Natural gas in Latin America and interactions with the rest of the world

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Latin America has long been disconnected from other gas markets, focusing instead on regional integration via pipeline – especially in the Southern Cone. In the mid-2000s, a shortage of natural gas production coupled with political disagreements, tensions over price renegotiations, and shortfalls of deliveries from neighbours led several countries to turn to LNG imports – either to replace or supplement indigenous production and imports of pipeline gas. From 2009, the region has gone from being a closed regional market, with only regional pipeline

flows, to a region that both imports and exports LNG. *(In this article, Latin America includes 10 countries: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela.)*

'LATIN AMERICA HAS LONG BEEN DISCONNECTED FROM OTHER GAS MARKETS …'

Current and projected gas demand

In 2013, Latin America produced 134 bcm of natural gas. About 17 bcm were exported by pipeline from Bolivia to Brazil and to Argentina, and from Colombia to Venezuela, while about 15.5 bcm of LNG were delivered to Argentina (6.3 bcm), Brazil (5.4 bcm), and Chile (3.8 bcm). LNG deliveries to Latin America represented less than 5 per cent of the total volume traded, but they are rising rapidly to meet growing gas demand (+7.3 per cent since 2010 and +60 per cent since 2000). With the necessity of not letting the lights go out, gas consumption is expected to continue to grow at a sustained pace in this decade and the next. While the energy mix differs from country to country, power generation from gas is rising at the regional level in order to diversify away from oil and coal plants and to back up hydropower – which has been causing severe problems especially in Brazil, where dry weather has depleted hydroelectric reservoirs several times since the severe drought of 2001. The challenge for national governments will be to find a balance of sources that best provides energy security, meets growing demand, and remains environmentally sustainable but which can also be developed at a competitive cost. LNG is seen as an option to ensure that the right balance of gas is used for power, but LNG imports have proved to be very expensive for the importing markets. The pricing structure of gas flows is complicated: Bolivian and Colombian pipeline exports are oil-indexed, Argentine pipeline exports seem to be cost-related, spot LNG imports into Brazil and Argentina have been based on the highest alternative market price plus a freight differential plus a trading margin, while long-term Chilean LNG import contracts have been based on Henry Hub gas prices since January 2012. Despite the great flexibility of LNG in meeting seasonal needs, with low (subsidized) national prices, some countries are struggling to pay for their imports and have again been turning their attention to developing their indigenous resources instead.

Domestic production and LNG imports

On paper, the region has enough reserves to fulfil its needs, but lack of upstream investment and politically motivated export and import policies complicate the situation. Countries in Latin America vary greatly in the way they develop their gas resources. All markets are open to outside investment, to varying degrees, but not all offer competitive terms and confidence to investors. Natural gas production is undermined by a number of geopolitical uncertainties, along with economic, environmental, social, and regulatory issues. This situation has impacted both the pace and the expectations for future production in most countries.

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Brazil has three LNG regasification terminals. After the severe drought-induced power crisis in 2001, thermal stations were developed to compensate for hydroelectric plants, which accounted about 90 per cent of electricity generation. In the late 2000s, state-controlled Petrobras turned to LNG to complement pipeline gas from Bolivia in an effort to increase natural gas supplies and security. The lack of a countrywide national transmission system (networks are located mainly in the south-east and the north-east regions) adds additional value to importing LNG. After having relied primarily on the spot market, Petrobras signed short-term LNG supply contracts in response to rising demand; this has limited demand for spot LNG cargoes despite low hydropower production in 2013/14. Brazil is planning to add a fourth LNG terminal, while at the same time looking to boost its indigenous production. Recent discoveries by Petrobras in north-eastern ultra-deepwater are putting the spotlight back on the country's post-salt potential, but high operating costs and complex legal issues have been dampening some of the initial euphoria regarding the pre-salt basins. The company expects to have more than enough gas supplies to meet projected demand in about a decade, but without specifying how much associated gas will come from offshore sub-salt deposits.

Argentina has two LNG regasification terminals. The country has substantial gas reserves but the Emergency Law of December 2001 (which followed political and economic crisis) resulted in a fall in gas prices that were subsequently frozen by the government. This led to a significant reduction in new investments in the gas sector, while at the same time generating an increase in the industrial and power demand for gas. The decline in gas production in the second half of the 2000s, together with fast-growing demand, led the country to restart imports from Bolivia in 2004, and later to turn to LNG to supplement the imports. Argentina moved from being a net gas exporter to a net importer – as a result of political choices rather than geological constraints. The US EIA

recently ranked the country in second place for potential shale gas resources. These discoveries raised expectations of increased indigenous output, even if the situation was complicated in April 2012 by the nationalization of the country's biggest energy company, YPF SA, and by the revocation of oil and gas concessions, notably in the shale provinces. The government has been trying to reverse years of declining output and cut back expensive gas imports by hiking state-controlled prices to stimulate investment in exploration and production. It expects that by 2020 the production of shale gas will be sufficient to replace imports of gas, but this is very uncertain.

Uruguay will open its first LNG regasification terminal in 2015. As Uruguay has a small gas market compared with its neighbours it has been in talks with Argentina, which is considering the possibility of receiving part of this LNG through a reversal of an existing gas pipeline. Uruguay is also open to reloading LNG for the fast-growing Brazilian market. Whether re-export by pipeline or LNG reloading sales to neighbouring countries, these options will represent a new stage of energy integration in the region.

The Argentine gas crisis had an impact on **Chile**, which had long been dependent on pipeline gas from its neighbour. Argentine exports started to have a problematic record of reliability following the 2004 gas crisis – when authorizations for new export permits were suspended and national consumption was given priority. Chile turned to LNG following repeated interruptions and consequent economic problems for industry and electricity generators, which had to resort to more expensive alternative fuels. LNG imports through its two regasification terminals have enabled natural gas to recover market share lost to diesel oil and other fuels in power generation. The country is also looking at boosting its gas output, but LNG imports are expected to surge in the 2010s as copper mining projects expand in northern Chile and new gas-fired generation capacity comes on line.

The major source of supply for the Southern Cone has long been **Bolivia**, which is still the largest gas exporter on the continent (17 bcm by pipeline to Brazil and Argentina in 2013). The country was supposed to become a natural gas hub in the 1990s but it lost its position of major gas supplier in the second half of the 2000s due to the lack of upstream investment resulting from the 1 May 2006 nationalization. The nationalizations of the oil and gas industries and the revision of contracts with multinational companies were important objectives of the newly elected President Evo Morales. In the following years, Bolivia's proven reserves dropped considerably (from 740 bcm in 2005 to 281 bcm in 2013), suggesting possible problems in sustaining future rates of production and export commitments. The country has a long-term contract with Brazil (until 2019) and Argentina (until 2026) and it was hoping to start exporting to Uruguay and Paraguay, but this would require the construction of new pipeline(s) and/or the use of Argentine pipelines for transit. In the 2000s, the country also had ambitions to export part of its production in the form of LNG, but being a landlocked country it would have needed access to the sea through either Peru or Chile. The project via Chile was economically the best but was politically complicated (relations between the two countries have been problematic since the nineteenth century war that saw Bolivia lose its access to the sea to Chile). Both options were finally abandoned due to the high cost of the project and political turbulence in Bolivia.

Peru also has a considerable gas surplus, but the country chose the LNG option rather than pipeline exports to neighbouring markets. Peru LNG started operations in June 2010 and most of the LNG was expected to be shipped to Mexico. It is interesting to note that the LNG was not sold to Chile, which had been constructing an LNG import terminal in parallel; this created a sub-optimum supply position for both countries and was a result of political tensions.

Colombia produced about as much gas as Peru in 2013 and is the third (and final) country with some gas surplus, which has been exported by pipeline to Venezuela. However, declining natural gas reserves combined with the effects of climate change could make it a net importer in two years. In addition to looking at unconventional gas exploration (coal- and shale-related deposits), Colombia is examining the possibility of constructing a regasification terminal. Because the country is short of gas during El Niño, but potentially in surplus at other times, Colombia is also considering a liquefaction plant, which could make it a potential LNG supplier for small cargos to neighbouring countries.

Venezuela has also been examining the possibility of LNG exports with different international oil companies since the 1980s but has made little progress, changing its policy on LNG exports several times. The country holds the largest gas reserves in Latin America, and is the second producer behind Argentina, but is a net importer of gas. It is believed that offshore gas projects will focus on feeding growing local demand for natural gas, rather than creating LNG for the export market.

Finally, **Ecuador**, a small gas market, announced plans to build an LNG regasification terminal to supply thermoelectric plants that (currently) run on diesel.

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Expectation of LNG imports

It may well be that political decisions, more than economic logic, have shaped gas developments in Latin America. With a fast-rising gas demand outpacing indigenous production, the region is on track to become a sizeable importer of LNG, even if its relative share may not exceed about 10 per cent of the global trade by 2020. The counter-cyclical seasonality of Argentina and Brazil with the northern hemisphere also offers interesting arbitration opportunities for LNG sellers who, in a tight market, have charged prices as high as those paid by Asian buyers. Post 2020, having tasted this diversification option, it is unlikely that LNG imports will disappear. However, if plans for domestic production succeed, LNG may return to being a marginal source of supply; the growing interactions of Latin America with the global gas market may therefore be just a passing phase.