

Written Testimony of Domingo Cavallo before the Senate Committee on Foreign Relations on Energy Security in Latin America

June 22, 2006

Chairman Lugar, Senator Biden and members of the Committee:

Thank you for this opportunity to discuss with you a situation that impacts hemispheric energy security.

As paradoxical as it may sound, the “Bolivarian” policies that the President of Venezuela describes as “integrationist” are destroying the very valuable comparative advantage that the Southern Cone of America developed in the last decade.¹

President Hugo Chavez’s rhetoric and actions not only create a sense of energy insecurity in the USA, but also, through their influence on President Evo Morales of Bolivia, have had a negative impact on several other South American Countries. Their policies are destroying a very promising regional integration process that until recently benefited the energy scarce economies of the region. To make things worse, Argentina, which during the 1990’s led the regional energy integration process, has been trapped by misaligned energy prices since 2002. This has the effect of reinforcing the disintegration process fostered by President Hugo Chavez.

Chile and Brazil are already suffering from the impact of regional energy disintegration. For the time being, the Argentinean Government does not acknowledge the negative effect on its economy because it has shifted the burden of the adjustment to Chile. Nevertheless the country’s business community is already foreseeing natural gas and electricity shortages. The sooner Argentina starts to work together with Chile and Brazil to revive the energy integration process of the 1990’s by re-encouraging private investment in the energy sector, the better the chances are for reversing this trend and for making President Evo Morales aware of the bad advice and false promises he receives from President Hugo Chavez.

The regional energy integration process of the 1990’s

During the 1990’s, energy supply increased in the Southern Cone thanks to significant investment in exploration and exploitation of hydrocarbons and in the generation, transmission and distribution of electricity and gas. Energy availability and energy costs became an important source of comparative advantage for the region vis-à-vis other regions of the world. This competitive edge had its origin mainly in the availability of reserves of natural gas in Bolivia and in Argentina, and acquired a regional dimension thanks to the rapid process of cross border energy integration. Availability of natural gas

¹ I would like to acknowledge the comments of Pablo Givogri, Raul García and Carlos Bastos.

reserves strongly influences the cost of electricity generation because natural gas is the primary input for the production of electricity².

This process was guided by several energy integration protocols signed by Brazil, Argentina, Uruguay, Paraguay, Chile, and Bolivia. Each country was committed to restructuring its energy sector according to a common vision and common regulatory principles. These were: a) promotion of competition, b) attraction of private capital, c) regulation of monopolist activities, d) open access to transport facilities, e) economic criteria for price setting, f) independent regulatory authorities, and g) encouraging the participation of many international actors.

This very promising process of regional integration is now in crisis. The policies of price freezes for natural gas and electricity in Argentina after the devaluation of 2002 significantly reduced investment carried out by the private sector in the energy sector³. More recently, as the consequence of nationalization of hydrocarbons in Bolivia, natural gas producers have announced the suspension of new investments. In summary, these recent policy decisions by the two key suppliers in the energy matrix of the region are destroying the natural comparative advantage that had been developed in the previous decade.

The effect of private investment in the energy sector of Argentina

In the early 1990's Argentina organized the energy sector in line with the principles of the signed integration protocols and, in a short period of time, became a net exporter of natural gas to the region. The production of natural gas in Argentina increased from 62 to 98 million m³-day between 1995 and 2000. Thanks to this impressive increase in supply, Argentina stopped importing natural gas from Bolivia in 2000⁴ and began exporting significant volumes to gas-strapped Chile (since 1997)⁵. The market wellhead prices paid to natural gas producers that created the incentives for exploration and extraction of natural gas in Argentina was around \$ 1.4 per mmbtu in the Neuquen basin. The City Gate prices, that include transportation costs, ranged from \$ 2.0 per mmbtu in the Greater Buenos Aires Area to \$ 2.8 per mmbtu in Santiago. These prices were roughly half of the price of natural gas in the US market. This price differential exemplifies the extent of the aforementioned comparative advantage in natural gas that had emerged in the Southern Cone.

² Gas interconnections reached around 7,000 kilometres in extension connecting Argentina, Bolivia, Brazil Chile and Uruguay.

³ The government intervention in the gas market deepened in 2004 when gas prices were segmented by end-user category and activity. After the 2002 devaluation and domestic rates "pesification," gas prices were split between the domestic and the external market. Until such date, gas prices for both markets had evolved with virtually no noticeable differences among them. The Government's agreement with producers in 2004 determined a further split in gas prices within the domestic market prices. Such domestic price split distinguishes the captive distributors' market (residential, commercial users) –which maintains the same rate– from the deregulated clients market (mostly large users buying directly from the producers).

⁴ Imported volumes decreased significantly during 1999 – 1.1 million m³/day compared to 1998 volumes – 4.7 million m³/day-.

⁵ Exports to Chile from Argentina increased from 1.9 MM m³/day in 1997 to 12.0 MM m³/day in 2000.

The effect of private sector investment in the energy sector of Bolivia

Bolivia, which as a consequence of expansion of natural gas production in Argentina was losing its only foreign client, began negotiating with Brazil the export of volumes of natural gas that were four times bigger than those that it had been exporting to Argentina. At the end of 2001 the negotiated Wellhead price of U\$S 1.2 per mmbtu in the Tarija basin⁶ translated into a U\$S 3.0 per mmbtu in the San Pablo City gate. This was slightly higher than prices paid in Argentina and Chile but still substantially lower than prices in the US. The exports of natural gas from Bolivia to Brazil reached 22 million m³-day in 2005. Production in Bolivia increased from 9 to 31 million m³-day between 2000 and 2005.

Policy reversal in Argentina

These favourable integration forces began to change when in the aftermath of the Argentine crisis in 2002, the Argentinean government decided to impose a price freeze on natural gas tariffs at the “pesified” pre-crisis level⁷. This, which would have been already problematic in the absence of any other developments, happened at the same time when the international prices of energy began to surge. The prices of natural gas in Argentina fell to 1/3 of its pre-crisis level at the same time that the international prices of energy more than doubled. The consequence of this policy was an increase in domestic demand and a decrease in domestic supply. In the year 2005 Argentina imported 5 million m³day from Bolivia, and had to curtail exports to Chile. The most optimistic forecasts of energy production in Argentina predict that it will stop being a net exporter of gas by the year 2010. But most likely, at the current rates of consumption, Argentina will become a net importer earlier.

Increased demand for Bolivian natural gas

This new situation generated a surge in demand for Bolivian gas. The forecasts predict a level of demand of 68 millions m³ per day in 2010 compared to 31 millions m³ per day in 2005. This is because the entire region will become dependent on Bolivian gas. Peru, which has been investing in exploration and exploitation of natural gas, intelligently chose to develop facilities for exporting LNG via the Pacific, so at this point it can only be expected to be a marginal source of supply for its neighbours via cross border gas ducts.

The increased demand for its natural gas reserves could have allowed Bolivia to increase exports at more advantageous prices, if it had chosen to create the correct market

⁶ The base wellhead price of the Gas to be exported through the Bolivia to Brazil (BTB) pipeline was 0.95 U\$S per million of btu for a volume from 8 to 16 MMm³-day. For additional volumes up to 30.08 MMm³-day the established base price is 1.20 U\$S per million of btu. These prices are adjusted through a formula related to the price of an international fuel oil basket.

⁷ Wellhead gas prices for the distribution market were indirectly frozen as a consequence of suspending the pass through gas price mechanisms to end users rates – contemplated in the licenses awarded by the Government of Argentina).

incentives for further exploration and exploitation of its existing untapped reserves. Unfortunately, President Evo Morales, following the advice of President Hugo Chavez, has chosen a policy path that will likely have the opposite effects. By breaking its contractual agreements with the private companies that had invested in exploration and exploitation of natural gas in the last decade it has increased the uncertainty faced by private sector producers and will likely generate disinvestment in the sector.

Expensive consequences of policies in Bolivia and Argentina

The combination of these policy choices in Argentina and Bolivia have had the effect of restricting supply and lethally harming the comparative advantage that had evolved in the previous years. Once these policies have worked out all their effects, the costs of energy for industrial consumers of natural gas and electricity power plants in the main industrial areas of the region will be close to the levels paid by their counterparts in the USA. The reason is that natural gas users in these areas will have to purchase LNG from foreign markets at international prices which are roughly equivalent to alternative sources of energy like fuel and diesel oil.

Venezuela's false promises

The advocates of these new energy policies in Latin America argue that Chavez's Venezuela will become the main regional supplier of natural gas at low prices and the supplier of capital and technology for YPFB (Yacimientos Petroliferos Fiscales Bolivianos) to expand its natural gas production. This is not warranted by the recent developments of Venezuela's own oil and gas production. Oil production that had reached 3.5 millions of barrels per day in 1998 has dropped to 2.6 in 2005, and natural gas production dropped from 89 millions m³ per day to 77 in the same period.⁸ This is not surprising because Venezuela under Chavez, rather than increasing human capital investment in the state-owned energy company, PDVSA, and creating incentives for private sector risk taking, has done exactly the opposite.

Petrobras could have helped YPFB

In practice, the only state-owned company that could actually help YPFB become an efficient energy producer is the Brazilian Petrobras, which has shown to be efficient and visionary. During the same period in which Venezuela reduced its energy production, Brazil, which is significantly poorer in non-renewable energy resources, has increased its oil production from 1 million barrels per day to 1.5 million and its natural gas production from 17 millions m³ per day to 30. But the Bolivian strategy, instead of choosing Petrobras as its partner, so far has made it the main victim.

⁸ Furthermore only 15 Trillion of Cubic Feet (TCF) gas reserves are not associated with oil and could be develop as an additional source of natural gas for exports. Of these, 11 TCF are already committed to a LNG project. So, Hugo Chavez is offering gas that Venezuela actually will not have available.

In the medium term Bolivia will suffer

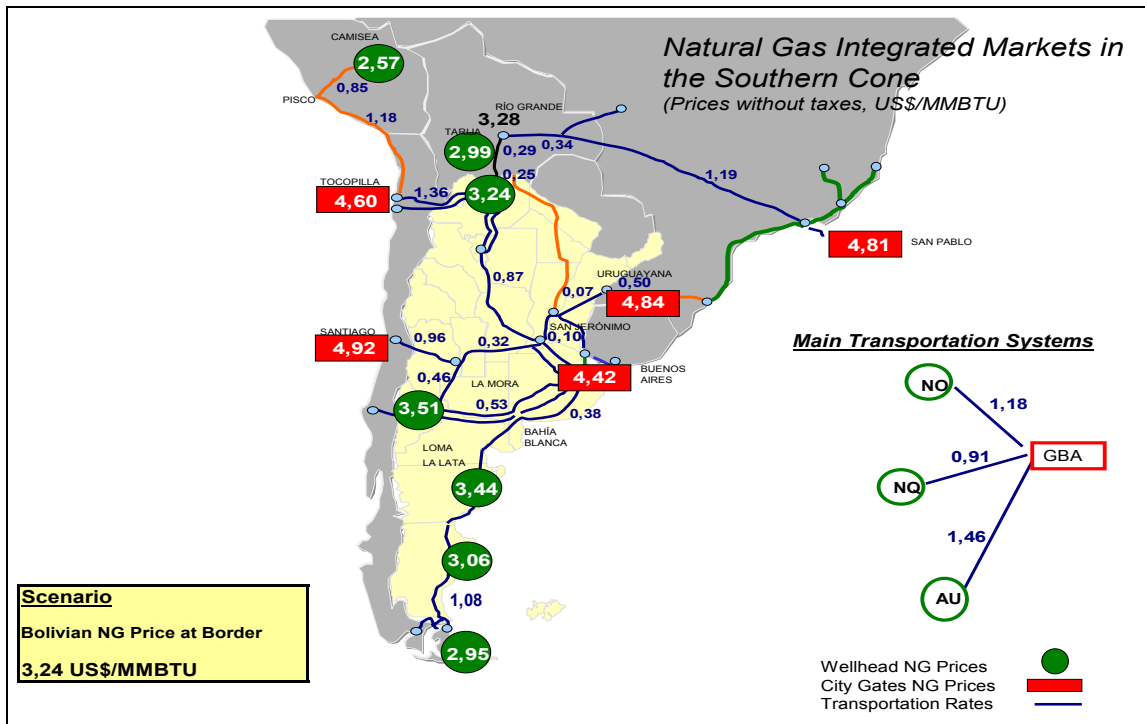
If, as it has already been announced by President Lula da Silva, Brazil encourages more investment in exploration of its own off-shore gas reserves and succeeds in becoming self-sufficient in natural gas by 2008 or invests in regasification plants to access the LNG market, Bolivia may lose its main client. By then, President Evo Morales will realize that the advice of President Hugo Chavez was lethal. Paradoxically its only alternatives for the future will be to encourage the production and export of LNG as former Presidents Quiroga and Sanchez de Lozada had envisaged. Of course, that solution will require creating very favourable conditions for international private investment, because Bolivia will have neither the human nor the financial resources for such an endeavour.

Wellhead Natural Gas Prices in the Southern Cone (US\$/MMBTU)

At Wellhead	Pre-Crisis	Segmented Markets
	Prices before devaluation (2001)	2006
Tarija Basin (Bolivia)		
(1) Exports to Brazil	1,23	3,00
(2) Exports to Argentina	---	3,00
Noroeste Basin (Argentina)		
(1) Residential and Small Users (commercial, small industries)	1,21	0,40
(2) Other Users (CNG and Users with consumption >300 m3-day)	1,21	0,98
(3) Desregulated Market (Large Users)	1,18	1,51
(4) Exports	1,26	1,89
(5) Import from Bolivia at border	---	3,24
Neuquina Basin (Argentina)		
(1) Residential and Small Users (commercial, small industries)	1,44	0,48
(2) Other Users (CNG and Users with consumption >300 m3-day)	1,44	1,04
(3) Desregulated Market (Large Users)	1,39	1,64
(4) Exports	1,48	2,05
Austral Basin (Argentina)		
(1) Residential and Small Users (commercial, small industries)	1,03	0,34
(2) Other Users (CNG and Users with consumption >300 m3-day)	1,03	0,87
(3) Desregulated Market (Large Users)	0,98	1,45
(4) Exports	0,96	1,81
Santos Basin (Brasil)		
	1,58	3,60

City Gate Natural Gas Prices in the Southern Cone (US\$/MMBTU)

At City Gates	Pre-Crisis	Segmented Markets
	Prices before devaluation (2001)	2006
Greater Buenos Aires (GBA)		
<u>By TGN System</u>		
(1) Residential and Small Users (commercial, small industries)	1,96	0,65
(2) Other Users (CNG and Users with consumption >300 m3-day)	1,96	2,07
(3) Desregulated Market (Large Users)	1,93	2,63
(4) Import from Bolivia	---	4,45
<u>By San Martín Pipeline</u>		
(1) Residential and Small Users (commercial, small industries)	1,97	0,66
(2) Other Users (CNG and Users with consumption >300 m3-day)	1,97	2,11
(3) Desregulated Market (Large Users)	1,92	2,76
San Pablo		
(1) Gas from Bolivia	3,02	4,82
(2) Gas from Domestic Production	1,89	3,91
(3) Residential, Commercial, Industries	3,02	4,82
(4) Power Generation	2,59	3,92
Santiago		
Gas from Neuquina Basin (all users)	2,81	3,44



Natural Gas Market Prospects in the Southern Cone (MM m³-day)

PERÚ	2005	2007	2010
Demanda	2,3	4,6	31,1
Interna	2,3	4,6	11,0
Externa	0	0	20,1
LNG USA	0	0	17,7
Chile	0	0	2,4

BOLIVIA	2005	2007	2010
Demanda	30,8	49,2	68,0
Interna	3,7	4,2	7,8
Externa	27,1	45,0	60,2
Brasil	22,3	34,7	42,0
Argentina	4,8	10,3	18,2

CHILE	2005	2007	2010
Demanda	21,9	27,9	32,0
Prod. Nac	5,8	5,9	6,1
Importaciones	16,1	22,0	25,9
Argentina	16,1	16,1	16,1
Otras/LNG	0	5,9	9,8

BRASIL	2005	2007	2010
Demanda SE	39,2	52,0	66,4
Prod.Nac	16,0	16,1	23,2
Importaciones	23,2	35,9	43,2
Bolivia	22,3	34,7	42
Argentina	0,9	1,2	1,2

URUGUAY	2005	2007	2010
Demanda	0,8	1,1	1,5
Importaciones	0,8	1,1	1,5
Argentina	0,8	1,1	1,5

ARGENTINA	2005	2007	2010
Demanda	112,7	122,8	137,8
Interna	94,9	104,4	119,0
Externa	17,8	18,4	18,8
Chile	16,1	16,1	16,1
Brasil	0,9	1,2	1,2
Uruguay	0,8	1,1	1,5
Prod. Nacional	107,9	112,5	119,6
Importaciones	4,8	10,3	18,2
Bolivia	4,8	10,3	18,2

Gas Interconnections

- Operating Gas pipelines ———
- Gas pipelines under project ———
- Gas pipelines under study - - - -