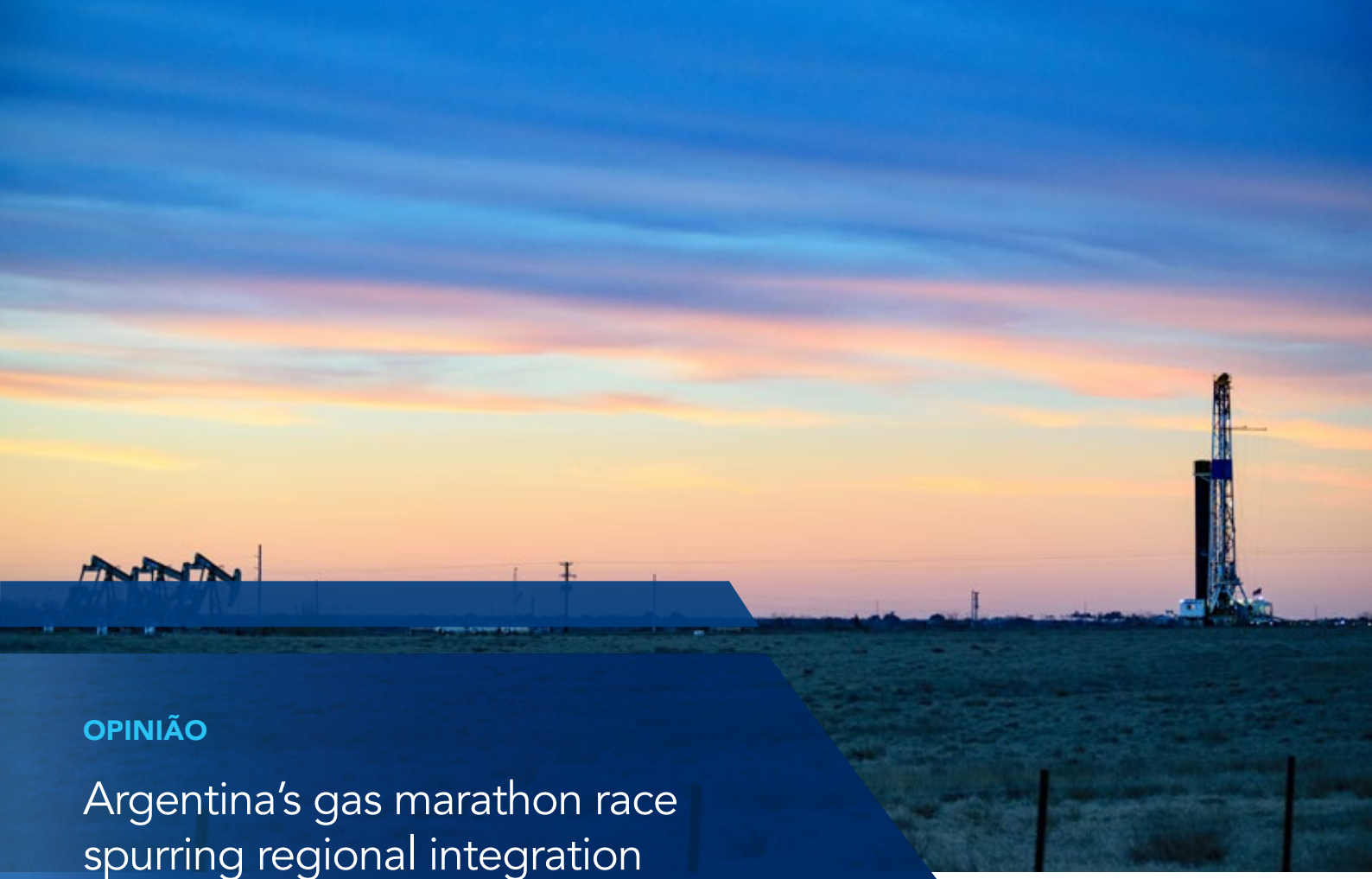


OPINIÃO

Argentina's gas marathon race spurring regional integration

*Por Liliana Diaz**

Argentina has two Olympic gold medals in athletics. The first came in 1932. The second came sixteen-years later in one of the most dramatic finishes in athletics history. Delfo Cabrera Gómez, a Santa Fe born athlete and fireman, had never run a marathon, yet he brought victory and hope to his nation with a spectacular win at the 1948 London Summer Olympics marathon race. In many senses, this situation is similar to Argentina's Vaca Muerta shale play today. The country has pinned its hopes on its unconventional oil and gas deposits and is gearing up to run a marathon in gas production. Regional integration buttressed on Vaca Muerta's vast potential can help Argentina win this marathon while benefiting the entire region.

A FALSE START: INITIAL EFFORTS FOR REGIONAL GAS INTEGRATION

Argentina has a long tradition as an oil and gas producer dating back to the early twentieth century. For several years, the country was a considerable regional energy producer and exporter. Thanks to this favorable position, starting in the late 1980s, Argentina helped forge a regional integration effort underpinned by its gas resources. As a result, a regional gas pipeline network connecting Argentina, Chile, Uruguay, Brazil and Bolivia took hold. Gas flowed from Argentina to Chile, Uruguay and Brazil, helping neighboring countries obtain the required energy to sustain economic growth while diversifying their energy matrices. Sadly, the integration effort came to a halt in the mid-2000s. As gas shortages plagued Argentina starting in 2004, exports were severally curtailed and came to a complete halt in 2007. In a few years, the unthinkable occurred. Argentina found itself importing a greater portion of gas to meet domestic demand, particularly during the winter months when fuel requirements for heating and power generation increase substantially.

The damage from gas export suspension to regional relationships was enormous. In Chile's case, not only gas and power prices rose and blackouts ensued, but a political debate concerning the appropriateness of import dependence from Argentina erupted. Chilean feelings of vulnerability increased when Bolivia came to Argentina's aid, specifying that 'not one molecule' of Bolivian gas could be transshipped to Chile. Today, through two functioning regasification terminals, Chile imports liquified natural gas ("LNG") from faraway places to meets its energy needs.

ARGENTINA'S GAS MARATHON CHALLENGES: KEEPING UP THE NEW MOMENTUM

After a considerable period of low investment, dwindling production and rising imports, Argentina is today working on establishing a strategy to revive its gas industry and regain gas self-sufficiency. To do this, it is betting on the vast potential of the Vaca Muerta (Dead Cow) formation located in Neuquén Province. Vaca Muerta, discovered in 2010 and the world's second largest shale formation, houses an estimated 308 trillion cubic feet of dry, wet, and associated shale gas resources.

Key to Vaca Muerta's development has been a strategy that caters to federal, provincial, private sector and worker union's interests alike. Only a consensus of this sort could assure investors the plan for Vaca Muerta could endure political upheavals brought about by economic and social pressures.

One crucial element of this strategy has been to rebalance the gas sector by allowing market forces to regulate demand, supply and prices. A plan to gradually dismantle consumer subsidies for gas and power was put in place in 2016. In 2017, seeking to boost domestic production and thus reduce expensive seasonal imports, the Ministry of Energy introduced a price incentive for shale- and tight-gas production. Producers were offered $7.50 per million British thermal units ("MMBtu") for new shale gas through the end of 2018, with the price then dropping by 50¢/year to $6/MMBtu in 2021.

The incentive scheme worked beautifully. It encouraged numerous producers to invest in new shale gas projects helping Vaca Muerta to reach initial economies of scale needed to bring costs down. According to data released by the General Mosconi Institute, charted in Table 1, between January 2018 and 2019 unconventional gas production grew 40% compared to the year before. Today unconventional gas production makes up close to one third of total gas production.[1]

[1] Rojo, Julián. "Informe de Tendencias Energéticas." *Instituto Argentino de Energía "General Mosconi"*, Feb. 2019.

Table 1: Unconventional gas production between January 2018 and 2019

In million cubic meters (MMcm)	Month 1	Month 1 from previous year	12-month accumulated total	12-month accumulated total from previous year	Interannual variation %	12-month trailing average
Total gas production - Jan-19	4,000	3,845	47,210	44,625	4.0%	5.8%
Conventional gas	2,382	2,696	29,923	32,602	-11.6%	-8.2%
Unconventional gas	1,618	1,150	17,154	12,084	40.8%	40.2%

Surging unconventional gas production has increased domestic gas availability and lowered gas prices. However, lower than expected gas prices, combined with a dreadful fiscal deficit situation, have put a strain on the government's ability to fulfil its end of the production subsidy bargain. To reduce the expected subsidy bill, the subsidized price, initially promised to be applicable to planned gas production, has been modified to only cover initial production estimates. The appetite for further investment of companies such as Tecpetrol – whose daily production at 17 MMcm almost doubled its initially estimated production of 8.5MMcm – has been greatly affected by the measure.

Amidst this tension between government and producers and with a pressing need to maintain the momentum for unconventional resource development, an additional demand outlet is required. And here an impetus for integration once again takes hold.

IT IS A MARATHON NOT A SPRINT: THE CASE FOR AN EXPORT-BASED SOLUTION

As incentive pricing for production can help reach scale, exports have the potential to help maintain the momentum and importantly, provide the stamina required to endure a gas marathon. Gas exports can contribute to ease the government's burden as subsidies are not applied to exports,[2] reduce the energy trade deficit, and allow producers to export excess gas during off -peak periods instead of reinjecting or flaring it.

In April 2018, Argentina's President Mauricio Macri and its Chilean counterpart Sebastian Piñera signed a presidential protocol that allowed the trade, import, export and transportation of electricity and natural gas. This protocol did not come out of the blue. It signaled the intention of two heads of state pursuing similar market friendly agendas to expand trade among neighbors and increase market integration.

In May 2018, President Piñera launched, the "2018-2022 Energy Roadmap: Leading modernization with a social element". The roadmap included a commitment to "the achievement of robust progress in regional energy integration". For Chile, energy integration contributes to enhancing energy security and facilitating the incorporation of renewable energy resources, helping Chile to both fulfill its climate change commitments and transition to a greener economy.

[2] Prevén inversiones por u$s 10.000 millones para aprovechar Vaca Muerta." *Revista Petroquímica. Petróleo, Gas, Química & Energía*, 1 Oct. 2018.

The energy protocol opened the door for Argentine gas exports to Chile.[3] During the July 2018 G-20 summit in Argentina, the ministers of energy of Chile and Argentina held a series of meetings in which gas export from Argentina to Chile was a central topic. The Chilean Minister candidly explained how the gas from Vaca Muerta, besides bringing other economic benefits, would help Chile reduce pollution as it would displace the use of firewood and contribute to firming renewables resources.[4]

Eleven years after unilaterally suspending exports to Chile, in September 2018, Argentina authorized the first gas exports to Chile without re-import commitments. Table 2 shows a summary of Argentina's gas export permits to Chile from September 24 to December 18, 2018. Within this period 14 export authorization were issued.[5]

Table 2: Argentina's natural gas export permits to Chile from September 24 to December 18,201

No.	Resolution	Company	Daily volume (m^3)	Total volume (m^3)	Start date	End date	Purchaser
1	11/2018	Pan American Sur SA	750,000	-	24/09/2018	01/06/2020	METHANEX
2	10/2018	Total Austral SA	750,000	-	24/09/2018	01/06/2020	METHANEX
3	12/2018	CGC SA	750,000	-	25/09/2018	01/06/2020	METHANEX
4	36/2018	Wintershall Energia SA	750,000	479,250,000	12/10/2018	01/06/2020	METHANEX
5	57/2018	CGC SA	1,300,000	-	22/10/2018	01/05/2019	COLBUN SA
6	61/2018	Pan American Energy LLC	1,300,000	275,600,000	01/11/2018	01/05/2019	COLBUN SA
7	86/2018	Pan American Energy LLC	1,500,000	-	12/11/2018	01/10/2019	AGESA SA
8	95/2018	YPF SA	1,500,000	-	14/11/2018	01/05/2019	INNERGY
9	164/2018	Exxon Mobil	400,000	-	29/11/2018	01/05/2019	INNERGY
10	159/2018	Wintershall Energia SA	750,000	159,000,000	29/11/2018	01/05/2019	COLBUN SA
11	252/2018	Pampa Energia SA	2,000,000	-	13/12/2018	15/11/2019	COLBUN SA
12	262/2018	YPD SA	1,500,000	-	14/12/2018	01/05/2019	COLBUN SA
13	281/2018	Enap Sipetrol SA	1,400,000	-	18/12/2018	31/12/2019	ENAP CHILE
14	286/2018	Total Austral SA	1,500,000	-	18/12/2018	01/10/2019	COLBUN SA
		Total	16,150,000				

[3] The agreement provides that both parties will establish the internal regulations and will adopt any required measures to allow the operation of commercialization, exports, imports, and transport of electricity and natural gas between the two countries. It also establishes that such operations will be allowed to the extent they (i) do not compromise domestic supply, (ii) do not affect the security of the operations, and (iii) do not affect the quality and reliability of the transportation and distribution services of natural gas and electricity of each country. See Argentina government news publication, "Argentina y Chile suscribieron el Protocolo Adicional al ACE 16." *Argentina, Ministerio de Hacienda*, 26 Apr. 2018.

[4] Desde octubre, Chile comenzará a importar gas de Vaca Muerta."*Diario Río Negro*, 16 June 2018.

[5] Radiografía de las exportaciones de gas natural a Chile." Econo Journal, 26 Dec. 2018. Econo Journal's summary of Argentina's export authorizations to Chile, includes detailed information of calculation of volumes for certain authorizations.

Recently, at the auspices of the Second High-level United Nations Conference on South-South Cooperation in March 20, 2019, President Piñera, and his energy minister, Susana Jiménez, met with Argentine counterpart, Gustavo Lopetegui, to analyze the increase in Argentine gas exports. Discussions revolved around the need to develop a mechanism to provide 'certainty' to the private sector to establish firm sale contracts (non-interruptible) during the summer months.[6] Currently, the delivered price of Argentine gas in Chile is reported at $6/ MMBtu ($4/MMBtu for the molecule plus $2/MMBtu for transportation costs). At this price, some Chilean gas-fired power plants running on more expensive LNG and even some less efficient coal-fired units could switch to Argentine gas. The Chilean government hopes renewed gas trade can help eliminate coal from Chile's power mix sooner than expected. To build on the momentum, in late March 2019, two new gas export authorization to Chile were granted.

Interestingly, at the March meeting, Minister Lopetegui declared that *"[i]ncreasing the volumes exported to Chile is the first step, our great challenge is to continue increasing production to supply the domestic market and to be able to export gas throughout the year."*[7]

CAN ARGENTINA SUCCESSFULLY COMPLETE THE GAS MARATHON?

According to government sources, while only about 4 % of Vaca Muerta's shale play has been exploited, unconventional gas production is already beyond available transport capacity. The government reckons monetizing Vaca Muerta's reserves at a faster pace will require investments ranging from US$ 5bn to US$ 10bn per year from the current US$ 4.3bn. To alleviate transport bottlenecks, the government intends to conduct tenders to award contracts valued at up to $1.8 bn for the development of pipelines connecting Vaca Muerta to Buenos Aires and the coast.[8]

The new infrastructure will contribute to enhance Vaca Muerta's attractiveness. As supplies reach the coast, greater access to international markets becomes a possibility and thus, the opportunity to capture a greater price from global LNG buyers. Competing in this arena will require Vaca Muerta's production costs to be around $2.5/ MMBtu, so that the delivered price to Asian and European markets is competitive against US LNG. As of today, 1,000 wells have been fracked in Vaca Muerta. Mr. Lopetegui believes that reaching the 3,000 wells milestone could become the inflection point at which drilling equipment and infrastructure will be fully utilized, taking Vaca Muerta to efficiencies and costs levels as those underpinning US LNG exports.[9]

This low-cost scenario is not at all far fetch for some main players. For example, Transportadora Gas del Sur and Excelerate are undertaking a technical pre-feasibility study to develop onshore liquefaction modules with a combined capacity of 4 MMtpa. On the other hand, Argentina's national oil company, YPF, reportedly is considering developing a large liquefaction onshore plant in Puerto Galvan. YPF has also contracted the Tango LNG facility, the first

6 Between September 15 and May 15.
7 Argentina y Chile avanzan en el aumento del comercio de gas." *elEconomista.es*, 3 Mar. 2019.
8 "Argentina planning gas pipelines, seeking upstream investors." *The Federation of Indian Chambers of Commerce and Industry*, 18 Mar. 2019.
9 Rodriguez, Daniel. "CERAWEEK: Argentina to become regular shale exporter in late 2019." *Platts LNG Daily*, 13 Mar. 2019.

Floating Liquefaction Unit in Latin America to be deployed in Bahia Blanca.[10] Tango LNG can store 16,100 cm/d of LNG and liquefy 2.5 MMcmd of gas. The LNG could be offered to the market or simply be stored for later use during the winter months if necessary. If the economics are right and the LNG is competitive, we could see supplies from Argentina being offered in the spot market initially during the summer months.

It seems Argentina is on the right track to complete this gas marathon. The chance to conquer the gold medal hinges on the country's ability to maintain and if possible accelerate the pace of unconventional oil and gas resource development. Regionally, the scenario is auspicious to energy collaboration, integration and enhanced trade. All is needed is for the consensus that guides Vaca Muerta's development strategy to sustain the upcoming political cycle.



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[10] Snyder, John. "Argentina's FLNG may be the first of many in the Americas." *LNG World Shipping*, 13 Feb. 2019

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