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COMMITTEE ON NON-MEMBER COUNTRIES

Regulatory Reform in Argentina's Natural Gas Sector

(Note by the Secretariat)

Attached is a draft study of the "Regulatory Reform in Argentina's Natural Gas Sector." Member countries are invited to review this document and provide comments to the Secretariat by January 15, 1999. The study is scheduled for publication in early 1999.

**REGULATORY REFORM IN
ARGENTINA'S NATURAL GAS SECTOR**

Draft Report

1 December 1998

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EXECUTIVE SUMMARY

1. The gas sector in Argentina has recently undergone profound change as a result of regulatory and structural reforms launched by the Government at the end of the 1980s. Those reforms, which formed part of an overall programme of economic restructuring, were aimed at improving economic efficiency and increasing investment through greater reliance on market forces and the involvement of private foreign and domestic capital. The reform process and the regulatory framework which has been put in place have drawn heavily on the experiences and lessons learnt in other countries, notably Canada, the United States and the United Kingdom.

2. At the heart of the reforms were the privatisation of the downstream gas company, Gas del Estado (GdE), and the upstream oil and gas company, YPF; the break-up of GdE into two transmission companies and eight distribution companies (a ninth was created in 1998); the removal of wellhead and wholesale price controls; the establishment of an open access regime; and the creation of an independent regulatory authority, Enargas. In addition, the distribution companies retail monopoly was limited to customers using less than 10 000 cubic metres/day. Enargas's objectives include promoting competition in gas supply, setting tariffs (rates) for transmission services and distribution company gas sales -- considered as natural monopolies -- and encouraging long-term investment in the network.

3. The reform process in Argentina, largely implemented over 1992-1994, has been highly successful. Gas drilling has picked up, investment in the downstream industry has increased and transmission and distribution costs have been reduced since the early 1990s. Short-term security, in terms of system reliability and deliverability, has been significantly enhanced as a result of major investment in new capacity and system control technology. Long term security has also been enhanced through increased drilling and the prospect of continuing expansion of international gas trade in the Southern Cone region. Although wellhead prices have risen from the artificially low levels that prevailed prior to deregulation, end-user prices have risen more modestly as a result of improved efficiency and capacity utilisation. Natural gas remains extremely competitive in all end-use sectors and is priced well below the levels prevailing in North America and Europe.

4. Critical success factors behind these achievements include:

- A stable and attractive trading, investment and fiscal environment.
- The removal of gas price controls.
- Diversification of players in the upstream sector through the removal of exclusive rights and the sale of some of YPF's assets and exploration and production rights to competitors.
- The effective separation (unbundling) of the gas transmission business and gas supply/trading, which ensures non-discriminatory third party access to the transmission system and efficient regulation of tariffs.

- Transparency in the non-price terms and conditions of access to the pipeline. This has also been a key factor in preventing discrimination between shippers and ensuring efficient operation of the industry.
- Explicit rate of return or tariff regulation with incentives to reduce costs through an RPI-X formula.
- Clear definition of regulatory responsibilities with an independent and well-resourced authority.

5. In spite of the impressive progress that has been made in transforming the performance of the natural gas sector, there remain a number of challenges for the government and the regulator. Foremost among these are:

- Stimulating competition in gas supply.
- Improving the effectiveness and consistency of downstream regulation.
- Stimulating exploration and production, to meet growing domestic and export demand .
- Promoting regional market integration.

6. These issues are to a large extent inter-related. One way of increasing competition in the Argentine market will be the growth of exports, assuming competitors to YPF account for the bulk of these incremental supplies. New export projects will, in turn, depend partly on the attractiveness of the legal and fiscal regime in the upstream sector for exploration and development and the success of drilling in the face of competing supplies from Bolivia and weak oil prices. Although the regional market, notably southern Brazil, Chile and Uruguay, appear large and receptive to increased natural gas trade, this potential can only be fully realised if compatible investment and regulatory regimes are put in place in all countries in the Southern Cone. The Energy Secretariat, Enargas and competition authorities in Argentina will play a pivotal role in promoting the long-term development of the domestic and export market.

7. Encouraging competition in gas supply -- one of the chief aims of the 1992 Natural Gas Act -- is the most pressing concern. Despite divestment of assets and rights prior to privatisation, YPF remains the dominant producer in Argentina and supplier of gas to the domestic market accounting for 58% of total supply, and thus continues to play the role of price leader or setter. The Government and the industry recognise the need to reduce substantially YPF's gas (and oil) market share. However, achieving this within the existing legal and institutional framework may be difficult given that YPF is now in private hands. Any rapid resolution to the problem of lack of competition may have to involve an overhaul of competition legislation, including the introduction of tougher anti-trust laws, that would have the effect of obliging YPF to dispose of many of its existing gas production concessions and exploration permits.

8. The ultimate aim -- once effective competition in bulk gas supply is established -- should be to

extend competition in gas supply to all end-users. Currently, competition is limited to those consuming more than 10 000 cubic metres/day. Such a move would require at a minimum full separation of the accounting and management of distribution companies' pipeline and gas trading/supply activities (retail unbundling) to prevent discrimination against third parties, encourage access to distribution networks and promote competition.

1. INTRODUCTION

9. This report sets out the findings of an IEA review of the regulatory framework for natural gas in Argentina. The purpose of the study was twofold: first, to provide the Argentine authorities with an objective assessment of recent gas sector reforms in the gas sector and possible areas for improvement drawing on experience in other parts of the world; and second, to help other countries considering or embarking on gas sector reforms learn from the Argentine experience through an assessment of the effectiveness of the regulatory framework that has been established, the market implications of recent reforms and the critical success factors in establishing an efficient, competitive market. This report complements a number of other recent IEA reports, including studies of competitive gas pricing, gas distribution and gas sector regulatory reform in Mexico¹.

10. Section 2 of this report describes the background to energy sector reforms within the context of broader economic and institutional reforms in Argentina and the Southern Cone. Section 3 provides a brief overview of the Argentine natural gas sector, including prospects for market growth. Section 4 describes the specific elements of gas sector reforms launched in the late 1980s and subsequent policy and regulatory developments, notably the first transmission/distribution tariff review in 1996/7 implemented at the beginning of 1998. Section 5 analyses the impact of these reforms on the gas market and industry structure and performance. Section 6 sets out broad developments in the integration of energy networks in the Southern Cone region. Finally, section 7 provides some conclusions on progress in implementing regulatory reforms and their success so far, together with an assessment of remaining challenges for policy makers and the regulator, Enargas.

11. This review was carried out by two members of the IEA Secretariat: Trevor Morgan, a gas sector specialist in the Economic Analysis Division, and Bruce McMullen, a Latin American specialist in the Asia-Pacific, Latin America Division.

¹IEA/OECD, *Natural Gas Pricing in a Competitive Market (to be published in late 1998)*; IEA/OECD, *IEA Gas Distribution Study(to be published in late 1998)*; and IEA/OECD, *Regulatory Reform in Mexico's Natural Gas Sector* (1996).

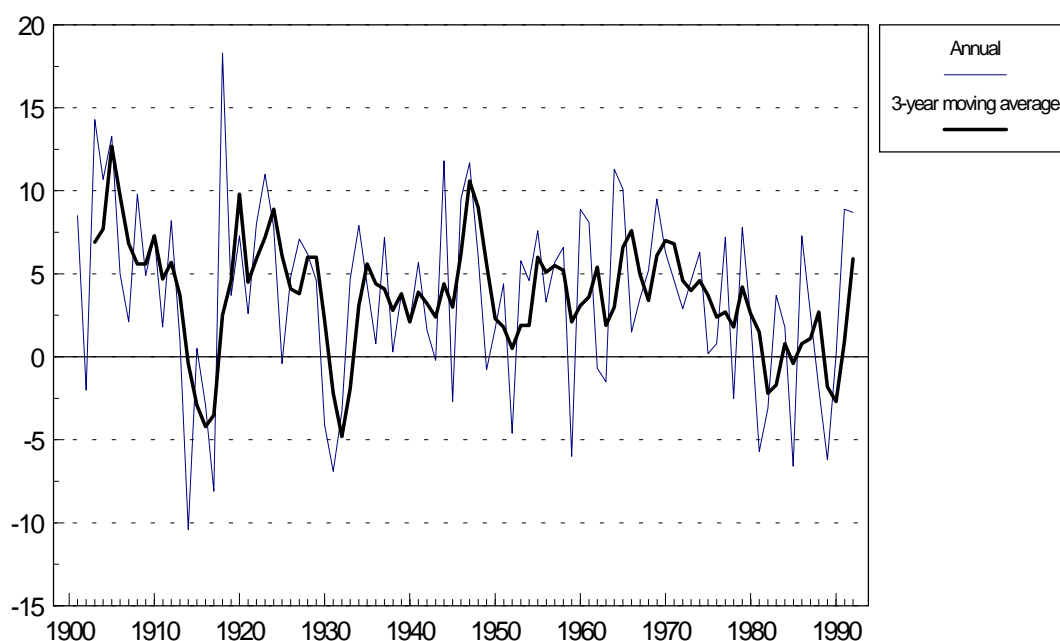
Figure 1
Map of Argentina and the Southern Cone Region

2. ECONOMIC AND INSTITUTIONAL REFORM IN ARGENTINA

2.1 Economic and Political Context

12. Argentina experienced rapid, largely agricultural-based, economic growth beginning in the early 1880s and by the mid 1920s was one of the world's wealthier countries with a level of economic development and income comparable in many respects to prosperous European countries, Canada and the United States. However, from the end of the 1920s until the early 1990s the performance of the Argentine economy deteriorated significantly to the point that in 1990 Argentina had a per capita income substantially below these countries as well as a number of Asian nations which have experienced rapid economic growth since World War II. During the 1976-89 period Argentina had no GDP growth and its per capita income actually contracted by an average of 1.3% annually (see Figure 2).

Figure 2
Growth of GDP in Argentina, 1901-1992
(%, year-on-year and 3-year moving average)

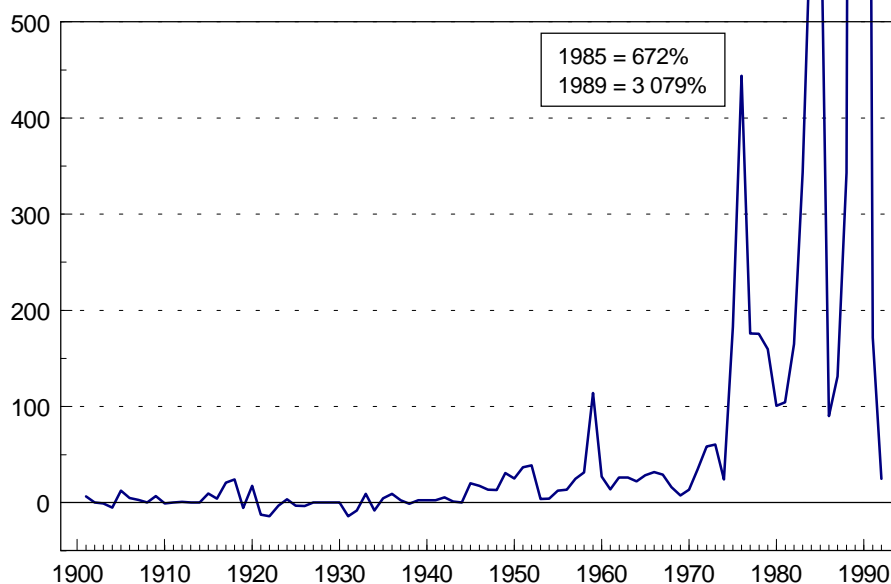


Source: M-A. Veganzones & C. Winograd, *Argentina in the 20th Century: An Account of Long-Awaited Growth* (OECD, 1997).

13. Over the 60-year period to the early 1990s, the Argentine economy experienced a multitude of increasingly unsustainable, highly cyclical rates of growth (see Table 1). The economic situation was often characterised by uncontrolled public deficits, low productivity and low levels of private sector domestic and foreign investment, agricultural stagnation, ineffective import substitution policies, a large and inefficient state-owned sector, high unemployment and chronic high levels of inflation. Argentina was one of the countries most effected by the world debt crisis in the early 1980s and subsequently endured two

episodes of hyper-inflation, the most recent being in 1990 (see Figure 3).

Figure 3
Inflation Rate in Argentina, 1901-1992
(annual percentage change in retail prices)



Source: M-A. Veganzones & C. Winograd (1997).

14. While some of these economic difficulties were linked to external events, such as the world depression of the 1930s and the debt crisis of the 1980s, unsuccessful and sometimes counterproductive economic policies were the root causes. The origin of these policies in turn relates closely to the substantial social and political turmoil which Argentina experienced during this period. From 1955 to the election of the current Administration, Argentina had no fewer than 18 civilian and military Governments. There were sporadic attempts beginning in the late 1970s to liberalise the economy and increase growth but these were either misplaced or not sufficiently broad or forceful enough to generate sustainable levels of high growth. However some of these measures, coupled with a return to civilian rule and a political consensus for radical economic reform generated by increasing public frustration with low growth and hyper-inflation, provided the basis for the implementation of ambitious economic stabilisation and reform policies in the early 1990s.

15. Beginning in 1991, the Government, in an effort to revitalize the economy, began an aggressive and rapid programme of privatisation of almost all public enterprises, including the national phone company, the national airline, television and radio stations, railways, federally-owned highways, power plants and public utilities, the state-owned oil and gas company, Yacimientos Petroliferos Fiscales (YPF), and the national gas transmission and distribution company, Gas del Estado (GdE). Other reform policies included significant trade liberalisation efforts and the establishment of the convertibility of the Argentine Peso by linking it with the US Dollar.

16. These economic reform efforts have restored Argentina's credibility with the international financial community, virtually eliminated inflation, attracted high levels of foreign and domestic private investment and generated substantially higher rates of economic growth (see Table 1).

Table 1
Annual Average Rate of Economic and Population Growth in Argentina
 (%)

<i>Period</i>	<i>GDP</i>	<i>Population</i>	<i>GDP per capita</i>
1900-92	3.5	2.0	1.5
1900-13	6.6	3.8	2.8
1914-17	-3.5	1.8	-5.3
1918-29	5.7	3.0	2.7
1930-32	-5.3	1.9	-7.2
1933-43	3.2	1.5	1.7
1944-48	6.6	1.8	4.8
1949-52	0.8	2.3	-1.5
1953-75	4.6	1.6	3.0
1976-89	0.3	1.4	-1.1
1990-95	4.5	1.2	3.3

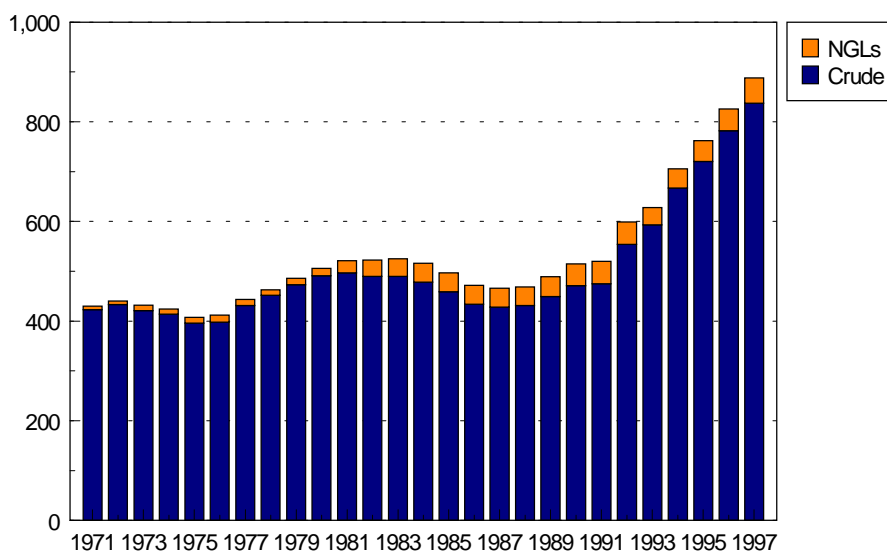
Source: M-A. Veganzones & C. Winograd (1997).

2.2 Reforms and Restructuring in the Energy Sector

2.2.1 Oil And Gas

17. Reform of the Argentine oil industry began in 1989 and by early 1991 the sector had been largely deregulated with most portions already open to private and foreign participation -- either through direct investment or joint ventures with YPF. Oil companies were free to market their crude and oil products either in Argentina or abroad. These reforms have generated substantial new investment with Argentine production including natural gas liquids (NGLs) increasing from 480 000 barrels/day (b/d) in 1988 to nearly 900 000 b/d in 1997 (see Figure 4).

Figure 4
Oil Production
(Million barrels per day)



Source: IEA database.

18. A key element of the early 1990s privatisation effort involved the sale of the national oil company YPF. First established in the late 1920s, YPF is one of the world’s oldest national oil companies. It dominated the development of the Argentine oil sector and until 1992 was the only company permitted to sell natural gas at the wellhead in Argentina. For many years, YPF experienced stagnating levels of hydrocarbons production and had a reputation of being an inefficient enterprise. Technologically, it was behind other large state-owned oil companies in the region. Furthermore, it often had been used as a “cash cow” by previous governments encountering budgetary problems. It often suffered large financial losses, totalling around US\$6 billion in the period 1981-89.

19. Preparation for privatisation began in 1990 with the downsizing of the company, rationalisation of its operations, and improvement in its general management so as to make it more attractive to private investors. In 1990, YPF had 51 000 employees. Within five years its work force had been reduced to 5 800 with one third of YPF’s oil and gas reserves sold off. Some 45% of its shares were globally placed in the largest Latin American share offering to date. By 1994, it was making a considerable net profit. In recent years YPF has become an aggressive international player. In 1995 it purchased Maxus Energy Company, a US-based firm with holdings in Indonesia and other parts of South America.

20. Prior to privatisation, the Argentine energy supply monopoly arrangement led to an acute lack of capital investment in both the upstream and downstream. Upstream reform has encouraged private enterprise investment in exploration and development and the earlier trend of shrinking hydrocarbon reserves has been reversed. Production of oil and natural gas has increased and a number of foreign and domestic firms now are engaged in producing hydrocarbons (see section 5 for details).

21. YPF's sister corporation, Gas del Estado (GdE), the state-owned natural gas transport and distribution company until reform, had a monopoly in those activities in Argentina. This long-standing dominance resulted in transmission and distribution bottlenecks that impeded supply to residential users while supply to industrial customers often was interrupted during peak periods to meet residential demand. System control was precarious. The privatisation effort, detailed in section 4, began in 1990 and was essentially completed by late 1992. Its objectives were to encourage long-term private sector investment and provide improved service and efficiencies. Two private transmission and eight private distribution companies were created from the former monopoly. A regulatory framework based on open access to the network was developed with a price cap on transmission and distribution tariffs. Unlike YPF, GdE did not undergo a significant internal restructuring before it was broken up. These regulatory reforms and structural changes have brought significant improvements in terms of removal of bottlenecks, more efficient management and enhanced system safety and reliability (see section 5).

22. The above related oil and natural gas sector reforms provided a more stable basis for long-term planning and investment and have given impetus to oil and natural gas energy linkage projects with Argentina's neighbours (see section 6). The fast-paced development of Mercosur -- the Southern Cone Common Market -- has served to encourage this trend.

2.2.1 *Electricity*

23. The electricity sector has been restructured and privatised broadly in parallel with reforms in the gas sector. The 1992 Electricity Act (24.065) was designed to lead to competition between the privatised electricity companies, modelled partially on the approach to regulation in the United Kingdom and earlier structural reforms in Chile. Under the Act, a regulatory authority, Enre (Ente Nacional Regulador de Electricidad), was set up to regulate all stages of the electricity industry, but most extensively transmission and distribution. Enre mediates in disputes between electricity companies and enforces federal laws, regulations, and terms of concessions. Enre also establishes service standards that distribution companies must meet and sets the maximum price that transmission and distribution companies may charge for their services. Enre oversees the operator of the wholesale electricity market, Cammesa (Compania Administradora del Mercado Mayorista Electrico S.A.), and the generation companies which are not subject to price-cap regulation.

24. Key aspects of power sector restructuring include the following:

- *Power generation:* Most conventional electricity (thermal and hydroelectric) facilities were sold separately, essentially making each privatised generation facility an independent power producer. Thermal generation facilities were sold outright, while concessions (averaging 30 years) were awarded for most of the hydroelectric plants. There are currently around 40 generating companies operating in Argentina. Most large plants were purchased by foreign companies. About ten power generators, including the nuclear plants and most large hydroelectric facilities, in addition to those under construction or in the planning stage are still owned by the federal or provincial governments, either because efforts to privatise them have not begun or because efforts are still unsuccessful. In order to avoid market concentration difficulties, generation companies are legally

restricted to a maximum market share of 10% of national electricity sales. They are also prohibited from owning majority shares in electricity transmission facilities. Generators have open and equal access to the national grid.

- *Wholesale market and central dispatch:* Wholesale prices are unregulated and are set in the wholesale market (the power pool). The market has both a supply side, composed of domestic and foreign generators, and a demand side, composed of distribution companies, large users, and foreign consumers purchasing exported electricity. The market sets three types of prices: contractual prices, seasonal prices, and spot prices. Of these, seasonal and spot prices are determined directly in the wholesale market, while contractual prices are affected indirectly by the wholesale market. The market is administered by Cammesa, a nonprofit, independent operating agency jointly-owned by the government and the power generation companies. Cammesa has three primary tasks: dispatching power; determining the fixed charges and other fixed fees added to spot, seasonal, and contractual prices to cover the full costs of transmission; and ensuring that the power system maintains adequate reserve capacity. Cammesa determines the cost of generation for each producer and then dispatches electricity to the transmission grid in least-cost merit order. The price that is paid to each generator is determined largely by the highest cost producer whose power is dispatched (marginal cost). Generators whose production costs are too high to be dispatched by Cammesa receive a payment for providing the system with reserve power.
- *Transmission:* Electricity transmission is regulated by Enre. Firms may enter the industry only after successfully bidding for a fixed-duration concession for a particular area and may charge no more than regulated prices for their services. Concessionaires are required to allow open access to their transmission network to third parties. Transmission companies are not allowed to buy or sell electricity. Instead, their revenues come exclusively from the regulated prices they receive, which are capped by an RPI-X formula² over periods of five years. The price is based on the availability (providing a fixed source of income) and the use (providing a variable source of income) of their network assets. Among the six transmission companies, more than half have been at least partially privatised. The creation of a seventh private regional company was approved by Enre during 1996.
- *Distribution:* As with transmission companies, distribution companies have regulated maximum rates that they may charge for their services. Distribution assets formerly owned by federal electric utilities were privatised or transferred to the provinces, which have begun to privatise the distribution operations. Several distribution companies were created by this restructuring. The two largest, which serve greater Buenos Aires, were the first to be privatised. Distribution companies must allow open access to their distribution network to end-users consuming more than 2 GWh/year. Such large users who choose to be supplied directly by a generation company pay a contracted price determined through bilateral negotiation with a generation company and pay additional use of transmission and distribution system charges. Large users are also allowed to buy power directly from the wholesale electricity market, paying the spot price. The number of

² Retail price index less an efficiency factor set at the start of the review period.

large users active in the wholesale electricity market has increased from around 5 in 1993 to more than 200 at present.

2.3 Regional Economic and Energy Market Integration

25. A variety of economic, political and social reforms are occurring in Latin America. Perhaps the most impressive and dynamic are the related movements towards regional economic integration, particularly in the Southern Cone. This development has important implications for energy and specifically natural gas.

26. Mercosur came into effect in 1991 as a free trade agreement composed of Argentina, Brazil, Paraguay and Uruguay. The initial reaction to its establishment was muted since it seemed to be one more in a series of regional Latin American trade pacts, many of which had enjoyed only limited success. However, trade flows between the four members grew almost four fold within only a few years (US\$4 billion in 1990 compared to almost US\$15 billion in 1996) and Mercosur quickly became and has remained the most dynamic economic integration movement in Latin America. The potential of the Mercosur market is enormous given its population of over 200 million and a GDP of over US\$1 trillion.

27. In 1995 Mercosur became a customs union with a common external tariff. Bolivia and Chile have signed free trade agreements with Mercosur and now are associate members and Mercosur is reaching out to establish linkages with other countries and trade groupings in the Southern Hemisphere. In large part due to Mercosur, Argentina is now the second largest exporter to Brazil (after the United States). Mercosur has also promoted the development of active petroleum trade between the two countries.

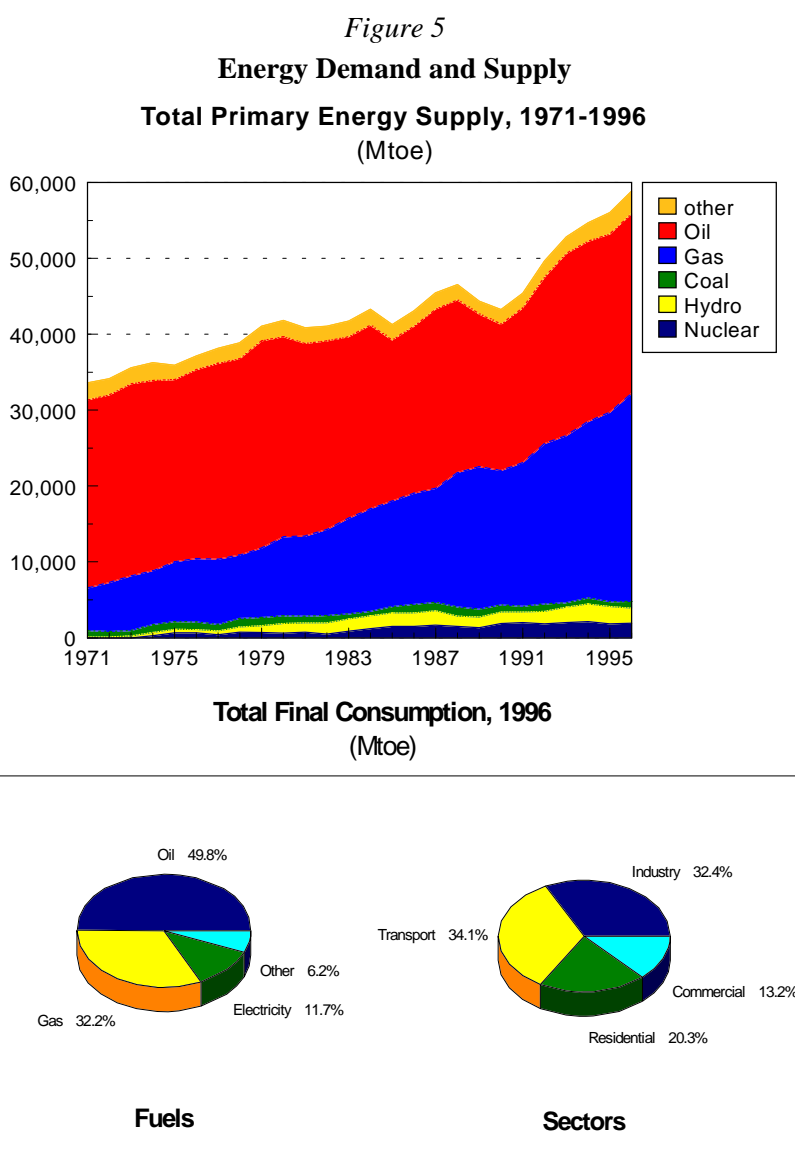
28. The movement beginning in the late 1980s away from nationalistic economic development strategies towards more free trade and international and market oriented approaches has encouraged regional energy linkages in the Southern Cone. Correspondingly, energy sector reform and privatisation and encouragement of foreign investment in that sector, particularly in Argentina, have spurred economic integration. Previously, lack of infrastructure and slow energy demand growth in insular economies prevented regional energy trade from achieving its potential.

29. It appears that natural gas trade, in particular, will be a driving force towards regional integration in the Southern Cone with Brazil being the major importer, followed by Chile and Uruguay. Bolivia, Argentina and, perhaps eventually Peru, will be the main countries supplying gas to these markets. Natural gas is particularly attractive given its environmental advantages, its ability to substitute for petroleum consumption, substantial reserves and, in the case of Argentina, the opportunity for expanding export sales given the relative maturity of its domestic gas market.

3. OVERVIEW OF THE MARKET FOR NATURAL GAS

3.1 The Role of Natural Gas in the Argentine Energy Market

30. Argentina has a very gas-intensive economy. In 1996, natural gas accounted for 44% of total primary energy supply (TPES) and a third of final consumption. Oil is the other main source of energy, accounting for a further 42% of TPES; combustible waste, hydropower and nuclear power account for most of the remainder (see Figure 5 and Annex A for detailed figures). The share of gas in TPES has increased sharply since the 1970s, for the most part displacing oil (especially heavy fuel oil).



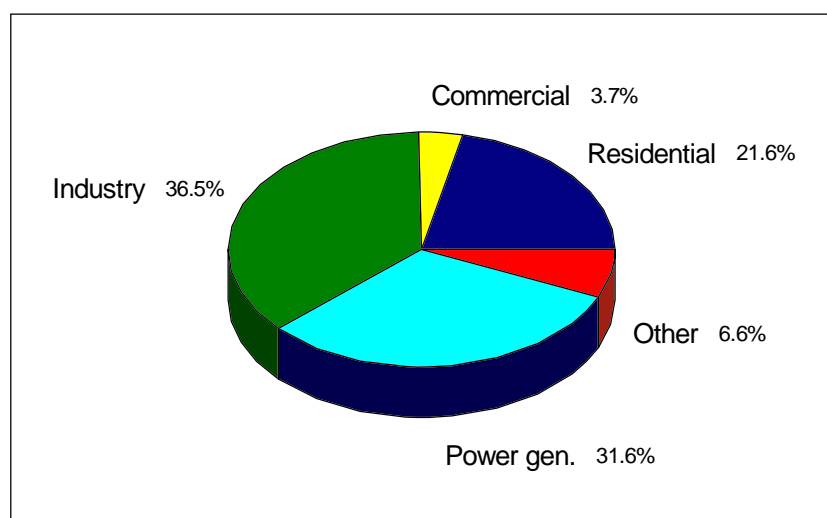
Source: IEA, *Energy Statistics and Balances of Non-OECD Countries* (Paris: OECD)

31. Argentina is well endowed with energy resources and is self sufficient in energy on a net basis. The country imports small amounts of coal and natural gas (see below) and exports significant volumes of crude oil and petroleum products. Imports of gas from Bolivia currently exceed exports to Chile, which began in 1997, though Argentina is expected to become a net gas exporter soon. Energy intensity, measured as TPES per unit of GDP adjusted for purchasing power parity, is just over 20% less than the average for OECD countries; intensity has been broadly flat over the last ten years, having risen steadily through the 1970s and early 1980s. The sectoral breakdown of final energy demand is close to the average for OECD countries, though transport accounts for a slightly higher proportion of demand (see Figure 5).

3.2 Demand for Natural gas

32. Use of gas has more than doubled since 1980, reaching 26.9 bcm in 1997. Industry is the single largest consuming sector, accounting for 36.5% of total gas consumption in 1997 (see Figure 6). Compressed natural gas (CNG) for use as a transport fuel accounts for almost 5% of consumption. Close to 40% of the gas consumed in Argentina is centred on the capital, Buenos Aires³.

Figure 6
Gas Consumption by Sector, 1997



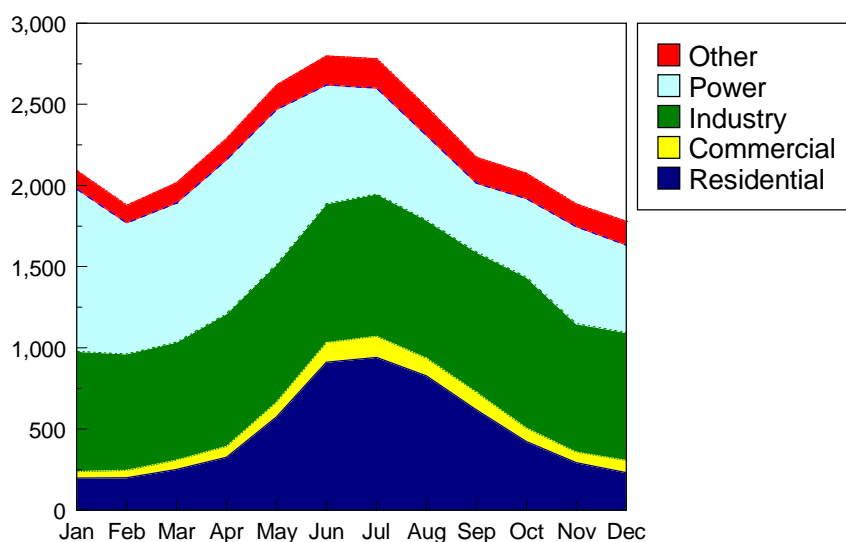
Source: Enargas, *Datos Operativos de las Licenciatarias de Gas* (Monthly Bulletins).

33. Demand for gas in the residential sector is highly seasonal, because of its use for space and water heating (see Figure 7). In 1997, residential demand was 4.7 times higher in July than in January. Demand in the commercial sector, and to a much lesser extent in industry, is also sensitive to temperature. Power sector gas use is counter seasonal, peaking in the Southern Hemisphere summer (December to February).

³ The supply regions of Metrogas and Gas Natural BAN.

Generators switch away from gas supplied under interruptible contracts to oil and coal in the winter, to conserve gas supplies for households and businesses (see section 5 for more a detailed analysis of interruptibility). Hydropower availability is also higher in the winter, alleviating the demand for thermal generation.

Figure 7
Seasonality of Gas Consumption by Sector, 1997
 (Million cubic metres)

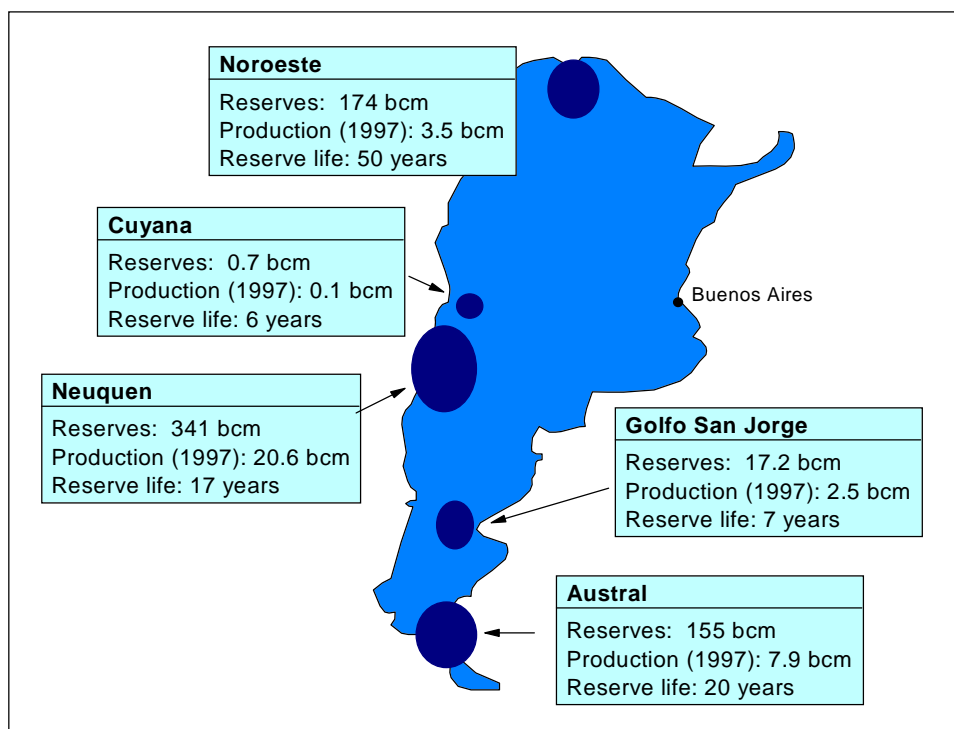


Source: Enargas, *Datos Operativos de las Licenciatarias de Gas (Monthly Bulletins)*

3.3 Supply of Natural Gas

34. Most of Argentina's gas reserves have been discovered as a result of oil exploration. There are 19 known sedimentary basins in the country, ten of which are located entirely onshore, three entirely offshore and six straddling the Atlantic coastline. Production is currently limited to five basins and three regions: Noereste in Northern Argentina; Neuquen and Cuyo in central Argentina; and Golfo San Jorge and Austral in Southern Argentina. These basins account for around a third of the total acreage of known sedimentary basins. Figure 8 shows the location of these basins and data concerning proved reserves, 1997 production levels and the corresponding remaining reserve life. The Neuquen Basin accounts for almost 60% of current gas production and 50% of proved reserves. In total, remaining reserves amount to 688 billion cubic metres (bcm) equivalent to 20 years at current production levels. There is considerable potential for additional gas (and oil) reserves given that there are 14 sedimentary basins that have not yet been explored.

Figure 8
Natural Gas Producing Basins in Argentina



Source: Secretariat of Energy.

35. The national transmission network comprises five high pressure pipeline systems, three of which bring gas from the Neuquen/Cuyana Basins in the West while the other two connect the Austral Basin in the South and the Noroeste Basin in the North. All five systems link into the main Greater Buenos Aires market. At the end of 1997, the Argentine network included 11 720 km of high pressure lines and 42 compressor stations. In addition, export pipelines have been developed or are being developed to serve new markets in neighbouring Chile, Brazil and Uruguay:

- *Chile:* Two lines to Chile were commissioned in 1997: the 7 bcm/year 290 mile GasAndes line from the Neuquen Basin to Santiago, and the 1 bcm/year 30 mile Methanex line from Tierra Del Fuego to Cabo which supplies a methanol plant. A 3 bcm/year 590 mile line in Northern Argentina, Gasoducto Atacama, is under construction and is due to enter service in 1999.
- *Uruguay:* A 4.5 bcm/year link from Buenos Aires to Montevideo is under construction. There are plans to extend the line to Porto Alegre in Brazil to supplement gas supplied through the Bolivia-Brazil line currently being built.

36. Figure 9 details the routes of the national and export transmission systems, and export lines under construction. Section 6 outlines planned export projects and other regional pipeline projects in operation, under construction or planned.

37. There are no underground storage facilities in Argentina, though a number of projects to develop aquifers and depleted gas fields are being studied. BAN, the distribution company in Northern Buenos Aires, operates the country's only LNG peak shaving plant located at Gral Rodriguez near the capital. A second plant is planned.

Figure 9
Map of Argentine Gas Transmission Infrastructure

[In preparation]

3.4 Market Prospects

38. The Secretariat of Energy forecasts that gas demand will continue to grow in the medium term, largely for power generation, industrial use and further expanded consumption in the residential sector. Aggregate demand is forecast to increase at an average annual rate of 3.7% to 2010 (see Table 2). The per capita annual consumption of gas is expected to increase from a current 754 cubic metres to 1 083 cubic metres in 2010.

Table 2
Demand Projections for Natural Gas by Sector
(Million cubic metres)

	1996	2000	2002	2005	2010	1996/2010 *
Residential	5.941	6.849	7.311	8.062	9.265	3.2
Commercial and Public	1.323	1.532	1.616	1.750	2.015	3.0
Industry	9.447	11.629	12.397	13.646	15.771	3.7
Power Plants	8.572	11.124	11.828	13.375	15.062	4.1
Transport	1.092	1.333	1.460	1.673	2.043	4.6
Total	26.375	32.467	34.611	38.506	44.156	3.7

* Annual percentage increase

Source: Argentine Secretariat of Energy, *Prospectiva 1997* (November 1997).

4. NATURAL GAS SECTOR POLICY AND REGULATION

4.1 Natural Gas Sector Restructuring and Regulatory Reform

39. The 1992 Natural Gas Act introduced sweeping changes to downstream gas sector policy and regulation in Argentina. Previously, the gas industry was completely monopolised, owned by the state and regulated directly by the Energy Secretariat in the Ministry of Economy, Public Works and Services. The Act, in conjunction with several decrees -- notably 11.739/92 -- and asset transfer agreements, provided for the restructuring and privatisation of the industry and the establishment of a new system of regulation (summarised in Table 3). Key elements included the following:

- The integrated monopoly gas transmission and distribution company, Gas del Estado (GdE) was reorganised on a broadly geographical basis and privatised. The company was split into two high pressure transmission companies, Transportadora de Gas del Sur (TGS) and Transportadora de Gas del Norte (TGS), and eight medium/low pressure distribution companies. A ninth distributor covering northeast Argentina has since been established and licenced (see below). The break-up of GdE was designed to promote a degree of competition between the two transmission companies by giving both access to different sources of gas and to the main market centres, particularly Buenos Aires. A majority of the shares in TGN, which transports gas through two pipeline systems in the north, and most of the distributors were sold to private investors in December 1992. TGS, which operates three pipeline systems in the south, was floated in early 1994. Residual government share holdings in these companies are being sold off gradually.
- An independent regulatory authority for gas, Ente Nacional Regulador del Gas (Enargas), responsible for enforcing the provisions of the Natural Gas Act, applicable regulations and the licences of the privatised companies, was created (see box below). A primary function of Enargas is to regulate the tariffs (rates) of the transmission and distribution companies as natural monopolies.
- An open access regime for the entire transmission and distribution network with the exception of upstream gas gathering lines owned by producers was established. Existing transmission capacity was initially assigned to the distribution companies under ten-year contracts with rights granted to the distributors enabling them to gradually reduce their capacity reservations by up to 60%. Transmission companies are not allowed to trade in gas and must offer transmission services to customers (distributors, end-users and traders) on a non-discriminatory basis. In addition, gas producers, storage companies, traders and consumers who contract for purchases of gas directly with producers may not own a controlling stake (as defined in the Act) in a transmission or distribution company. Similarly, distributors are not allowed to hold a controlling stake in a transmission company, and vice versa. These ownership restrictions were put in place to prevent discrimination and market dominance.
- The distribution companies' retail monopoly was restricted to customers using less than 10 000

cubic metres/day. Larger consumers (for the most part industrial end-users and power generators) connected to the local distribution network can now choose between the previous bundled service provided by the distributor or arranging its own supply (which would involve purchasing gas supplies directly from producers and contracting for transmission services from TGS or TGN). In the latter case, the customer can opt to either build a line to connect with the high pressure transmission pipeline physically “bypassing” the distribution network, or negotiate access to the local distribution network. In the case of physical bypass, the end-user must inform the local distributor and Enargas of its intention to build a direct connection six months in advance and must respect the technical requirements laid down in an Enargas regulation.

- Prices at the wellhead, in wholesale transactions (between producers and distributors or traders) and to end-users above 10 000 cubic metres/day were completely decontrolled from 1 January 1994⁴.
- Exclusive rights to specified geographic areas were granted to the distribution companies but not the transmission companies. Thus, a market entrant may build a competing high pressure line anywhere in the country but may not build medium or low pressure distribution networks in areas covered by a licensed distributor.
- A system of licensing for public gas transmission and distribution, and trading/brokering administered by Enargas was set up. The ultimate authority for issuing licences rests with the Federal Government. Licences to operate existing systems were issued to the transmission and distribution companies for a term of 35 years, though the Act provides for renewal for an additional term of 10 years based on an evaluation of their performance by Enargas and its recommendation to the Government. The Act requires that, at the end of the 35 or 45 term, a competitive tender be held for the licence in which the incumbent has the option of matching the best bid made by a third party. The licences specify certain rights and obligations, including general terms and conditions of service and operating and safety standards. The licences provide for a system of penalties, including fines up of to US\$ 500 000 assessed by Enargas, in the event of a company breaching those obligations.

40. Another key step in the process of restructuring the Argentine gas industry involved the removal in 1989 of the exclusive rights in exploration and production held by the former monopoly oil and gas producing company, Yacimientos Petroliferos Fiscales (YPF), and its subsequent privatisation. To further stimulate competition in the upstream, YPF was also required to sell off around a third of its oil and gas reserves (under decree 1055/89). The first tranche of three-quarters of the shares in YPF were sold in July 1993 on the New York Stock Exchange in the biggest ever single share offering on that market (in excess of \$3 billion). The Federal Government has retained a share holding of just over 20%, while provincial authorities hold close to 5%. The Federal Government plans to sell off its residual share holding in late 1998.

⁴In the interim 2-year period to 31 December 1993, the wellhead price was set at US\$ 0.97/Mbtu which had been the regulated price since 1991.

Table 3
Restructuring of the Argentine Gas Industry

	<i>Prior to 1992 restructuring</i>	<i>Today</i>
Production	YPF	Several producers: around 35 operating companies, including YPF, at end-1997
Transmission	Gas del Estado	2 companies: TGN (2 pipelines in the north) and TGS (3 lines in the south)
Distribution		9 companies (8 immediately after restructuring; the ninth was created in 1997)
Regulatory responsibility	Secretariat of Energy	Secretariat of Energy & Enargas

Role, Responsibilities and Functioning of Enargas

Enargas, established under the 1992 Natural Gas Act, is an autonomous entity responsible for regulating the gas industry under the Act, associated decrees and licenses. Enargas is governed by a board of five full time directors appointed by the Federal Government subject to confirmation by Congress. It operates within the framework of the Ministry of Economy, Public Works and Services and has broad authority to regulate the operations of the transmission and distribution companies including setting rates.

Enargas has its own budget which must be included in the Argentine National Budget and submitted to Congress for approval. Funding is derived largely from control and inspection fees levied on the regulated companies allocated proportionately on each company based on their gross revenues from regulated activities. Enargas also collects any fines imposed for violations of the Natural Gas Act and company licences.

Enargas' objectives, set out in the 1992 Act, include:

- Protecting consumer interests.
- Promoting competition in gas supply.
- Encourage long-term investment in the network.
- Setting just and reasonable tariffs for transmission and distribution.
- Ensuring there is no discrimination in the provision of transmission and distribution services.

4.2 Exploration and Production

4.2.1 *Legal and fiscal framework*

41. The legal and fiscal framework for upstream activities in Argentina is provided by the 1967 Hydrocarbons Law (17.319) and subsequent, associated decrees. Several decrees since 1989 have sought to minimise regulation of upstream activities to encourage exploration and production, notably by removing restrictions on imports and exports of oil and gas, eliminating wellhead price controls, obliging YPF to surrender production interests and removing the former exclusive rights over exploration and production benefiting YPF. The Government has also taken steps to encourage foreign investment in the upstream and downstream oil and gas sectors and reduce taxation and royalties.

4.2.2 *Plan Argentina*

42. A 1991 decree (2178) established new arrangements for bidding for and licensing of exploration acreage, known as Plan Argentina. The plan covers 150 offshore and onshore areas in 14 sedimentary basins and provides for bids to be submitted for permits covering outstanding acreage on the last working day of every odd month. Each bid must contain documentation concerning the experience and credit worthiness of the bidding company, as a basis for the Secretariat of Energy to decide on qualification, and a programme of work, including an initial surveying phase lasting no more than three years for onshore areas and four years for offshore areas. The second and third phases must involve drilling at least one exploratory well in each phase. Failure to comply with these terms results in the cancellation of the permit and the reversion of exploration rights back to the state. In the event of two or more qualifying companies bidding for the same area, the Secretariat applies a formula to determine the best bid based on the amount of work proposed and the speed with which it is to be carried out in the work programme.

43. The previous licensing regime, known as Plan Houston, stimulated limited interest in exploration acreage. Most of the licences have either reverted back to the Federal Government or are in the process of reversion.

4.2.3 *New Hydrocarbons Bill*

44. In 1995, the Government drafted a new Hydrocarbons Bill aimed at establishing a more stable legal and fiscal framework to stimulate interest in exploration and production in Argentina and limit the market dominance of YPF. This Bill was approved by the Upper House of Parliament but more pressing issues have prevented its consideration in the Lower House. The bill recently lapsed, though it has since been resubmitted to Parliament. The main features of the bill, which is supported broadly by both domestic and foreign oil and gas companies, are as follows:

- Devolution of Federal Government administration of the upstream oil and gas industry to the provinces, who would be given the power to set and collect taxes and royalties (up to a ceiling of 12%) and manage licensing of exploration acreage that has not already been licensed by the Federal Government.

- The creation of a regulatory agency, known as Ente Federal de Hidrocarburos (EFH), to regulate the industry at the federal level.
- Incentives for exploration in frontier areas, outside the five basins currently in production. These include increasing the length of exploration periods, reducing relinquishment obligations and reviewing royalties.
- Improved rents for landowners at oil and gasfield sites.
- Environmental and consumer protection regulations.
- The creation of a strategic oil reserve.
- Limitations of oil companies' share of the domestic oil products market. YPF currently supplies over half of the market.

4.3 Downstream Sector

4.3.1 Transmission and distribution tariff setting

General principles

45. The Natural Gas Act and the licences of the transmission and distribution companies set out the basis for setting the level and structure of tariffs (rates). Tariffs for each company must be determined by Enargas on the basis of the cost of providing service plus a reasonable rate of return on assets relative to the rate of return of businesses facing comparable risk taking into account the degree of efficiency achieved and the performance of the company in providing the service. Cross subsidies among customer categories are not permitted. The Act further specifies the application of a price cap methodology with adjustments for inflation, and efficiency and investment factors every six months:

- *Inflation:* The transmission and distribution companies are permitted to adjust their tariffs every six months to reflect inflation as measured by changes in the US producer price index of industrial commodities (PPI).
- *Efficiency (x) factor:* This factor, reviewed every five years, provides for a reduction in tariffs as costs are reduced through improved efficiency, allowing both the company and customers to share in the gains. The company is given an incentive to lower costs because the factor and therefore tariffs are established in advance for the next five years based on estimated cost savings potential and take no account of actual cost savings over that period.
- *Investment (k) factor:* Also set in advance for a five year period (in parallel with the efficiency factor), the k factor is intended to permit an increase in tariffs to compensate the companies for

certain investments to be made during the relevant five year period. These investments include those designed to improve the efficiency, safety or reliability of the system and to expand the system where profitable (though the Natural Gas Act does not define this condition precisely). Enargas may propose these investments at its own initiative or they may be proposed by the companies for inclusion subject to approval by Enargas in the k factor. The companies are not required to undertake these investments, but the k factor tariff increases are dependent on them doing so. In exceptional circumstances, the companies may apply to Enargas for a tariff increase during the five-year period to cover proposed investments to expand capacity when the associated costs (over-and-above those already accounted for in the investment factor) cannot be recovered by the existing tariffs.

46. In addition to these periodic tariff adjustments, Enargas may on occasion approve other adjustments to reflect certain cost variations, such as those resulting from changes in taxes (other than income tax). All tariffs are determined in US dollars and converted into pesos at the time the customer is billed at the exchange rate laid down in the Convertibility Law (currently US\$1=1 peso).

Transmission tariffs

47. The transmission companies, TGN and TGS, are required to publish tariffs for firm and interruptible service:

- The tariff for firm service must consist of a monthly capacity reservation charge per cubic metre per day of reserved capacity. The transmission company may, if it so wishes, offer discounts but may not at any time charge a higher tariff than that set by Enargas under the price cap formula. The transmission company bills the customer for the maximum daily amount of reserved capacity regardless of actual usage.
- The tariff for interruptible service must be expressed as a fixed non-discountable charge per 1 000 cubic metres/day of gas actually transported. It must be equivalent to the unit rate of the reservation charge for the firm service assuming a load factor of 100%⁵. Interruptible service is only available for deliveries in excess of 3 million cubic metres (mcm)/year.

48. For both firm and interruptible service, the customer must provide to the transmission company on delivery a natural gas in-kind allowance, expressed as a percentage of the gas to be transported, equivalent to the gas consumed or lost in providing the service (demand charge). In other words, the shipper must deliver to the transmission company more gas than he wishes to have shipped to cover fuel and losses. All charges vary according to the zone in which gas is injected into the system and the zone at which it is withdrawn (see Table 4).

⁵For example, given a monthly capacity reservation charge of \$1/m³/day, the total annual cost of reserving 1 m³/day is \$12. For a load factor of 100% (i.e. constant full use of reserved capacity with no daily or seasonal load variation), the cost for gas actually transported is \$12/365 = \$0.0329/m³. Thus, the interruptible charge in this example would be \$32.9/1 000 m³.

Table 4

Transmission Tariffs for Delivery to Greater Buenos Aires¹, Effective 1st Half 1998

<i>Receipt Point</i>	<i>Firm²</i> <i>(US\$/m³/day)</i>	<i>Interruptible³</i> <i>(US\$/1000 m³/day)</i>	<i>Compression fuel and losses⁴ (%)</i>
TGS system:			
Tierra del Fuego	0.950	31.664	11.27
Santa Cruz Sur	0.869	28.969	10.78
Chubut	0.626	20.885	8.38
Neuquen	0.566	18.897	4.86
TGN system:			
Salta	0.707	23.563	5.20
Neuquen	0.574	19.157	4.86

- Notes:**
1. See Appendix B for transmission tariffs for delivery to other delivery points.
 2. Monthly charge for every cubic metre per day of reserved capacity.
 3. Charge for actual volumes transported.
 4. Maximum percentage of volume of gas transported that customers are required to replace in-kind to make up for gas used by the transporter for compressor fuel and losses incurred in providing the service.

Source: Enargas Resolutions 555/98 and 556/98.

Distribution tariffs

49. Distributors are also required to publish standard tariffs for specific customer categories and types of service. The tariff structure, shown in Table 5 (with illustrative current tariffs for Metrogas which distributes gas in central Buenos Aires), is the same for all distributors, though actual tariffs vary slightly among distributors. Residential customers and CNG providers pay a fixed monthly charge and for volumes actually consumed. All other customers pay a fixed monthly charge, a capacity reservation charge and a demand charge for gas consumed. There are four different sets of tariffs for commercial, industrial and power sector customers according to consumption level: P, G, FT/IT and FD/ID. The FT/IT tariffs for large users applies to customers supplied directly off the transmission system. Large consumers (with annual consumption of more than 3 mcm/year) can opt for firm (FT or FD) or interruptible supply (IT or ID); in the latter case, customers do not pay the capacity reservation charge. There is a separate tariff for small embedded local distributors.

Table 5

Distribution Company Tariff Structure and Metrogas Tariffs, Effective 1st Half 1998

<i>Customer category</i>	<i>Fixed monthly charge(\$)</i>	<i>Monthly capacity charge (\$/m³/day)</i>	<i>Demand charge (\$/m³)</i>	<i>Minimum bill (\$/month)</i>
Residential: R	77.930	N/A	0.143	13.388
General business:				
P (<1 000 m ³ /day)				
0 - 1 000 m ³ /month	11.328	N/A	0.133	13.388
1 001 - 9 000 m ³ /month	11.328	N/A	0.124	13.388
> 9 000 m ³ /month	11.328	N/A	0.115	13.388
G (>1 000 m ³ /day)				
0 - 5 000 m ³ /month	11.328	1.066	0.081	N/A
> 5 000 m ³ /month	11.328	1.066	0.074	N/A
Large users:				
<i>Customers connected to distribution grid:</i>				
Firm - FD (> 10 000 m ³ /day)	11.881	0.654	0.076	N/A
Interruptible - ID (> 3 mcm/year)	11.881	N/A	0.076	N/A
<i>Customers connected to high pressure lines:</i>				
Firm - FT (> 10 000 m ³ /day)	11.881	0.600	0.069	N/A
Interruptible - IT (> 3 mcm/year)	11.881	N/A	0.069	N/A
Other users:				
Imbedded local distributors - SDB	11.323	N/A	0.087	N/A
CNG - GNC	11.323	N/A	0.090	N/A

Source: Enargas Resolution 557/98.

50. Under the Natural Gas Act, distributors are permitted to pass through gas purchase costs and TGS/TGN transmission charges to end-users. The terms of all gas supply contracts, including price escalation but not the base price, are subject to approval by Enargas. The distribution companies submit information to Enargas concerning their gas purchase costs every six months; Enargas calculates the weighted average price which, in principle, the distribution companies recover directly in their final sales tariffs. The costs of local distribution and a reasonable return on capital are recovered in a gross margin, which is regulated by Enargas on a cost of service basis taking account of business risk, as for transmission tariffs.

51. In 1995, a decree (1020/95) was issued which set up a mechanism to encourage distributors to minimise their gas acquisition costs. The mechanism, which distributors can opt to use, allows distributors to share half of any savings in short term gas purchases in relation to a reference price for each six-month period established by Enargas. This reference price is different from the weighted average gas price paid for all gas supplies under both long and short term contracts. Conversely, distributors can only pass on to customers half of any higher short term gas purchase costs relative to the reference price.

1997 five-year tariff review

52. The new regulatory framework came into effect on 28 December 1992. The initial tariffs for the transmission and distribution companies were established on the basis of standard industry operating and maintenance costs, derived from international benchmarks, and mandatory investment programmes drawn up for 1993-1997. Stone and Webster, a US firm of engineering consultants, advised the Government on costs and investment needs. All the companies were required to invest the amounts specified in the mandatory programmes. Any underspending would have been paid over to Enargas as a fine, though no company was in practice penalised in this way. The efficiency and investment factors were set at zero for the whole of the initial five-year review period.

53. The first tariff review, involving an adjustment of the investment and efficiency factors, was launched in 1996 and took effect at the beginning of 1998. The final efficiency factors set by Enargas for the full five year period are shown in Table 6. The efficiency factors were all applied in a one-off fashion at the start of the period, by calculating the net present value of applying them in a gradual way over the five years. The investment factors, to be applied on a six monthly basis from the second half of 1998 in line with actual investments, vary according to service category, period and delivery zone (see Table 7).

Table 6
Efficiency Factors for Transmission and Distribution Companies, 1998-2002
(%)

<i>Company</i>	<i>Efficiency (x) factor^d</i>
Transmission:	
TGS	6.5
TGN	5.2
Distribution:	
Cuyana	4.8
BAN	4.8
Metrogas	4.7
Litoral	4.7
Centro	4.7
Sur	4.6
Pampeana	4.5
Gasnor	4.4

Notes: 1. Applied 100% at beginning of review period for all companies.

Source: Enargas.

Table 7
Investment Factors for Transmission and Distribution Companies, 1998-2002
 (%)

Company and service	1998		1999		2000		2001		2002	
	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half	1st Half	2nd Half
TGS: S. Cruz South	-	0.03	0.01	0.82	-	-	-	-	-	-
Chubut South	-	0.07	1.79	0.82	-	-	-	-	-	-
B.A. South	-	0.08	1.87	0.82	-	-	-	-	-	-
B. Blanca	-	0.08	1.87	0.82	-	-	-	-	-	-
TGN: Salta	-	0.84	0.52	0.74	0.46	-	-	-	-	-
Tucuman	-	1.74	0.61	0.82	0.55	-	-	-	-	-
Central	-	1.85	0.65	0.87	0.58	-	-	-	-	-
Litoral	-	1.83	0.64	0.86	0.57	-	-	-	-	-
Cuyana: - R	-	0.02	1.63	0.01	0.11	0.03	0.07	-	0.72	-
- P	-	0.02	1.56	0.01	0.11	0.03	0.07	-	0.69	-
BAN: - R	-	0.34	0.28	0.14	0.06	0.07	0.03	0.03	0.01	-
- P	-	0.27	0.23	0.11	0.05	0.06	0.02	0.03	0.01	-
Metro ¹ : - R	-	0.57	0.54	0.51	0.48	0.45	0.42	0.40	0.37	0.35
- P	-	0.41	0.39	0.37	0.35	0.33	0.31	0.29	0.27	0.26
Litoral: - R	-	0.48	2.89	2.85	0.45	0.35	0.33	0.24	0.23	0.21
- P	-	0.31	1.91	1.90	0.30	0.24	0.23	0.16	0.15	0.14
Centro ¹ : - R	-	0.18	0.41	0.41	0.27	0.11	0.07	0.11	0.11	-
- P	-	0.16	0.34	0.33	0.22	-	0.06	-	-	-
Sur ¹ BA S. - R	-	3.89	3.89	-	-	-	-	-	-	-
- P	-	5.14	5.08	-	-	-	-	-	-	-
S.Cruz - R	-	1.17	-	-	-	-	-	-	-	-
- P	-	1.32	-	-	-	-	-	-	-	-
T. del F - R	-	3.20	-	-	-	-	-	-	-	-
- P	-	3.22	-	-	-	-	-	-	-	-
Pamp.: North - R	-	9.87	9.87	-	-	-	-	-	-	-
- P	-	8.80	8.89	-	-	-	-	-	-	-
- CNG	-	11.49	11.33	-	-	-	-	-	-	-
BA & B.Blanca	-	-	-	-	-	-	-	-	-	-
Gasnor: Salta - R	-	1.99	1.99	-	-	-	-	-	-	-
- P	-	1.89	1.90	-	-	-	-	-	-	-
- CNG	-	2.37	2.36	-	-	-	-	-	-	-
Tucum. - R	-	2.63	2.63	-	-	-	-	-	-	-
- P	-	2.31	2.32	-	-	-	-	-	-	-
- G	-	2.53	2.43	-	-	-	-	-	-	-
- CNG	-	2.99	2.98	-	-	-	-	-	-	-

1. Provisional

Source: Enargas

54. Enargas set the real weighted average cost of capital at 11.3% per annum for the transmission companies and 13.1% for the distribution companies as the basis for calculating the x and k factors. For the x factor review, Enargas commissioned a study by international consultants to estimate the potential for efficiency gains based on a historical study of unit production cost reductions in Argentine industry generally to derive the efficiency improvement that would be needed for the gas industry to catch up with other sectors. This estimated potential, which included actual efficiency gains already achieved over the previous review period, was halved so as to allow the companies to share the benefits of lower costs with consumers. The resulting overall x factor was distributed among the different companies according to a comparative assessment of their actual financial and operational performance using industry benchmarks. The k factors were set on the basis of specific investment proposals by the companies and an evaluation by Enargas of their necessity and profitability.

55. Some of the companies were unhappy with the tariff review and specifically the x factors set by Enargas, because of the basic methodology used to calculate the potential for efficiency gains, the magnitude of the resulting x factors and the way they were applied entirely at the start of the review period rather than evenly every six months. TGS filed a petition with Enargas in August 1997, challenging the regulator on a number of issues. The company later withdrew the petition, while maintaining its position.

4.3.2 *Transmission capacity trading*

56. In 1997, Enargas issued a resolution (419/97) aimed at creating a secondary market in transmission capacity. The transmission companies are required to establish and maintain an electronic bulletin board system, along the lines of the capacity release markets in the United States, to enable holders of firm capacity with TGS and TGN to release any unwanted capacity for a specified period. Prices are to be determined by market forces, capped by the maximum tariffs for primary capacity regulated by Enargas to discourage the distributors from deliberately over-booking capacity to sell on the secondary market at a profit. However, Enargas may approve a “grey market” transaction involving a bundled service (capacity plus gas supply) which implicitly prices capacity at above the regulated tariff. In view of the lack of initial activity in this market, Enargas is considering whether to remove the price cap⁶ and whether to take further action to stimulate trade.

4.4 Gas Exports

57. The extension of the Argentine pipeline system to export markets has raised the issue of pricing of pipeline services. Enargas has declared that it is inclined to adopt the principle of rolled-in pricing whereby the additional cost of extending a pipeline over the border is included in the overall cost base for calculating minimum revenue needs and rates for all customers (including existing Argentine customers). In this way, existing pipeline customers share the cost of providing capacity for new customers. This is in line with the approach adopted in the United States and Canada, and matches the approach to pricing of transmission and distribution services in the domestic market (whereby charges to all customers may

⁶ Similarly in the United States, the federal regulator, FERC, is considering removing the price cap on released capacity sales.

be increased by the k factor to remunerate the pipeline companies for system expansion to meet demand growth).

58. In July 1998, the Secretariat of Energy issued a resolution laying down the administrative procedures and conditions for issuing natural gas export licences. The objective of the resolution is to balance concerns about ensuring adequate domestic supplies of natural gas with the benefits of international free trade in natural gas. Long-term and short-term export authorisations are permitted. The former covers exports for longer than two years and with volumes in excess of an initially determined level of 100 000 cubic metres/day. The latter covers export transactions of less than two years or longer than two years but with volumes which do not exceed 100 000 cubic metres/day.

59. Licence applications must be accompanied by specific information concerning contractual terms of exports and technical characteristics concerning supply and transport, including:

- Destination and origin of the gas.
- Estimates of natural gas reserves in each well, area and basin from which the gas is supplied.
- Maximum and programmed quantities on a daily, monthly and annual basis.
- Conditions of delivery, such as take-or-pay or deliver-or-pay.
- The contractual time period, price and formula for price adjustment.
- Details concerning gas transport arrangements including export point(s) from Argentina.

60. The Secretariat, and in particular the Under Secretariat for Fuels, is responsible for considering requests and issuing export licences. Opportunity is provided in the approval procedure for qualified "Interested Third Parties" to comment on export proposals and under certain circumstances to initiate a formal complaint procedure which the Secretariat is required to act on quickly. Enargas is authorised to play an analytical role in formal complaint procedures and can opt to participate with the Secretariat of Energy in the entire analytical process of specific cases.

61. Key general conditions for authorisation of exports are that the contractual terms are transparent and not more favourable than for buyers in the Argentine market. Other factors which Argentine authorities are specifically authorised to take into account include:

- Local supply and demand.
- The effects of the export transaction on production and transport capacities from the relevant basin in relation to the domestic demands on that basin.
- The cost of transport of gas to the export market and its likely impact on netbacks and wellhead

prices.

- The impact of exports on the internal market in the medium- and long-term.
- Information related to any similar contracts signed during the previous year.