

# King of Latin American LNG?

Liliana Diaz, FTI Consulting, USA, sheds light on the opportunities for Brazil's natural gas market, with a focus on LNG imports and demand growth.

By most measures, 2020 was a banner year for the Brazilian natural gas industry. Record production levels were reported despite the pandemic. Compared to 2019, production grew by almost 10%, reaching 127.49 million m<sup>3</sup>/d. Quarantine measures and an uncertain business environment temporarily curbed demand, but recovery was swift. By November 2020, consumption had reached 90% of 2019 average levels (70.28 million m<sup>3</sup>/d). Industrial and power sector consumption was particularly strong.

There is room for private investment in strategic infrastructure. A substantial portion of gross production continues to be reinjected (from 35% in 2019 to 43% in 2020) when is needed onshore. The dislocation between booming production and demand results from lagging infrastructure to bring offshore supply to market. More gathering, processing, and transport infrastructure is required to fill the gap.

Supply shortfalls, historically covered by pipeline exports from Bolivia, have increasingly been met with LNG imports. Whereas imports from Bolivia have gradually fallen from 32.03 million m<sup>3</sup>/d in 2015 to 17.58 million m<sup>3</sup>/d in 2020, LNG imports have increased from 13.80 million m<sup>3</sup>/d before the pandemic to 27.98 million m<sup>3</sup>/d by November 2020. The supply displacement is a function of market forces, specifically dipping LNG prices. From January through November 2020, the average price for LNG delivered into Brazil, calculated on an FOB basis, was US\$3.40/million Btu. This is half of what Brazilians paid for Bolivian gas, US\$7.36/million Btu. Given the price differential, opportunities for LNG imports should remain rosy.

In addition, a new gas law crystallising regulatory efforts to liberalise the market will likely be approved in the first quarter of 2021. Coupled with state-controlled Petrobras' (Petróleo Brasileiro S.A.) continued divestment of strategic assets along the value chain, current conditions present a unique opportunity for investors to enter this nascent yet promising market.

## **A new gas law assures legal security and stability to investors**

While the road to liberalisation has been long-winded and bumpy, the impetus for reform has finally taken hold. The first quarter of 2021 is likely to see the enactment of a new gas law, effectively setting up rules for a competitive gas market while addressing current obstacles that have hampered growth.

The market is small relative to its resource base and demand potential, and importantly, highly concentrated. This has mainly been the result of a strategy that relied on Petrobras to develop the market. As the company took on the role of market developer and co-ordinator, it acquired a preeminent position and gained a substantial participation in each segment of the value chain, effectively crowding out competition.

Innovative approaches have been necessary to overcome resistance encountered by the previous Temer administration. In order to increase market competition, in 2019 the government worked within the available regulatory framework to enact liberalisation guidelines under the New Gas Market (NGM). The NGM called for unbundling gas supply from transport and distribution; nondiscriminatory third-party access in essential

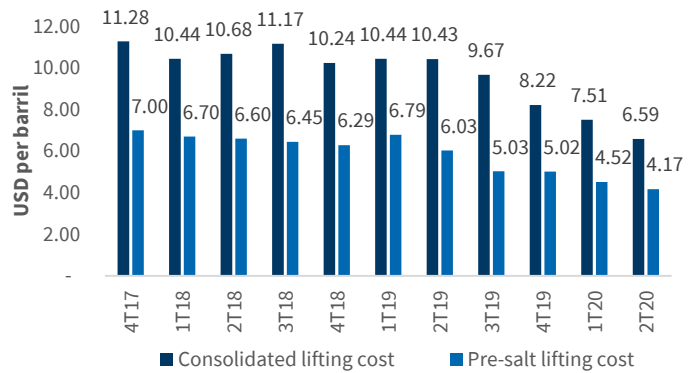
infrastructure; and the harmonisation of tax rules so taxes are applied to the commercial rather than the physical flow of gas. To avoid resistance, the guidelines also created an incentive for states to self-reform in exchange for federal financial assistance.

The NGM initiative nonetheless lacks the legal security and stability critical to attract private investment. In October 2019, Congress rehashed the previously rejected reform bill. The new bill was approved in the Chamber of Deputies in September 2020. It enshrines many of the features of a competitive market design including unbundling, third party access rules, and introduces an authorisation regime for the development of transport infrastructure scratching the previous burdensome concession framework. As of February 2021, the Senate had approved the bill but with changes that require reconciliation with the Chamber’s version. A central hold-up concerns whether the government should encourage pipeline development in isolated areas in the North by guaranteeing transportation rates crosssubsidised by the power sector (and arguably at the expense of other power generation technologies and ultimately consumers). While the Chamber is expected to reject such an approach, a more structural difficulty will remain. The monopoly on local distribution granted by the Constitution to the states cannot be overridden and therefore the federal government’s ability to afford local consumers with a choice may be curtailed. Indeed, absent regulatory harmonisation, suppliers (including producers, importers or traders) will be unable to bypass local distribution companies to reach consumers.

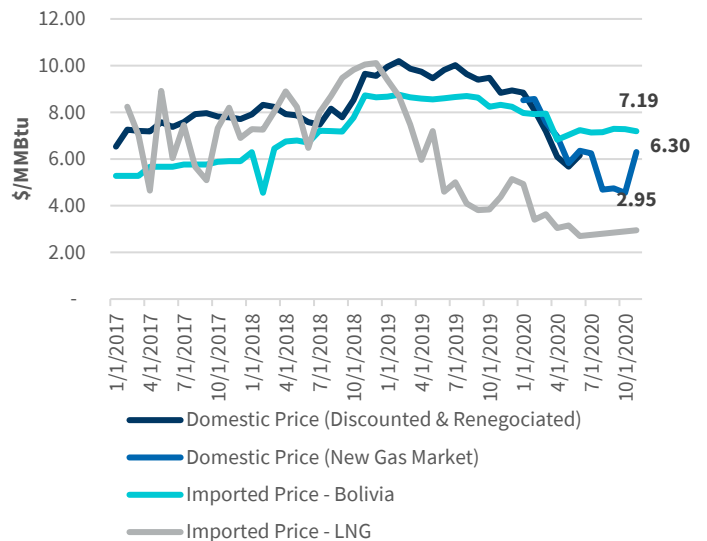
**Petrobras divestment continues opening room for others**

Efforts to enhance competition have been facilitated by the July 2019 Commitment Agreement (TCC) between the competition authority CADE and Petrobras. Under the TCC, Petrobras agreed to provide third-party access to strategic infrastructure to increase the numbers of players

**Figure 1. Petrobras lifting cost**



**Figure 2. Brazilian natural gas prices – wholesale and import**



in gas commercialisation and to divest itself of transportation and distribution assets by 2021.

Despite the market’s uncertainty, Petrobras has mostly complied with the TCC’s demanding deadline. Through the pandemic, it tendered the following import, transportation, and distribution holdings:

- In March 2020, the remaining 10% of Transportadora Associada de Gás (TAG), a 4500 km pipeline system running primarily along the populated coast with 74.3 million m3/d

capacity (sold in July 2020 to the same investors which had purchased 90% in June 2019).

- In July 2020, 51% of Petrobras Gás S.A. – Gaspetro, a holding of interests in 14 state-level companies responsible for distributing 29 million m3/d to half a million customers (40% of demand).
- In July 2020, the remaining 10% of Nova Transportadora do Sudeste SA (NTS), a 2000 km pipeline system with 158.2 million m3/d capacity (90% which had been sold in 2016).
- In August 2020, the lease to the LNG regasification terminal of Bahia – an import facility with 20 million m3/d flowrate (the tender was reissued in February 2021 due to no valid proposals but limited to pre-qualified companies).
- In December 2020, 51% of Transportadora Brasileira Gasoduto Bolivia-Brasil (TBG), a 2600 km import pipeline bringing gas from Bolivia to the industrial heartland in the southeast with a 30.1 million m3/d capacity.

For investors, the incumbent's retrenchment provides a chance to enter a market with scale and, importantly, upbeat prospects for further expansion. Petrobras' divestment provides well-integrated operations along the value chain that will attract the interest of large investors; however, a larger spectrum of private sector interest will be necessary to finance transportation and distribution infrastructure beyond the coastal areas and to open up new and, until now, unexplored demand outlets.

### Monetising pre-salt gas

The government's energy planning body Empresa de Pesquisa Energética (EPE) concluded that only approximately 35% of the gas pre-salt gas in the Santos Basin is expected to be available for commercial use in 2023.

Pre-salt gas economics depend on the way it is transported. Traditionally, this has been achieved through subsea gathering networks connecting to onshore treatment plants. By 2025, the capacity of the three gathering systems (Rota 1, 2 and 3) that are expected to be online will be insufficient (approximately 44 million m3/d). A fourth

### Auction success for pre-salt and LNG-power projects

- Porto de Sergipe I: Operating since March 2020, a 1.5 GW LNG-to-power combined-cycle plant with a 21 million m3/d FSRU on the coast of the state of Sergipe. The project is supplied under a long-term SPA with an Exxon Mobil and Qatar Petroleum joint venture for 1.3 million tpy. The project was developed by a partnership between EBrasil and Hygo Energy Transition (whose 50% share has recently been announced will be acquired by US-based New Fortress Energy).
- Gás Natural Açú: a 3 GW LNG-to-power project encompassing two combined-cycle plants (GNA I and GNA II) with a 21 million m3/d FSRU on the coast of the state of Rio de Janeiro. GNA 1 is scheduled to begin operations during the first half of 2021 and be supplied LNG by BP. The project is being developed by EIG Global Energy Partners, BP, Siemens, and State Power Investment Corporation's local subsidiary.
- Vale Azul II: a 565 MW plant on the coast of the state of Rio de Janeiro. The project is being developed by Pátria Investimentos, Shell and Mitsubishi Hitachi Power Systems, and is scheduled to begin operating in 2022. It will be supplied by pre-salt gas produced by Shell.
- ?z Novo Tempo Barcarena: a 605 MW LNG-to-power combined cycle plant in the northeast state of Pará to be supplied through a FSRU. The project is being developed by Hygo Energy Transition (soon to be New Fortress Energy) together with Brazilian Energy Participações S.A. and OAK Participações Ltd.t

project (Rota 4) which is planned may lessen the constraint if it materialises. Petrobras' control over Rota 1 and Rota 2, currently in service, has constrained competitive supply and resulted in high prices for consumers. In October 2020 however, the company announced it would agree to provide access to transportation and processing capacity to its

partners in the Santos basin and eventually to third parties to contribute to the creation of a competitive market.

Scale and third-party access to essential infrastructure will make the difference for pre-salt gas to reach the shore in higher quantities. The amount of pre-salt gas that actually makes it to shore highly depends on the carbon dioxide (CO<sub>2</sub>) content in the gas. Pre-salt gas has a high content of CO<sub>2</sub>. Breakeven values could vary considerably, from approximately US\$2 to nearly US\$10/million Btu, for CO<sub>2</sub> levels up to 20%. Processing and bringing this gas to shore becomes uneconomical when prices for alternative supply options hover below US\$7/million Btu. And this is where a greater number of players and infrastructure availability becomes relevant. Producers developing fields with different CO<sub>2</sub> content ranges, and therefore facing differentiated breakeven values, could blend these volumes for sale as a basket of processed natural gas and offer it to the market at a weighted average price, so that supply remains competitive. In addition, several nearby blocks could jointly develop the gathering and processing infrastructure necessary to attain economies of scale that could potentially enable gas with a higher CO<sub>2</sub> content to be produced. This works if third-party access rules are in place and enforced.

Though lifting costs for domestic production have progressively come down, particularly for pre-salt supplies, as shown in Figure 1, domestic gas still lacks competitiveness reflected by the higher wholesale prices (Figure 2). However, as the market liberalises, enhancing competition and attracting further investment, Brazilian gas prices are expected to decline, encouraging market expansion – albeit fuelled by imports in the medium-term.

With Petrobras' retrenchment as market developer and co-ordinator, the Brazilian development bank BNDES plans to step in to assist not only with project origination, structuring and promotion, but also with de-risking financing and securitisation. Its 2020 diagnostic

recognised that to attract foreign investment necessary to fund sustainable infrastructure it would need to firm up demand from foundational sectors such as power generation and industrial consumption, and help develop additional consumption in the commercial and residential sectors (particularly in less populated areas) and in the transportation sector generally.

### 2021 herald growth and opportunity

Despite the uncertainty, leading market players are positioning themselves for the opportunities that lie ahead.

The power sector is a bellwether for increasing natural gas demand. Until recently, regulated market auctions for long-term contracts focusing on increasing system reliability favoured natural gas projects. A number of large pre-salt and LNG-power projects have been successful in the auctions, including the Gás Natural Açú, Vale Azul II, Porto de Sergipe I and Novo Tempo Barcarena. Several other LNG projects are being considered to anchor thermal power bid rounds. The next auction is scheduled for September 2021.

### Conclusion

The outlook for increased LNG imports in 2021 is rosy. According to market analysts, annual demand growth for LNG will exceed 80% in 2021 as LNG-to-power projects will be running for a full year or starting up. Albeit from a lower base compared to other importers, that type of growth heralds increasing opportunity in what could become Latin America's largest natural gas market.

### Note

The views expressed herein are those of the author and not necessarily the views of FTI Consulting, Inc., its management, its subsidiaries, its affiliates, or its other professionals. FTI Consulting, Inc., including its subsidiaries and affiliates, is a consulting firm and is not a certified public accounting firm or a law firm. Posted with permission from LNG Industry. All rights reserved.

#### LILIANA DIAZ

Managing Director

202.715.1586

[liliana.diaz@fticonsulting.com](mailto:liliana.diaz@fticonsulting.com)