Is it feasible to think about an internal energy market in Mercosur? A first approach

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I – Introduction

There is nothing new in saying that energy is an extremely controversial issue, mainly considering that regions such as the Middle East and North Africa play a crucial role as oil and natural gas suppliers. Moreover, the sharp increase in oil prices in the last years –importantly affected by geopolitical tensions- has introduced considerable signs of uncertainty in the energy markets. According to Oil & Gas Journal data, the average price for OPEC's basket –that includes eleven benchmark crudes- was up to US$ 57.57/bbl by the end of September, while oil futures prices rocketed to US$ 62.76/bbl in the US market[1] and US$ 62.76 in the British one[2]. High oil prices, and the uncertainty that governs the sector about their probable future, decisively influence world economic progress due to contemporary dependence on hydrocarbons consumption.

The multi-layered analysis of energy issues in general, as well as the detailed study of its diverse sub-sectors, consents us to include a significant number of actors, variables and scenarios, enriching and making the investigation and provisions about this issue-area a complex task. In this fashion, it is important to highlight that energy is not only a vital factor to develop a certain economy and to improve its inhabitant's welfare, but also to the evolution of issues such as the world economy, world relations –in the economic and political realms-

[1] **Contract for benchmark US light.**
[2] **Contract for North Sea Brent.**

, climate change concerns, environmental matters and biodiversity, among others.

This paper will be focused on the analysis of Mercosur member States within the oil, natural gas and electricity industries. Given the profound energetic interconnectedness in South America –in trade and physical terms- Mercosur associated States will be also considered when necessary[3]. The aim of the current paper is to inquire about the feasibility and prospects of an internal energy market in the near future.

Some analysts believe that energy markets integration in the sub-region may develop into an issue-area that can help these countries and the broader regional integration process to acquire greater dynamism. As pointed out by Malamud and Schmitter, "regional integration has to begin somewhere and the best place to do so under contemporary conditions is with a functional area that is of relatively low political visibility, that can apparently be dealt with separately and that can generate significant benefits for all participants" (Schmitter and Malamud, 2005).

However, it is difficult to elucidate whether Mercosur's development will be responsible for the creation of an internal energy market in the-sub region, or –on the other way round- if it will be the creation of an internal energy market what may give Mercosur new impetus, causing some kind of spill over effect in the whole integration process.

This paper is structured in four sections. The first one will briefly analyze the hydrocarbons and electricity markets, giving some figures about energy reserves, installed capacity, production, consumption and trade in the selected countries. Afterwards, the focus will be put on energy market reforms underwent since the beginning of the last decade. The third section will deal with energy interdependence's cur-

[3] **Mercosur's Associated Members are: Bolivia, Chile, Colombia, Ecuador and Peru.**

rent situation in Mercosur's markets and the feasibility of its deepening through an institutionalized coordination at the sub-regional level. Finally, some conclusions about the analysis carried out will be given as well as some forecasts about the practical possibility of an internal market in some of the sub sectors studied.

II – Some figures about the energy situation in MERCOSUR member States

Considering the current picture of world's energy resources, the International Energy Agency (IEA, 2005) sustains that fossil fuels will continue dominating the energy world supply. Petroleum persists as the most important primary energy source, followed by coal –whose supply is mainly concentrated in India and China. Natural gas, which is expected to overtake coal's position in the primary energy ranking by less than ten years, is experiencing an important upsurge, mainly thanks to electricity generation. Finally, hydro, nuclear and other electric power generation (geothermal, solar, wind, and wood and waste) are placed in fourth, fifth and sixth position respectively.

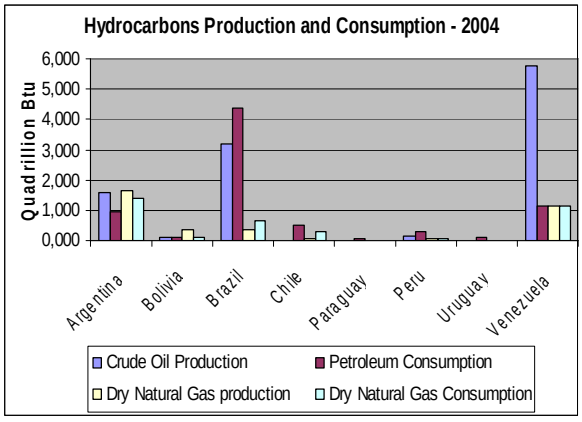
As far as energy consumption is concerned, it continues being concentrated in OECD counties, even if their shares on total final consumption diminished of 11.7% in the last thirty years. Except from the Middle East and non-OECD European countries, all the other regions increased their shares in total final consumption since 1973, with the impressive grow of China in this respect, that by itself augmented by 5.7% its participation during the mentioned period (IEA 2006).

In a regional analysis, the IEA states that most of the projected growth in energy demand –until 2030- will take place in non OECD-countries. Energy demand in developing countries will be boosted by factors such as: economic growth, industrialization, population

growth and urbanization. The Agency also shows that there will be some kind of regional mismatch between demand and production that "will result in a major expansion of international trade in oil and gas, both in absolute terms and as a share of supply" (IEA, 2005). In this fashion, the agency sustains that, in order to meet projected world energy demand growth, "cumulative energy-sector investment needs are estimated at about $17 trillion (in year-2004 dollars) over 2004-2030, about half in developing countries" (IEA, 2005). In this way, it is recognized the great challenge posed to these economies –including, of course, South American countries- as far as the financial needs are concerned and the policy reforms needed to attract investments in the diverse energy sectors.

As we can appreciate in the graphic below, Venezuela –an OPEC founding member- decisively dominates oil production, with 77,2 billion of conventional oil reserves. In terms of natural gas, it owns the ninth largest reserves in the world: 151 trillion of cubic feet. It produced 1.05 trillion cubic feet in 2003, from which 90% is associates to petroleum –situation that strongly affect natural gas production and consumption in the country.

Brazil plays also an important role in the hydrocarbons scenario. The country posses the second largest oil reserves in South America: 10,6 billion barrels, with a production of 1,8 million bbl/d and a consumption of it consumed 2.189,5 thousand bbl/d in 2005 –what makes of this country a net importer, even if it has been declared that it will became self-sufficient in few years.



Source: Author's elaboration based on EIA data.

As long as the natural gas is concerned, its proven reserves climb to 8.8 trillion cubic feet, localized mainly in Santos and Campos basins.

Argentina's proven oil reserves amounts 2.7 billion of barrels per day. Although its production has been declining in the last years, it is the third oil regional producer behind Venezuela and Brazil, showing a production of 692 thousand bbl/d in 2004. Given the country consumes less than what it produces -it consumed 397 thousand bbl/d in 2004- it is among the oil net exporters of the region. This country has also considerable natural gas reserves: 21 trillion cubic feet, the third largest in Latin America. After the impressive development of the natural gas industry during the '90s, that led Argentina to become a regional natural gas exporter, provisions problems arrived in 2004. A mix of high level of natural gas internal demand added to insufficient production and transport capacity led to a critical situation. In order to repair this serious shortage, the Argentinean government decided to start importing gas from Bolivia and to stop natural gas exports to Chile.

The Argentinean hydrocarbons sector seems to be in a delicate situation nowadays. Investments lacking in oil and gas sectors are at the centre of the problem. It is mainly in the exploration sector where investments appear to be markedly scarce. Hence, it his highly probable that in the near future Argentina will become a net importer of oil. The natural gas sector presents as well serious problems, given low levels of investment in exploration and transportation, a decreasing level of natural gas reserves and a growing internal demand.

Both Paraguay and Uruguay do not have any proven oil and natural gas reserves. Therefore, these two countries have to import oil in order to meet their respective demand on this energetic -25.400 bbl/d and 35.700 bbl/d in 2005 respectively.

In Paraguay, given the inexistence of both local natural gas production and significant gas pipelines to import it, the country not even

consumes it. On the other hand, in the Uruguayan case -where natural gas reserves are also inexistent- there is a different situation, because this country does consume natural gas. To do so, Uruguay is obliged to import it, what it has been done importing it from Argentina. However, the Argentinean crisis in 2004 adversely affected Uruguay, given that Argentina temporarily cut out its natural gas exports. This situation led the Uruguayan government to reconsider the role of Argentina as the sole supplier of this energetic.

Neither Bolivia nor Chile posses large proven oil reserves: 440 and 150 millions of barrels respectively in 2005. Given that the first one is not a big oil consumer, its local production, which amounted to 50,040 bbl/d in 2005, succeeded in satisfying local oil demand. In the Chilean case, whose oil consumption was up to 225,000 bbl/d in 2004, imports are needed in order to meet local demand.

On the other hand while Chile not even possess large natural gas reserves, Bolivia finds in natural gas one of its main economic attractions. Its proven reserves, localized principally in the Tarija[4] department, raise to 24 trillion cubic feet, ranking the country in the second place among the largest regional natural gas reserves. In this fashion, natural gas exports have become essential for the Bolivian economic and government policies.

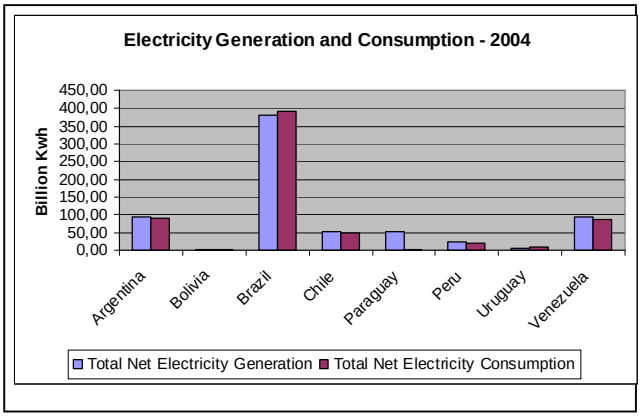
Chile needs to import natural gas in order to satisfy its local demand, and it does so by importing it from Argentina. As a matter of fact, there are seven international gas pipelines between Argentina and Chile: Gasatacama, Norandino, GasAndes, Gas Pacifico, Methanex (El Condor-Posesión), Methanex (Patagónico) and Methanex (Bandurria-San Sebastina). Despite this close interconnectedness between these two countries, Argentina has been showing some problems to accomplish with the contracted terms of exports.

[4] **This department alone produced 1.4 billion of cubic feet during the first half of 2006.**

Finally, Peru has small oil reserves, and it has to import oil in order to cover its needs. It is in the natural gas sector where Peru may evolve into a key regional actor. Although it currently has the fifth-largest reserves in the region -8.7 trillion cubic feet-, it is estimated that they may become 15-16 trillion cubic feet in the near future. Its local consumption has been increasing, arriving at 19.8 trillion cubic feet in 2003. Peru's expectations in this matter falls on the Camisea project, where it is estimated there are 11 trillion cubic feet of proven plus probable natural gas reserves. Although initially this project is aimed at supplying the internal market, it is highly probable that surplus production may be put in the international market. Added to this, there is the project of a liquefied natural gas (LNG) export terminal, near Lima, with an operating capacity of 4.2 millions ton per year. This LNG production will have as a destiny the US and Mexican markets.

As far as the electricity sector is concerned, South American countries share a common characteristic: hydro power is a vital source for its production, and in some cases it represents a considerable share of total electricity production in determined countries.

Argentina -one of the largest market power in the region- is one of the few countries in which hydro power is not the prevalent source for electricity production. According to 2003 data, it has an electricity generation capacity of 27.8 gigawatts, in which fossil fuels -primarily natural gas- accounted for the 61% of its generation while the rest of the generation capacity was formed by hydroelectric and nuclear generation -35% and 4% respectively. Argentina has two important bi-national hydroelectric power stations. The largest one in the country, Yaciertá –co-owned with Paraguay-, is an hydroelectric dam with 20 generators and an installed capacity of 3,500 MW. The other bi-national project, co-owned with Uruguay, is the Salto Grande power station, which has an installed capacity of 1,890 MW.



Bolivia is the second exception, given that it has an installed generation capacity dominated by thermal resources: 1.4 gigawatts in 2004, which means 67% of total installed generation capacity. The rest is covered by hydroelectric generation. Bolivia is self-sufficient in what electricity needs are concerned.

In all the other cases, hydroelectricity is the main source to generate electricity. Brazil, that depends to a great extent from hydroelectric generation to cover its needs in terms of electricity, has a installed capacity of 82,5 gigawatts, generating 359.2 billions of Kwh and consuming 371.4 billions of Kwh (2003) –importing from Argentina the electricity missing. Electricity generation is complemented with thermal and nuclear generation -hydroelectricity represents the 84% of local electricity supply. Together with Paraguay, this country posses the biggest hydroelectric power station in the world: Itaipú.

The already mentioned dependence on the hydroelectric source in order to cover the electricity needs of the country have caused serious hurdles, mainly in those years of rain shortage. This was particularly the case in 2001, when the country suffered from a severe electricity shortage as a consequence of low level of rains and low levels of investments in the sector through many years.

Paraguay, which also depends on the hydroelectric resource to generate electricity, uses its impressive generation capacity to export electricity: Paraguay consumed only 3,5 billions of Kwh from the 51,3 billions generated in 2003. It takes part of two important bi-national hydroelectric power stations: Itaipú and Yaciretá –that are completed by another hydroelectric dam, Arcaray, and six thermal plants.

Uruguay's electricity production amounted 5,8 billions of Kwh in 2004, consuming 6,2 billions in the same year –and as a consequence, importing electricity from its neighbours. This country has three national hydroelectric power stations –Terra, Baygorria and Palmar- and a bi-national one shared with Argentina: Salto Grande.

In Venezuela hydroelectricity represents the 62% of its total installed generation capacity –that meaning 21.3 gigawatts. During the last twenty years, electricity consumption in Venezuela has been increasing at an annual rate of 7.2%, arriving at a consumption of 81.3 billion of Kwh. However, the electricity sector shows some challenges to be overcome, as the rain shortages and the high level of electricity thievery -estimated in 25% of national consumption.

A peculiar case is represented by Peru, which supplies 82% of its local electricity demand using hydroelectricity despite its total installed generation capacity –of 6 gigawatts in 2003- is evenly divided between this source and the thermal one.

Chile, which used to heavily depend on hydroelectricity production to cover its energetic needs, introduced thermal generation in the electricity production in order to equilibrate and diversify its sources. However, the hydroelectric generation capacity is still growing[5], mainly after the Argentinean 2004 gas crisis. This country has an installed capacity of 10.7 gigawatts, with a production of 45.3 billion of Kwh and a consumption of 44.1 billions of Kwh (2004).

South American countries show several electricity interconnections, being the Southern Cone the sub-region where we find the most important ones. International electricity interconnections are beneficial in cost terms, given: a decreasing use of non renewable fuels and optimization of water management in big dams; higher efficiency in generation investments (optimization of power plants of the intercon-

[5] **As a matter of fact, Endesa started up a 570 MW generation hydroelectric plant in the Biobio River (*Ralco*).**

nected area); higher efficiency of transmission investment (optimization of infrastructure transport and an increasing capacity transport); increasing competition and decreasing price volatility; environmental benefits (hydro power); regulatory risk reductions; reliability of service improvements; prices improvements (Maldonado and Palma, 2004).

An increasing number of international interconnections would be turned into important economic benefits, due to the decrease in energy prices as a result of the increased in both the availability of options in the generation and the transmission fields and in the number of participants that would deliver the regional market (Lutz, 2001).

III - Energy Sector Reforms

The 1980s were the beginning of an important number of changes in most South American countries. Economically speaking, this period is known as the lost decade, due to debt crisis' effects on the economy of these countries. Most of them suffered from important processes of hyperinflation, unemployment, low levels of growth, etc, which were confronted with different success and effectiveness in each country.

Given the situation of spread economic crisis in the region, many South American countries followed the path of reforms in their economies. This is why the 1990s meant sharp and deep economic reforms in South America, under the umbrella of the well-known and neo-liberal oriented Washington Consensus. Although the aim of this paper is not exactly to carry out a detailed analysis of structural reforms in these countries, it is convenient to highlight some issues related to energy industry reforms. Due to its economic and political relevance, this sector was a very controversial issue-area to be dealt with. The privatization process of the State-owned companies in the oil, natural gas and electricity industries did not proceeded at the

same speed in these countries nor it was homogenous in its aims and scopes.

Among the selected countries, Argentina represents a paradigmatic case due to the scope and the speed of reforms, because it alienated most of the former State-owned companies in few years. The State Reform Law (No. 23.969/89) and the Economic Emergence Law (No. 23.697) were the fundamentals of the liberalization and economic openness of Argentina that started in 1989. The energy sector could not avoid being part of this massive process of reorganization and as a consequence Argentina underwent a deep restructuring that involved the separation of the national State from the "electricity and natural gas companies, electricity generation competition and –to a lesser extent- in oil and natural gas production, as well as competition in the electricity and natural gas wholesale markets (including contracts market and spot market)" (Lutz, 2001). These measures were accompanied by some ownership restrictions in order to prevent discrimination and dominant market power. It is important to stress that reforms in the Argentinean energy sector were subordinated to macroeconomic objectives' success instead of the achievement of some efficiency or security of supply aims.

Another paradigmatic case was that of Chile, because it was the first country in the region –and also worldwide- to privatize State-owned companies. The electricity sector underwent the privatization process in the '80s, including the activities related to generation, transmission and distribution of electricity. Chilean reform in the electricity sector served as a model that would be followed by the rest of South American economies, which meant that most of these countries opted out by disintegrating the industry in order to support competition among the diverse actors participating in its production chain as well as building up legal and regulatory frameworks in order to establish the new rules of the game (Maldonado and Palma, 2004).

Bolivia had been one of the cases in which the national State had decided to privatize all the formerly State-owned energy companies. As it will be later exposed, this situation changed in the hydrocarbons sector, but it did not as far as the electricity industry is concerned. Bolivia had followed the Argentinean model of electricity privatization, separating the generation, transmission and distribution sectors, forbidding vertical integration within this industry.

Coming back to the Bolivian hydrocarbons' issue, the 1st May 2006 Bolivian president Evo Morales confiscated through a decree the stakes needed in order to control the formerly State-owned YPFB. The confiscation was carried out without any previous negotiation, and the army was used to take posses of the facilities in Bolivian territory. It was argued that negotiations would be carried out with oil companies operating in Bolivia in order to renegotiate contract terms. One of the most adversely affected actors is the Brazilian government, because this country buys half the natural gas that consumes. The Spanish government also showed to be upset, given that Repsol-YPF is an important actor in the Bolivian hydrocarbons scenario[6].

On the other side, countries such as Brazil are still opening their energy markets, implementing gradually policy reforms and redefining the role played by the national government. Brazil's oil company, Petrobrás, flaunts a dominant position in the local hydrocarbons sector, possessing 95% of the Brazilian oil production and more than 90% of the local natural gas reserves. In the electricity sector, despite the efforts to liberalize the sector during the '90s, the State-owned Eletrobrás continues being the biggest electricity generator company in Brazil. It was only in the distribution sector where the electricity reform in Brazil succeeded in introducing the private inter-

[6] **Argentina was the first country that renegotiated natural gas import prices with the Bolivian government. By the end of October, Bolivia signed several accords with eight oil companies, establishing the *new rules of the game*. It is estimated that Bolivia will receive US$ 2 billions more per year thanks to this renegotiation.**

vention, remaining both generation and transmission almost exclusively in the national State hands.

Related to this last issue, it is interesting to notice that, while some countries have privatized oil State-owned companies –such as Argentina[7] and Peru-, others still show State-control over this industry. Other than the Brazilian and Venezuelan cases, we find that in Paraguay, the oil sector is completely controlled by the national government through the State-owned Petróleos Paraguayos (PetroPar), while the whole electricity market –including its three sectors- is managed by the State-owned Administración Nacional de Electricidad (ANDE).

This is exactly the same situations in Uruguay, where the oil sector is exclusively owned by the national government through the Administración Nacional de Combustibles, Alcohol y Portland (ANCAP). On the other hand, the Administración Nacional de Usinas y Transmisiones Eléctricas (UTE) continues controlling the transmission, distribution and a big part of the generation sectors, despite the efforts of admitting independent producers in the generation sector in 1997.

On the contrary of what we find in the oil sector, Venezuelan electricity sector was opened to the private sector. Despite privatization had already been in process, by the end of the last decade the national government deregulated the sector. However, political instability postponed the development of the process.

Leaving aside the Argentinean and Peruvian cases, the rest of the countries analyzed present a considerable participation in the oil and natural gas sectors by the respective national governments –in different degrees, according to each case and each sub-sector. As already mentioned, in the Bolivian's hydrocarbons industry -which had been subject to a complete privatization as in Argentina and Peru- the na-

[7] **It is worth reminding that Argentina created in 2004 ENARSA, a State-owned hydrocarbons company, as a consequence of the 2004 energy crisis. ENARSA is allowed to operate in any part of the hydrocarbons productive chain as well as in the electricity sector.**

tional government decided in outset of 2006 to modify the rules of the game through renationalizing the whole sector. Although the consequences of such a measure cannot be wholly determined, given the short period of time elapsed, it clear that this measure will bring profound consequences not just for the Bolivian hydrocarbons sector development, but also for the relations among this country and its neighbors in terms of natural gas trade and investments.

Reforms performed in the national legal framework of these countries introduced a higher level of competition within the oil and natural gas industries, in some cases eliminating national government monopoly over these sectors, in others softening it. Except from Argentina and Peru, the other cases did not aim at alienating the State-owned companies, but at undertaking their modernization. As pointed out by Campodónico, "State-owned companies continue having a predominant role in regional production, investments, sales, utilities' volume and regional exports, what reveals the relevance of their growth strategy and the space given to the transnational enterprise in the sector" (Campodónico, 2004). This characteristics helps us understanding the direction chosen by these States as far as the management of the hydrocarbons sector and the importance given to it vis à vis other industries.

One of the justifications of reforms was the attraction of investments to the energy industries. As long as the electricity sector is concerned, reforms were also aimed at attracting investments, and that was the case during the first years of reforms within this industry – especially for those countries that opted out by privatization and vertical disintegration of the industry. However, it is important to notice that a big part of investments in the sector corresponded more to the acquisition of existing assets than investments destined to enlarge the installed capacity.

Reforms in the oil and natural gas sectors generally aimed at this objective[8], improving the market friendliness for national and foreign investments to be done by the private sector. Consequently, FDI flows to these countries considerably increased both in the upstream and the downstream sectors as long as these activity sectors were gradually opened. It is mainly in the downstream sector –except from some restrictions in the refining activities- where FDI shows the most important penetration.

Argentina and Venezuela seemed to have been the most attractive countries for foreign investors during the '90s, due to the fact that FDI destined to the hydrocarbons sector in these countries represented considerable shares of total FDI. For example, in 1999, when Argentina ended the privatization process of the formerly State-owned YPF, 73.3% of total FDI corresponded to this transaction. On the other hand, we find that FDI destined to the hydrocarbons sector in Brazil plays a marginal role in comparison with total FDI arrived in this country.

Despite the importance of foreign participation in the hydrocarbons sector, State-owned companies also play a vital role in what respects investments. As pointed out by Campodónico, State-owned oil companies invested more in the region than foreign ones, being the Venezuelan PdVSA and the Brazilian Petrobrás[9] among the top companies investing within this sector since the beginning of the '90s (Campodónico, 2004). Moreover, private owned companies with local capitals are consolidating their market position while multinationals are loosing part of their previous dominance. In this way, it is emerging what is known as translatin company: this concept is related to –

[8] With the exemption of Venezuela in the reforms of the oil industry, that even reduced the incentives given to private sector investments while increasing the oil income for the national government. On the other hand, Venezuela gave more incentives as far as natural gas sector is concerned.

[9] This fact shows that modernization within the oil industry gave impressive results or these countries.

mainly private- companies which are operating and investing in Latin America and the Caribbean (CEPAL 2004).

IV – Energy in South America: what is next?

There are some tendencies that characterize the current picture of the energy sector development in the region that are important to be considered, like the fuel basket change and the emergence of natural gas as the main fuel in the region. Energy markets are fragmented and they are starting to be more competitive because energy is strongly becoming a tradable good in the international market. This situation implies that there are important incentives for private actors to take advantage of, which turns into an increased number of actors in the energy market.

Despite important differences in size, industrial structure, development and natural resources endowment among South American countries, when talking about strengthening the energy sector in the region one might identify some issues related to it: a) consolidation of structural reforms underwent during the 1990s; b) extension of the modern options of energy; c) development of productions patterns and efficient and environmental-friendly use of energy; d) foreign and national capital attraction in order to finance the sector; and energy markets integration in the region as a key element in their economic integration process (Vives Llabrés and Millá, 1999).

One of the most relevant issues related to growing production and demand of energy has to be with the investments needed to meet these aims. This very last point about future investments in the energy sector is to be considered of vital importance. Just to name two cases -but there are more-, countries such as Brazil (2001) and Argentina (2004) have underwent serious energetic crisis –in the second case, affecting energy trade of the country with its neighbours.

In 2001 Brazil suffered from an electric shortage caused by insufficient rainfall, which highlighted Brazilian deep reliance on hydro power. This crises also demonstrated that this country have not met the needed investments in the sector. As a consequence, the national government had to "force" Brazilian consumers to rationate their electricity consumption for almost nine months and implemented a new energy program. Hence, a new model for the electricity market was presented in 2003, entering into force the following year. In this new model, the efforts are concentrated in strengthening energy supply security, stabilizing customers' prices and attracting lung run investments for this industry.

Still, electricity sector difficulties are not only a Brazilian property, but also they are disseminated –more or less profoundly- in almost all the region. Many complications stem from the weakness of a proper regulatory framework, causing supply troubles, system failures, wrong investment decisions, market failure, etc. This situation is very likely to persist, given the inexistence of "a suitable planning, a regulatory framework adapted to each State requirements, (and) regulatory and supervisory bodies provided with enough authority (…)" (Maldonado and Palma 2004)

The Argentinean energy crisis of 2004 not only had important impacts on that country, but also on Chile and Uruguay, with which Argentina trades natural gas and electricity. Due to low energy prices –produced by caps imposed by the Argentinean government-, there was a considerable increase in energy demand that exceeded by far supply. Therefore, the Argentinean government had to stop gas exports to Chile –breaking the accords with this country in this field- and it started to import natural gas from Bolivia.

Argentinean have also problems to export electricity: taking into consideration restrictions on the three activity sectors in the electricity industry, it is probable that the country will face a critical situation in

order to satisfy its local demand and the accorded electricity exports to Brazil (Palma and Maldonado, 2004).

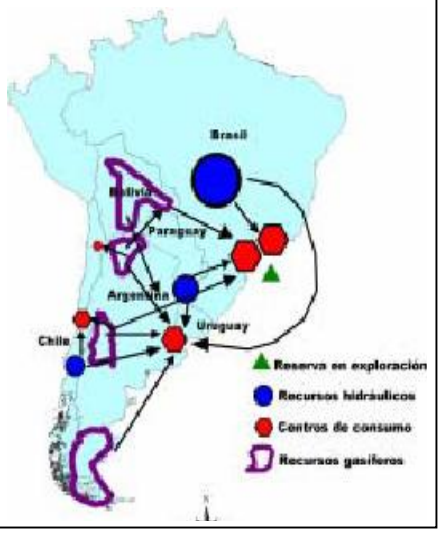
These two examples indicate two important issues: first of all, they stressed the importance of planning when talking about energy, which includes new projects –and so, new investments in the sector. The second relevant topic has to be with the interconnectedness of energy in the Southern Cone. As it has been showed, the Argentinean crisis had its consequences at least in three of its neighbor countries. This point leads the analysis to the implications of cooperation or regionalization in the energy sector.

Both Mercosur and the Andean Community shows important steps towards the creation of an electricity internal market, and there are several projects destined to improve electricity infrastructure among them given that it: "determines the basis for social and productive development, as well as it provides countries with a set of vital services aimed at developing competition" (Palma and Maldonado, 2004)

South American countries have an important asset due to their complementarities in their energy resources, which can allow them to interchange electricity among countries with surplus and deficits of electricity (Muñoz Ramos, 2004). Mercosur shows the more concrete steps taken towards the creation of energy market integrations, mainly through hydroelectric bi-national projects and the electric interconnections. Moreover, as it can be seen from the graphic below, there is an important potential to integrate Southern Cone countries in this respect. In the Andean case, there is some kind of movement towards the creation of an electricity single market that can be exemplified by the efforts of Peru, Bolivia, Chile and Ecuador to integrate their respective power grids.

In the natural gas sector there have been also important projects that are being undertaken or at least planned. One of the most renowned projects is the already mentioned South American energetic ring, a titanic gas pipeline project that would start from the Peruvian Amazonia (Camisea), carrying natural gas to the north of Chile, Argentina, Uruguay and the South of Brazil.

Integration Potentiality in the Electricity and Natural Gas Sectors



Another important project is building up an enormous gas pipeline of more than 9 thousand kilometers that would carry 85 millions of m^3 a day of natural gas from Venezuela, crossing all the Brazilian territory, arriving to Buenos Aires and Montevideo[10].

However, this project is rising a growing number of concerns. To name just a few, its cost –estimated around US$25 billons- and the availability to finance it emerged as the most obvious ones. Furthermore, there are feasibility studies that put some doubts about the convenience of building up such a long pipeline, because of the transportation losses. Then, despite the impressive Venezuelan natural gas reserves, there is no certainty that this country is able to meet regional needs of natural gas. Other than the environmentalist concerns –that are not minor, considering that the pipeline should cross all the Amazonian field- political and regulatory fears stem from the highly regulated natural gas market in the Southern Cone.

Although the initiative produced enthusiasm in countries such as Brazil -because it is said that it would be able to save around US$11 annually in natural gas imports-, it generates great tension with Bolivia,

[10] **The mega-initiative has been planned in the IIRSA framework.**

which depends heavily on the natural gas exports destined to Brazil. However, given the recent development of the hydrocarbons sector in Bolivia, Venezuelan natural gas may evolve into a possible alternative.

IV- Conclusions

We have seen that reforms in the energy industry proceeded with different speed and scopes within the region. Structural reforms in the energy sector of the countries analyzed should have delivered market competitiveness, increased efficiency, etc. However, due to incomplete liberalization of the sector or to important mistakes in the energy policy planning in each country, these results did not fully come into reality.

Many countries still controls all or part of the energy sector through their respective State-owned companies. As a consequence, national governments have the exclusivity in planning their respective energy policies, although most of the times the private sector is included in this planning process, mainly as far as financing is concerned. Nevertheless, this situation does not necessary mean that these countries have long-lasting, well planned and sustainable energy policies, but at least allows them to take active action on it.

On the other hand, cases such as the Argentinean one can be used as paradigmatic, due to the consequences of the absence of a long-lasting national energy policy. As it has been mentioned, this country gave to macroeconomic objectives a central role at the moment of energy sector reforms. Additionally, the alienation of all the formerly State-owned energy companies and a weak capacity to regulate the diverse sub-sectors puts Argentina in a delicate situation in this respect. The circumstance is particularly delicate given the forecasts

about a serious energy crisis in this country, in both the electricity and hydrocarbons sectors.

An important challenge that South American countries are facing concerns the legal and institutional organization in the various energy sub-sectors. It is important to stress the relevance of the nation State in leading energy policies and the needed reforms. National States should strengthen their respective regulatory and control bodies, giving to them the necessary tools to perform accurately their tasks. It should be clear that the energy policy planning initiative and a long-run sustainable perspective cannot be left exclusively to the private sector.

Considering what has been already said, it is possible to evaluate the potentiality and feasibility of Mercosur energy integration forecasts. An interesting starting point may be to wonder "not if it will happen – it will, but what shape the regional and national regulatory frameworks will take and how they will work together in practice" (Hira and Amaya, 2003).

There are great potentialities for the integration in the gas and electricity markets. The hydro-power capacity in the region has been greatly developed, especially in Brazil, Colombia, Venezuela and Paraguay. Added to this, the considerable hydro-power shared resources and the impressive amount of gas reserves in the region make of it an ideal opportunity to build up a regional market that may accompany the current economic growth, making it also sustainable.

It is highly probable that the electricity sector becomes the first sector in which energy markets may cooperate more and even integrate their markets, considering both bi-national hydroelectricity projects and cross-border interconnections. Despite the important natural gas interconnection in the region, it will take some time before the current situation in this sector allows these countries to genuinely and

feasibly talk about natural gas integration. Brazil, Chile, Uruguay -and now Argentina- need to import this energetic in order to cover its need -or at least to cover its commitments. The Bolivian situation needs some time to complete all the negotiations needed, and still the investments needed to strengthen its natural gas production and the infrastructure to transport it will take some time. Hence, Bolivia cannot, by itself, supply the regional requirements of natural gas. Just Venezuela might be in grade of supplying natural gas to its Mercosur partners, although some obstacles such as the long distance between production centers and big consumption centers (Rio de Janeiro, Sao Paolo, Buenos Aires and Santiago de Chile) should be overcome.

Nevertheless, natural gas and electricity industries are closely linked, as in the electricity generation through the combined cycle plants. For this reason, regional integration of one of them –in this case, of electricity- will have a direct impact on the development of the other (natural gas).

At the same time, multinationals located in the Southern Cone in the electricity and hydrocarbons sectors show a considerable level of integration in their operations in the respective industries (CEPAL 2004). There are many cases in which multinationals -such as Repsol YPF or Petrobrás- operate in many countries in their diverse subsectors. These enterprises show a clear regional strategy of development and production. Hence, it is necessary that States go along with process, defining some rules and accords that benefit the region as a whole.

However, there are important challenges to overcome in order to reach such an ambitious aim, such as geographical peculiarities, regulatory differences, technological differences, etc. Along with it, investments needed require very complex and long term agreements among neighboring countries. In this particular respect, it is impor-

tant to consider that what is missing in the region is high quality investments, that meaning investment oriented to improve the productive development of each economy.

For all this, it is important to carry on serious and feasible joint projects –with the private and the public sector participation- both in the electricity and natural gas markets, in order to continue integrating South American energy markets. Energy cooperation among these countries may potentially involve with it agreements in so many topics that it is highly probable that it will result in a serious and real deepening of their respective integration processes. And, following R. Baldwin reasoning, it is plausible that deeper integration may bring the expansion of the integration process (Baldwin, 1995).

To conclude, it seems that Southern Cone countries, as well as their neighbors, will have to do some reforms in their respective energy internal markets to start seriously planning their future development with a long run perspective, and to define firm, clear and long lasting rules of the game and precise roles for every activity involved in the oil, natural gas and electricity industries. Otherwise, it seems very complicated to seriously think about integrating their energy markets.

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