



Argentina: 2004 Gas Crisis

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ABBREVIATIONS FOR UNITS

Bcm:	Billion cubic metres
Km ² :	Square kilometres
Mcm/d:	Million cubic metres per day
MBtu:	Million British thermal units
MW:	Megawatt
MWh:	Megawatt hour

ABSTRACT

Argentina has a fully privatised gas sector, with powerful gas producers and a well-developed network infrastructure. However, serious gas shortages and power cuts, brought on by a significant increase in demand, hit the country in early 2004.

In order to understand how a country such as Argentina, which is normally a net exporter of gas, with huge proven and probable reserves and a well-functioning privatised gas industry, is now facing gas shortages, it is necessary to look back to the early 1990s.

This paper analyses the origins of the 2004 energy crisis, examines the effects on the national gas industry and evaluates the government's solutions to prevent further shortage and restore the attractiveness of the gas industry for foreign and domestic investors. The impacts of the Argentine crisis on surrounding countries and on the regional energy integration are considered in a final appendix.

Map 1: Argentina



Source: The CIA World Factbook

1. BACKGROUND

Argentina has a peculiar history. In the early 1900s, it was one of the leading countries in the world, but at the end of the century it more resembled a developing country. Argentina remains however the richest country in South America despite its economic decline, as measured by GDP per capita.

At the beginning of the twentieth century, Argentina was one of the world's ten most prosperous countries in the world. The gross domestic product (GDP) was growing at an average 5% per year thanks to foreign investment, European immigration and exports. Argentine income per capita was comparable with that of France or Germany. But between the early 1930s and 1990s, the Argentine economy deteriorated progressively. A highly regulated economy hindered foreign investment until the late 1980s. President Menem's government, which took office in 1989, introduced profound economic reforms in order to reduce public debt and end high inflation. It opened up the economy and launched a rapid privatisation programme. Almost all public enterprises (power plants, electricity utilities, telephone and airline companies, television and radio stations, railways and highways) were sold to private investors. In 1989 and 1993, important amendments were made to the 1976 Foreign Investment Law. Argentina was one of the first South American countries to embark on International Monetary Fund-backed austerity measures. The Menem administration set up a radical stabilisation plan, which included the adoption of a currency board. The Convertibility Law, which pegged the peso to the dollar and backed each peso in circulation with a dollar in the Argentine Federal Reserve, was introduced in April 1991.

These economic reforms of the 1990s made Argentina one of the most liberalised countries amongst emerging markets. They practically eliminated inflation, attracted foreign and domestic investment (around US\$12 billion) and generated much higher rates of economic growth with 6% per year between 1991 and 1998. In the 1990s, Argentina was recognised to be one of the most economically and politically stable countries in Latin America. It was also considered a model of successful free-market reform.

But the end of the story is well known. A prolonged recession began at the end of 1998, and by the end of 2001 the government had defaulted on part of its US\$145 billion debt. Angry Argentines took to the streets and forced President Fernando de la Rúa's government to resign in December. In January 2002, the new government abandoned the currency board, devaluated the peso, banned withdrawals from the banking system and switched the privatised utilities' tariffs to pesos and froze them. By the end of the year, the Argentine peso had lost 70% of its value.

After a serious recession in 2002, Argentina's economy is recovering, thanks mainly to the growing demand for soybeans from Asia and high commodity prices. The currency devaluation decided on in 2002 made domestic products competitive again in the international market. The economy expanded 8.7% in 2003. Demand for gas and electricity, stimulated by the artificially low prices, is growing even faster.

But the 2001–2002 economic and financial crisis severely affected the gas sector, as well as the rest of the energy sector. For most of the utilities, the frozen tariffs cover only their operating costs, and as a consequence, investments have been delayed for the past two years. The freeze on investments in the upstream and downstream gas sectors coupled with a rising demand have resulted in widely predicted shortages, which started in March 2004.

This paper analyses the unfolding of events that led to the 2004 crisis. It examines the measures taken and looks into future priorities for the government both to prevent new gas shortages in the coming years and to restore national gas sector's attractiveness to investors. The impacts of the crisis on the neighbouring countries and on the regional energy integration are appraised in the appendix

2. THE ARGENTINE GAS SECTOR

In 1956, the Argentine government decided to promote the use of natural gas. By the mid 1980s, almost every household was using gas for cooking and heating, and many industries had converted to gas, as well as many power plants. The government subsidised the conversion of motor vehicles to compressed natural gas (CNG). The gas was received at the wellhead from the upstream state oil and gas company Yacimientos Petroliferos Fiscales (YPF), and transported via a vast gas transmission grid to the developing gas markets across the country. The state-owned transmission and distribution company was called Gas del Estado (GdE).

At the end of the 1980s, increased debt and high inflation hit the Argentine economy. The government used YPF as a 'cash-cow' to resolve its budgetary problems and gas tariffs as a barrier to contain inflation. As a result, both GdE and YPF suffered large financial losses. Severe lack of capital investments resulted in the stagnation of gas production and a fall in the reserves. Insufficient investments in the transmission and distribution network led to capacity constraints, bottlenecks and to frequent supply interruptions to residential and industrial customers during peak periods.

In the 1990s, regulatory reforms initiated by the Menem government in order to improve the efficiency of the system put an end to decades of state companies operating in the gas sector.

2.1 Deregulation and the Privatisations of the 1990s

At the beginning of the 1990s, Argentina was one of the first countries in the Latin American region to implement an IMF austerity plan. President Carlos Menem's government launched the liberalisation of the economy with the *State Reform Bill* in 1989. All the public services were privatised in rapid succession during 1992–1993: electricity, gas, telecommunications, water, sewage, railroads and highways. As part of the economic reforms, the gas sector was restructured and privatised in an attempt to introduce competition, improve economic efficiency and attract investment. The government intended to face growing national gas demand through greater reliance on market forces and the involvement of private capital. Shares in YPF were sold off and GdE was unbundled and privatised. The Congress approved national laws establishing the privatisation of the electricity and gas sectors. Modern regulatory frameworks, designed with the help of the World Bank, completed the laws.

In 1992, the *Natural Gas Act* was introduced, focusing on the natural gas downstream sector. The Act formed the basis for the vertical and horizontal unbundling of GdE and for the privatisation of the resulting companies. GdE was split into ten companies: two with transmission licences acting as natural monopolies (Transportadora del Norte in the North and Transportadora del Sur in the South region) and eight with distribution licences (a ninth distribution company was created in 1998), which were later privatised. These eleven companies enjoy exclusive rights over a given geographical area. There is no competition between distributors in their respective zones, but some exists between the two transportation companies, as they both supply Greater Buenos Aires.

The 1992 Natural Gas Act established the regulatory framework for the new Argentine gas market. This Act,

- created an independent regulatory authority – Enargas – in 1993;
- set up a clear separation of production, transmission and distribution activities (transporters do not buy or sell gas and distribution companies make profits only from distribution services);

- introduced a non-discriminatory third-party access to the transmission and distribution network with regulated tariffs set by the regulator under the British-type price-cap system¹ and reviewed every five years;
- created a spot market in Buenos Aires;
- removed controls completely on wellhead prices and prices to large end-users in order to encourage exploration and production activities; and
- defined the consumers eligible to choose their supplier (customers consuming more than 10,000 cubic metres/day, subsequently lowered to 5000 cm/d).

While this process was taking place, the upstream company YPF was also privatised. In 1989, YPF was required to sell around a third of its oil and gas reserves, and in addition its exclusive rights over exploration and production were removed. However, although legally the concessions were the property of YPF before the reforms came along, a great number of private participants were operating in YPF production areas. This partially explains the short time in which the sector completed its privatisation process, as only two years later, a large share of production was already open to private and foreign participation. Up until 1992, YPF was the only company permitted to sell gas at the wellhead. In 1992, the *Privatisation Law* was passed, which allowed YPF to be restructured, downsized and privatised. In 1999, Repsol acquired 99% of YPF's shares for US\$15.168 million. In 2003, the Argentine gas sector was still relatively concentrated in the upstream as four companies accounted for 75% of the gas production: the Spanish Repsol-YPF (the largest producer), Total Austral S.A, Pan American Energy and Pluspetrol.

The core of the reforms was introduced in 1992 (see Table 1). Within the next five years, the Argentine gas industry was fully privatised all along the gas chain, with unregulated upstream and regulated downstream. Natural gas production and consumption continued their fast increase: +5%/y and + 5.5%/y between 1990 and 2000 respectively (in the previous decade, both sectors increased by +6%/y). But the main impact of the reforms was the increased efficiency of the privatised companies. They also brought huge investments to the Argentine gas sector, especially in the transmission and distribution sectors. With a reserve to production ratio (R/P) of more than thirty years, companies found little incentive to explore for new gas.

¹ Enargas fixed maximum rates at the outset and all efficiency gains are to be shared between the companies and the consumers every five years.

Table 1: The Argentine gas industry structure before and after 1992

	Before 1992	After 1992
Production	YPF	Producers
Transportation	GdE	TGN + TGS
Distribution	GdE	9 distribution companies
Regulatory Authority	Secretaría de Energía ²	Secretaría de Energía + Enargas

Between 1970 and 1999, Argentina's natural gas reserves doubled. However, between 1990 and 2000, a large proportion of the reserves added did not come from new discoveries, but from a re-evaluation of existing ones. Plus, there has been no gas exploration outside productive basins. The explanation for this is that private companies will not develop more reserves than they plan to use over the next 5–10 years. Essentially, the focus was on developing the already discovered gas in fields like San Roque and Aquada Pichana in the Neuquen, and Acombucco in the north east. This lack of capital investment in exploration led to a decrease of the R/P ratio from 31 years in 1990 to 19 years in 2001 and 14 years in 2003,³ which by the standards of private companies is still satisfactory (for example, the US R/P of < 10 years). Realising that Argentina had a well-developed gas sector and almost saturated gas market, the private companies started looking for ways to expand their business base. Hence, the second focus of companies was to develop export markets and to build the necessary pipelines. The industry looked at many export projects and actually built many of them (GasAndes, Gasoducto Pacifico, the Methanex project –all three linking Argentina and Chile-, expansion projects considered in the north east, etc). But the economic recession that hit the country between 1998 and 2002 reduced incentives to invest in the upstream gas sector.

In the 1990s, the newly privatised transmission and distribution companies' contracts stipulated mandatory investments. However, private companies argued that rising demand and pre-existing bottlenecks could be dealt with through greater efficiency and utilisation and that marginal investment increases were therefore sufficient. Hence, no new internal pipeline was constructed because it was not needed in those years. Several export pipelines were constructed, and transmission capacity was enlarged by expanding existing pipelines. At the end of the nineties, it was clear that new projects would be required and before the 2001–2002 crisis there was much talk of, for example, the duplication of the San Martin pipeline - which runs from Ushuaia in the extreme south of the country to the capital Buenos Aires-, a new pipeline from the Noroeste Basin or

² The Ministry of Economy, Public Works and Services is responsible for the energy sector in the government. The Secretaría de Energía, controlled by the Ministry of Infrastructure and Planning, deals with energy issues. Enargas is the regulatory agency for the gas sector.

³ *Ibid*, proven reserves of 664 bcm in 2003 divided by 45.77 bcm of gross production in 2002. Source: Cedigaz

Bolivia, new pipelines to Chile from Neuquen and new gas development in Tierra Del Fuego in the far South of Argentina. Unfortunately the crisis stopped all of these developments.

With the 1990s reforms, the government intended to create competition between gas producers, so that eligible customers (utilities, power plants and large industrial users) could bargain for the best price of gas at the wellhead. The price of gas at the wellhead was set by the government for an initial one-year period, and was freed entirely in 1994, although Enargas apparently interfered in order to keep it as low as possible. The universal price for wellhead gas was replaced by a reference price⁴ which depended on where the producing basin was located. The deregulation led to a divergence in prices reflecting the netback value of the gas delivered to the main consuming area of Greater Buenos Aires. On average, the increase in prices was small (+15% between December 1993 and December 1995, and was stable until December 1998). End-user prices followed the rise in wellhead prices, with the transmission and distribution margins being fixed. Despite the increase in prices between 1993 and 1995, average wellhead and pre-tax end-user prices remained competitive vis-à-vis other regional markets in major gas-consuming countries in North America or Europe. Repsol YPF, as the dominant seller, effectively set the price of gas at the wellhead. However, it does not seem to have used its market power to raise the wellhead price unjustifiably. In 1997, a secondary market in transmission capacity was created in order to promote more efficient use of the transmission network.

The two sectors that benefited most from the deregulation reforms were probably the power and export markets. New lines were built to supply Santiago in Chile and Argentina moved from being a gas importer to a gas exporter in 1999. Electricity prices were halved thanks to latest generation turbines being installed in Argentina and low gas prices. Hence, the gas and electricity prices were among the lowest in the world even before the 2001 economic crisis. But the private companies were obtaining a fair return on investment and had confidence in the legal framework of the nation.

The privatisation and wholesale liberalisation reforms were successful in the case of both gas and electricity. Fifteen years later, the Argentine gas sector is the most privatised and liberalised in the region.

⁴ The prices are freely set by the parties, they are not regulated by Enargas or the government, but the contracts need to be registered with the *Secretaría de Energía*, which is then able to publish average contract prices for each basin, called reference prices.

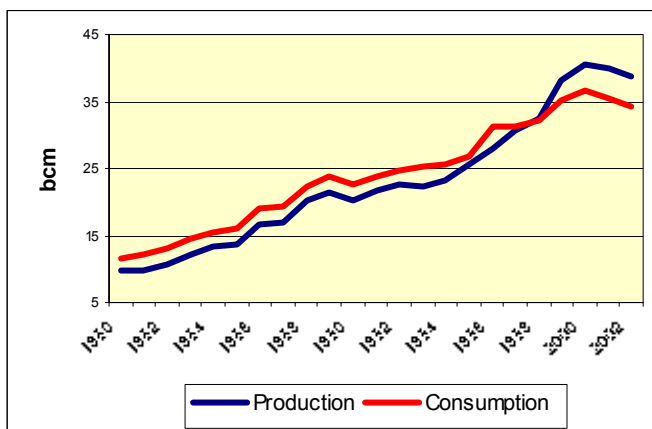
2.2 The Natural Gas Sector in the 2000s

After declining in the 1980s and early 1990s, Argentina's proven gas reserves were estimated at 616 billion cubic metres (bcm) in 2004, representing 8% of total Latin American natural gas reserves.⁵ Argentina is a developed gas region, with currently-used reserves declining. A few years ago, the government became concerned about the country's ability to meet increasing export commitments while continuing to supply a growing internal demand. However, the rapid growth of proven reserves in nearby Bolivia has somewhat alleviated such concerns, although the unexplored acreage is in difficult and high-risk areas. There is little incentive to explore in such areas unless wellhead gas prices are much higher than they are currently (or have been in the last 10–20 years!). Moreover, only one-third of the total acreage of known sedimentary basins has been explored in Argentina. Nineteen sedimentary basins are known, but exploration and production activities have been carried out only in five of them (Noroeste Basin in north-west Argentina; Neuquén and Cuyo Basins in central Argentina; Golfo San Jorge and Austral Basins in southern Argentina), leaving the country with significant potential for additional gas reserves to be discovered. The 2001–2002 economic and financial crisis had stopped all new investments, but they are starting up again thanks to the economic recovery and the reforms taken by the Kirchner government in the first half of 2004.

Domestic gas production amounted to 39 bcm in 2002 (see Figure 1). The R/P ratio was 14 years in 2003, down from 31 years in 1990. Argentina imported gas from Bolivia until 1999. In 2002, Argentina was a net exporter of 5.9 bcm to Chile, Uruguay and Brazil. However, when gas shortages hit the country in the first half of 2004, imports from Bolivia were resumed.

⁵ Source: Cedigaz. Argentina has the third-largest proven reserves of natural gas in Latin America (after Venezuela and Bolivia).

Figure 1: Argentine gas production and consumption between 1980 and 2002



Source: International Energy Agency

Argentina has a very gas-intensive economy. In 2002, gas represented half of the TPES (49.3%), which is very high compared to other major gas-consuming countries (see Table 2). Oil is the other main source of energy in Argentina, accounting for 38% of TPES.

Table 2: Primary gas demand and gas uses by sectors in major gas-consuming countries. Comparison with Argentina, 2002

	Gas in TPES	Power	Industrial	Residential	Others*
	%	%	%	%	%
Argentina	49	25	22	19	34
Netherlands	46	34	26	25	15
United Kingdom	38	29	20	33	18
Italy	34	32	32	35	1
Canada	30	10	33	19	38

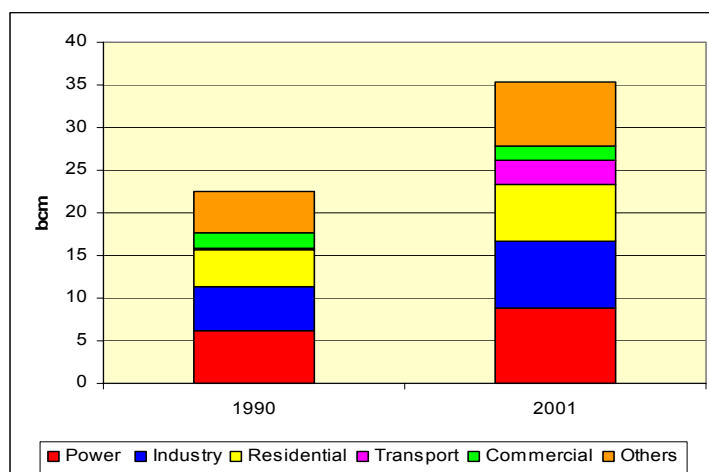
* Others include: transport, commercial and transformation sectors + energy use + losses

Source: International Energy Agency

In 2002, Argentine primary gas consumption reached 34 bcm. The power sector was the largest consumer at 10 bcm; the industrial sector was second at 7.7 bcm; and the residential sector was the third largest consumer at 6.7 bcm. Exports (5.9 bcm) represented 15% of total gas production.

Gas demand grew at a steady rate in every sector during the period 1990–2001 (see Figure 2). The power, industry and commercial sector shares remained relatively unchanged at 29%, 36% and 3.5% respectively.

Figure 2: Argentine gas consumption by sector in 1990 and 2001



“Others” include: transformation sector, energy use and losses

Source: International Energy Agency

The highest growth rates were in the transport sector, whose share increased from 3.4% to 8.7% during this period. The private enterprises actively promoted the expansion of CNG in domestic transport in the 1990s. In 2002, the transport sector represented 2.9 bcm. Use of CNG as a transport fuel is widespread in Argentina – indeed, the country has the largest number of CNG vehicles in the world and its natural gas vehicle (NGV) programme is the most aggressive. CNG costs 40 centavos (US\$0.14) per litre compared with 2 pesos (US\$0.71) for petrol. As a result of the price differential, the payback period for conversion from petrol to CNG is relatively short and each month 30,000 new vehicles are converted to run on CNG. The government actively encourages conversion and intends to increase CNG use for public transport in large cities – thus its use is expected to continue growing. This policy however contains the seeds of future political problems when, or if, the government tries to pull back on the subsidy for NGV. Once established, subsidies are difficult to withdraw, and rapidly become a very sensitive political issue; wide popular discontent would almost certainly occur in this case. Nevertheless, the government recently agreed to an increase in CNG prices.

By contrast to the transport sector, the share of the residential sector decreased from 27% to 23%. During the period 1993–2000 consumption in the domestic sector grew, but less than in the other sectors – mainly due to the already very high penetration of gas at the start of the period. During the period 2001–2003, domestic gas demand was additionally crippled by falling income and high unemployment (20.4% in 2003).

Gas sector reforms carried out in Argentina throughout the 1990s helped attract private foreign companies in the domestic market to develop the gas sector and transformed the country into a well-developed and fully privatised gas market. However, a serious gas

crisis developed in 2004. To understand how a country which is a net exporter of gas, with huge proven gas reserves, substantial exploration potential and a privatised gas industry is facing gas shortages, it is necessary to look back to the reforms of the 1990s.

3. ECONOMIC REFORMS OF THE 1990S: ORIGINS OF THE 2004 GAS CRISIS?

At the beginning of the twentieth century, Argentina was one of the world's ten richest countries in the world. It went downhill until the beginning of the 1990s and the free-market reforms.

3.1 The 1990s Economic Reforms

At the beginning of the 1990s, recession and hyperinflation (5000% per year) were damaging the Argentine economy. In 1989 street riots and looting had pushed President Alfonsín's government to resign in favour of the new Peronist president, Carlos Menem. In 1991, President Menem and his economy minister Domingo Cavallo opted for free-market reforms in order to reverse the decline of the Argentine economy. They promoted economic austerity measures, deregulation and privatisation of telecommunications, electricity services, water, public transportation, highways, oil and gas, etc. in order to attract new investments. Mr Menem privatised almost everything the state owned, except for two banks.

Menem and Cavallo introduced the 'convertibility law', which pegged the peso to the dollar at a one-to-one exchange rate in order to break the inflation. Under that law, prices and savings were quoted in dollars, and pesos could be freely converted to dollars at the official exchange rate. To give some credibility to the measure, the 'currency board' was set up: each peso in circulation had to be backed by a dollar at the central bank.

The pegged exchange rate did achieve its original purpose as prices stabilised within three years. It restored public confidence in the peso and improved Argentina's credibility in the international financial community. From 1992 investment capital started to flow again from abroad. The Argentine economy grew at 6% per year between 1990 and 1998. Thanks to effective response from the government, the country even emerged without too much damage from the Tequila crisis⁶ that hurt Mexico in the mid-1990s. Thus the 1990s

⁶ Financial crisis that hit Mexico in 1994-5, leading to the devaluation of the Mexican peso.

was a decade when the nation was considered to be one of the most stable countries in Latin America, economically and politically.

3.1.1 The Argentine Government's Errors

What went wrong? Two main factors explain why the 1990s reforms were not successful. First, the government failed to tackle the country's fiscal problems, which were incompatible with the currency board. The fiscal deficits, though never large, were chronic. With the Argentine growing economy, investors saw no problem to go on lending money to the government, which printed bonds to finance the deficit. The public-sector debt rapidly increased from 33% of GDP in the early 1990s to 41% in 1998, at the beginning of the recession. In 2001, the debt had risen to 130% of GDP! Weak fiscal policy led to substantial deficits in the budgets of the central and provincial governments, both of which were borrowing external money to finance their deficits. The reform of the pension system involving a switch from state pensions to individual private accounts produced an extra annual bill equal to 1.5% of GDP as the government continue to pay the pensions during the transition period but no longer receives contributions. Too little economic growth, inefficient spending and too much borrowing, especially by the Menem government in its second term, increased the public debt. In 1998, the ability of the country to repay its debt was first questioned, when the country risk index began to rise.

The second factor was the overvaluation of the exchange rate pegging 1 peso to 1 dollar. This rate was fixed at too high a level with the result that the strong dollar caused low exports and high imports. This imbalance made it difficult to raise dollars to pay the interest on the debt, much of it serviced in foreign currency. On the contrary, Argentina borrowed money to meet the interest, thereby worsening the debt. The overvaluation of the exchange also made Argentine industry uncompetitive on the international market, resulting in widespread factory closures and rising unemployment. The devaluation of Brazilian currency in 1999, Argentina main trade partner, complicated even more the situation. It became clear that devaluation was becoming necessary in order to avoid continuing deficits. Many foreign investors in Argentina decided to convert their revenues in pesos into US dollars, allowing them to transfer the dollars out of the country. After loosening the rules on the mandatory reserves, the government also ended up using the reserves of the banking system to finance its deficits. This led to a huge loss of dollar reserves at the Argentine central bank, increasing the urgency for devaluation.

Fiscal deficits and firm exchange made an explosive cocktail from the start. So why did Argentina not abolish the convertibility law once inflation was stabilised? This is a difficult question to answer. Officials were concerned that abandoning the pegging system would send the country back to high rates of inflation and all of the accompanying economic problems of the 1970s and 1980s. On a smaller scale, problems in the financial system (dollarised), the public debt (dollarised) and the services contracts (dollarised) would have existed anyway. The 1994 Tequila crisis affected the Argentine economy, but without convertibility, the impact could have been greater. However, an earlier exit to a more flexible exchange rate would have allowed the peso to float down to a more competitive level. Argentine products would have regained competitiveness, improving the trade balance and raising money to meet the interest on its foreign debt. The currency board was required at the start but should have been loosened progressively during the 1990s as the economy recovered. This would have curbed central and provincial governments' over-borrowing and allowed market forces to correct the deficit.

3.1.2 The International Monetary Fund's (non) Intervention

Throughout the 1990s, Argentina was engaged in several IMF programs through five successive financial arrangements, and was widely considered a model of successful economic reforms in the developing world. However, the economic and regulatory reforms failed to tackle many of the country's problems, the most important being its weak fiscal policy. The IMF stood by while Argentina was missing all its fiscal targets. The IMF was too tolerant for too long.

The internal report⁷ on the IMF's engagement in Argentina from 1991 to 2001 criticises the government and the Fund equally. It states that Argentina's 2002 devaluation and default, 'resulted from the failure of Argentine policymakers to take necessary corrective measures sufficiently early'. But it also criticises the IMF for failing to notice the growing problems of the country's economy, and for 'supporting Argentina's weak policies too long' in the late 1990s, after it had become obvious 'that the political ability to deliver the necessary fiscal discipline and structural reforms was lacking'.

By 2000, despite alarm about exchange rate and debt sustainability, the IMF prolonged its support for Argentina's efforts to preserve the exchange rate regime, and increased its financial contribution to US\$22 billion. The thinking was that Argentina's problems could be solved with adequate fiscal and structural reforms and perhaps this would have been correct if the reforms had materialised. However, the authorities were unable to

⁷ Report on the disaster issued by the IMF's independent evaluation office on 29 July 2004. <http://www.imf.org/External/NP/ieo/2004/arg/eng/index.htm>

implement the policies, and the Fund failed to push the government when it became clear, by early-mid 2001, that the initial strategy was disastrous and that the exchange rate and public debt were not sustainable. The funds used to support the currency board would have been better used 'to mitigate at least some of the inevitable costs of exit'. In December 2001 the Fund finally cut off its financial support to Argentina, but an earlier halt would have been less detrimental to the country's economy.

However, sharing responsibility for the 2001–2002 disaster was important for Argentina, which is still negotiating with the Fund over its last loan to the country made in September 2003. The third review of the loan has been delayed again by slow progress on structural reform, and little progress in Argentina's negotiations with its creditors.

Interestingly, the report criticises both the government and the IMF, but never mentions the corruption problem that accompanied the privatisation of many Argentine state-owned enterprises in the 1990s. The interests of the European and American companies are never cited, although they are the ones who bought the public companies (and not always in clear circumstances). International financial institutions, bankers and private companies are asking the government for a clear long-term plan for the energy sector, but no one mentions the huge problem of corruption that cripples transparent business in the country. The NGO Transparency International has renewed its classification of Argentina as one of the most corrupt countries in the world.

Macroeconomic and energy issues interact. Argentina's economic and financial crisis had a major impact on its energy sector. Investments in gas projects are very sensitive to economic and financial stability, involving huge expenses and a long period of recovery. An economic crisis cannot fail to impact the gas sector.

3.2 The 2001–2002 Financial Crisis

In the 1990s, Argentina was affected by several external crises – the 1994 Mexican Tequila crisis, the 1998 Russian crisis, the Asian downturn and the weak Brazilian currency at the end of the 1990s – which reduced investor confidence in emerging economies. Consequently, Argentina entered into a prolonged recession in September 1998. In December 1999 Fernando de la Rúa became president, and introduced severe austerity measures. However, by 2001, recession was still affecting the country. The IMF gave Argentina temporary relief of US\$22 billion in emergency aid, but in December it refused to release another US\$1.3 billion loan and Argentina's economic difficulties

reached a peak when it defaulted on its US\$140 billion foreign debt to private creditors,⁸ the largest such default in history.

At the end of 2001 and after three years of recession and no prospects of growth, Argentines took to the streets to protest against the austerity measures and the economic situation of their country. These protests forced de la Rúa to resign on 20 December. Three stand-in presidents came and went in a week. A fourth, Eduardo Duhalde (Peronist party) was sworn in as President on 1 January 2002. Within days, the new government adopted the *Public Emergency Law*. It suspended payments on external debts, froze bank deposits, restricted foreign exchange transactions, abandoned the currency board pegging the Argentine peso to the US dollar and devalued the domestic currency. Duhalde decreed that dollar deposits and loans be converted to pesos at different exchange rates, creating an asymmetrical pesification.⁹ In many cases, the chain of payments between supplier and consumers was broken. He also switched the utility tariffs to pesos and froze them. After a short attempt to sustain the new parity, the peso was allowed to free float in February 2002. By the end of the year, the US dollar was worth 3.5 Argentine pesos. The banking system developed under the Menem administration collapsed.

However, in mid-2002 the economy finally stabilised, and by 2003 economic growth was back with an 8.7%/y increase of GDP and inflation kept under control at around 4%. In May 2003, Nestor Kirchner was elected president. In provincial elections for governors and federal congressmen in the second half of 2003, the Peronists won substantially. They hold comfortable majorities in both houses of Congress and 14 of 24 provincial governorships (another is held by a personal ally of the president).

3.2.1 The Public Emergency Law: impacts on the energy sector

The Public Emergency Law ordered the entire pesification of the economy. Firstly, all US dollar deposits in Argentine banks were converted into pesos. Secondly, restrictions on bank account withdrawals and transfers of money abroad were set up, keeping foreign investors' deposits in the Argentine banks. Thirdly, a part of the private deposits was mandatorily changed into long-term government bonds to be repaid in 5–8 years time. The effect of all these measures was that the Argentine banking sector collapsed and is still in a state of near bankruptcy. The lack of credit available in the banking system increased and, in addition, devaluation augmented the costs of energy projects that required imported equipment.

⁸ Argentina defaulted on its debt to private creditors, but continued its payments to official lenders, like the IMF.

⁹ Asymmetrical pesification: the government forced banks to convert their dollar-denominated accounts and debts to pesos, deposits to be converted at 1 US\$ = 1.4 peso exchange rate, but credits were converted at 1 US\$ = 1 peso rate.

Prior to January 2002, all gas supply contracts between gas producers and utilities, power stations and large industrial consumers were denominated in US dollars. The average domestic price of gas at the wellhead for industry was around US\$1.15 per million British thermal unit (MBtu) (see Table 3). After pesification, the value of gas fell overnight. One day a company received US\$1.15/MBtu for its gas, but the next day it received only US\$0.4/MBtu (at 1 dollar for 3.5 pesos). Who would continue to invest in this climate? The peso devaluation caused a serious financial crisis in the Argentine gas industry.

Table 3: Natural gas wholesale prices, in US dollar per MBtu

	2001	2002
Residential	1.88	0.66
Industry	1.15	0.40

Source: International Energy Agency

The regulated downstream segment of the industry went through a similar situation. Before the 2001–2002 crisis, gas transmission and distribution tariffs were fixed in US dollars, but applied in pesos, using the 1:1 rate of exchange. Simultaneous with the devaluation and the abandonment of the convertibility plan, the government imposed a freeze on utility tariffs at their peso-denominated value. The gas companies were required to continue applying the same rates in pesos. However, the dollar value of these rates had dropped to less than one-third. The average residential price was around US\$0.21/cm before the devaluation, already one of the cheapest in the world. After January 2002, the residential price for gas became incredibly low. The freeze meant that the gas companies were unable to pass the cost of devaluation onto their clients, leading to further revenue losses. On the other hand, the same law that imposed the pesification of the economy also froze all salaries and pensions. Consumers of residential gas or electricity were unable to resist gas or electricity price increases, and this was the main argument of the consumer defence institutions to oppose any tariff¹⁰ increases.

3.2.2 Impacts on the Upstream Gas Sector

Most of the private producers of natural gas in Argentina do not rely exclusively on the domestic gas market. Firstly, they usually also produce oil and in this case the price could not be pesified.¹¹ Secondly, most of them export gas to neighbouring Chile, Uruguay or Brazil, and the price of gas exports was not subjected to tariff freeze. Even so,

¹⁰ The tariffs paid by the final consumers comprise three segments: the price of gas at the wellhead (liberalised in 1994), the transport tariff and the distribution tariff (both regulated).

¹¹ But this led to the perverse situation where the demand for pesified CNG for vehicles increased dramatically, thus increasing the gas demand.

exploration for gas was stopped and large ongoing gas development projects were curtailed.

No access to external financing, low prices at the wellhead and a freeze on tariffs for transmission and distribution companies led to naturally low investments in exploration and production (E&P) and in the transmission network. With a 65% drop in gas prices between 2001 and 2002, private companies argued that new exploration and drilling activities were uneconomic. But it is difficult to define the level at which investments would have been economic. One example will suffice to illustrate the problem: the Carina field offshore Tierra Del Fuego was discovered in 1981/2 but never developed. Eventually, a development plan was approved in 2001 but in 2002, after the crisis, Total postponed the US\$400-million project, a decision easily understandable.

Major large-scale investments were stopped after January 2002 – before then the process of investment had already slowed down because of the very delicate situation in the country – with the exception of Repsol YPF’s gas drilling in the Neuquén Basin.¹² Exploration activities were drastically reduced: in 2002, no wells were drilled,¹³ and in 2003, only one. Various factors contributed to the lack of drilling – political risk and economics for the international companies, stagnation and lack of funds for the local companies, compounded by the easy availability of reserves and production from Bolivia. The number of exploration wells fell from 120 in 1999 to only 17 in 2003.¹⁴ Gas production in 2001 and 2002 therefore led to the accelerated depletion of existing fields (see Table 4). This accounts for the fall in the R/P ratio during the period 2001–2003. Another explanation is that some proven reserves may have been reclassified as probable, for the 2002 devaluation made them impossible to recover at new low gas prices.

Table 4: Proven natural gas reserves in Argentina (2000–2004)

	2000	2001	2002	2003	2004
Bcm	729	778	764	664	616

Source: Cedigaz

¹² Repsol-YPF was the only exception and was able to raise its rates for large industrial consumers in October 2003. Repsol – with Total – supplies most of the industrial consumers directly, and therefore can impose a price increase. Repsol attributed the increase to the reaching of pricing-agreement agreements with industrial export customers, and the appreciation of the peso against the dollar.

¹³ When any gas fields are developed the operator drills a number of production wells sufficient to meet the daily production volume. Over time, ongoing production causes the pressure within the producing reservoirs to fall and as a result individual well and field productivity declines. At this stage, there are two options: either to drill infill wells on the fields that are in production to keep them on plateau or for the longer term to drill exploration wells to discover new reserves. In a normal economic environment both of these would take place – however in Argentina the meltdown resulted in neither of these options being taken.

¹⁴ Petrotecnia (February 2004), *La Situación de la Exploración en la Argentina*, Instituto Argentino del Petróleo y del Gas.

3.2.3 Impacts on the Downstream Gas Sector

The effects on the regulated segment of the gas chain were entirely different. The downstream companies ended up with debts on the international market in US dollars and revenues in devalued pesos, which barely covered their current expenses, and could in no way allow them to meet their foreign debt obligations. High financial losses and debt accumulations were aggravated by a stabilisation of demand in 2001 after years of growth and increased unpaid bills due to the economic crisis. In 2002, with no sign of government willingness to increase the tariffs in the near future, the majority of gas transmission and distribution companies stopped all new investment in the network expansion, reduced personnel, declared unilateral default on foreign loans, and conformed only to minimal safety requirements and quality of service standards obligations. Several companies announced heavy losses or defaults on debt in 2002, and many have submitted claims to international arbitrators blaming the government and asking for billions of dollars in damages.

Fortunately, the healthy situation of the gas industry during the 1990s with excess capacity along the entire gas chain and a range of security measures prevented shortages or failures for a while, at least until March 2004. New investments are needed, but with current tariffs in transmission there is no hope of new infrastructure in Argentina. Either the tariff structure must be revised or the government will have to invest. In 2003, no significant new gas transmission capacity was added, owing to the lack of progress in negotiations for gas and power transportation and distribution tariff adjustments, which started in March 2002. In October 2003, the Lower House of Congress finally gave the government the power to negotiate new contracts and pricing structures with natural gas utilities. The private operators of public services have been complaining about violation of contracts and lack of political predictability since January 2002. Establishing clear and predictable rules for them is one of the IMF's requests. After missing its first deadline (June 2004), the government has until 31 December 2004 to finalise these agreements.

3.2.4 Artificially Low Gas Prices: wrong market signals

Economic growth and low gas prices boosted gas demand, especially in industry and power sectors and for CNG for vehicles. Argentina's total gas demand grew 10% in 2003 (see Table 5). The growth rate increased even further at the beginning of 2004. The price differential of gas affected any consuming sector with fuel-switching capability. For instance, the industry sector demand increased by 14% for the first quarter of 2004. Predicting that there would be cuts during the winter months, industrial consumers

increased their activity during the first months of the year, contributing to an earlier than expected overload of the overall system.

Table 5: Increase in total natural gas demand in Argentina

Period	Growth
2000–2001	-8%
2001–2002	-3%
2002–2003	+10%
Q1 2003–Q1 2004	+19%

Source: Enargas

This growth in demand was followed by a rise in exports to Chile, which had been planned in the original contracts and was apparently not a result of the crisis. However, it did exacerbate the problem, adding even more pressure on gas supply. Argentina and Chile experienced substantial demand increases in 2003, and sustained economic growth may imply a further rise in gas demand.

The economic reforms of the 1990s and their inability to tackle the country’s fiscal problems created the financial crisis of 2001–2002. The Emergency Measures adopted by the Duhalde government, such as the devaluation of the peso and the freeze on energy utility tariffs, created the conditions for the energy crisis which blew up in 2004. Contributory factors added some spice to it.

3.3 Contributory Factors to the 2004 Crisis

Although gas shortages – and power cuts – were predictable, they took place well before the peak winter demand season.

3.3.1 High Seasonality of Demand

Argentina and Chile have a high seasonality of residential gas demand due to the heating load during the winter months (June–August). In Argentina, the residential sector accounted for 22% of annual gas demand in 2003, but that figure ranges from 11% in January to 36% in July. The volume of gas consumed by the residential sector increases fivefold between January and July (see Table 6).

Table 6: Natural gas deliveries to the three main consuming sectors in January and July 2003

Month	Residential		Industry		Power		Total	
	mcm	%	mcm	%	mcm	%	mcm	%
January	216.5	11,3	801.5	41,8	616.6	32,1	1,919	100
July	1,148.2	36,4	851.8	27	662.1	21	3,150.8	100

Source: Enargas

The high seasonality of residential demand, associated with a lack of storage capacity¹⁵ and a lack of liquidity,¹⁶ means that large industrial and power generators with interruptible gas contracts must switch to oil and coal, reserving gas supplies for firm users during winter months. Interruptible gas supply is a classical way of providing production flexibility. Companies face 25 days of gas shortages during most years, but were expecting a worse scenario for winter 2004. However, Argentina experienced a less severe winter than had been expected and short-term measures such as gas imports from Bolivia averted a chronic energy crisis during June–August 2004.

3.3.2 Dry Year

Gas demand from thermal generation units increased by 12.2% between April 2003 and April 2004. This can be explained in part, but not entirely, by the low electricity prices¹⁷ that boosted the demand.

By using hydroelectric generation, which has greater availability during the winter months, it is normally possible to mitigate the seasonality of demand for power. Depending on the amount of water available, hydro can generate 30–50% of total Argentine electricity output.¹⁸ However, a prolonged drought (particularly in the north) in the second half of 2003 created low water reserves (only 28% of the reserves in the first half of 2004 compared to the same period in 2003), which made it impossible for hydropower to compensate gas shortages in thermal generation in the winter months. Worse, this fall in capacity from hydroelectric power generators engendered higher-than-average thermal generation and therefore higher gas demand.

¹⁵ There are virtually no suitable structures and/or geological conditions in Argentina for storage.

¹⁶ Spot transactions represent a small share of the gas delivered. The gas market is still based essentially on long-term contracts, which is probably due to the lack of real players in the upstream sector where market positions are concentrated in a few companies.

¹⁷ The low gas prices resulted in low electricity prices in the wholesale market, as the price of the wholesale electricity market is calculated considering the marginal cost of gas-based thermal generation.

¹⁸ Hydro accounts for 39% of Argentina's total generation capacity and thermal for 55%.

The origins of the 2004 energy crisis are multiple; however, its roots can be traced back to the government's reaction to the economic crisis and the devaluation in 2001–2002, which were the result of bad management of the 1990s economic reforms. The 2004 gas crisis is a consequence of the failure of economic policy, rather than an energy shortage per se. Although the Argentine economy is starting to grow again, foreign investors still fear political and economic uncertainty. Kirchner's measures of greater state intervention in the energy sector are adding to the country risk as far as foreign investors are concerned. The measures taken by the Kirchner administration are analysed in the next section.

4. THE UNFOLDING OF THE 2004 EVENTS AND THE GOVERNMENT'S RESPONSE: BACK TO STATE INTERVENTION

Everyone understood the social problems caused by the 2001–2002 crisis, but a return to a market-driven economy by the end of 2002 – when the Argentine economy was already recovering – would probably have been a better solution than the stand-by approach adopted by the government. The gas market finally collapsed in early 2004 when the spare capacity in the upstream and downstream could no longer face the increase in demand.

4.1 The Beginning of the 2004 Events

In 2003, natural gas production increased sufficiently to meet higher demand. However, while production continued to increase in 2004 it was not fast enough to meet the increasing gas demand.

Argentina's 2004 energy crisis started in March when five million cubic metres per day (mcm/d) of gas supply deficit led to power cut supplies of up to 20% to thirty large industrial consumers as gas-fired generators were unable to sustain the growing demand. Resolution 265 was adopted, defining the 'firm' Argentine demand¹⁹ that must be satisfied before gas can be exported. By the end of the month, the voltage running through the national grid was lowered by 5% (from 220 volts to 208 volts) to avoid power cuts to residential users. This measure only lasted one day thanks to emergency power imports from Brazil.

¹⁹ Firm demand includes virtually all domestic consumption – including power generators – except interruptible industrial contracts.

At the beginning of April, complying with the most important requirement of the gas producers, the government agreed to let wellhead gas prices increase progressively, with different 'paths' for industrial and residential consumers. For the industrial sector, it was agreed that increases would begin in May 2004 with a 35% adjustment, and would be followed by three others until July 2005. The prices for the residential sector would increase more slowly, until December 2006. In exchange, gas producers agreed to guarantee gas supply to small consumers and the residential sector until 2006. By 7 April, the worsening of the shortages forced the government to publish a gas-rationing plan and drastically to reduce its gas exports to ensure domestic supply.

In May, Argentina was facing a gas deficit, which peaked at 27.3 mcm/d on 19 May.²⁰ At the end of the month, a resolution specified that companies would have to accept supply cuts, even for the gas bought under non-interruptible contracts, in order to secure residential customers' supply during the winter months. However, gas consumption had apparently been slowing down – compared to the 2003 level – in April and May: it grew at double-digit monthly rates between January and March 2004, slowed to 8.3% in April, and further to 4% in May. Electricity consumption still rose by 10% in May 2004.

In June, average gas shortages were 25 mcm/d. Fuel substitution was being used wherever possible, relieving the impact on the power sector. Agreements with neighbouring countries to import fuel, power and gas entered into effect. Nevertheless, the gas network was functioning at full capacity, with no ability to cope with additional demand.

Long-term energy planning was not addressed by the Argentine government for a period of at least two years, as the 2001 economic and financial crisis created other priorities. This inertia had long been criticised by the industry. But with the country facing its worst energy crisis in 15 years, which may have cost 2.098 billion pesos (US\$717 million) in extra spending not anticipated in the national budget and threatening to slow down Argentina's economic recovery, the government was forced to design a plan addressing gas shortages and energy generation problems. After a decade of privatisation and liberalisation, we see Argentina going back to state intervention and ownership in the energy sector.

²⁰ Source: Enargas

4.2 Government Measures: toward greater state intervention

The Argentine government has been quite explicit that internal security of supply is its main objective. In February 2004, the government enacted decrees 180 and 181. Decree 180 first created an investment trust fund, in an attempt to boost investments in the gas infrastructure, and secondly a new electronic market for the gas sector. Decree 181 established the basis for price realignment until the end of 2006.

Resolution 265 was adopted in March 2004 when the gas shortages first began. It authorises cuts in gas export volumes above 2003 levels and for interruptible export contracts in order to ensure domestic supply. The resolution also dictates the allocation of the nation's pipeline capacity for domestic consumption. It defines the 'firm' Argentine demand that must be satisfied before gas can be exported. Firm demand includes virtually all domestic consumption – including power generators – except interruptible industrial contracts. This wide definition made it clear that curtailments in gas exports were inevitable.

In order to overcome the supply crisis, the government adopted several measures to increase supply and contain demand growth. Measures are targeting both the short and the long term in the gas and electricity sectors. They have been regrouped in the *National Energy Plan for 2004–08*²¹ (NEP) released on 11 May by the Kirchner government. It aims at averting a prolonged energy crisis and recurring shortages in the winters of 2005 and 2006.

The NEP is an investment program worth 11.150 million pesos (US\$3.85 billion), in natural gas transportation, power transmission, and power generation. In 2005, the government expects to add up to 8.8 mcm/d of transport capacity by expanding the two main pipeline systems and building a new pipeline in Patagonia. In 2006 and 2007, new pipelines are expected to add 46 mcm/d of transport capacity. An improved energy mix via the introduction of hydro and nuclear generation projects should help to compensate for gas shortages in the power sector. Emergency short-term supply measures include imports from neighbouring countries and a gas-use rationing plan (similar to the electricity rationing program implemented in Brazil to face the 2001 electricity shortage). The measures are detailed below.

²¹ Plan available on Energy Secretariat website: <http://energia.mecon.gov.ar>

Measures already being implemented:

- Regional support²² to compensate for internal shortages via agreements with other Latin American countries: imports of fuel oil from Venezuela (May–October 2004), interruptible power from Brazil (June–November 2004), and gas from Bolivia (up to 4 mcm/d, for an initial six-month period, starting in June 2004). These measures should increase gas availability by 10 mcm/d.
- Re-affirmation of the Hydrocarbon Law (Law 17.319) and Gas Law (24.076) that authorise exports provided that the domestic supply is secured. A reduction in gas exports to Chile and a temporary suspension of power exports to Uruguay were decided at the beginning of the crisis, following Resolution 265.
- Following presidential *Decrees 180/04* and *181/04* of February 2004, realignment of wellhead gas prices by July 2005 for large users (80% of the demand: industrial consumers, power generators and GNC) and by December 2006 for the others to restore the price to a level equivalent to the price in dollars that prevailed before the peso devaluation in January 2002. These measures are detailed in section 4.3.
- Renegotiation of licences for gas and electricity transportation and distribution companies before December 2004.
- Implementation of a rationing programme for electricity (starting in May 2004) and gas consumption, including reward-and-punishment measures, to curtail internal demand.
- Several large-scale power-infrastructure projects, to be completed between June 2004 and the first quarter of 2005.
- Confirmation of the creation of an Electronic Exchange (MEG) on which all spot gas and transportation capacity should be marketed in order to permit the development of the spot and secondary gas markets in Argentina. The spot gas market was scheduled to start in September 2004. However, as the companies do not produce more gas than that already contracted, it is not clear when the spot will enter in operation.
- Confirmation of the creation of a trust fund to finance investments in the expansion of the country's natural gas transportation infrastructure.
- Introduction of a new tax (20%) on gas exports to help guarantee supplies for the internal market.

Measures to be implemented:

- Gas will play a prominent role in the Five-Year Investment Programme. About 50% of the US\$3.85 billion will be allocated to new pipelines.

²² The regional impacts of the Argentine crisis are analysed in the Appendix 'A set-back to regional energy integration?'

- Patagonia pipeline with a capacity of 1 mcm/d in 2005
- Gasoducto Nordeste with a capacity of 20 mcm/d (up to 30 mcm/d) by May 2006
- San Martin II pipeline with a capacity of 16 mcm/d by 2006–7
- Increased power supply diversity through hydropower (increasing the water level of the bi-national Yacyreta dam by 2008 and others not yet chosen) and nuclear power generation (the Atucha II project could enter in operation in four and a half years).
- Increased power transportation infrastructure to be completed within three years from the start of the project.
- Creation of a new state-owned energy company called ‘Enarsa’. The company will invest in the energy sector in partnership with private companies, and help to increase oil and gas reserves, gas supply capacity and gas and electricity transmission and distribution infrastructure. The project Enarsa is detailed in section

The greatest challenge raised by the NEP is how to secure the financing of all the projects. It is planned that the capital will come partly from the public and partly from the private sector via the imposition of tax increases on oil and gas products. However, US\$3.85 billion is a huge amount of money for a country which is in default on its external debt, with a banking system almost bankrupt and foreign companies looking watchfully at the growing role of the state in the energy sector. The US\$3.85 billion budget does not include the necessary funds to create the state company Enarsa. The projects included in the NEP could turn out to be a positive response to the gas and power sector problems in Argentina. However, how and when the projects will be implemented remains unclear for the time being.

Apart from the NEP, the government took additional measures to alleviate the impacts of the gas shortages. Some 1.3 million vehicles are running on CNG in Argentina, and low gas prices mean that 30,000 more vehicles are converted every month as the payback of the investment in the car conversion is only a question of months. The Kirchner administration increased the prices of CNG by 7 per cent. However, even after this increase, CNG is still 70% less expensive than gasoline. The government also created a 3 billion peso (US\$1 billion) trust fund for the natural gas industry. Companies participating all along the gas chain will contribute to the fund, which is intended to facilitate targeted investments for expanding distribution and transportation capacity. The government will not provide any funding.

With growing state intervention and constant changes in regulation, it is improbable that the government’s measures will receive widespread support from the private sector. One change however did please them: the long-demanded increase in gas prices.

4.3 Much Needed Gas Price Increases

Two years after the enactment of the Emergency Law, further tensions in the relationship between the government and the energy companies have arisen since March. On the one hand, the government blames the industry for failing to make sufficient investments in new capacity; and on the other hand, the gas producers and distributors complain that excessive taxation and the freeze on tariffs reduced their return on investment and so rendered investments uneconomic.

However, with Argentina facing a 25 mcm/d gas deficit in June 2004 and the R/P ratio continuously declining, it was time to act. The agreement concluded at the beginning of April 2004 between the government and the gas producers guaranteed supplies to small consumers and the residential sector until 2006 in return for a realignment of prices. This accord could help restart the dialogue between the private sector and the government. The gas producers committed themselves to produce 121 mcm/d, and even if this does sound rather too optimistic, it may be necessary to meet demand (for the purposes of comparison, July 2003 average domestic gas consumption was 101 mcm/d). In exchange, the average wellhead price for industry, power plants and vehicular gas users (80% of the Argentine gas consumption in March 2004) will increase in four stages from the current US\$0.40/MBtu to US\$1/MBtu by July 2005 to allow progressive wellhead gas price realignment. Wellhead prices charged to households, shops and offices are scheduled to reach US\$1/MBtu by December 2006, taking care of the social impacts this measure might have. At present, following the rationing measures, these consumers (who are not eligible to change their supplier) only incur increases in their gas tariffs if they increase their consumption in comparison with 2003 levels. In order to decide on the price increase, the Secretary of Energy conducted research which took into account the economic impact on the customers and on the upstream companies to boost investments in the gas sector. The current increase should be sufficient to explore for new reserves, at least in the productive basins. Additional study on exploration costs in Argentina and prices in different regional markets will be needed as reserves in non traditional acreage will need to be developed in the short to medium term. And the non productive basins are situated in high risks and high costs areas. All concession contracts for gas transport and distribution will be renegotiated according to new tariff levels.

Tariffs are a sensitive issue, and any increase generally raises wide popular discontent. Between 2002 and 2004, the Argentine administration made three attempts to introduce small tariff increases in the downstream gas market. Each time, consumers' defence associations went to Court and obtained legal resolutions that blocked the moves. According to the Economic Emergency Law, tariff increases can only be granted after the licence contracts have been re-negotiated. Again on 6 May 2004, reacting against

Kirchner's agreement to increase the regulated tariffs, consumer protests resulted in a mandatory public hearing on gas increases. This time, the hearing was declared sufficient and the process will continue. However, consumer groups launched two legal claims on the same day, demanding an investigation into the role of the private companies in the gas shortages. This will probably not have a great impact, but it illustrates the difficulty in changing the distorted system created by the Emergency Law.

After the currency stabilisation in 2003, the economic rationale for the freeze on gas prices disappeared. International experience shows that pricing decisions along the gas chain are best left to market players. Competitive prices are key to the successful development of gas markets. The increase in gas production during the period April–June 2004 by both Pioneer and Repsol-YPF reflected increased demand as well as more favourable gas prices. However, both companies noted that new taxes imposed by the government in May 2004 could have a negative impact on their operations in the country. Indeed, on 27 May, a decree imposing a 20% tax on natural gas exports (from 0% before) was adopted. This tax should raise an additional US\$60 million a year to be reinvested in the natural gas sector, and should also make the internal market more attractive than exports.

4.4 Enarsa: a new YPF?

In order to help achieve the goals announced in the NEP, and following the same intervention trends, the government proclaimed the creation of a new state-owned energy company: Energia Argentina (Enarsa). It is intended that the company will play an important role in implementing the projects announced in the NEP and in helping to fill investment gaps left by private companies. The mission of the company is to be involved in oil and gas E&P activities, but also to take part in marketing, power generation, and transport infrastructure. Its role is seen as more strategic than commercial, helping prevent possible abuses of dominant position and the formation of monopolies or oligopolies. However, it is unclear how the company will achieve an influential position in the market.

Enarsa's largest asset are the exploration permits and production concession rights to 1 million km² offshore areas not currently under licence, and is expected to play a key role in offshore gas exploration through alliances with other companies. Both Petrobras, the Brazilian state oil company, and PdVSA, the Venezuelan state oil company, have expressed an interest in participating in joint ventures (JVs) with Enarsa to engage in offshore exploration. In addition, Enarsa will be looking to forge alliances with state-

owned counterparts YPF in Bolivia and ENAP in Chile. Although to date private energy companies operating in Argentina have not expressed any interest in joining Enarsa, the company says it has received offers from investors in China, Canada, Russia and Brazil. The government hopes that Enarsa will stimulate the market by introducing a new player – hopefully leading to an increased energy supply – and enable the country to recover a share in the profits generated by the gas sector.

Ownership of Enarsa will be 53% by the state, 12% by the oil- and gas-producing provinces (shares that they can sell if they wish), and 35% by private investors. The federal government will hold five of the seven board seats, and provincial authorities the remaining two (there will be no representatives of private-sector shareholders on the new company's board of directors). Exequiel Espinosa, who has long experience in both public and private energy sectors, has been nominated president. The bill to create Enarsa was approved by the senate on 20 October 2004, and President Nestor Kirchner signed the law creating the company on 2 November 2004.

However, with no assets in its portfolio and a lack of financial capital, doubts remain over how effective a role it can play in the sector and whether it will have the capacity to raise the necessary financing to invest in new oil and gas exploration ventures. The initial operating capital of US\$68 million is well below what is needed to develop the NEP proposals. The main financial resources intended to support this new entity are additional revenues to be obtained from higher export taxes – from 20 to 25% for crude; from 0 to 5% for diesel and gasoline; from 5 to 20% for butane, propane and LPG. The money raised by the extra tax could reach US\$1.15 billion (nearly one-third of the financing of the NEP) over the next five years. Remaining investment is projected to come from: private investors from the sale of 35% of Enarsa's share capital; international organisations like the Inter-American Development Bank (IDB); and from the users via higher utility rates. But Argentina still has virtually zero access to international private credit since its default on its external debt and this will not change until it reaches some kind of agreement with private creditors – that is, the holders of defaulted bonds. Consequently, Enarsa will not become a new YPF, at least for the foreseeable future. Moreover, unlike YPF before 1992, the company will not be a 100% state-owned company, but rather a mixed enterprise with the state holding 53% of the shares and the private sector at least 35% (and possibly up to 47%). The industry response to increased state interference in the energy sector has been unenthusiastic and the creation of Enarsa has not been well received by the private sector, which questions the justification for such an entity and sees it as a backwards move. It is hard to understand how the creation of a state-owned national champion would help the situation. The government should be concentrating on providing the right framework to attract foreign direct investment (FDI) in this vital sector.

Gas shortages in July and August (the winter months in Argentina) were less significant than predicted thanks to the emergency measures adopted by the government. Industrial gas and power customers with interruptible contracts experienced service cuts, but they were less than feared at the beginning of the winter. Gas shortages did not result in widespread power cuts for non interruptible customers and the economic recovery of the country has apparently not been crippled by the gas crisis. In mid-September, the government suspended the rationing program until 30 April 2005.²³ Exports cuts to Chile were also reduced. Gas supply and demand for internal consumption seems to have been taken care of for 2004.

5. ARGENTINA: AN ATTRACTIVE GAS MARKET?

Thanks to the emergency measures adopted by the government and a relatively warm winter, a serious energy crisis was averted in 2004. However, there are still significant problems affecting the sector which must be tackled by the government. Huge investments will be necessary in the coming years to avoid a repetition of the 2004 gas supply shortages.

5.1 New Regulatory Framework, New Investments

Exploration and production activities have been carried out in only five of the nineteen sedimentary basins known in Argentina, leaving the country with considerable acreage where potential additional gas reserves remain to be discovered. However, the unexplored areas are in difficult and costly high-risk areas. A lot will depend on Enarsa's ability to attract private investors in these non-traditional remote areas. Much higher gas prices and clear regulatory rules are a priority. The continued economic recovery since then (8.6% of GDP growth during the first eight months of 2004²⁴) will certainly help increase the private companies' interest in the Argentine market.

In fact, it seems that companies are more and more attracted by Argentina's gas market. First of all, gas producers find themselves in a more favourable environment than before the 2004 crisis. The gradual increase of the wellhead prices finally agreed by the government will encourage the companies to invest, especially if higher wellhead prices

²³ Resolution 942/2004.

²⁴ Argentina National Statistics and Census Office, INDEC.

are coupled with an expansion in the transportation capacity – as planned in the NEP. The priority is to develop new capacity for gas pipelines linking the south of the country. Petrobras agreed to invest US\$ 200 million in the expansion of the San Martin pipeline which runs from Ushuaia in the extreme south of the country, to the capital Buenos Aires. The expansion of this pipeline is one of the government's priorities for two reasons – it is already operating at full capacity, and because increased transportation capacity from the south should encourage investments in exploration and production activities in the Austral basin, which is thought to hold significant proven gas reserves that have yet to be developed. Secondly, gas production in the mature Neuquen basin – serving Greater Buenos Aires – could start to decline within the next five years, increasing the investors' interests in the domestic gas market. This predicted lack of gas reveals opportunities for producers with assets in non-traditional areas²⁵ as well as those with fields in neighbouring gas-rich Bolivia. Repsol-YPF has also pledged new investments in gas transportation, such as the US\$ 100 million it intends to invest in the expansion of the Gasoducto del Noorte pipeline.

The NEP marked a turning point in the Argentine gas industry: realignment of gas prices, new rules regarding exports, back to state intervention, and so on. There are great opportunities for the country to attract huge investments in its gas sector in the coming years, and companies are showing an interest in the future of Argentine gas. However, considering the huge investments needed and the long-time payback in the gas sector, the companies are particularly sensitive to risks, and investments will only be made when the appropriate conditions and regulations are in place.

5.2 Government Priority Issues

Argentina must first deal with its past, and address the high country risk factor that is the reason why companies refuse to make much needed investments.

- ❖ The government must find a solution to the renegotiation of its debt (see Table 7). Most creditors are still rejecting Argentina's offer which is worth only 30% of the value of the bonds they hold.

²⁵ Fields that are usually situated thousands of km from the region's main markets (offshore Tierra del Fuego for instance).

Table 7: Argentine debt (US Dollars)

Debt in default	Dec 2001	Dec 2003
Bonds:		
• Principal	61.8	81.2
• Interest	-	13.8
Others	7.9	7.3
Subtotal	69.7	102.3
Performing debt	Dec 2001	Dec 2003
IMF + other multilaterals	32.4	32.0
Guaranteed loans + bonds	42.3	22.6
Bonds compensating banks for pesification	-	17.3
Other	-	2.5
Subtotal	74.7	74.4
Total debt	144.4	176.7

Source: Ministry of Economy

Due to these inconclusive negotiations on debt reimbursement, many creditors turned to the courts. Seventy-four cases are pending before the World Bank's International Centre for Settlement of Investment Disputes (ICSID), of which thirty involve claims against the Argentine government by oil, gas and utility companies in an attempt to gain compensation for losses incurred as a result of the sharp devaluation of the peso currency in 2002 and the government's decision to freeze utility tariffs. Claims by utilities against the government are thought to total US\$16 billion, thus increasing uncertainty over the public finances for years. After three year, the negotiations with foreign creditors, who hold roughly \$100 billion worth of defaulted debt, appear to be in the final stages. The new offer in November 2004 is little changed compared to June offer, paying back around 30% of the original debt. The creditors will certainly be disappointed as the GDP growth rate is estimated at 8% for 2004. However, with half of its population living below poverty line, the government must deal with much needed welfare spending. The government postponed the launch of its offer to restructure its debt until January 17. Another conflict is under way with the IMF, which wants a higher target for the primary surplus and structural reforms, such as provincial finance.

- ❖ The country needs to rebuild its banking system. At the end of October, Argentina's Supreme Court ruled that the forced conversion of dollar-denominated deposits to devalued pesos two years ago was constitutional. This decision is a huge victory for the banks, as it put an end to any further legal claims brought by savers against banks. During the past two years, banks have endured a constant drain as thousands of angry savers turned to the legal system (often successfully) to recover the full market value of their original savings. Moreover, the freeze on bank deposits ended

in 2003 and money has flowed back, but nearly half of their operating assets are still in government paper. Only when prices return to near pre-crisis level and stability returns to the gas market will private investment recover in Argentina.

- ❖ The government needs to help restore profitability in upstream and downstream investments. Price realignment is a good first step, but so far changes have been modest (and the second increase in prices at the wellhead due to take effect from 1 October had still not been approved by Enargas on 22 October) and tariffs remain frozen for residential consumers. Gas prices do not cover some companies' costs. New large investments in the natural gas transportation and distribution infrastructure may not take place before 2006, at the end of the price realignment period. The lack of new transportation capacity is seen as a disincentive to new investment in exploration and production activities.
- ❖ The government must reach an agreement on contracts and tariffs with the privatised utilities dealing with gas transportation and distribution. The deadline for the completion of the renegotiation of all 62 contracts with public service providers is 31 December 2004. This deadline is very likely to be missed. Furthermore, the government has asked the Congress to delay a bill proposing a new regulatory framework for utilities following investors' opposition to the reforms. But after three years of delaying any renegotiations, at least there are some moves.
- ❖ Gas exports may never completely return to pre-crisis level because the government of Chile intends to diversify its gas supply, and the Argentine government may be more cautious before allowing new exports to be authorised. Coupled with persistent restrictions on gas exports to Chile, these developments may act as a disincentive for companies to invest in raising production volumes (investments are linked to the predictable demand, and this is a problem if producers can not export their potential gas surplus). The government will need to be extremely careful on this sensitive issue.
- ❖ In addition to all this, investors are asking for more legal and regulatory stability. Resolving uncertainty regarding the future rules governing the gas market would increase investors' confidence and their willingness to consider new – much needed – investments in the Argentine gas industry.

Although the government must still address the key issues detailed above, it is on the right tracks to restore Argentina's gas market attractiveness. The measures detailed in the NEP seem appropriate regarding the country's future needs in terms of gas network infrastructure. However, the government's measures have received little support from the

private sector. Increasing state intervention and the constant changes in regulation are the two most controversial issues. A clear definition of every player's role and a commitment to improved stability should help convince the companies to make new investments in the Argentine gas market.

6. CONCLUSIONS

The 1990s privatisation and wholesale liberalisation reforms in the Argentine gas sector were extremely successful. They attracted private foreign companies in the domestic market to develop the gas sector. However, first, the pegging of the Argentine peso to the US dollar led to an overvalued fixed exchange rate, which left Argentina with expensive exports and cheap imports. Hence, the huge foreign debt continued to accumulate, and when the government increased borrowing to solve its short-term financial problems the situation deteriorated further. This failure by the government to tackle the country's fiscal problems, led to a rapid increase in public-sector debt. Second, the IMF, whose strict guidelines Argentina was following, failed to take action to prevent the 2001–2002 economic, financial and political crisis – and it is hard to believe that the experts at the IMF did not understand what was about to happen. Third, external factors (the 1998 Asian crisis, a weakening currency in Brazil, a global economic slowdown) aggravated the situation. This explosive cocktail exploded in the financial crisis of 2001–2002. The Emergency Measures adopted by the Duhalde government, such as the devaluation of the peso and the freeze on energy utility tariffs, created the conditions for the energy crisis which blew up in 2004.

Thanks to the measures taken by the Kirchner government, gas shortages in the winter months in Argentina were less important than predicted. The supply of and demand for gas for internal consumption has been taken care of for 2004. Bolivian imports should secure the supplies for winter 2005 and 2006, before the measures specified in the NEP to boost exploration and production and develop the transport infrastructure have a chance to materialise, provided that the necessary financing is found in time.

Both the President and the population want a government that is more active in the energy sector and there is no reason to object to this, as long as private companies' rights are respected. Increased wellhead prices and starting a renegotiation of the private utilities contracts are an encouraging step to greater investment and gas market development. The government will also have to address other issues such as the external debt problems, the rebuilding of the banking sector, and so on, in order to persuade the companies to invest massively in the gas sector. The creation of the state company Enarsa

will have little impact in terms of resolving gas shortages in 2005-2006. Providing that the company eventually finds the necessary finances, it could increase incentives to explore offshore gas fields in the medium to long term. It will take years to fully establish the new entity, explore for gas and develop new reserves.

One of the biggest obstacles to new investments is the perceived threat of ‘regulatory risk’ by potential investors. The most important move now is to set up a long-term policy that aims to restore the market to a position where prices reflect costs and the investment framework is clear. The new role of the state should also be disclosed to the private companies, with the government giving a clear sign that foreign investments are welcome and safe in Argentina. Investments have been negligible since Argentina declared a default on its debt. Before companies commit themselves to new investments, a comprehensible legal framework will need to be established and guarantees relating to future returns on investments will be needed. The unexplored basins are situated in offshore gas fields on the continental shelf on the Argentine sea. The State will have to offer lower royalties and tax incentives to attract investments in these high risk – high costs areas. But even with these measures, it is not sure to attract foreign capital.

The companies are beginning to show renewed interest in the Argentine gas sector, as a growing deficit in gas supply in the central region of the country is expected in the medium-long term. The government therefore has a great opportunity to attract huge investments in the coming months and years, provided that it adopts reforms justifying the expense of exploring and developing the gas fields. The Kirchner government’s ability to negotiate the end of the crisis, to create a better economic and regulatory climate and to make firmer commitments on stability will determine the private sector’s willingness to re-engage wholeheartedly in the Argentine gas market. The process will take time but the government is moving in the right direction.

APPENDIX

7. ARGENTINE GAS CRISIS: A SET-BACK TO REGIONAL ENERGY INTEGRATION?

Argentina established security of gas supply to its internal market as the key priority. The country was a net gas exporter at the beginning of 2004. Total exports amounted to 5.9 bcm in 2002, 91% to Chile, 8.5% to Brazil and 0.5% to Uruguay. While the decision to reduce gas and electricity exports created relatively tense relations with Chile and Uruguay, Argentina finalised energy deals to import gas and fuel oil from Bolivia and Venezuela, and power from Brazil. This appendix details the impacts of the Argentine crisis on neighbouring countries, and briefly questions whether the new agreements, concluded in an emergency situation and on a short-term basis, foster greater energy integration of the Southern Cone, or on the contrary, whether the crisis created a set-back to regional energy integration.

7.1 Chile

Chile was the country most affected by the Argentine gas cuts. Argentina has exported natural gas to Chile since 1997. A total of seven pipelines, all constructed between 1996 and 1999, link the two countries: Tierra del Fuego (Methanex) (2 mcm/d), El Cóndor-Posesión (2 mcm/d), and Patagónico (2.8 mcm/d) in the far south; GasAndes (9 mcm/d) and Gasoducto del Pacífico (9.7 mcm/d) in the central and southern regions; and GasAtacama (8.5 mcm/d) and Norandino (7.1 mcm/d) in the north.

In 2003, exports represented 7.2 bcm, up by 28% from 2002. Chile is almost completely dependent on Argentine gas imports and 37% of its electricity generation comes from gas. Chile is the largest market for Argentine gas, representing nine-tenths of its gas exports. Argentina's exports to Chile are under dollar-denominated contracts. When prices in Argentina dropped after the January 2002 peso devaluation, gas producers who supplied the Chilean market were therefore able to offset some of their losses. In 2003, Neuquén gas price was US\$2.30 per MBtu at Santiago city gate, compared to the wellhead price for the national market, which was US\$0.70 per MBtu at the Buenos Aires city gate. The Neuquén Basin accounts for 45% of Argentina's gas exports to Chile.

Resolution 265, adopted in March 2004 at the beginning of the crisis, authorised cuts in gas export volumes above 2003 levels. Gas exports to Chile dropped by an initial 35% (see Table 8) on 24 May. By the end of the month, cuts to Chile had plummeted by 47 per cent. Almost half of the gas that should have been delivered was not supplied. In mid-

June, Argentina announced a relaxation on gas export reductions with the abolition of *Resolution 27*. The volume of gas exports restricted by the government effectively fell from 7.3 mcm/d on 15 June to 5.4 mcm/d on 17 June, to 2.4 mcm/d (-11%) by 24 June 2004. By mid-August, cuts to Chile were down to only 6 per cent. At the end of October 2004, reductions equalled only 3% of the contracted gas.

Table 8: Argentine gas exports reductions to Chile

Pipeline	31 May 2004		14 June 2004		21 June 2004		01 July 2004		24 October 2004	
	mcm	%	mcm	%	mcm	%	mcm	%	mcm	%
Gasatacama	-2.91	-81%	-1.99	-56%	- 0.97	-27%	- 0.98	-27%	- 0.10	-3%
TGN / Norandino	-1.80	-64%	-0.61	-22%	- 0.32	-12%	- 0.34	-12%	-	-0%
TGN / Gasandes	-3.57	-35%	-2.14	-22%	- 1.43	-15%	-	-0%	-	-0%
Gaspacifico	-0.99	-76%	-0.66	-49%	-	0%	-	-0%	-	0%
Magallanes (Methanex)	-1.70	-30%	-1.70	-30%	- 1.30	-23%	- 0.58	-10%	-0.39	-7%
TOTAL	-10.97	-47%	-7.10	-31%	-4.02	-17%	-1.90	-9%	- 0.50	-3%

Source: Chile's Comisión Nacional de Energía

The restrictions determined by Argentina were on a day-by-day basis, making it difficult for Chile to forecast its gas supply even in the short term, and the uncertainty hurt the market. The reduction in gas imports caused several power cuts in Chile (on 21 May, Methanex announced a 7% cut in its daily production) affecting interruptible customers. Switching to other fuels (oil and coal, though four times more expensive) caused an increase in energy costs. Metrogas, Chile's biggest distributor serving Santiago and its surroundings, launched a temporary gas spot market (June–September) allowing industrial clients who could use other fuels to sell gas quotas to companies that could not.

Chilean companies tried to adapt as much as they could to gas shortages. However, the import cuts increased the country's investment risk and it will be more difficult to attract foreign capital to the country. In its latest ten-year-work-plan, the regulator recognized the insecurity of natural gas imports from Argentina, and has recommended more energy security in the form of coal and Liquefied Natural Gas (LNG) plants. The government is therefore considering offers of LNG imports from Indonesia, which is a big change in Chile's energy policy. A project costing US\$500 million would include a port and an LNG regasification terminal in order to relieve dependence on Argentina by 2007. It is also considering the building of more coal-fired and hydropower capacity (300MW needed by 2007 to keep up with demand), but the adoption of such projects will require 3–10 years to build and cannot help in the short term. Ecuador has also promised crude oil to Chile to compensate for the gas shortage from Argentina. Chile is not considering

importing gas from neighbouring gas-rich Bolivia, though this would seem the most obvious solution. Chile and Bolivia's relations have been tense since the end of the 'Pacific War'²⁶ in 1884. This on-going dispute with Bolivia, the only other leading gas exporter in the region, means that Chile will continue to rely on Argentine gas for the coming years.

The cuts in gas exports to Chile created diplomatic tensions between the two countries; however Chile has so far decided not to pursue any claims in the international courts. An official apology from Argentine Interior Minister Anibal Fernandez for restricting exports has helped relieve the tensions. Moreover, the cross-border gas pipelines and the electricity transmission lines linking the two countries are the best guarantee of continued good relations. None the less, Argentina's reputation as a reliable supplier has been irrevocably damaged, and Chile will look further to diversify its gas imports in the future.

7.2 Uruguay

Argentina exports small volumes of gas to Uruguay (23 mcm in 2002). The gas flow was reduced, but the greatest impact was the cut in power exports, from 338MW to 23MW in April 2004. One-fifth of Uruguay's electricity consumption comes from Argentina. Uruguay's state power company threatened to take legal action against Cammesa (Argentine wholesale market administrator) for cutting power exports. At the beginning of June 2004, the Kirchner government agreed to restart power exports to Uruguay. Even though exports are lower than the pre-crisis volumes, it has still offered some relief to the Uruguayan market. Moreover, Uruguay closed an agreement with Brazil to import 70 MW until November 2004.

7.3 Bolivia

Argentina imported gas from Bolivia from between 1972 and 1999. By 2003, only Argentine Pluspetrol imported small quantities of gas from its fields in Bolivia, close to the Argentine border, for a power plant and a refinery.

On 21 April 2004, Bolivia agreed to export 4 mcm/d of gas to Argentina to help relieve the crisis. Gas flows started on 2 June for an initial six-month period, on condition that 'not even a molecule' of the Bolivian gas would be resold to Chile. The Spanish-Argentine energy group Repsol-YPF and the Brazilian state oil company Petrobras export the gas.

²⁶ Chile defeated Bolivia (and Peru), and took control of the entire Bolivian coast, leaving the country landlocked.

The deal was estimated to be worth US\$44 million²⁷ over the six-month period, of which the companies would receive US\$35 million. The price is US\$0.98MBtu for dry gas and US\$1.37MBtu for wet gas. With taxes, commissions, and transport fees, the final price for buyers is run between US\$1.20/MBtu and US\$1.60/MBtu, well above the current price in Argentina and the increase accepted by the government. Who will pay for this price difference is not yet clear.

While the gas export deal will not solve long-term gas problems, it will be mutually beneficial, helping to manage the Argentine crisis in the short term, and providing a new market for Bolivia's gas and much-needed revenues for the Bolivian government. Following its victory in the referendum²⁸ held in Bolivia in July 2004, President Carlos Mesa signed a preliminary agreement with his Argentine counterpart Néstor Kirchner at the end of July. The agreement stipulates an increase in Bolivian gas exports to Argentina from 4 mcm/d to 6.5 mcm/d by March 2005 (the maximum transportation capacity on the existing pipeline), although deliveries were still at 4 mcm/d in mid-October.

On 14 October, the two presidents signed a letter of intent that could see the volume of gas exported to Argentina increase by a further 20 mcm/d. This means that Bolivian supplies to Argentina would reach 26.5 mcm/d within six years. The agreement is subject to approval under Bolivia's new hydrocarbons law, which is still under discussion in parliament. The contract is expected to be signed following the completion of the Gasoducto del Noreste pipeline project, which will link the Bolivian border with Buenos Aires crossing the region of northeastern Argentina which is not yet supplied with gas. Techint Argentina and Spain's Repsol-YPF have expressed interest in the US\$1 billion project. The pipeline is scheduled for completion in 2006, but this is likely to be too optimistic, and 2007–2008 is a more probable starting date.

7.4 Brazil

Gas exports to Brazil began in 2000 and reached 500 mcm in 2002. Brazil supplied power to Argentina at the beginning of April, and agreed to supply emergency power if needed. Tractebel Energia would supply up to 500 MWh of electricity on an interruptible basis, between June and August 2004. The price of Brazilian power imports is believed to be above US\$16 per MWh, significantly higher than the US\$12 per MWh paid to domestic producers. However, emergency deliveries to Argentina may be cut short, should a drought trigger future power supply problems in Brazil. Argentina plans to extend a power-import contract with Brazil by a further three months until 30 November 2004.

²⁷ Source: Petroleum Review, June 2004 - <http://www.energyinst.org.uk>

²⁸ The referendum asked the population if they would accept gas exports.

7.5 Venezuela

A food-for-fuel deal was concluded between Argentina and Venezuela (swap of 5 million barrels of gasoil and 250,000 tons of fuel oil from Caracas to Argentina against food and agricultural products). But because of quality standards, the high sulphur and vanadium content of the Venezuelan fuel cannot be used in Argentine power generators. Hence, Venezuela exports its crude oil to Brazil which then exports high quality fuel to Argentina. The bilateral accord has become a triangular relation, fostering links between the South American countries in time of crisis. The US\$240 million oil-food swap contract signed in April 2004 is currently set to expire in October. But Argentina and Venezuela will extend this year's fuel-for-food accord over the coming years, in case the current natural gas and power shortages remain a problem.

7.6 Conclusions

The Argentine crisis, unlike the Brazilian crisis of 2001–2002 and the Chilean crisis of 1999–2000, has had a significant impact on neighbouring countries. The cuts in exports, imposed to save gas for the Argentine domestic market, had important repercussions. Reliable energy integration means the definition of common rules between integrated countries, so problems in a country should not cause damage in the neighbouring countries. The cuts to Chile and Uruguay damaged confidence in Argentine gas imports. Chile is looking for alternative, more costly solutions, such as LNG from Indonesia at possible US\$4.5 MBtu –three times the price of Argentine gas. Brazil, a former potential gas importer, has revised its energy policies following recent events in Argentina.

The help of neighbouring countries in times of crisis may not amount to genuine energy integration, but the paradox is that without the gas interconnections between Bolivia and Argentina, and electricity interconnections between Brazil, Uruguay and Argentina, Argentina wouldn't have solved its 2004 gas shortage. The Argentine crisis demonstrated the high level of integration among Southern Cone countries; new markets were found and new energy agreements were concluded. Bolivia and Uruguay have invited Argentina to consider the transportation of Bolivian natural gas to Uruguay through Argentina. PDVSA, Petrobras, YPFB -and probably Enarsa in the future- are considering the idea of creating Petrosur, a state-owned regional oil and gas company.

Natural gas trade is beginning to be a key driving force towards regional integration in the Southern Cone. The 2004 Argentine crisis appears to have put a temporary slowdown to it, but process is not stopped. The gravity of the crisis should introduce more

regulatory agreements between countries and further energy integration in the Southern Cone in the medium term.

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