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Regional Energy Integration in Latin America: lessons from Chile's experience with natural gas

DAVID R MARES & JEREMY M MARTIN

ABSTRACT In the 1990s regional economic integration regained popularity as a means for promoting sustainable economic development in the developing world. Latin America, where market liberalisation and pro-market presidents proliferated in that decade, emblemised this belief. Even today, when pro-state intervention governments are on the upswing, the rhetoric of economic integration continues. Yet integration schemes are faltering. This article presents a case study to demonstrate that neither markets nor political will of leaders can produce successful economic integration unless the politics of integration have been favourably resolved. Chile best exemplifies this situation. Chile's lessons learned through their natural gas and energy development model serve as an excellent prism for analysing the political economy of regional economic integration and speculating on what types of regional energy integration schemes can work best.

Regional energy integration in Latin America has long been a goal of policymakers, international development agencies and many businesses. The region has abundant hydrocarbon resources, with some countries in surplus and others in deficit, and economic growth fuels demand for greater supplies of a diverse set of energy sources. The political will to integrate regional energy markets is demonstrated by the fact that agreements have been made, policies to govern the trade have been adopted and natural gas flows across borders. Despite some advances, however, overall the level of regional energy integration has been disappointing.

Venezuela is committed to helping Brazil develop a refinery that would partly process Venezuelan heavy oil and a liquefied natural gas (LNG) facility, but Petrobras will almost surely begin construction of the Abreu e Lima refinery without Venezuelan participation.¹ Brazil, for its part, pulled

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out of a joint venture in the Venezuelan *Mariscal Sucre* gas field, whose output was supposed to flow to Brazil via a pipeline on the north-eastern shoulder of the continent.² In Peru, an LNG project connecting Peruvian natural gas reserves with the gas-thirsty Mexican market has come under intense scrutiny. The Humala government has begun negotiations with the private consortium developing the so-called Camisea reserves with the intention that no natural gas from Block 88 is used for export but rather serves the domestic market.³

Mexico's oil supplies to Central America have dwindled and the promised refinery to process Mexican crude and derivatives failed to materialise, despite backing by the Inter-American Development Bank.⁴ Bolivian natural gas was expected to be the 'hub' of a South American energy ring as Bolivia signed contracts with Brazil and Argentina, but its inability to meet its contracted commitments has stimulated both clients to build LNG facilities to bring in gas from outside the region.⁵ Argentina and Chile integrated their natural gas markets through a number of diplomatic agreements and private contracts, but within a decade Argentina diverted supplies towards its own internal market, creating energy shortages in Chile.⁶

What went wrong in these energy integration schemes? Are there any lessons we can learn from these experiences that will give us insight regarding the form in which Latin America's energy integration is most likely to develop? These failures amid public and private commitments suggest that the promotion of regional and sub regional energy markets moved far ahead of the development of political coalitions upon which to base that integration. Development of a regional energy market requires massive amounts of investment, the owners of which in turn insist upon credible government commitments to respect the terms upon which those investments were made. Yet disputes over the domestic distribution of hydrocarbon rents as well as public policies to deal with economic instability generated by factors largely exogenous to the energy sector, produced policy shifts that disrupted energy markets and deterred investment. As a result, the risks associated with importing gas from within the region were highlighted and investments to import more energy from outside the region have been promoted by wary governments.

The Chilean experience with developing a domestic natural gas market and securing regional supplies to fuel it is an excellent case to illustrate the potential and the limitations for regional energy integration. Chile went the farthest in redesigning its energy matrix to accommodate natural gas and it negotiated with two of its neighbours for supply. Those bilateral agreements were carefully negotiated, with diplomatic accords and private contracts ostensibly eliminating Chilean vulnerability to Argentine gas even as it became totally dependent upon it. Chile was a poster child for regional gas integration. But the trans-Andean supply subsequently dried up, creating an energy crisis and sending the country to search for a new energy strategy.

In examining the Chilean experience for the lessons we can draw for regional energy integration, this article is organised into two sections and a conclusion. The first looks at the promise of regional gas integration and the

political forces that contributed to its initial development. The progress made is evaluated and the current problems highlighted. The next section examines the Chilean case. We begin by analysing the Chilean decision to become dependent upon Argentine gas and the success of that trade in creating a dynamic and efficient gas market in Chile. Subsequently, we explain the disruption of that market, the Chilean energy crisis which ensued and the efforts by Chile to diversify both its energy matrix and well as the sources of its natural gas imports. The conclusion draws the lessons about the political economy of natural gas integration at the regional level and speculates about the future of regional energy integration.

The promise of regional gas integration

Discussions of trade in natural gas in South America's Southern Cone (Argentina, Bolivia, Brazil, Chile, Paraguay, and Uruguay) began as early as the 1950s. But it was not until 1972 that the first international gas pipeline in the region, linking Bolivia and Argentina, was built. It took another twenty years before significant gas pipeline projects integrating Chile and Argentina were proposed, followed by a massive project connecting Bolivia and Brazil (see Figure 1).

Energy integration in the region has involved both hydroelectricity and natural gas. Most discussions focus on natural gas because of the power losses from transmitting electricity across long distances and because importing countries would rather keep the value added in producing electricity from natural gas in their own country. In addition, an importing country is more vulnerable if its electricity gets cut off since a country can replace the fuel supply of natural gas for its power generators, albeit with more polluting and higher priced alternatives (e.g., fuel oil, diesel), but cannot quickly set up new power lines to incorporate new power producers. For three decades Bolivia has offered to build power plants, fuel them with its natural gas, and export the electricity, but its neighbours have rejected the proposals.⁷

Regional multilateral organisations are active participants in promoting energy integration. The Inter-American Development Bank (IDB), founded by the Organisation of American States (OAS) in 1959, is the largest regional development bank with an annual budget of \$9.6 billion. The IDB counts 47 countries as members and typically funds projects at the national level. The IDB has become more active in the trade and integration realm and has promoted two distinct initiatives in the region: 1) the South American Regional Infrastructure Integration Initiative (IIRSA). IIRSA counts 12 countries in Latin America as members and the programs range from energy markets to transportation to physical integration; and 2) *Plan Puebla Panama*, which was formally initiated in 2001, and aims to 'promote the regional integration and development 'of the nine southern states of Mexico (Puebla, Guerrero, Veracruz and points south) with all of Central America and Colombia. Recently, the IDB has been involved in the Camisea natural gas project in Peru, a \$1.4 billion project that includes \$400 million in bank



FIGURE 1. Principal natural gas pipelines of South America.
 Source: Cambridge Energy Research Associates.

funding for the project. Their support has, however, caused some consternation in the environmental community and led to large scale protests by NGOs such as *Amazon Watch* and *Conservation International*.⁸

There are a few other multilateral actors. The *Corporación Andina de Fomento* (CAF), based in Caracas, is an important regional development bank. Since 2000, together with the IDB, CAF has actively promoted energy integration through IIRSA. A specialised regional organisation, the *Organización Latinoamericana de Energía* (OLADE), created in 1973 is a regional body that is based in Quito, Ecuador. There are currently 19 member countries ranging from Mexico to Argentina to Venezuela. Contributing to energy integration, sustainable development and energy security is the clear cut mission of OLADE. OLADE produces several important reports and works closely with all of its member countries' energy ministries on a range of policy and technical issues. A recent addition to the programs that OLADE runs is an annual energy integration conference that

coincides with the annual ministerial meeting of OLADE. The last two events have been held in Mexico and Colombia and counted over 200 hundred public and private sector participants. Although OLADE holds meetings, sponsors studies and is very active, it didn't play a role in any of the pipeline discussions of the 1990s. Argentina, Bolivia, Brazil and Chile are all members of the Latin American Integration Association (ALADI) and the treaties and protocols were registered there, but again the international institution doesn't appear to have made much of a difference in the behaviour of either Argentina or Bolivia. And in one of the most spectacular failures of efforts to push regional integration, President Gonzalo Sánchez de Lozada was overthrown by riots in 2003 precisely for trying to make Bolivia the hub of regional gas integration.

If the truth be told, most energy deals have been bilateral agreements, with public and private participants looking to multilateral institutions, private and public international capital (e.g., European Investment Bank) to provide investment funds. In late 2007, for example, Mexican state power company *Comisión Federal de Electricidad* (CFE) awarded a 15 year contract to Repsol-YPF for LNG supply. Repsol-YPF will supply 80 million cubic feet per day (mmcf/d) beginning in 2011. The supply will come from the Peru LNG project, of which Repsol-YPF retains gas marketing rights.⁹ But, as discussed previously, this bilateral project too has been subject to increased scrutiny as domestic gas usage in Peru soared. The Peruvian government has entered into negotiations with the Camisea consortium with the aim of assuring that no natural gas from the project's Block 88 is used for export but rather serves the domestic market and supports a key goal of the Humala government to increase domestic access and usage of natural gas.

The initial quick pace of energy integration drew attention from across the political spectrum. Bolivia's President Sánchez de Lozada, a strident admirer of the Washington Consensus, announced at the 1996 OLADE annual meeting that Bolivia would be 'the principal conduit for natural gas distribution in the Southern Cone'.¹⁰ Venezuela's Hugo Chavez sees energy integration in Latin America as one of the building blocks for an anti-US 'socialism of the twenty-first century' and has invested much rhetoric and a little money and technical expertise in oil refineries, gas pipelines and exploration and development around the hemisphere.

The successes obtained were not frictionless. The underdeveloped state of natural gas markets in the Southern Cone contributed to significant volatility. Argentine regulatory reforms in the late 1970s attracted investment and resulted in significant development of Argentine gas fields, which then led Argentina to renegotiate downward price and quantity from Bolivia in the 1980s.¹¹ A failure to adequately estimate power demand in Brazil produced natural gas surpluses shortly after the Bolivian pipeline opened. Brazil's efforts in the early 2000s to renegotiate prices for contracted Bolivian gas contributed to nationalist backlashes, as Bolivians began to fear a replay of their first experience with Argentine. But Bolivians also thought they could use their gas to force Chile to renegotiate the peace treaty that ended the War of the Pacific (1879–1884) and deprived Bolivia of its littoral province on the

Pacific or punish it should it refuse. Since Chile refused to negotiate territory for gas, Bolivians rioted and overthrew the Sanchez de Lozada government in 2003 for attempting to export gas through Chile and onto Mexico. That LNG contract, and the investment it would have generated, has subsequently gone to Peru. In the fall of 2007 Bolivia, having failed to attract the necessary investment to produce all the natural gas it contracted for the export and domestic markets, reduced its supply to Argentina by over fifty percent in order to fulfil its contracts with Brazil, which is not only a bigger market but also threatened to invoke penalty clauses for failure to deliver (the Argentine government said it would not penalise Bolivia).¹²

But Argentina itself can't fulfil its contracts with Brazil, Uruguay and Chile. Although Argentina has a developed gas market, the country's economic debacle in 2001 and related domestic policies that capped gas prices at very low levels, produced a disincentive to sell in the Argentine market. Domestic production declined, and with the Chilean market offering profitable prices, gas continued to flow across the border, thereby politicising exports to Chile. Rather than raise domestic prices, the Argentine government turned to Bolivian exports to relieve Argentine shortages in 2004. Inadequate production in Bolivia, coupled with Bolivian fears of diversion to the Chilean market, has limited this option for Argentina.¹³ At the beginning of January, President Evo Morales and the hydrocarbons minister, Carlos Villegas, admitted publicly that natural gas production had peaked at 42MMcm/d; they added that Bolivia would not be able to fulfil its supply pledges to Argentina and Brazil.¹⁴ Argentina has thus not only reduced gas exports to Chile but has experienced significant shortages itself forcing the country to turn to LNG spot market purchases since May and in turn increasing the costs for Chile as export taxes have also increased between the two nations.¹⁵

The events since 2000 clearly indicate that energy export policies are captive to political issues, particularly with nationalist overtones, in key Latin American nations, despite the rhetorical and real efforts at regional integration. An interesting aspect of today's resource nationalism as opposed to that of the 1960s and 1970s is that it is not just directed at the international oil companies (IOCs). National oil companies (NOCs) are a legitimate target as well, with Petrobras getting nationalised and taxed like an IOC in Venezuela, Bolivia and Ecuador.¹⁶ Brazil initially retaliated softly by reducing its investments in these countries. But Brazil certainly needs more gas; in 2007 Petrobras cut gas supplies to customers.¹⁷ Brazil's medium to long-term strategy is to diversify its natural gas needs with an LNG supply from outside the region, as well as continue its aggressive exploration and development program in both oil and gas offshore. Indeed, at the time of this writing, two major offshore discoveries—the Yuni and Jupiter fields—have been announced by Petrobras and their partners, but the exact nature and potential of the ultra deep field for oil and natural gas supply is still far from being determined, as is its development timeline.¹⁸ In the short to medium term, they have reluctantly found themselves going back to Bolivia, with investments to enable Bolivia to meet its existing contract with Brazil announced in November 2007.¹⁹

The Chilean case

Chile proceeds 'prudently'

Chile did not rush into energy integration with its neighbours. The government was aware of the risks and sought to create and develop institutions and economic relationships to minimise them. The institutions included international treaties, involvement of regional international organisations as 'observers' to the agreements, a confidence in the credibility produced through democratic government, and the limitation of governmental participation in the gas trade to a regulatory role to ensure the efficient delivery of a public good. Private investors, participants in the gas trade and consumers were expected to be driven by the new incentives created through the development of a bi-national market for gas.

In the early 1990s, Chile and Argentina had complementary interests with respect to natural gas. Argentina began developing a gas market early in the twentieth century and when it deregulated the industry in the late 1970s exploration and development quickly turned the country from a net importer to a potential exporter. By 1997 Argentine proven reserves had almost reached 700 billion cubic metres (bcm).²⁰ Chile, in turn, had few hydrocarbon resources, a consistently expanding economy, a metropolis (Santiago) facing a severe pollution threat, and an energy matrix heavily dependent upon a hydroelectric power sector increasingly buffeted by erratic rainfall, environmental concerns and indigenous issues.²¹

The economic logic of sending Argentine gas to Chile, however, faced two major difficulties from the Chilean perspective. First, the two countries were traditional rivals for territory, power and influence in the southern cone. As recently as 1978 their militaries had mobilised against each other in the Beagle Channel dispute and their historical relationship was strewn with failed reconciliation and trade efforts.²² While the 1984 Treaty of Peace and Friendship that ended the Beagle Channel dispute reaffirmed the need to promote economic relations as the building blocks for a lasting peace, the two countries still had 24 outstanding boundary issues. Secondly, Argentina had experienced such dramatic swings in political ideologies and economic policies over the course of the twentieth century that its credibility on either score was virtually nil. Both of these issues needed to be overcome before the *Concertación* government in Chile could make the country's energy supply dependent upon the plentiful gas across the Andes.

It's important to note that Chile did not look just to Argentina. Bolivia had gas that Argentina no longer imported and thus appeared to need a new market. Brazil was interested in Bolivian gas but that country had only a small domestic gas market and previous negotiations between the two in the early 1970s had failed.²³ The Chilean president, Patricio Alwyn, stepped up to this opportunity and proposed an energy agreement with Bolivia in 1992. The two potential gas suppliers were complementary in the eyes of the Alwyn administration: Bolivia would supply the largely mining needs of the north while Argentina could meet demand in the populous centre of the country. There was also discussion about integrating electrical grids, but Chile's

National Energy Commission decided to pursue integrating the natural gas markets first.²⁴ Negotiations with Bolivia failed because from the Chilean perspective, the price was too high: a sovereign outlet to the Pacific through Chile. Consequently, Chile was left with Argentina as its only viable alternative in natural gas.

There were a few important building blocks put in place before Chile felt that Argentina was gaining credibility as a partner. Among the most important of these was the conversion of President Carlos Saúl Menem (a member of the historically nationalist and populist Justicialista [Peronist] Party) to a market orientation. Menem was able to use his control of the party to attain almost complete dominance over the Legislature and Supreme Court during his presidential tenure (1990–1998), implementing the most far-reaching changes to the economy in Argentina's history. Under the guidance of the economy secretary Domingo Cavallo, state-owned enterprises were virtually all privatised in a process heavily criticised for having little transparency. The Convertibility Law of 1991 pegged the peso to the dollar and made it freely transferable, thereby eliminating foreign exchange risks. The Heritage Foundation ranked Argentina's economy as among the 'freest' in the world in 1999;²⁵ in other words, markets and not politics were gaining control over the allocation of resources in the Argentine economy. Anxious to move economic relations forward, Menem also quickly negotiated solutions to 22 of the 24 boundary disputes. On 2 August 1991 the countries signed the *Acuerdo de Complementaridad Económica* under the auspices of the ALADI Montevideo Treaty of 1980, which provided a basis for permitting bilateral agreements exempt from Most Favoured Nation clauses that would automatically extend similar benefits to third parties.²⁶

Menem was sticking his neck out, too, and thus needed some assurances on the Chilean side. In the context, those were relatively easy to get. The new democratic government of Chile was significantly constrained in its policy by the Constitution; those constraints included significant restrictions on government interference in private markets.²⁷ In addition, the Concertación government needed to produce growth because it faced public comparison with the dictatorship which had overseen a booming economy. As recently as the 1988 plebiscite on military rule, the dictatorship garnered 43 per cent of the vote.

Initially, the Gas Interconnection Protocol (1991) between the two countries stipulated that gas exports from Argentina would be subject to a maximum level, and Chile could only import gas from the Neuquén Basin in Argentina.²⁸ The Protocol reflected both Argentina's move under President Menem to adopt the neo-liberal economic policies that had produced sustained economic growth in Chile as well as Argentine fear that the domestic market might be undersupplied if exports competed with domestic demand. But Chile rejected these legal stipulations because they would likely produce a monopolistic supplier, resulting in higher prices to the consumer, and because it was limited in how much gas it could import and restricted to importing only from the Neuquén fields. These three limitations would hinder the growth of a gas market in Chile, thereby undermining the government's energy strategy.

The Menem administration in Argentina was split over the Protocol. The director of *Yacimientos Petroliferos Fiscales* (YPF) argued for limiting and regulating access to Argentine gas; the secretaries of energy and economy favoured creating open markets. Once Menem decided to favour economy secretary Domingo Cavallo's dramatic liberalisation of the economy, YPF's opposition ceased.²⁹ In 1995 the natural gas treaty was renegotiated, allowing exports from any Argentine gas field and providing for open access to any pipeline built.

Reaping the benefits of success

At the core of the Menem government's effort to transform its domestic natural gas industry was a desire to add efficiency through development of a market of private investors and capital. This began with the privatisation of YPF, an unbundling of the natural gas system in Argentina and included what amounted to changes in ownership, regulatory and fiscal terms and the role of government and private sector in the country's natural gas industry.

Private investors responded to the new policy environment quickly and the energy sector and economy boomed. Natural gas was eagerly embraced for its importance for the economy; it was significant in terms of upstream development in the country's energy provinces, but also as a means of a reliable source of domestic energy—almost 90 per cent of Buenos Aires's taxis run on compressed natural gas, and roughly 50 per cent of the country's natural gas goes to electric power generation. Underscoring the initial positive results, from 1990 to 2000, natural gas production in Argentina almost doubled from 630 billion cubic feet (bcf) to 1321 bcf and today, Argentina remains Latin America's third largest holder of proven reserves with 13.4 trillion cubic feet (tcf) (see Figure 2).

Moreover, while drilling and exploration was foundering in other countries in the region during the 1990s, rig counts in Argentina jumped from 14 in 1993 to 72 two years later before falling back to a still impressive 40 in 1997.³⁰ Overall investment in the industry dramatically increased and major international companies such as TOTAL, British Gas, Amoco (now BP) and Chevron were soon among the country's most important investors. Nowhere

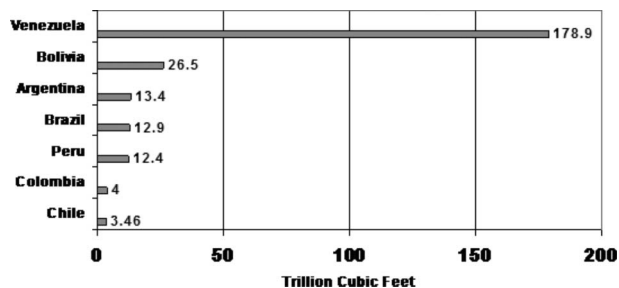


FIGURE 2. South American natural gas reserves, 2011.
Source: US Energy Information Administration.

was investment more important than in Argentina's domestic natural gas transport sector. According to a World Bank project database, as of 1999 Argentina led the developing world both in terms of the number of projects and investment. Between 1990 and 1997, private companies poured over \$6.2 billion into 11 projects.³¹ Natural gas remains the largest primary energy source in the country and, along with the recent economic growth, has come a commensurate spike in energy demand despite the stagnation in domestic production and supply due largely to government policies since the economic collapse of 2001–2002.³²

Argentina and Chile Pipelines Seizing upon the positive framework for investment and natural gas interconnection, a small 356 mm, 83 km pipeline, *Methanex PA*, was immediately built to supply a methanol producing plant in the far south of Chile. The pipeline began operations in 1996 with an initial capacity of 0.73 bcm per year.³³ *Gener* committed to modifying its thermoelectric power plant at Renca to accept natural gas and *Gasco* was to organise and operate a distribution company in Santiago (*Metrogas*). The 610 mm GasAndes pipeline, with a capacity of 3.3 bcm per year, runs 463 km from La Mora, Mendoza, Argentina across the Andes to San Bernardo on the outskirts of the Chilean capital, Santiago. Operations began in August 1997. Total investment in the GasAndes project, including the pipelines, distribution grids and thermal power plants was US\$1.46 billion.³⁴ A total of seven gas pipelines linking Chile to Argentina's gas supply (including three small pipelines in Patagonia servicing the *Methanex* facilities) were built.

The incorporation of natural gas into the Chilean energy mix initially had dramatic payoffs for the environment and the cost of energy. In 1995, 98 per cent of power generation derived from: hydropower (57 per cent), which harmed rivers and fish; and from coal (28 per cent) and diesel-fuel oil (13 per cent), which polluted the air. By 2007 cleaner burning natural gas accounted for 37.5 per cent of power generation, with significant reductions in hydro

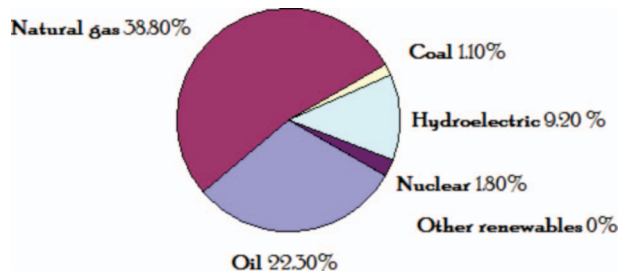


FIGURE 3. Total energy consumption in Argentina by type, 2009.

Source: 'Statistical review of world energy 2010', BP, at http://www.bp.com/liveassets/bp_internet/globalbp/globalbp_uk_english/reports_and_publications/statistical_energy_review_2008/STAGING/local_assets/2010_downloads/statistical_review_of_world_energy_full_report_2010.pdf

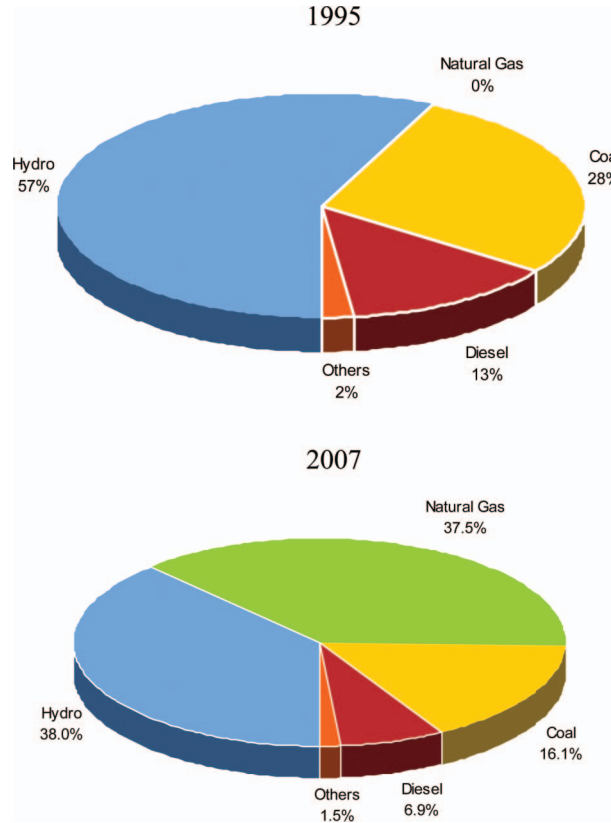


FIGURE 4. Chile's energy matrix 1995 and 2007.
 Source: Minister of energy Marcelo Tokman presentation to Institute of the Americas Chile Energy Roundtable, 26 September 2007, Santiago, Chile, Institute of the Americas Archives.

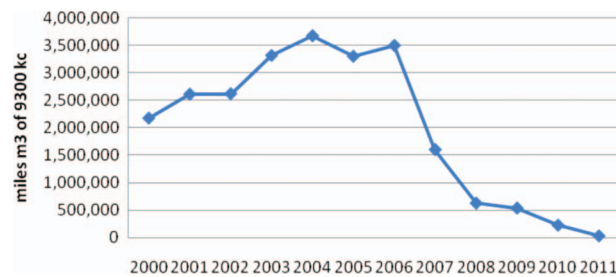


FIGURE 5. Annual exported gas from Argentina to Chile.
 Source: Jaime Arredondo, based on 'Ente Nacional Regulador del Gas. Datos 2000–2011*. Exportaciones a Chile'. Datos Operativos de Gas Natural: Total Sistema, <http://www.enargas.gov.ar/DatosOper/Planilla.php>.
 *Figures are estimates.

TABLE 1. Major Chile–Argentina pipelines

Name	Owners	Length	Capacity
GasAtacama	Endesa and Ashmore Energy International	580 miles	300 MMcf/d
NorAndino	Southern and SUEZ/Tractebel	544 miles	250 MMcf/d
GasAndes	Total, Metro Gas, CGC and AES Gener	290 miles	310 MMcf/d
Gasoducto del Pacifico	TransCanada, El Paso and Gasco	330 miles	340 MMcf/d

Sources: Energy Information Administration Argentina <http://www.eia.gov/countries/country-data.cfm?fips=AR>; and Chile Country Analyses & Business News Americas Company Profiles <http://www.bnamericas.com/en/chile>.

(now 38 per cent), coal (now 16.1 per cent) and diesel-fuel oil (6.9 per cent). In terms of prices, the cost per megawatt hour (mwh) fell from over \$100 in the *Sistema Interconectado Central* (SIC) in 1997 to under \$50 at the end of 2003.³⁵

Chile Goes Back to the Drawing Board

Despite becoming a model for energy integration in the region, the Chile–Argentina energy relationship swiftly collapsed. It did not disintegrate as a result of traditional power rivalry issues nor from old territorial disputes; these issues remained resolved. Rather it was competing and contradictory domestic energy policies that threw cold water on the relationship.

Argentina's free market economy and attraction for foreign direct investment came to a screeching halt in late 2001 and early 2002 as the country experienced an economic meltdown from 1999–2001. The collapse of the Argentine economy (GDP fell by 14 per cent in 2002 and 2003³⁶) caused a political succession crisis (in the two week period from 20 December 2001 to 2 January 2002 the country was led by five different men³⁷) and the rejection of Menem's market-oriented economic reforms. Although Menem finished a surprising second in the first round of presidential elections in 2003 (the top two finishers were from the Peronist Party, an indication of the total discrediting faced by the *Unión Cívica Radical* party after De la Rúa's forced earlier departure), he bowed out of the presidential run-off rather than face certain electoral defeat to his fellow Peronist Nestor Kirchner.

Once he took office, Kirchner quickly embraced and deepened the populist measures that propelled spectacular economic growth (from the disastrous levels produced by the crisis) but have undermined the energy sector to such a degree that power and gas shortages in successive winters have repeatedly shut down industry.³⁸ Of particular note were policies that included export taxes on oil and agricultural products³⁹, currency devaluation called pesification—essentially reducing the value of investments by two-thirds—and freezing utility rates. The Kirchner government's unwavering opposition to increasing utility tariffs is perhaps the example drawing the most attention by proponents and opponents of his policies. Most rates remain almost unchanged to this day, having long surpassed their legally stipulated 180 day

freeze. These policies may have jumpstarted the economy, but clearly did not fully contemplate the always-looming threat of inflation growth. Moreover, they created an investment climate that by the end of the Kirchner's administration in December 2007 saw Argentina's much smaller neighbour Chile receive almost twice the inflow of foreign direct investment. According to the Economic Commission on Latin America and the Caribbean (ECLAC), net inflows of FDI in Argentina dropped to US\$4.809 billion in 2006, down four per cent from 2005.⁴⁰

In December 2007, Nestor Kirchner turned the presidential sash over to his wife Cristina Fernández de Kirchner, who won an overwhelming first round victory in the October elections. Fernández de Kirchner's presidency has immediately faced many challenges from striking agricultural workers to the increasing spectre of inflation.

Since her assumption to the presidency, urgent attention has been required in the country's energy sector and many hoped for a new national energy policy to be set forth. However, to date, and not surprisingly given the almost unchanged cabinet that stayed with Fernández de Kirchner from her husband's administration, the outlook for improved opportunities for a less onerous energy investment climate do not seem positive. As her first term draws to a close and the next round of presidential elections loom in Argentina, there has been little evidence of the desire for the broad reforms needed in the energy sector. Indeed, only minor changes have been made to the energy policy status quo. Perhaps most emblematic, and as previously noted, the country has chosen to turn to increasing amounts of LNG to avoid natural gas shortages for several successive winters while they attempt to pass some of the increased costs for that energy security to their neighbour in the form of increased export taxes.⁴¹

The collapse of the Argentine economy in 2002 immediately produced concerns in Chile that the free market orientation of future governments would be diminished. Chileans wanted to ensure transparency in the energy sector and equal treatment for Chilean consumers. An additional protocol to the gas agreements was signed in 2002, creating a national information system for both countries. Government entities (secretary of energy and *ENERGAS* in Argentina, *Comisión Nacional de Energía* (CNE) in Chile) will be responsible for maintaining updated information and providing it in a timely fashion to those who request it. The topics covered include all regulations, participants, prices and tariffs, future plans and all new contracts, except for confidential provisions.⁴²

But in 2004 Argentina restricted exports to Chile as domestic prices soared in response to shortages. The volume of gas exports began a rapid decline in early 2004, slightly recovered in early 2006 only to plunge even further during the most recent crisis in 2007. The amount of volume that was exported during the southern hemisphere winter season of 2007 was at some points merely that which was in the pipeline system; the Argentines had cut all new gas deliveries.

Not only did the price of natural gas rise in Chile, along with the spectre of blackouts, but a political debate has developed concerning the

appropriateness of depending upon energy imports from Argentina. Chilean feelings of vulnerability increased when Bolivia came to Argentina's aid, specifying that 'not one molecule' of Bolivian gas could be transhipped to Chile. In 2007, President Bachelet commissioned a 10-person Nuclear Energy Working Group to analyse the potential for nuclear energy in Chile. The Nuclear Energy Working Group, or Zanelli Commission, delivered their report in late 2007; the report indicated there was potential in the longer term—with 2020 given as the rough timeline—for Chile to incorporate nuclear energy into its mix, but that further studies were required.⁴³ The Japanese nuclear crisis in 2011 derailed nuclear power discussions in Chile, making the policy discussions more focused on hydropower and LNG.

Conclusion

Regional energy integration requires bringing national energy policies into a complementary relationship. Yet domestic political power in key supplier countries has moved in a direction of favouring the domestic over the regional market, thereby creating a zero-sum scenario among potential partners. Importers of regionally produced natural gas have responded by searching for extra-regional suppliers, developing energy sources at home (more hydropower, coal and some non-traditional sources of energy), and returning to diesel and other petroleum products. Regional energy integration has suffered. Ironically, the decline in the regional energy integration impulse is likely to be to the disadvantage of regional suppliers, rather than of the energy importers in the region.

There is plenty of blame to go around for these failures to consolidate the regional energy integration that seemed so promising a mere five years ago. We can place some of the responsibility for the current resource nationalism in Bolivia to negative experiences with Argentina in the 1980s and Brazil in the early 2000s. These short-sighted domestic policies are overwhelmingly attributable to the domestic politics of the Menem and Sanchez de Lozada governments, respectively. Each had the opportunity to use natural gas exports to promote a broad based economic growth and government reforms, which could have created a domestic consensus in favour of integrating energy markets. Instead, their citizens believed their energy resources were profiting foreigners and domestic elites at the expense of national needs. Street demonstrations, the fall of governments and demands to favour the national market seem quite rational when citizens perceive that they cannot trust the government.

Nevertheless, it is also necessary to recognise that current Bolivian and Argentine policies undermine new export projects that could attract capital to develop their energy reserves and permit them to take full advantage of this era of hydrocarbon shortages. Peru also illustrates how current domestic politics undermines regional integration. Peru is a new surplus producer of natural gas and exports to Mexico. Building a pipeline from its northern gas fields to supply its southern regions could be economically viable if the pipeline also serviced the mining sector in northern Chile, just

across the border. But historical resentment against Chile (paradoxically fuelled by Chilean investment in Peru) has kept the Peruvian government from pursuing this natural market. And now Peru is facing increasing internal protests against exports and in favour of cheap and plentiful domestic supplies.⁴⁴

In sum, the domestic politics in the surplus countries are not favourable to regional integration in energy. We can expect more efforts to replace regionally imported energy with domestic and international sources imported from outside the Southern Cone. But there will still be a place for energy relationships among South American countries. Because of the uncertainties with regional energy supplies, regional energy integration in South America is likely to work best when it is part of a consuming country's strategy for integration into global energy markets. Diversification outside the region can make regional economic relations more stable by giving importers more options and disciplining regional suppliers.

Notes

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