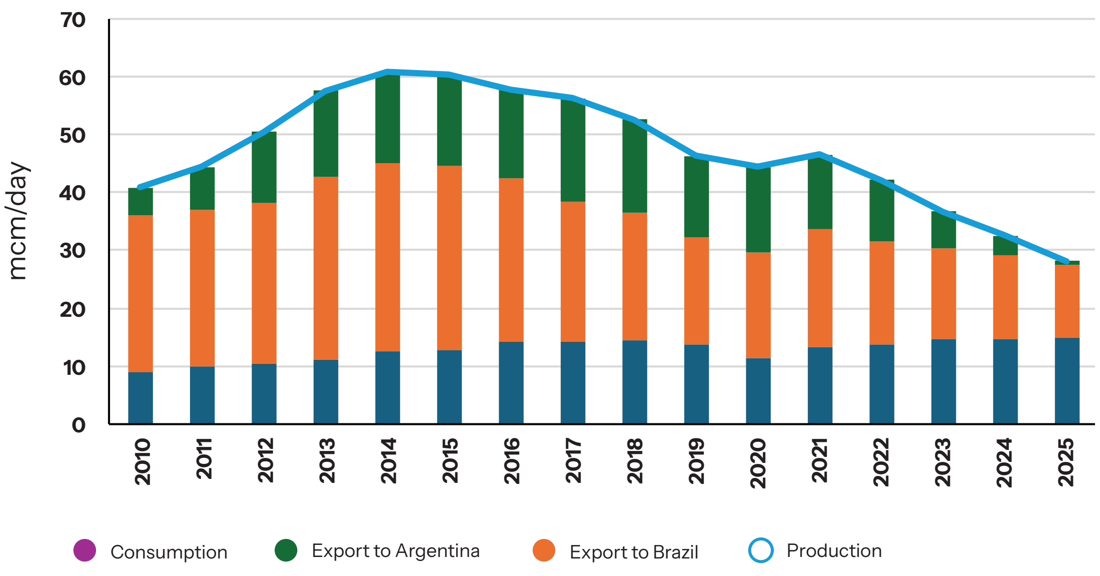
Bolivia could also benefit from the development of resources in the Vaca Muerta formation. Bolivian natural gas production has been declining rapidly since the mid-2010s (see Figure 5). Production, which was approximately 60 mcm/day in 2015, fell to 28 mcm/day in 2025. Notably, this decline has accelerated in recent years, with production decreasing at an average rate of 12% per year between 2022 and 2025. If this trend continues and no new developments are made, Bolivia is expected to have no exportable Gas surpluses by the early 2030s.

Thus, integration with Argentina, now in the position of a net natural gas importer, could benefit Bolivia in two ways. First, this new flow would help secure Bolivia's natural gas supply in the context of its rapidly declining domestic production. Second, the potential transit of Argentine Gas through Bolivia to Brazil would monetise the country's currently underutilised infrastructure. While Gas is no longer exported to Argentina on a firm basis, approximately 13 mcm/day were exported to Brazil via GASBOL in 2025, representing about 40% of the pipeline's transport capacity.

To adapt to the new reality, in 2024, the Bolivian government revised the hydrocarbon pipeline transport regulations through Supreme Decree No. 5260/2024. The objective was to adapt the regulatory framework to enable the transport of natural gas between Argentina and Brazil, using Bolivian infrastructure to provide international tolling services. In this context, the April 1, 2025, gas-in-transit operation represented a first-of-its-kind milestone for South America Gas integration: for the first time in history, Argentine natural gas (combining Neuquén's Vaca Muerta shale gas with conventional production from Tierra del Fuego) was exported in transit through Bolivia to reach Brazil. Throughout April 2025, a total of 1.2 mcm was transported using this tolling arrangement. Subsequently, during the summer period, seasonal exports from Argentina to Brazil via Bolivia were allowed, representing a further step forward in advancing regional Gas integration.

In this unprecedented corridor, TotalEnergies played a central role in coordinating public and private stakeholders to unlock the regulatory, contractual, and operational conditions required for the transaction. This involved aligning relevant authorities and transport operators across the three jurisdictions and enabling the practical implementation of the gas-in-transit regime. Implementing such an operation requires a dedicated regulatory framework distinct from a standard import license. Key elements include: specific authorisation for in-transit flows; clearly defined ownership of the Gas while in transit; regulated transportation and compression tariffs separated from the commodity value; officially designated metering points and reconciliation mechanisms for imbalances; well-defined responsibilities for Gas quality; risk allocation for losses and force majeure events; and comprehensive end-to-end operational coordination.

Figure 5 – Natural Gas Production in Bolivia



Source: Authors' elaboration based on data from the INE (2025).

The potential of Vaca Muerta natural gas has also prompted discussions at the ministerial level between Brazil and Argentina, resulting in the signing of a Memorandum of Understanding (MoU) in November 2024 (EPE, 2025c). The agreement established a bilateral working group (GTB, Grupo de Trabalho Bilateral) to identify the measures necessary to enable the export of Argentine Gas to Brazil, with the publication of its first assessment report in April 2026 (GTB, 2026). Despite Brazil's strong interest in acquiring Vaca Muerta natural gas, the country's effective integration into the Southern Cone Gas market will depend on the competitiveness of Argentine Gas, as Brazilian domestic Gas production is expected to grow steadily over the coming years.

There are currently three natural gas production expansion projects in Brazil: the Búzios field in the Pre-Salt, associated with Route 3 and the Boaventura Processing Plant; the Raia field in the Campos Basin; and the Sergipe Deepwater Project (SEAP) on the northeast coast. Together, these projects have the potential to add approximately 48 mcm/day to Brazil's Gas supply by the early 2030s, relative to 2024 production levels (46 mcm/day).

However, the existence of an ample domestic supply does not eliminate the potential role of Argentine Gas in Brazil, but rather reshapes the conditions under which integration can occur. The key enabling factors will be: price competitiveness of Argentinean Gas (including transportation costs); contributions to energy security and market competition dynamics from diversifying Gas supply sources and the development of new sources of high-potential demand, such as the nitrogen-based fertiliser industry.

In this scenario, Argentine Gas could play a complementary role by supplying new and conventional industrial loads, and contributing to energy security, particularly if it can deliver natural gas at competitive prices capable of gaining market share and stimulating the creation of new demand. This is particularly relevant because the main current discussion in the Brazilian Gas market revolves around the need to significantly reduce the domestic Gas price. In this context, in March 2023, the "Gás para Empregar" Program was launched, aiming to lower natural gas costs in Brazil and stimulate the country's reindustrialisation. Therefore, the arrival of competitively-priced Argentine Gas in Brazil has the potential to foster Brazilian economic development.

By the mid-2025, the wholesale natural gas price in Brazil was around US$10 per MMBtu, while in Argentina it was less than US$4 per MMBtu (see Figure 4). It is noteworthy that, to help price competitiveness, the Argentine government has committed to reviewing the minimum export prices for natural gas in 2026, aligning them with domestic prices. It is also worth noting that, as a signal to promote exports, the Argentine government recently issued the Resolution No. 66/2026 to align export Gas transportation tariffs with domestic tariffs, expected to be implemented in 2026, after the government issues the correspondent Decree.

This indicates that Brazil's integration into the Southern Cone natural gas market will heavily depend on the costs of the new infrastructure required to enable deeper regional integration. In this regard, four routes are being studied for importing Argentine Gas to the Brazilian market: via Bolivia, Paraguay, Uruguay, and Uruguaiana (see Figure 6). Although the first GTB assessment report did not identify a preferred route for integration (GTB, 2026), the Brazilian government has signaled a preference for developing the Uruguaiana corridor, leveraging existing cross-border infrastructure between the two countries (EPE, 2025d).

Figure 6 – Alternative Routes for Integration between Brazil and Argentina

Note: The figure shows Phase II of the Perito Moreno Gas Pipeline (GPM), formerly known as the Presidente Néstor Kirchner Gas Pipeline (GNPK), as beginning in Salliqueló and depicting the Salliqueló–San Jerónimo section. However, the current project plans Phase II to extend from Tratayén to La Carlota

Source: EPE (2025c).

This route was planned in the 1990s and partially inaugurated in 2000. At that time, the Aldea Brasilera–Uruguaiana pipeline (437 km) was constructed on Argentine territory, and it is owned by Transportadora de Gas del Mercosur (TGM). On the Brazilian side, Sections 1 and 3 of the Uruguaiana–Porto Alegre pipeline (GASUP) were constructed, each measuring only 25 km at either end, and are owned by Transportadora Sulbrasileira de Gás (TSB). Section 2 (the middle section), with a length of 590 km and the potential to effectively connect the Argentine Gas market to Brazil's interconnected pipeline network, was never built due to the decline in Argentina's natural gas production in the early 21st century.

Current estimates indicate that the construction of this section would allow the import of 15 mcm/day of Argentine Gas to Brazil (EPE, 2025d). The estimated cost is US$1.7 billion, including flow reversal on GASBOL to integrate Argentine Gas into Brazil's interconnected pipeline network (EPE, 2025d). In addition, upgrades to the Aldea Brasilera–Uruguaiana pipeline on the Argentine side would be required to meet the projected Gas flow expectations for bilateral natural gas trade, at an estimated cost of US$0.5 billion (OLADE & CAF, 2025b).

This integration project, in addition to using existing infrastructure, would enable the supply of natural gas to currently unserved areas in the state of Rio Grande do Sul, which include major cities and significant potential demand. Meeting the unmet demand in southern Brazil has been a long-standing national priority. It is estimated that this repressed demand amounts to approximately 5 mcm/day (EPE, 2025d). The remaining 10 mcm/day would be directed to Brazil's interconnected pipeline network via GASBOL.

It is worth noting that the GTB (2026) report indicates that, for Vaca Muerta resources to reach Brazil on a firm basis, regardless of the route selected (via Bolivia, Paraguay, Uruguay, and Uruguaiana), the construction of a new transportation pipeline between Neuquén (Tratayén and/or from a connection point with the Perito Moreno Gas Pipeline) and La Carlota is essential. Therefore, total investments required to enable Argentine Gas exports to Brazil via the Uruguaiana route would amount to approximately US$4.5 billion (approximately US$2.5 billion on the Argentinean side).

Although the development of the Vaca Muerta resources offers substantial potential to unlock a new phase of regional natural gas integration in the Southern Cone, effective integration will depend on substantial infrastructure investments across the entire value chain, including exploration and production, natural gas processing, and transportation to consumer markets. A study by the IAPG highlighted that it will be a major challenge for the entire value chain in Argentina to expand production capacity sufficiently to enable significant development of Vaca Muerta resources (IAPG, 2025).

Substantial investments will also be required in natural gas processing facilities, particularly given the high liquids content of Vaca Muerta natural gas. These processing plants are essential not only to meet domestic demand but also to support LNG export projects, which will require dedicated processing infrastructure and pipelines. In this context, it is worth highlighting the initiative announced by tgs in March 2026 to process natural gas at the source in Vaca Muerta, with an estimated investment of US$3 billion. The project envisions treating and processing natural gas, transporting it through a dedicated liquids pipeline to a fractionation plant, and subsequently exporting Natural Gas Liquids (NGLs) to global markets. Projects of this nature are instrumental in addressing Vaca Muerta's natural gas processing bottlenecks, thereby facilitating LNG developments, and enabling a significant ramp-up in natural gas production.

In addition, OLACDE estimates that the investments required for the expansion and construction of new pipelines aimed at regional integration will exceed US$10 billion (OLADE & CAF, 2025b). Such large-scale investments depend on the existence of firm and long-term supply agreements, which are essential to ensure economic viability and attractiveness for financing these pipelines. Therefore, the key factor determining the scale of natural gas integration in the Southern Cone will be the impact of these investments on the price of Argentine Gas, particularly regarding integration with Brazil.

3.2 LNG Opportunities

LNG has been playing an increasingly important role in the global natural gas market. Over the past 15 years, LNG infrastructure has expanded rapidly, and numerous new import and export facilities are expected to be developed worldwide in the coming years (IGU, 2025a). As more terminals are built across the region and globally, the market becomes more liquid and dynamic, creating new business opportunities.

For Latin America and the Caribbean, the expansion of LNG infrastructure presents three key opportunities:

1. Monetisation of natural gas reserves;
2. Support for the integration of renewable energy sources into power generation; and
3. Decarbonisation of the electricity mix.

Image: Sempra Infrastructure

3.2.1 The Role of LNG in Monetising Natural Gas Reserves

The expansion of liquefaction capacity is essential to enable the monetisation of the region's natural gas reserves, which would otherwise remain underutilised due to inadequate infrastructure or limited domestic demand. LNG exports directly contribute to foreign exchange earnings, strengthening trade balances and driving regional economic growth. Trinidad and Tobago, Peru, Argentina, Suriname, and Guyana stand out as the countries with the greatest potential to monetise their natural gas reserves through LNG in Latin America and the Caribbean, by creating a virtual bridge that connects the main natural gas production sites with global markets.

LNG liquefaction capacity in the region is expected to grow significantly in the coming years. In 2024, after more than a decade, a new liquefaction plant (Altamira LNG in Mexico) was inaugurated, raising the region's total capacity to 20.65 million tons per year (Mtpa), distributed as follows: 14.8 Mtpa in Trinidad and Tobago, 4.45 Mtpa in Peru, and 1.40 Mtpa in Mexico (see Table 2).

In Argentina, in May and August 2025, the first (Golar Hilli Episeyo FLNG) and second (Golar MK II FLNG) phases of the Southern Energy FLNG (SESA) project reached their final investment decisions (FID). The project is being developed by a consortium composed of Pan American Energy, YPF, Pampa Energía, Harbour Energy, and Golar LNG and aims to liquefy and export unconventional gas from Vaca Muerta. Both phases involve the deployment of two floating LNG units (FLNGs) operating in close proximity in the Gulf of San Matías, with nameplate of 2.45 and 3.50 Mtpa and start-up expected in 2027 and 2028, respectively. While the projects will initially rely primarily on Argentina's existing natural gas infrastructure for supply, a dedicated pipeline is planned in a later phase to directly connect Vaca Muerta to the Gulf of San Matías, supplying both floating units.

It is worth highlighting that the SESA consortium has already made significant progress. In March 2026, it signed a definitive agreement with SEFE (Securing Energy for Europe), a company owned by the German Federal Government, for the supply of 2 Mtpa of LNG over an eight-year period (with deliveries expected to begin in late 2027). This transaction represents the largest LNG export agreement from Argentina to date in terms of both volume and duration, ahead of the start-up of Argentina LNG operations.

Table 2 – Liquefaction Plants in operation and under construction in Latin America and Caribbean

Country	Liquefaction Plants	Capacity (Mtpa)	Online Year
Trinidad and Tobago	Atlantic LNG Train 1	3.00	1999 (Expected decommissioning in 2026)
Trinidad and Tobago	Atlantic LNG Train 2	3.30	2002
Trinidad and Tobago	Atlantic LNG Train 3	3.30	2003
Trinidad and Tobago	Atlantic LNG Train 4	5.20	2005
Peru	Peru LNG	4.45	2010
Mexico	Altamira LNG Train 1	1.40	2024
Mexico	Altamira LNG Train 2	1.40	Under construction (Expected start-up in 2028)
Mexico	Energía Costa Azul LNG	3.25	Under construction (Expected start-up in 2026)
Argentina	Southern Energy FLNG (Golar Hilli Episeyo FLNG)	2.45	FID (Expected start-up in 2027)
Argentina	Southern Energy FLNG (Golar MK II FLNG)	3.50	FID (Expected start-up in 2028)

Source: Author's elaboration based on data from IGU (2025a) and Global Energy Monitor (2025).

Several new LNG liquefaction projects have been announced in Argentina. Among them, the Argentina LNG project, developed by YPF in partnership with Eni and XRG (ADNOC), stands out, with an initial planned capacity of 12 Mtpa and potential expansion to 18 Mtpa.

During 2025, YPF and Eni signed the Final Technical Project Description (FTPD), an agreement defining the project's scope and technical specifications, while also awarding engineering design work to support the bidding process for the floating LNG units, natural gas treatment facilities, and the pipeline that will transport natural gas from Vaca Muerta to the coast of Río Negro.

In November of the same year, both companies signed a non-binding agreement with XRG to advance negotiations on the final terms for its incorporation into the Argentina LNG project. This process was formalised in February 2026 with the signing of a binding Joint Development Agreement (JDA), under which the parties committed to progressing all necessary engineering work and contractual arrangements required to reach the Final Investment Decision (FID) during 2026.

It is worth noting that the large-scale development of Vaca Muerta's reserves depends directly on the implementation of liquefaction plants. A study by the IAPG estimates that all LNG projects currently under construction or in the planning phase could require nearly 100 mcm/day of natural gas (IAPG, 2025). In addition to investments in exploration and production, the development of liquefaction facilities would also require substantial investments in pipeline infrastructure to expand the capacity to transport natural gas from the Vaca Muerta formation to the coastal areas where the liquefaction plants will be located.

In the cases of Guyana and Suriname, the use of FLNG units represents a key strategy to monetise these countries' natural gas resources, particularly the Haimara Cluster in Guyana and Block 52 (Sloanea) in Suriname, both offshore exploitation sites. These two fields could supply up to 12 Mtpa of LNG at competitive prices over the next decade (Wood Mackenzie, 2024).

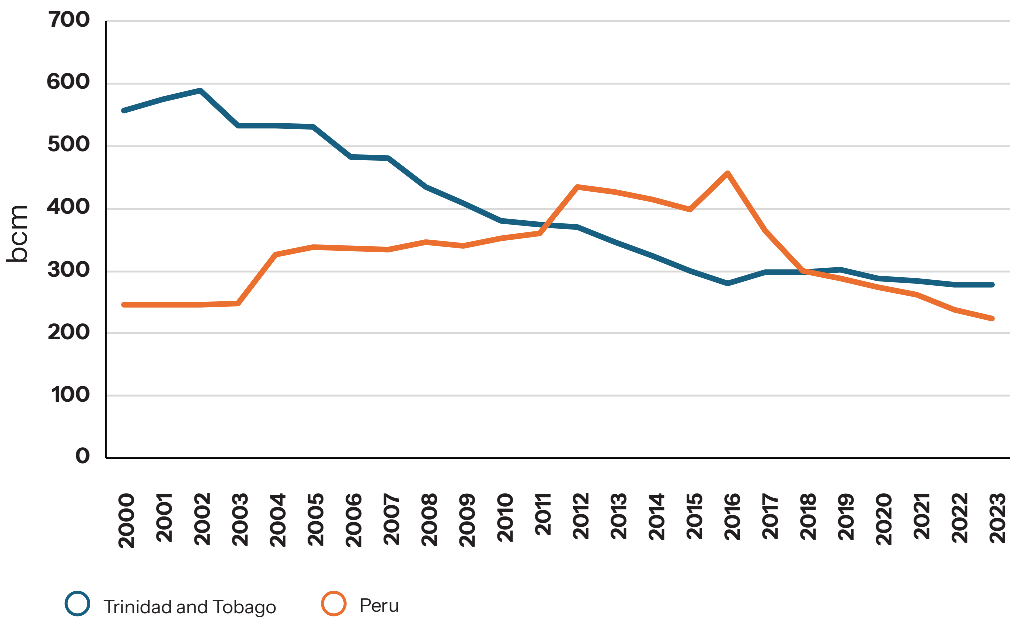
In Suriname, Petronas has announced that it is evaluating the potential development of an FLNG project to exploit the reserves of Block 52.

The use of FLNG units is essential for the development of these resources, given the limited domestic demand for natural gas and the lack of adequate infrastructure for transporting and processing natural gas along the coast. Deploying FLNGs eliminates the immediate need to build complex onshore plants and long pipelines to shore, making them particularly advantageous in regions with limited port infrastructure, as is the case in Guyana and Suriname, furthermore, FLNGs offer scalability and mobility, allowing phased deployment (with modular capacity) and the possibility to remove or relocate units as needed, thereby reducing risk for countries in the early stages of developing their natural gas industry. FLNGs also reduce dependence on the development of a domestic natural gas market, allowing demand to be anchored through LNG exports.

In the cases of Peru and Trinidad and Tobago, both countries already have well-developed LNG infrastructure. However, Trinidad and Tobago has experienced a significant decline in LNG export volumes in recent years due to the persistent reduction in reserves. Trinidad and Tobago reserves have been steadily declining since the early 2000s, dropping from 589 bcm in 2002 to 279 bcm in 2023. In 2024, the country´s liquefaction capacity utilisation rate was only 61% and in 2026 Atlantic LNG is expected to decommission its 3 Mtpa train 1 in order to optimise the efficiency of the remaining trains.

In Peru, reserves have been also decreasing since 2016, falling from 456 to 223 bcm in 2023 (see Figure 7). However, the country has been able to maintain its export levels, with liquefaction capacity utilisation rate at 91% in 2024.

Figure 7 – Proved natural gas reserves in selected countries



Source: Authors' elaboration based on data from OPEC (2025) and MINEM (2024).

In the case of Trinidad and Tobago, integration with Venezuela could help mitigate the country's natural gas production deficit. Specifically, the development of the Dragón field, located near the maritime border between the two countries, creates clear synergies. Venezuela holds the rights to the Dragón field reserves but lacks the infrastructure to monetise these resources. Conversely, Trinidad and Tobago has declining reserves but possesses underutilised liquefaction infrastructure, making cooperation between the two nations both strategic and mutually beneficial.

Another project that could help reverse the decline in Trinidad and Tobago's natural gas production is the Manatee field. This field is part of a transboundary deposit with Venezuela (Loran-Manatee), located in the East Coast Marine Area. The natural gas resources are being developed, with production expected to start in 2027. The project plan includes transporting the natural gas through pipeline to the onshore processing plant, from where it will be directed both to the Atlantic LNG liquefaction facility and the domestic natural gas market.

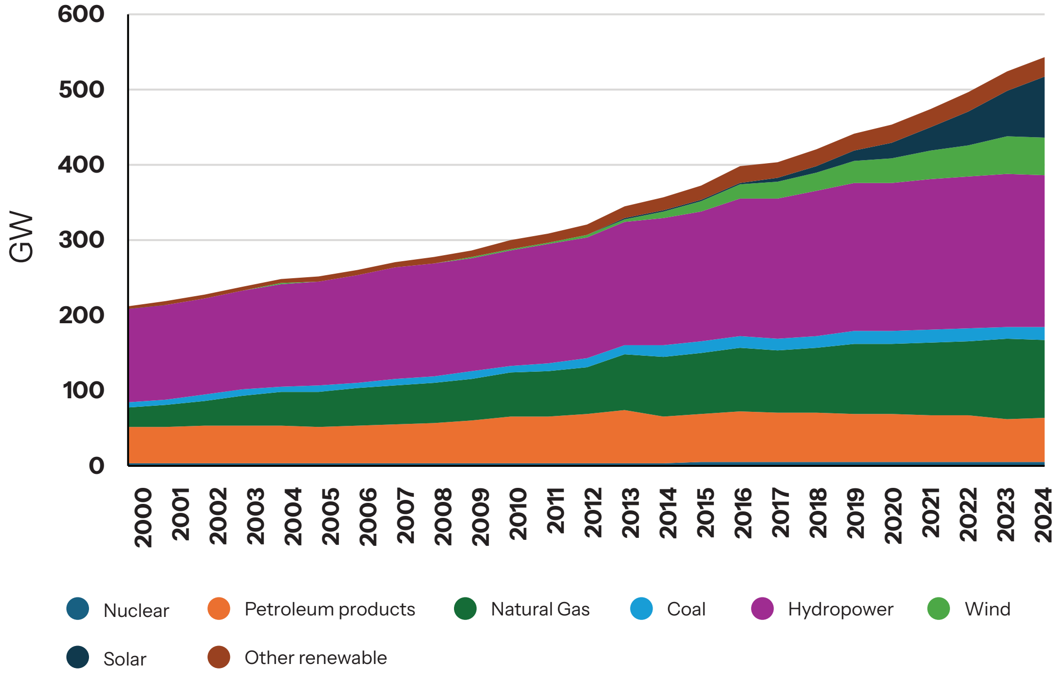
Peru, on the other hand, has significant untapped natural gas resource to be developed. The primary frontier for exploring and developing the country's natural gas resources is the Madre de Dios basin, which represents nearly half of Peru's total natural gas resources (Mantilha, 2025). In particular, the development of the Candamo field, located near the Camisea deposit and with estimated resources of around 100 bcm, has the potential to reverse the decline in Peru's natural gas reserves and, consequently, consolidate the position of the country as a significant LNG exporter in Latin America.

3.2.2 The Role of LNG in Supporting Intermittent Renewables

The global electricity landscape is undergoing a major transformation, fueled by the rapid expansion of large-scale renewable projects, supportive regulatory frameworks, and the declining costs of clean technologies (IGU, 2025b). This transformation points toward a future where wind and solar power are likely to become the primary sources of global generation capacity.

Latin America and the Caribbean are no exception to the global energy evolution. The region is expected to experience a significant increase in electricity demand, largely met by wind and solar sources (IEA, 2025f; OLADE, 2024). Traditionally, electricity generation in Latin America has been dominated by hydropower. However, its share has been declining, falling from more than half of total installed capacity in the early 2010s to around 37% in 2024 (see Figure 8). In contrast, wind and solar energy have grown rapidly over the same period, increasing from almost negligible levels in the early 2010s to approximately 25% in 2024.

Figure 8 – Electricity Generation Capacity in Latin America and the Caribbean



Source: Authors' elaboration based on data from OLADE (2025).

The rapid expansion of these non-dispatchable sources (wind and solar) can lead to an imbalance between electricity supply and demand, potentially undermining system reliability and energy security over time. This challenge arises because these sources are intermittent, relying heavily on weather conditions and other uncontrollable factors. Their output also fluctuates according to patterns, such as the day-night cycle and seasonal variations, as well as less predictable elements, including cloud cover and changes in wind speed.

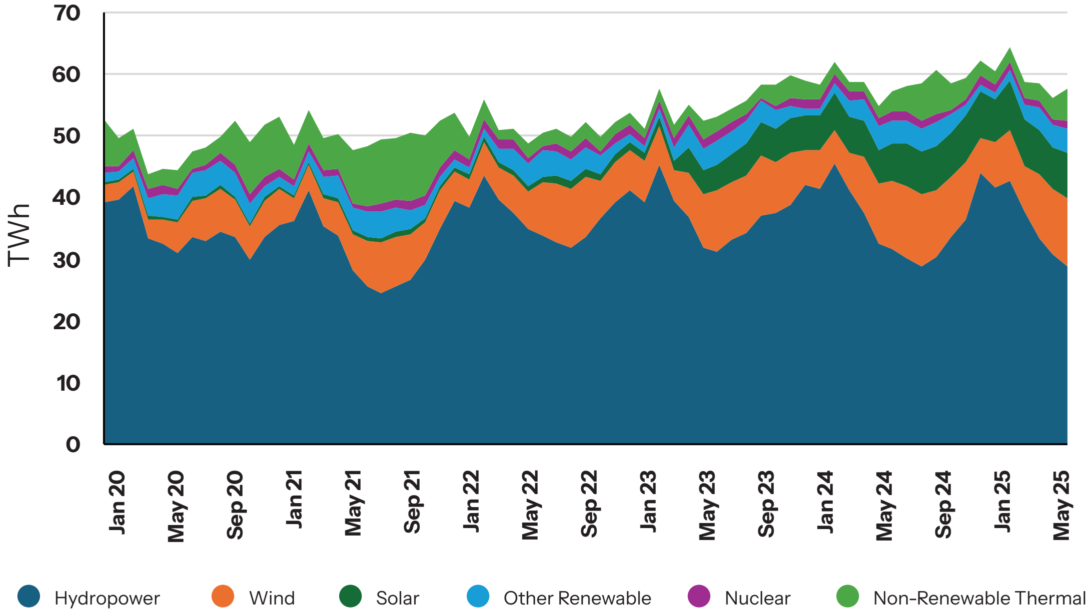
As wind and solar energy continue to gain prominence, energy systems will require increasing flexibility. In this context, natural gas, and particularly LNG, plays a critical role in supporting the integration of renewable energy sources into power sector. This is because natural gas (alongside coal, petroleum products, and hydropower) is considered a dispatchable source, offering remarkable operational flexibility. Gas-fired power plants can ramp up generation quickly, respond to both short- and long-term fluctuations, and operate without the need for external energy storage.

In addition, natural gas offers several advantages compared to other dispatchable sources. First, it is the cleanest fossil source, emitting significantly less greenhouse gas than coal and petroleum products (IPCC, 2006a). Second, hydropower cannot fully provide the necessary flexibility, as it is susceptible to climatic events such as droughts, as well as La Niña, and El Niño effects. Also, global warming is altering precipitation patterns, which can severely affect hydropower generation capacity.

Furthermore, the increasing penetration of solar and wind power in the electricity mix will require significantly higher levels of system flexibility. In Latin America, this challenge is compounded by growing uncertainty regarding water resource availability and by the increasing frequency and intensity of droughts over the long term. At the same time, the development of new large-scale hydropower projects faces strong environmental and social constraints, limiting the role of hydropower as a source of additional flexibility. As a result, despite the region's historically hydropower-based electricity system, Latin America cannot rely solely on this resource to support the continued expansion of wind and solar generation, making complementary sources of flexibility necessary, particularly natural gas–fired generation.

Among Latin American countries, Brazil stands out as the leading example where natural gas serves as a crucial source of flexibility in the power mix. The country, like the region as a whole, has a clean electricity matrix, dominated by hydropower, with a rapidly growing share of solar and wind energy. In 2024, approximately 87% of Brazil's power generation capacity came from renewable sources, including 47% hydropower, 21% solar (including distributed generation), 13% wind, and 7% other renewables (mainly biomass). The remaining 13% came from thermal plants (8% natural gas, 4% petroleum products, and 1% coal), while nuclear energy represents 1% (see Figure 12).
In Brazil, the National System Operator (ONS) determines which power plants are dispatched based on a variable-cost merit order. Hydroelectric, wind, and solar facilities provide the core of the electricity supply, while thermal plants are activated to meet any shortfall (see Figure 9). Since hydropower output is influenced by rainfall, thermal generation typically rises during dry periods and declines when water availability is abundant.

Figure 9 – Power supply in Brazil



Source: Authors' elaboration based on data from OLADE (2025).

Natural gas proved to be extremely important during the severe drought that affected the country in 2021. As hydropower generation declined, thermal power plants were dispatched, accounting for 22% of total electricity generation in October of that year, with natural gas representing around 15% of the total. In a short period, electricity generation from natural gas nearly doubled, highlighting that the use of natural gas-fired power plants was crucial to preventing power outages in Brazil in 2021. This demonstrates that, in Brazil, hydropower generation is no longer able to provide the level of flexibility required on its own and that natural gas is already used as a backup source for renewable energy. Its role is expected to become even more important as wind and solar generation expand, and the relative share of hydropower continues to decline.

Building on this trend, Brazil has recently reinforced the strategic role of natural gas in ensuring power system reliability through the latest Capacity Reserve Auction (Leilão de Reserva de Capacidade na forma de Potência – LRCAP), held in March 2026. The auction contracted approximately 19 GW of firm capacity, predominantly from gas-fired thermal power plants (around 15.2 GW), alongside a smaller share from other sources (EPE, 2026), highlighting the scale at which dispatchable resources are being secured to guarantee adequacy. Unlike traditional energy auctions, the LRCAP focuses on capacity (MW) rather than energy (MWh), reflecting the need to ensure reliability in a system with rapidly growing wind and solar generation. This outcome underscores Brazil's increasing reliance on natural gas-fired generation to provide firm capacity, system flexibility, inertia, and ramping capability, reinforcing its critical role in safeguarding security of supply in the coming years.

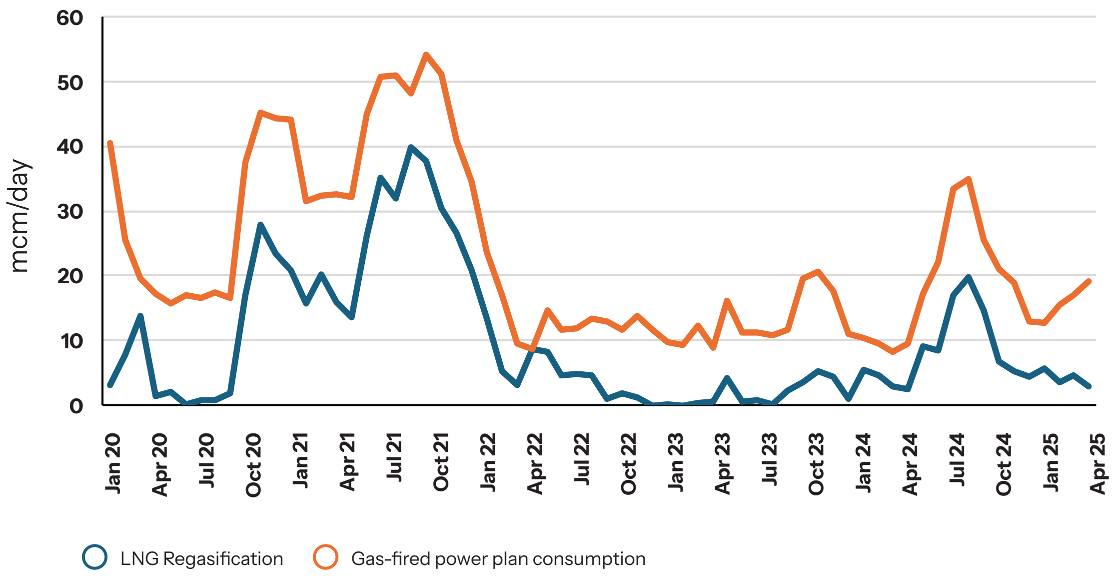
Brazil is also an important example of the role LNG plays in supporting the integration of renewable sources into the power mix. This is because the country's domestic natural gas production consists mainly of associated gas (approximately 90% in 2024). Associated gas is the natural gas that, within the geological reservoir, is found either dissolved in crude oil or as a natural gas cap above it. In such cases, oil production is prioritised, with natural gas being a by-product of that process. As a result, the production of associated natural gas generally has low operational flexibility and cannot be easily adjusted to meet fluctuations in demand without affecting oil extraction. Therefore, Brazil's domestic Gas production cannot provide the level of flexibility required by gas-fired power plants to act as a reliable backup for renewable energy sources.

In this way, Brazil resorted to flexible LNG imports to supply its gas-fired power plants. The country currently has seven operational LNG receiving terminals, with a combined FSRU capacity of 36.7 Mtpa (see Table 3). Six of these terminals are dedicated exclusively to supplying thermal power plants, while the only exception is the São Paulo terminal, which primarily supplies firm Gas to industrial and residential markets. All these terminals employ floating storage and regasification unit (FSRU) technology, due to its advantages in terms of lower costs, shorter implementation timelines, and greater flexibility and mobility.

Whenever gas-fired power plants are dispatched, the LNG stored in the FSRUs is regasified to supply them. Figure 10 clearly illustrates the importance of LNG for the reliability of the Brazilian power system. In 2021, at the height of the hydropower crisis in Brazil, approximately 40 mcm/day of regasified LNG met the demand from the essential dispatch of gas-fired power plants.

Colombia also clearly illustrates the strategic role of LNG in strengthening power system security and flexibility in a context of high hydropower dependence and increasing climate variability. The country's only active LNG import infrastructure is the offshore regasification terminal located in Cartagena, with a capacity of 3 Mtpa, which supplies three gas-fired power plants on the Caribbean Coast in the northeast of the country. The primary role of this terminal is to provide backup to the intermittency of renewable energy supply, particularly during periods of severe drought associated with the recurrent El Niño phenomenon, when hydropower generation is significantly constrained. In such situations, the dispatch of natural gas-fired thermal power plants, enabled by imported LNG, becomes essential to meet electricity demand and mitigate the risk of supply shortages,

Figure 10 – Relationship between LNG Regasification and Natural Gas Consumption in Gas-Fired Power Plants in Brazil

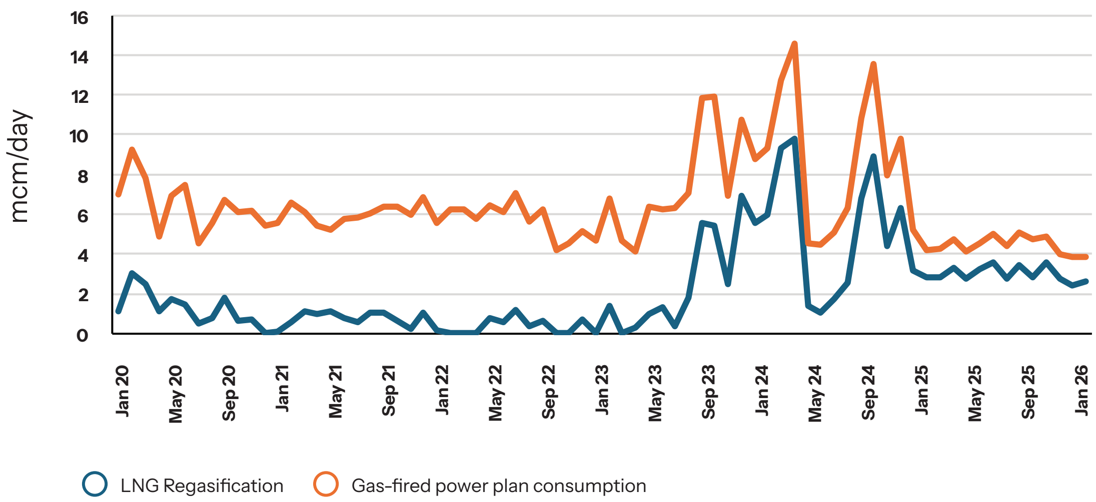


Source: Authors' elaboration based on data from OLADE (2025).

highlighting LNG's role as a complementary source of flexibility and reliability in the Colombian power system.

Figure 11 highlights the critical role of LNG in ensuring the reliability of Colombia's power system, as during the 2023–2024 El Niño event, Colombia consumed approximately 10 mcm/day of regasified LNG to meet the demand from gas-fired power plants operating under essential dispatch. Notably, since December 2024, a portion of the regasification capacity has been allocated to non-thermal demand, including households, commercial users, natural gas vehicles (NGVs), and industrial consumers. The regasification capacity is currently being expanded to further support this non-thermal demand.

Figure 11 – Relationship between LNG Regasification and Natural Gas Consumption in Gas-Fired Power Plants in Colombia



Note: The values are calculated using a natural gas calorific value of 26.53 cubic meters per MMBtu.

Source: Authors' elaboration based on data from XM (2026).

Image: Fortín de Piedra, Vaca Muerta. Tecpetrol

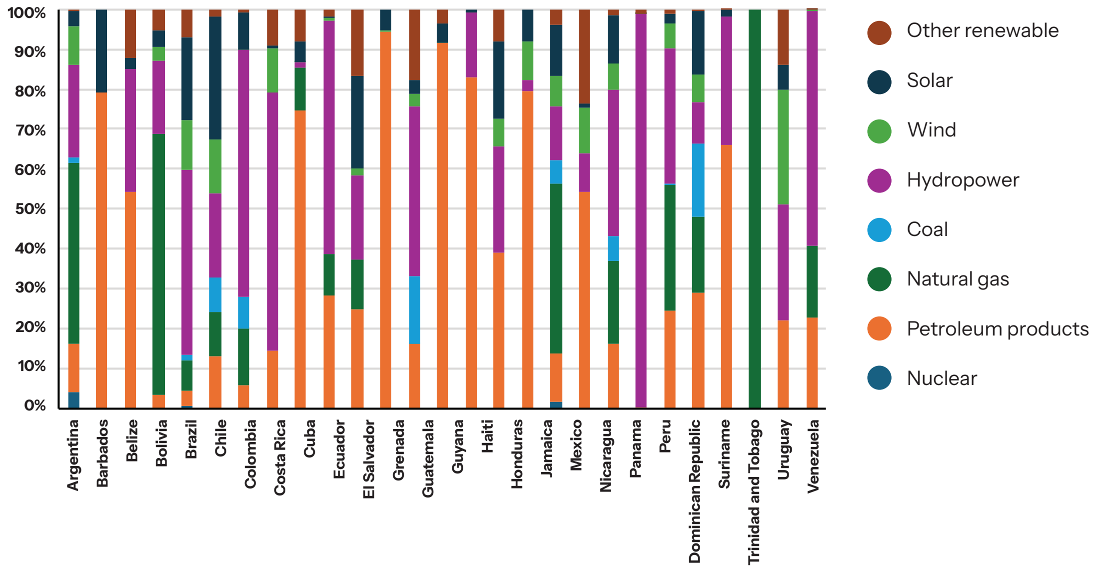
3.2.3 The Role of LNG in Decarbonising Power Generation

In countries where power generation relies heavily on coal, fuel oil, diesel, or other petroleum derivatives, replacing these fuels with natural gas can drastically reduce GHG emissions. According to the IPCC (2006a), the use of natural gas enables reductions of approximately 24%, 28%, and 42% in GHG emissions per unit of primary energy when substituting diesel, fuel oil, and coal in power generation, respectively. These reductions can be even greater due to the efficiency gains in converting primary energy into secondary energy (electricity) provided by natural gas-fired power plants.

Furthermore, natural gas provides an immediate reduction in GHG emissions without requiring major changes to the power generation mix or transmission infrastructure. In contrast, renewable energy sources demand high upfront investments, a more modern grid, energy storage capacity, and backup systems to manage intermittency. Thus, natural gas enables immediate emissions reductions while the infrastructure needed to expand renewable energy is gradually developed.

Although the power sector in Latin America and the Caribbean as a whole is characterised by lower-emission forms of generation, with approximately 66% of installed capacity coming from renewable sources in 2024, several countries in Central America and the Caribbean exhibit a high dependence on fossil fuels. In the Caribbean, countries such as Grenada, Haiti, Barbados, and Cuba continue to rely primarily on petroleum products for electricity generation (see Figure 12). In Central America, this dependence is also significant, particularly in Nicaragua, Belize, and Honduras. This continued reliance reflects a combination of structural factors, including relatively low electricity demand, limited land availability for large-scale renewable projects, and persistent resilience challenges associated with hurricanes and tropical storms, which constrain the deployment of new infrastructure and reinforce the role of conventional thermal generation in ensuring supply security.

Figure 12 – Electricity Matrix of Latin American and Caribbean Countries (2024)



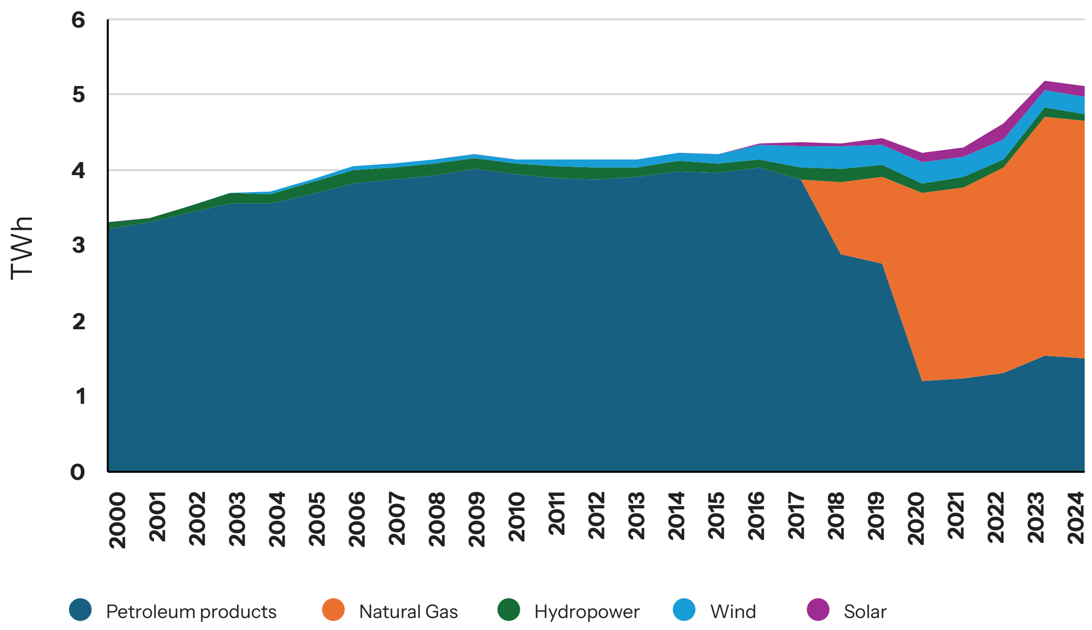
Source: Authors' elaboration based on data from OLADE (2025).

Therefore, LNG-to-power projects have significant potential to reduce emissions in these countries by replacing more polluting fuels with natural gas. It is noteworthy that such initiatives have already been successfully implemented in Central America and the Caribbean, with notable examples in the Dominican Republic, Panama, El Salvador, and Jamaica.

In Jamaica, the introduction of natural gas into the power mix represents a clear and successful case of electricity sector decarbonisation.

Historically heavily dependent on petroleum products, the country began to significantly reduce this reliance following the commissioning of LNG regasification infrastructure, notably the Montego Bay onshore terminal (0.5 Mtpa), operational since 2016, and the Old Harbour FSRU, with a capacity of 3.6 Mtpa, which entered operation in 2019 (see Table 3). These facilities support key gas-fired power plants on the island and serve as highly representative examples of LNG-to-power projects. As illustrated in Figure 13, from the second half of the 2010s onward, there has been a marked substitution of petroleum products by natural gas in power generation, leading to a substantial reduction in emissions. In other words, in 2015, approximately 95% of Jamaica's electricity generation came from petroleum products, whereas by 2024 this share had fallen to 30%, with natural gas now accounting for 62% of generation.

Figure 13 – Power supply in Jamaica



Source: Authors' elaboration based on data from OLADE (2025).

It is worth noting that Guyana and Suriname also rely heavily on petroleum products for electricity generation. In this context, these countries could use their substantial natural gas reserves to replace these more polluting fuels. In doing so, not only would the use of natural gas reduce GHG emissions, but it would also have positive effects on the countries' trade balances, as imported petroleum products would be substituted with domestically produced natural gas.

3.3 Low-Emission Gases

3.3.1 Biomethane

Biomethane is a gaseous fuel composed primarily of methane derived from technological routes that use renewable raw materials.[6] Because of its high methane content, biomethane is considered a drop-in biofuel compatible with natural gas. In other words, both fuels are interchangeable in their applications without requiring any modifications in the infrastructure. As a result, biomethane can be injected into natural gas pipeline networks, enabling its distribution to a wide range of end users (from large industrial consumers to commercial and residential users), as well as directly supplying gas-fired power plants, industrial consumers and fueling vehicles running on compressed natural gas (CNG) or LNG.

6. The main production pathway involves upgrading raw biogas generated from the anaerobic digestion of biomass (such as agricultural residues, manure, sewage, and municipal solid waste) in a process that removes carbon dioxide (CO_2) and other impurities, using methods such as water scrubbing, membrane separation or pressure swing adsorption. Biomethane can also be manufactured from woody biomass in a thermal gasification process followed by a methanation process, although this route is far less common than anaerobic digestion. In addition, biomethane can be synthesised by combining captured CO_2 with renewable hydrogen through a methanation process. In this case, it is known as e-methane (or synthetic natural gas).

Image: Naturgas

Latin America and the Caribbean have enormous biomethane production potential, with Brazil emerging as a key leader. According to the IEA (2025e), the region (including Mexico) has an estimated production potential of around 210 billion cubic metres of natural gas equivalent (bcme) per year, representing just over 20% of the total. Notably, Brazil stands out as the country with the largest biomethane potential worldwide, accounting for approximately 13% of the estimated global potential (125 bcme per year).

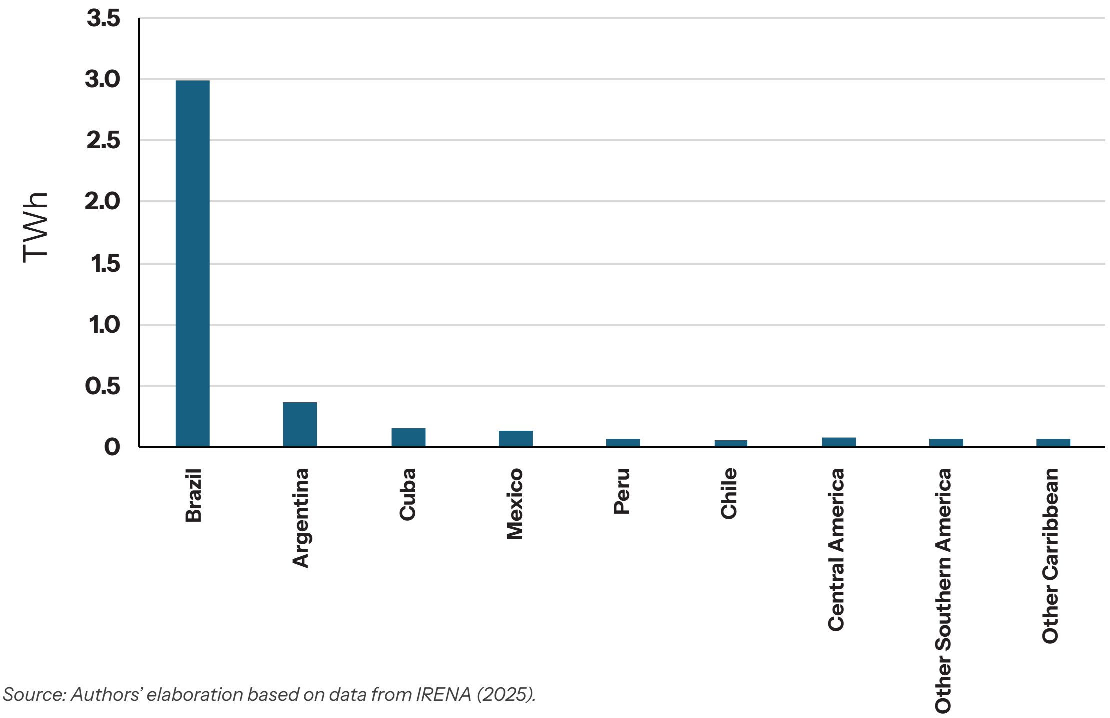
The development of biomethane production presents significant opportunities for the region:

1. When properly managed, it provides a low life-cycle GHG energy source that can substantially reduce emissions, particularly in hard-to-abate sectors such as heavy transport and steel production;
2. It can strengthen the trade balance by reducing dependence on imported energy, for example, when biomethane is used in the heavy road transport sector to replace imported diesel; and
3. It can enhance energy security and increase the overall resilience of the energy system by diversifying energy sources and substituting energy imports.

Although the potential for biomethane production in Latin America and the Caribbean is significant, the region has played a limited role in the global biomethane market (IEA, 2025e). In recent years, global biomethane production has been driven primarily by the United States and the European Union, which together accounted for approximately 90% of total output in 2024, exceeding 9 bcme (IEA, 2025b).

Nearly all countries in Latin America and the Caribbean have developed biogas projects for power generation (see Figure 14). However, very few have advanced toward biomethane upgrading. Essentially, Brazil remains the main exception, having established a robust regulatory framework and implemented several policies to promote biomethane production. It is also noteworthy that other countries in the region have initiated biomethane projects, such as the La Farfana sewage-to-biomethane plant in Chile, which produces around 64 thousand cubic metres per day and injects it directly into the natural gas pipeline network (I. Gomes et al., 2021). Moreover, other countries have begun regulating the use of biomethane. For instance, in Colombia, rules governing the use of biogas and biomethane as fuel gases were introduced through Resolution No. 240 of December 6, 2016 (Vidigal et al., 2025). This regulation established a framework aimed at facilitating the direct injection of biomethane into the natural gas grid.

Figure 14 – Power Supply from biogas in Latin America & the Caribbean



Source: Authors' elaboration based on data from IRENA (2025).

3.3.1.1 Biomethane in Brazil

Despite the limited progress across the region, Brazil stands out as the leading example of a rapidly developing biomethane market in Latin America and is expected to become a major producer in the medium term (IEA, 2025a). The country's regulatory framework has been gradually strengthened since the mid-2010s, when biomethane quality standards were first established. In 2022, these regulations were updated through ANP Resolution No. 906/2022, which covers biomethane derived from agroforestry, livestock, and commercial organic waste, and ANP Resolution No. 886/2022, which applies to biomethane produced from landfills and wastewater treatment plants.

Among other requirements, these quality regulations stipulate that biomethane must contain a minimum methane concentration of 90%, a maximum carbon dioxide content of 3%, a higher heating value between 35 and 43 MJ/cm, and a Wobbe Index ranging from 46.5 to 53.5 MJ/cm. The standards also set limits for siloxanes, chlorinated, and fluorinated compounds to ensure the safe use of biomethane produced from landfills and wastewater treatment plants. Additionally, the regulation allows biomethane to be injected into the natural gas grid (transport and distribution) provided that it meets the established quality specifications.

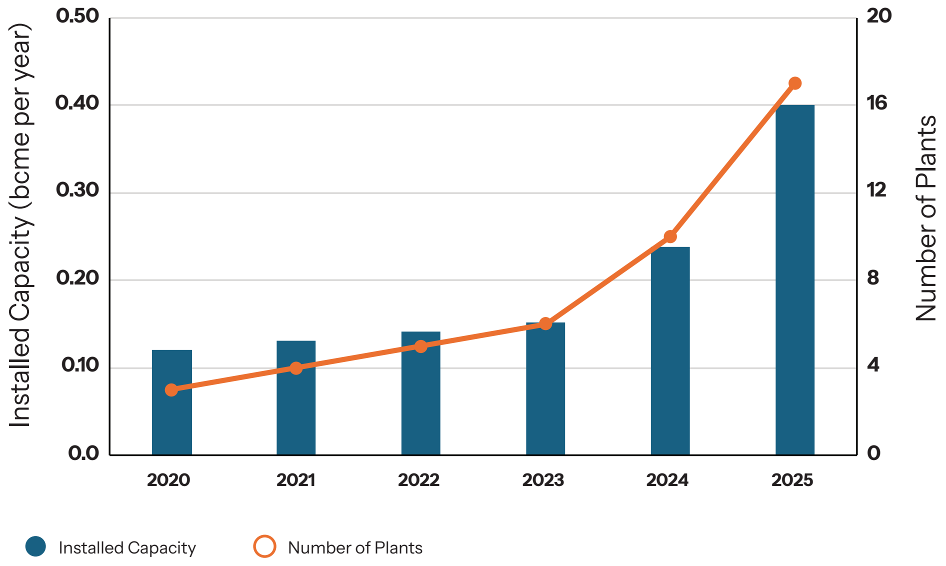
Brazil has also implemented policies to incentivise the development of the biomethane market, including both supply-side and demand-side measures. On the supply side, biomethane projects have been included in a special tax regime, REIDI (Special Incentive Regime for Infrastructure Development), which suspends the incidence of federal taxes (PIS and COFINS) on the acquisition, leasing, and import of goods and services linked to approved infrastructure projects. In addition, biomethane projects can qualify for funding through the Energy Transition Acceleration Program (PATEN) and the National Climate Change Fund (FNMC). Both of these mechanisms provide subsidised financing for the construction of biomethane plants.

On the demand side, two mandates have been established requiring certain sectors (fuel distributors and Gas suppliers) to meet specific quotas for emissions reduction or biomethane procurement. The first is the National Biofuels Policy (RenovaBio), established in 2017 through Law No. 13,576/2017, which aims to reduce GHG emissions in the fuel sector and promote the expansion of biofuel use, including biomethane. Under this policy, annual GHG reduction targets are set for fuel distributors, which must be met through the acquisition of Decarbonisation Credits (CBIOs). Biofuel producers, in turn, can voluntarily certify their production through a life-cycle assessment (LCA) and receive an energy-environmental efficiency score. This score is then multiplied by the volume of biofuel sold, determining the number of CBIOs that a producer can issue and trade with fuel distributors to help them meet their decarbonisation targets.

The second mandate is the Future Fuel Law (Law No. 14,993/2024), enacted in 2024. This law establishes an annual mandatory GHG emissions reduction target for natural gas suppliers, to be met through the acquisition of Biomethane Guarantee of Origin Certificates (CGOBs) starting in 2026. The decarbonisation targets, which range from 1% to 10% depending on the decision of the National Energy Policy Council (CNPE), are translated into corresponding biomethane volumes. Estimates suggest that the volumes of biomethane to be procured range between 0.37 and 3.7 bcme per year, depending on the selected decarbonisation target (EPE, 2025b). Biomethane producers, in turn, can voluntarily certify their production to issue CGOBs, which can then be traded with natural gas suppliers to enable them to meet their quotas obligations.

This combination of a robust regulatory framework and incentive policies has driven the rapid development of the biomethane market in Brazil in recent years. Between 2023 and 2025, both the installed capacity and the number of plants more than doubled, reaching approximately 0.4 bcme at 17 facilities in the latter year (see Figure 15). As of January 2026, an additional 40 plants were

Figure 15 – Installed Capacity and Number of ANP-Authorised Biomethane Production Plants in Brazil



Source: Authors' elaboration based on data from ANP (2025).

awaiting authorisation to commercialise biomethane in Brazil, representing an additional 0.545 bcme of installed capacity.

The installed biomethane capacity in Brazil represents less than 0.5% of the potential of the Latin American region, indicating that a significant untapped potential remains. However, as highlighted by the IEA (2025e), a well-developed regulatory framework and effective incentive policies are essential for the expansion of the biomethane market, something that is still lacking in most Latin American and Caribbean countries. Biomethane projects compete with cheaper incumbent fossil fuels for market share and, therefore, are unlikely to become economically viable through market forces alone. Policy support plays a crucial role in lowering market entry barriers and ensuring profitability for producers. This approach has been precisely what enabled the successful development of biomethane markets in Europe and the United States and is now driving market expansion in Brazil.

3.3.2 Hydrogen

The development of the hydrogen industry has become an essential component of strategies to reduce emissions in hard-to-abate sectors. One of the most promising pathways is the gradual decarbonisation of the current Gas network through the blending of pure hydrogen or synthetic gases produced from renewable hydrogen.

Latin America, and particularly Brazil, hold privileged conditions to enter the sustainable hydrogen value chain. On the supply side, the region enjoys abundant renewable resources (such as wind, solar, hydro, and biomass), enabling low-emission hydrogen production via electrolysis or natural gas reforming. These routes can support domestic industrial development and decarbonisation. Latin America has recently entered what can be described as the second phase of hydrogen development. The period between 2020 and 2023 was dominated by national strategies and roadmaps. From 2024 to 2025, the region began to migrate toward more concrete frameworks: regulatory systems, financial instruments, and anchor projects. Progress, however, still faces significant friction related to competitiveness, creation of reliable demand and offtake agreements and environmental licensing.

Recent assessments indicate that more than 200 hydrogen projects are planned across Latin America and the Caribbean. Chile, Brazil and Colombia stand out as the main implementation hubs. The regional agenda has gained institutional support through platforms such as H2LAC[7], which provides project mapping, knowledge sharing and monitoring, with the backing of multilateral institutions including the Inter-American Development Bank.

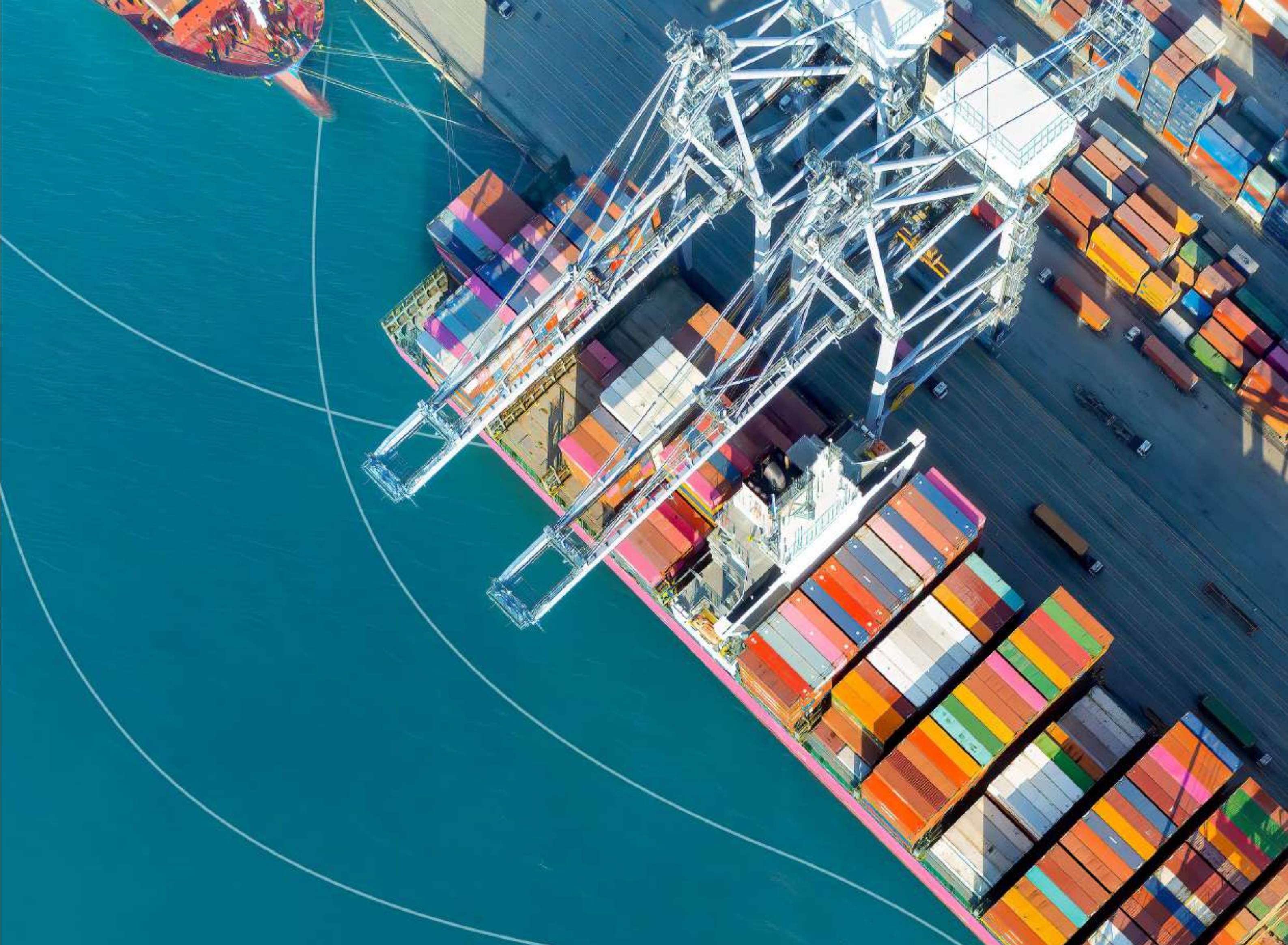
Brazil achieved the most significant institutional advance with Law No. 14.948/2024, which created the legal framework for low-carbon hydrogen, governance instruments and incentives such as Rehidro[8] and the PHBC program[9]. Chile moved toward implementation through the Green Hydrogen Action Plan 2023–2030, while the main bottlenecks shifted to licensing and infrastructure.

7. See: https://h2lac.org/en/
8 Rehidro (Special Incentive Regime) establishes a special regime of tax incentives applicable to activities in the production, use, commercialisation, transport, and storage of hydrogen with low carbon intensity.
9. PHBC stands for the Low-Carbon Hydrogen Development Program, which is federal program established to support the creation and scaling of a domestic low-carbon hydrogen industry.

At the global level, the years 2024–2025 were marked by a period of recalibration. Rising costs, regulatory uncertainty and the cancellation of several international projects slowed the pace of announcements. This trend, highlighted in the Global Hydrogen Review 2025 of the International Energy Agency (IEA), also affected Latin America, pushing governments and investors to prioritise more realistic and integrated initiatives.

Despite increasing interest from the private sector and governments in developing the hydrogen industry in Latin America, obstacles remain significant. The ecosystem of equipment suppliers, technology partners, investors and offtakers remains immature, complicating investment decisions. There is also a shortage of qualified human resources at operational and engineering levels, implying dependence on international suppliers in the short term, yet also creating opportunities for local value capture. Current costs of renewable hydrogen are still uncompetitive. The rapid growth in electrolyser demand worldwide has generated bottlenecks and higher capital costs.

Nevertheless, in the long-term, hydrogen is a strategic instrument for decarbonising Gas networks and transforming Latin America's energy landscape. The region has moved from planning to implementation, supported by new regulatory frameworks and flagship projects. Success will depend on building demand, reducing costs, developing infrastructure, and creating a robust industrial ecosystem. If these challenges are addressed, Latin America (and Brazil in particular) can become a central player in the global hydrogen economy, combining decarbonisation with industrial development and new export opportunities.

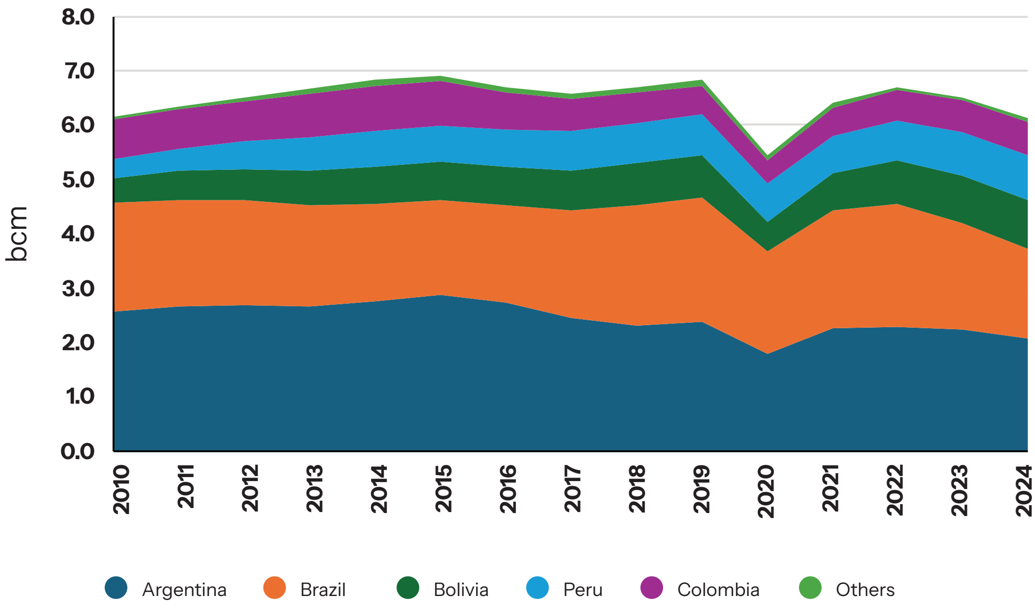


3.4 Natural Gas for Heavy Transport

3.4.1 Land Transport

Latin America and the Caribbean play a significant role in the global natural gas vehicle (NGV) market, accounting for roughly 20% of the world's NGV fleet (AAP, 2023; Le Fevre, 2019) and consuming approximately 6.1 bcm in 2024 (see Figure 16). Although the region includes numerous countries, NGV consumption is concentrated in those with abundant natural gas resources. Argentina and Brazil stand out as historical leaders, representing 34.9% and 27.5% of regional consumption, respectively, in 2024. Bolivia (15.3%), Peru (13.8%), and Colombia (10.2%) hold secondary yet notable shares, while NGV usage in other Latin American countries remains limited (1.4%), exerting minimal impact on regional statistics.

Figure 16 – Natural Gas Vehicle Consumption in Latin America and the Caribbean



Source: Authors' elaboration based on data from OLADE (2025).

Currently, NGV consumption in the region is largely concentrated in the light-duty vehicle (LDV) segment, where vehicles are converted to run on CNG. The most representative users of this demand are drivers who operate their vehicles intensively (such as taxi and rideshare drivers) in major urban centres like Buenos Aires, São Paulo, and Rio de Janeiro. Because NGVs are more cost-effective than gasoline vehicles, this provides substantial economic benefits, particularly for high daily mileage, making vehicle conversion a faster and financially-attractive investment.

Nevertheless, the region's dynamics have undergone significant structural changes in recent years, driven by the growing adoption of electric vehicles (EV), which has reduced NGV consumption in the LDV segment. In this context, NGV use in the heavy-duty vehicle (HDV) segment, whether through CNG or LNG, presents three key opportunities for Latin America and the Caribbean:

1. Offsetting the decline in NGV consumption in the traditional LDV segment, thereby helping to monetise the region's natural gas reserves;
2. Reducing reliance on diesel imports, thus improving the trade balance; and
3. Lowering GHG emissions from HDVs, a sector considered hard-to-abate.

Latin America has seen a notable surge in EV adoption, particularly in Brazil, Costa Rica, Uruguay, and Colombia (IEA, 2025c). This growth is driven by public policies promoting the electrification of the LDV fleet, as well as the increasing availability of affordable Chinese-made electric models for Latin American consumers. In the medium term, EV uptake in the region is expected to accelerate substantially (IEA, 2025c).

This trend has led to a slowdown in natural gas consumption in the transport sector across Latin America and the Caribbean. In Brazil, the decline is particularly pronounced, with NGV usage falling sharply in recent years. Between 2022 and 2024, consumption decreased by 26%, and the downward trend is expected to continue in 2025, with a projected 10% reduction compared to 2024 (MME, 2025).

In contrast, Peru and Bolivia follow a different trajectory. In both countries, NGV consumption has continued to grow, supported by ample domestic Gas availability, strong price competitiveness, and public policies encouraging fuel substitution away from liquid fuels. In this context, the electrification of LDV segment does not yet represent a material threat to NGV demand. However, as illustrated by the Brazilian experience, this situation may evolve over time. With the expected widespread adoption of EVs across Latin America in the coming years, other countries may face similar dynamics in the near future, with declining NGV consumption in the traditional LDV segment as fleet electrification advances.

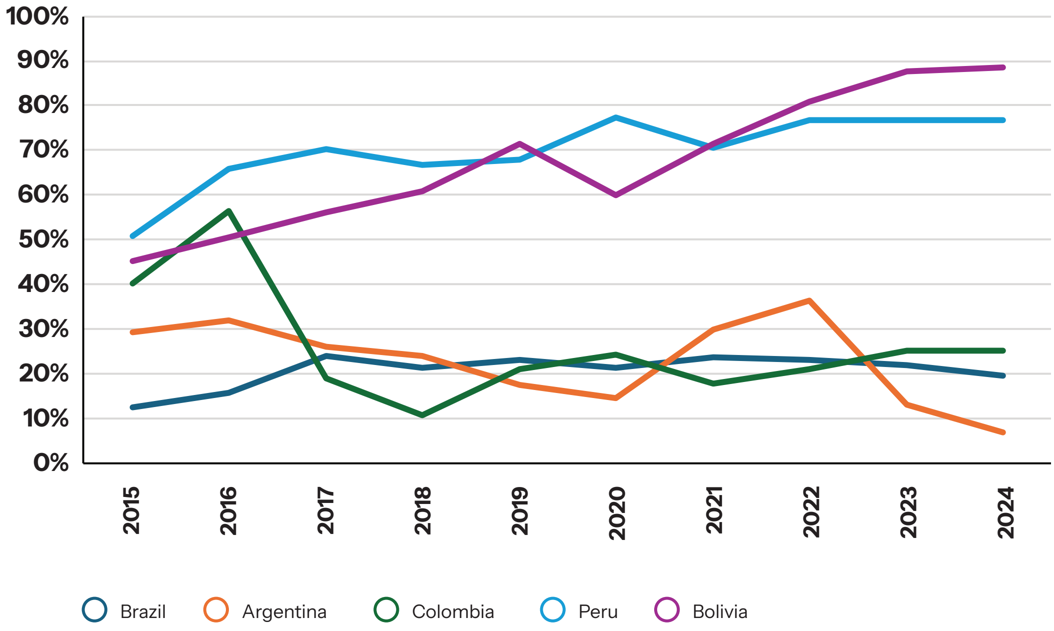
In this way, the HDV sector represents a significant opportunity to reverse the downward trend in NGV consumption in Latin America, as well as to increase Gas demand in countries that have not yet experienced declines in the LDV segment. The region presents substantial potential for NGV use in the HDV segment. First, NGV in heavy-duty vehicles is a mature technology, with several manufacturers offering dedicated CNG-powered trucks and buses across Latin America, and LNG technology has been increasingly applied worldwide.

Second, road transport is by far the dominant logistics mode for freight movement across Latin America, which heavily relies on diesel. For example, in Argentina, Chile, Colombia, Peru, and Uruguay, more than 90% of freight activity (measured in tonne-kilometres) relies on road transport, and even in countries with more diversified freight matrices (such as Mexico and Brazil) this share is still close to 60% (Barbero et al., 2020). This heavy dependence on diesel-based trucking carries significant costs in terms of GHG emissions, fuel subsidies, import dependence, and logistics costs, directly affecting the competitiveness of key economic activities in the region, particularly in raw-material-intensive sectors such as agriculture, livestock, mining, and energy.

Third, the region includes several cities with extensive Bus Rapid Transit (BRT) systems (Hidalgo et al., 2024), which are well-suited for conversion to NGV technologies. A notable example is Colombia, where part of the TransMilenio BRT fleet in Bogotá was converted to CNG starting in 2019. Today, the system operates more than 2,000 CNG buses, making it one of the largest NGV-dedicated urban passenger transport fleets in the world. Another relevant example is the Metropolitano BRT system in Lima, Peru, which operates a fleet of 544 CNG buses, in addition to 545 CNG buses running on complementary corridors (as of November 2025).

In addition to helping monetise the region's natural gas reserves by expanding NGV consumption, replacing diesel in the HDV segment also improves the trade balance of Latin American countries. This is because a substantial share of diesel demand is met through imports. In 2024, for example, Bolivia and Peru imported more than 75% of their diesel consumption, while in Brazil, Argentina, and Colombia this figure has remained around 20% in recent years (see Figure 17). Since all of these countries possess significant natural gas reserves, they have a clear opportunity to replace imported diesel with domestically produced natural gas.

Figure 17 – Diesel Imports as a Share of Total Diesel Consumption in Selected Countries



Source: Authors' elaboration based on data from OLADE (2025).

NGV consumption in the HDV segment also presents a significant decarbonisation opportunity. This is because this segment is difficult to electrify, as battery energy density and charging capacity remain suboptimal. The number of batteries required to power an electric HDV adds substantial weight, reducing the amount of cargo it can carry. Furthermore, charging electric HDVs in a timeframe comparable to diesel refueling requires power levels up to 20 times higher than those provided by current LDV fast chargers, which could place additional strain on the power grid (Gross, 2020).

Moreover, although the use of low-emission hydrogen has promising potential for decarbonising the HDV sector and is included in many roadmaps around the world, as discussed in Section 5.2, both the technology and the required infrastructure remain immature. Scaling up hydrogen-based solutions is therefore expected to require considerable time, if they ultimately prove viable at scale. In addition, less than 1% of global hydrogen production is currently low-emission, with the vast majority still based on fossil fuels (IEA, 2025d), leading to life-cycle GHG emission that may exceed those of conventional fuels by shifting emissions upstream. Consequently, meaningful decarbonisation through hydrogen could only be achieved if production is predominantly based on lower-emission energy sources, a transition that most projections indicate will begin in the late 2030s and become dominant only around mid-century (DNV, 2025a; IEA, 2021).

Thus, natural gas represents an immediate alternative for reducing GHG emissions in the HDV sector. According to the IPCC (2006b), natural gas, both in its compressed (CNG) and liquefied (LNG) forms, has the potential to reduce GHG emissions by 20% to 27% per unit of energy (e.g., megajoule) when substituting diesel. It is important to note, however, that maintaining these reduction levels in real-world vehicle operation depends on the efficient control of fugitive methane emissions and, therefore, on proper maintenance and operational conditions of the fleet.

Furthermore, in countries with mandatory biofuel blending in diesel (such as Brazil, which currently has a 15% biodiesel blend and is expected to reach 20% by 2030) the impact of NGV on emission reductions when replacing diesel may be lower, since the blend already reduces the carbon footprint of diesel.

On the other hand, the use of biomethane in HDVs significantly reduces GHG emissions when replacing diesel. Well-to-wheel life-cycle assessments conducted by Brazilian government agencies indicate that biomethane can reduce GHG emissions by approximately 90% compared to diesel, even considering the country's substantial biodiesel blending mandates (EPE, 2025a). Notably, these assessments also show that biomethane lowers emissions by around 60% compared to electric vehicles, even taking into account Brazil's predominantly clean power mix.

In this context, biomethane is beginning to be used as a lower-emissions fuel to decarbonise the HDV segment in Brazil. For instance, the city of São Paulo already operates 200 biomethane-powered trucks in its municipal solid waste collection fleet, and, in September 2025, the city issued Municipal Decree No. 64,519, which mandates the acquisition of biomethane buses to expand the public transport fleet. Private initiatives are also emerging in Brazil, such as the logistics company Jomed Log, which in 2025 acquired 19 biomethane trucks to decarbonise its fleet, and Natura, which in early 2026 announced the use of the biofuel in a dedicated fleet of 28 trucks, in addition to its application in industrial processes (Marcelino, 2025; Natura, 2026).

Despite the clear advantages of replacing diesel with NGV, significant challenges must still be addressed to enable large-scale adoption of natural gas in the HDV segment across Latin America and the Caribbean. Because the region's NGV market initially developed to serve the LDV segment, the refueling infrastructure is heavily concentrated in major urban centres. As a result, expanding natural gas use in the HDV segment requires the development of refueling stations along the region's main freight transport routes. In other words, the establishment of "blue corridors" (or "green corridors" when biomethane is used) is essential.

Although a significant amount of infrastructure still needs to be developed, it is worth noting that several initiatives of this kind are already underway in Latin America. Argentina, for example, has implemented three blue corridors (Corredor Noroeste Argentino, Corredor Centro, Corredor Vaca Muerta e Patagonia), comprising more than 200 CNG refueling stations dedicated to HDVs, including 134 stations equipped with fast-refueling technology. Peru has also made progress in this area, having deployed six public LNG refueling stations to date, enabling coverage of the country's main coastal highways from north to south, and more stations are projected to be installed in the coming years. In 2021, Colombia approved Law 2128, which promotes the widespread adoption of dedicated Gas vehicles and aims for 30% of HDV fleet to use this technology.

Despite these advances, scaling up NGV use in the HDV segment poses substantial challenges. The development of a fully functional value chain requires the coordination of a large number of diverse actors, including fuel suppliers, vehicle manufacturers, infrastructure developers, logistics operators, and, in many cases, small and medium-sized enterprises (SMEs). This fragmentation increases transaction costs, complicates planning, and raises risks for private investors, particularly in the absence of clear long-term demand signals.

In this context, political commitment, long-term government policy vision, and access to financing are critical enabling factors. Public policies that provide regulatory stability, facilitate access to credit, and support initial infrastructure deployment can play a decisive role in overcoming coordination failures and accelerating market development.

Without such support, the expansion of NGV infrastructure for HDVs is likely to remain limited to isolated corridors rather than evolving into an integrated regional network.

3.4.2 Maritime Transport

A global regulatory framework for reducing GHG emissions from shipping is steadily taking shape, driven by initiatives from both the European Union (EU) and the International Maritime Organization (IMO) (Wang et al., 2025). At the global level, in April 2025, the IMO updated its 2023 GHG Reduction Strategy through the implementation of the Net-Zero Framework (NZF). Starting in 2028, ships will be required to progressively reduce their well-to-wake GHG emissions relative to a 2008 reference level, ultimately achieving net-zero emissions by 2050 (DNV, 2025b).

In the EU, under the "Fit for 55" legislative package, maritime transport was incorporated into the EU Emissions Trading System (EU ETS) in 2024 (DNV, 2024). Shipping companies are required to progressively surrender emission allowances, beginning with partial compliance in 2025 and reaching full implementation from 2027 onwards. In parallel, the FuelEU Maritime regulation enters into force in 2025, establishing binding and progressively stricter limits on the GHG emission intensity, with the objective of achieving an 80% reduction by 2050 relative to 2020 levels (DNV, 2024).

Under both EU regulation and the IMO's NZF, ships will be required to adopt lower-emission fuels or, alternatively, face financial penalties, resulting in a substantial cost impact associated with GHG emissions in the coming years. These policies are expected to drive the maritime sector toward a sustainable decarbonisation pathway.

In this context, the use of LNG in the maritime sector presents an opportunity for Latin America and the Caribbean to reduce GHG emissions from maritime transport, a sector widely recognised as hard to abate due to its reliance on fuels with high energy density and the long operational lifetimes of vessels.

LNG offers a commercially viable and technically mature pathway to achieve immediate emission reductions of approximately 20% compared to conventional marine fuels (SEA-LNG, 2023; Wang et al., 2025; Wang & Wright, 2021). For instance, the default emission values in the FuelEU Maritime regulation (Annex II of Regulation 2023/1805) assume a 16% reduction in well-to-wake emissions (accounting for methane slip and expressed as the Global Warming Potential over 100 years –

GWP100) for a dual-fuel LNG–diesel vessel relative to a ship powered by marine gas oil (MGO).

It is important to note that methane slip can significantly affect the GHG emission reduction potential of LNG. However, this issue has been actively addressed by the maritime industry for more than a decade, as methane slip represents both an energy loss and an additional fuel cost, thereby incentivising engine manufacturers to mitigate it in order to improve overall efficiency and performance (SEA-LNG, 2023). Moreover, the latest dual-fuel LNG–diesel engine technologies exhibit virtually no methane slip, with default methane slip factors of 0.2% under FuelEU Maritime and 0.15% under the IMO's NZF (DNV, 2025b).

By enabling immediate reductions in well-to-wake emissions relative to conventional oil-based marine fuels, LNG can play a role in supporting compliance with emerging international and regional regulations, such as the IMO's NZF and the EU's FuelEU Maritime regulation, while lower-emission alternatives remain technologically or commercially constrained (DNV, 2025b; SEA-LNG, 2023). Although methanol, ammonia, and hydrogen may have a role in the long-term decarbonisation of maritime transport, the vast majority of their current production is based on natural gas or coal feedstocks. For example, low-emission hydrogen accounts for less than 1% of total supply in 2025 (IEA, 2025d).

As a result, the life-cycle GHG emissions of methanol, ammonia, and hydrogen can be significantly higher than those associated with conventional marine fuels, due to the substantial amounts of fossil energy required during their production (SEA-LNG, 2023). In other words, at present, these alternative fuels produced through carbon-intensive pathways do not deliver genuine decarbonisation, but rather shift emissions upstream within the supply chain.

In this sense, only when methanol, ammonia, and hydrogen are produced using lower-emission energy sources will they be able to deliver the deep decarbonisation required by the maritime sector. This transition, however, is expected to materialise only in the long term. For example, the IEA (2021) and DNV (2025a) project that a significant share of hydrogen production based on low-carbon energy sources will emerge only toward the late 2030s, with this trend intensifying thereafter and representing the majority of global hydrogen production only by around 2050. It is worth noting that maritime transport is even more difficult to electrify than heavy land transport, due to the greater need for fuels with high energy density required for maritime freight operations (Gross, 2020). This means that battery-powered vessel technology is currently not feasible for deep-sea ships due to the low energy density of battery systems. Consequently, battery-based propulsion is more suitable for light-duty shore-based vessels, or for use as auxiliary power on board ships.

As the main currently viable option for reducing emissions, the use of LNG in the maritime sector has been growing rapidly, supported by the global expansion of bunkering infrastructure worldwide (DNV, 2025b; IGU, 2025a). As of August 2025, there were 1,539 LNG-fueled ships in operation, of which 768 were LNG carriers, and a further 966 vessels on order, including 343 LNG carriers (DNV, 2025b). In terms of gross tonnage, ships equipped with dual-fuel LNG technology account for 7.8% of the global fleet currently in operation, while their share rises to 36.8% in the order book. When excluding LNG carriers, which predominantly use cargo boil-off gas as fuel, the corresponding shares are 3.2% for the fleet in operation and 27.7% for the order book (DNV, 2025b).

Although Latin America and the Caribbean have significant potential to deploy LNG in the maritime sector, the region still lacks extensive bunkering infrastructure, which is currently concentrated in Europe and Asia (IGU, 2025a). Nevertheless, several strategic locations in the region could serve as key hubs for LNG bunkering.

The Panama Canal and the Port of Santos represent critical nodes for the deployment of LNG in maritime freight transport in Latin America and the Caribbean. The Panama Canal is a strategic maritime chokepoint connecting the Atlantic and Pacific Oceans. Since its expansion in 2016, vessel traffic through the Canal has increased significantly, reaching 11,240 transits in 2024, corresponding to over 210 million tonnes of cargo (Cubilla-Montilla et al., 2025).

The Port of Santos, located in the state of São Paulo, Brazil, is one of the largest ports in Latin America and plays a key role in both export and import operations as well as in cabotage traffic (coastal shipping), including major container routes such as Santos–Pecém and Navegantes–Santos (Cepeda et al., 2025; Wei et al., 2023). The port benefits from an existing natural gas pipeline infrastructure for internal supply, which could facilitate the development of an LNG bunkering hub leveraging Brazil's natural gas reserves. Moreover, the presence of a FSRU (São Paulo Terminal) nearby further supports the establishment of LNG supply chains and enhances the strategic potential of the port for lower-emission maritime fuels.

LNG also has significant potential to decarbonise inland and riverine shipping in Latin America, particularly along the Paraguay–Paraná and Solimões–Amazonas waterways (V. L. L. Gomes et al., 2025; OLADE & BID, 2020). These inland waterways are essential for transporting passengers and bulk commodities, including agricultural products, minerals, and fuels, connecting production regions in the interior of the continent with export hubs and ports.

In both cases, LNG could be supplied from domestic production, contributing to the monetisation of regional Gas reserves. Manaus, the main city along the Solimões–Amazonas waterway, benefits from existing Gas infrastructure and supply from the nearby Urucu fields in Brazil. For the Paraguay–Paraná waterway, Argentine Gas supply near the entrance of the Río de la Plata, including reserves from Vaca Muerta, would be most suitable to support LNG operations along this corridor (OLADE & BID, 2020). It is noteworthy that there is already an operational example of LNG in maritime transport in this waterway: the Francisco LNG-powered catamaran ferry operating between Buenos Aires and Montevideo along the Río de la Plata (OLADE & BID, 2020).

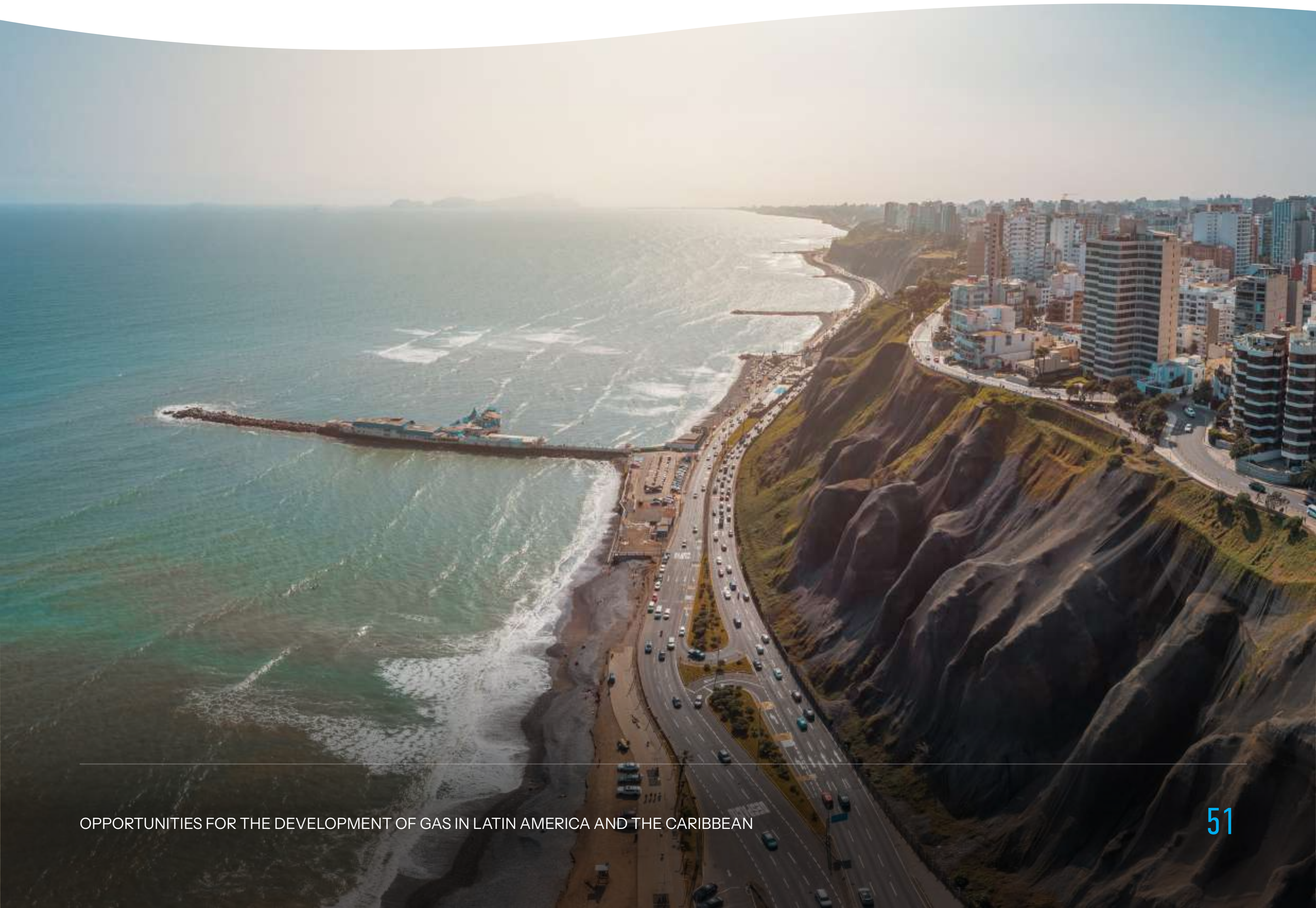
Additionally, both the Paraguay–Paraná and Solimões–Amazonas waterways are located near existing LNG terminals, such as GNL Escobar and Para LNG (Barcarena), respectively, facilitating the adoption of LNG-powered vessels without major disruption to current logistics operations.

It is also important to note that all LNG terminals and liquefaction plants in Latin America present a clear opportunity for deploying LNG for bunkering, reinforcing the strategic potential of the region to adopt cleaner marine fuels in line with international decarbonisation goals.

The concentrated maritime transport in the Caribbean also represents a significant opportunity for the adoption of LNG as a marine fuel. The Caribbean Sea is composed of numerous islands, coastal states, and narrow straits, which naturally concentrate shipping traffic along key navigational routes. Some ports, such as Kingston (Jamaica), handle a large volume of cargo, serving as important regional hubs (Arias, 2022; IMO, 2016). Furthermore, LNG could be deployed not only for large cargo vessels but also for regional passenger services and cruise ships. Studies have indicated substantial potential for converting high-speed passenger ferries, such as those operating between the sister islands of Trinidad and Tobago, to LNG (IMO, 2016).

It is worth noting that, despite the significant opportunities associated with LNG in maritime transport, its primary benefit lies in enabling early reductions in GHG emissions, given the current lack of lower-emission alternatives available at scale. However, in the long term, fossil LNG alone will be insufficient to meet the requirements for deep decarbonisation in maritime shipping. It is widely recognised that from the mid-2030s onward, GHG intensity requirements under the IMO's NZF and the FuelEU Maritime regulation will become increasingly stringent (DNV, 2024, 2025b). As a result, fossil-based LNG will face significant challenges in meeting carbon dioxide (CO_2) reduction targets. In this context, companies will need to accelerate decarbonisation efforts by integrating low-emission components into conventional LNG. This can be achieved through blending with lower-emission drop-in fuels, such as bio-LNG derived from biomethane, as well as e-LNG produced using green hydrogen.

This transition also creates important opportunities for Latin America and the Caribbean, given the region's strong potential for biomethane and green hydrogen production (see section 5). As a result, the region could evolve beyond conventional LNG bunkering and progressively develop future hubs for bio-LNG and e-LNG bunkering.



3.5 Reducing Energy Poverty and Driving Social Development

Despite its abundant energy resources, Latin America and the Caribbean continue to face persistent energy poverty, marked by limited access to affordable, reliable, and modern energy services for significant segments of the population, which contributes to maintaining wide social gaps. Millions of households still rely on traditional biomass, liquefied petroleum gas (LPG), diesel, or other expensive and polluting fuels for cooking, heating, electricity generation, and productive activities. This situation disproportionately affects low-income households, urban peripheries, rural communities, and small businesses, reinforcing social inequality, constraining economic opportunities, and exacerbating health and environmental impacts.

Image: Naturgas

In this context, natural gas can play a meaningful role in reducing energy poverty and supporting social development by expanding access to cleaner, more affordable, and more reliable energy services. Where infrastructure is available, natural gas offers a cost-effective alternative to more expensive fuels, lowering household energy expenditures and improving the competitiveness of small and medium-sized enterprises. In urban areas, access to pipeline natural gas or CNG can diversify the fuel mix and reduce reliance on more carbon-intensive fuels, improving indoor air quality and public health outcomes. In peri-urban and underserved regions, the expansion of Gas distribution networks, virtual pipelines, and small-scale LNG solutions can help bridge infrastructure gaps and extend modern energy services to populations that remain outside traditional networks.

Colombia provides a concrete example of how the expansion and consolidation of natural gas infrastructure can help reduce energy poverty while simultaneously supporting a just energy evolution. With electricity coverage reaching 97% and natural gas access approaching 70%, the country has made substantial progress in extending modern energy services, particularly in urban and peri-urban areas. The expansion of Gas distribution networks has enabled households to replace more expensive and more polluting fuels used for cooking and heating, leading to improvements in indoor air quality, reductions in household energy expenditures, and time savings previously associated with fuel collection or inefficient energy use. This experience demonstrates that natural gas infrastructure, when deployed alongside social and territorial policies, can play a meaningful role in transforming energy access into tangible improvements in household well-being.

Evidence of this progress is captured by the Multidimensional Energy Poverty Index (IMPE), developed by Promigas to assess energy poverty beyond simple coverage metrics.[10] The IMPE shows that between 2022 and 2024 the incidence of energy poverty in Colombia declined from 16.9% to 15.4%, lifting more than 300,000 people out of energy poverty in a single year. This reduction reflects improvements not only in access, but also in the quality and usability of energy services, including cleaner cooking fuels, household appliances, and connectivity.

From a macroeconomic and social perspective, the development of domestic natural gas resources and infrastructure can generate broad-based benefits that indirectly contribute to poverty reduction. Investments in upstream, midstream, and downstream activities create employment opportunities across the value chain, including in regions that are often economically marginalised. Increased domestic Gas production can also reduce dependence on imported fuels, easing pressure on public finances and trade balances and creating fiscal space for social policies and infrastructure investment. When accompanied by appropriate regulatory frameworks and targeted policies, these benefits can be translated into lower energy costs and expanded access for vulnerable populations.

The social contribution of natural gas can be further enhanced through the progressive integration of lower-emission and renewable gases, such as biomethane. Biomethane projects, particularly those based on agricultural residues, livestock waste, landfills, and wastewater treatment plants,

10. The IMPE is available at https://fundacionpromigas.org.co/impe/

offer strong synergies with local development. They can create decentralised energy solutions, generate local employment, support waste management, and provide additional income streams for rural communities, while delivering substantial emissions reductions. By leveraging existing Gas infrastructure, biomethane can be deployed with relatively low incremental costs, reinforcing both environmental and social objectives.

However, realising the full potential of natural gas to reduce energy poverty and foster social development requires deliberate and well-designed policy choices. Expanding access must be carefully aligned with affordability objectives, robust environmental safeguards, and long-term decarbonisation pathways. Clear and stable regulatory frameworks, targeted investment mechanisms, and effective coordination among energy, social, and industrial policies are essential to ensure that the benefits of natural gas development are widely and equitably shared. When integrated into a coherent energy transition strategy, natural gas can function not only as a contributor to emissions reduction and energy security, but also as a practical instrument for improving living conditions and promoting inclusive development across Latin America and the Caribbean.

Image: Naturgas

4. Final Remarks and Policy Recommendations

This Report highlights that Gas is a strategically important energy resource for Latin America and the Caribbean, supported by significant reserves, existing infrastructure, and major resource bases such as Venezuela, Argentina's Vaca Muerta, and Brazil's Pre-salt fields. These assets position the region not only as an important Gas consumer but also as a potential producer and exporter of LNG, strengthening energy security, regional integration, and economic development. From the demand side, natural gas can deliver significant emissions reductions by replacing more carbon-intensive fuels in power generation, transport, and industry, while providing the flexibility required to integrate intermittent renewable energy sources (such as wind and solar) into power systems. Gas infrastructure can also support the future development of low-emission gases such as biomethane and hydrogen. From the supply side, expanding natural gas production and infrastructure can stimulate investment, employment, and GDP growth, while increasing exports and reducing fuel import costs, thereby improving trade balances. Greater Gas availability and regional infrastructure integration can also enhance energy access, reduce energy costs, and improve air quality across the region.

To unlock the region's vast natural gas potential and increase its participation in regional and global Gas markets, governments, regulators, and investors should focus on a set of coordinated actions that improve investment conditions, strengthen regional integration, and align natural gas development with long-term energy transition objectives.

Policy Recommendations

1. Establish attractive and stable upstream investment frameworks
Governments should implement competitive fiscal regimes, transparent licensing processes, and stable contractual and regulatory conditions that attract long-term exploration and production investment. Reducing permitting delays and improving access to geological information can further encourage exploration in both mature and frontier basins.

2. Accelerate regional gas market integration
Promote the development of cross-border pipelines, LNG terminals, and shared infrastructure to facilitate intra-regional trade. Strengthening regional integration can optimise resource allocation, improve supply security, and expand Gas markets across the region. Beyond physical investments, policymakers can enable integration by facilitating new contracting and operational structures that maximise the use of existing infrastructure. This includes implementing gas-in-transit regimes, harmonising interoperable operating rules across interconnected systems, and adopting tariff methodologies that avoid inadvertently discouraging cross-border flows. In markets where natural gas-fired generation is procured to ensure system adequacy, close alignment between power capacity mechanisms and natural gas transmission regulation is essential to ensure that contracted firm capacity effectively translates into reliable and economically viable Gas deliverability.

3. Harmonise regulatory frameworks across countries
Reducing regulatory fragmentation through greater convergence of market rules, technical standards, and contractual frameworks can lower legal uncertainty and transaction costs for cross-border infrastructure projects. Processes should be streamlined to minimise bureaucracy and shorten permitting and approval timelines for the development of existing and new oil and Gas projects in Latin America and the Caribbean.

4. Provide long-term policy clarity on the role of natural gas in the energy evolution
Governments should clearly define how natural gas complements renewable energy deployment and supports decarbonisation pathways. Stable policy signals are essential to guide investment decisions and ensure adequate infrastructure development.

5. Prioritise Gas applications that deliver the greatest emissions reductions
Public policies should encourage the use of natural gas where it provides clear environmental benefits, such as replacing coal, diesel, and fuel oil across power generation, heavy transport, and industrial activities. Additionally, natural gas should play a key role in providing flexible generation capacity, supporting the reliable integration of high shares of intermittent renewable energy sources (such as wind and solar) into the power system.

6. Enable the integration of low-emission gases
Support regulatory frameworks and infrastructure adaptations that enable the gradual integration of biomethane and hydrogen into existing natural gas networks, reducing transition costs and supporting long-term decarbonisation.

7. Mobilise long-term capital for strategic Gas infrastructure
Expand access to financing for pipelines, LNG facilities, storage infrastructure, and Gas distribution networks through blended finance mechanisms, public-private partnerships, and greater participation from multilateral development banks.

8. Strengthen transparency and coordination across the Gas value chain
Improve emissions monitoring, methane management, and lifecycle analysis to ensure environmental credibility, while fostering stronger coordination among producers, infrastructure operators, utilities, and major consumers to optimise infrastructure planning and system development.

Image: Tecpetrol

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Appendix

Table 3 – LNG Receiving Terminals in Latin America and Caribbean

Terminal Type	LNG Terminal	Concept	Capacity (Mtpa)	Online Year
Argentina	GNL Escobar	Floating	3.80	2011
Argentina	Bahia Blanca GasPort	Floating	3.80	2008 (Idle)
Brazil	Pécem LNG	Floating	2.0	2009 (Idle)
Brazil	Acu Port LNG	Floating	5.60	2020
Brazil	Bahia LNG	Floating	5.37	2014
Brazil	Guanabara LNG	Floating	8.05	2010
Brazil	KARMOL LNGT ASIA	Floating	2.27	2022
Brazil	Para LNG (Barcarena)	Floating	6.00	2024
Brazil	Sao Paulo LNG	Floating	3.78	2024
Brazil	Sergipe LNG	Floating	5.64	2020
Brazil	Terminal Gas Sul LNG	Floating	4.00	2024 (Idle)
Brazil	Suape FSRU	Floating	3.76	Under construction *(Expected start-up in 2026)*
Chile	GNL Mejillones	Onshore	1.50	2010
Chile	GNL Quintero	Onshore	4.00	2009
Colombia	SPEC FSRU	Floating	3.00	2016
Dominican Republic	AES Andres LNG	Onshore	1.90	2003
El Salvador	El Salvador FSRU	Floating	2.15	2022
Jamaica	Old Harbour FSRU	Floating	3.60	2019
Jamaica	Montego Bay LNG	Onshore	0.50	2016
Mexico	Energia Costa Azul	Onshore	7.60	2008
Mexico	Pichilingue LNG	Onshore	0.80	2021
Mexico	Terminal de LNG Altamira	Onshore	5.40	2006
Mexico	Terminal KMS	Onshore	3.80	2012
Panama	Costa Norte LNG	Onshore	1.50	2018
Panama	Sinolam LNG	Floating	1.10	Under construction *(Expected start-up in 2025)*
Nicaragua	Puerto Sandino FSRU	Floating	5.00	Under construction *(Expected start-up in 2025)*

Source: Author's elaboration based on data from IGU (2025a) and Global Energy Monitor (2025).

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