

SUAPE—FIRST LNG ENTRY IN SOUTH AMERICA

SUAPE—LA PREMIERE ENTREE DU GNL EN AMERIQUE DU SUD

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ABSTRACT

Brazil, one of the few countries largely hydro-based (over 90%) is about to embark in a major gas-fired powergen program. The Government decision of increasing natural gas participation in the country's energy matrix associated to consistent power demand growth, higher than 5% per annum, are the main drivers for this program. The North-eastern region of Brazil where the hydro potential is basically exhausted and local gas reserves are insufficient to support long term supply contracts will require a particular solution to comply with future energy requirements such as the importation of LNG.

The first LNG Receiving and Regaseification Terminal to be built in Brazil and in South America, will be located at the Suape Port, State of Pernambuco. Aiming at developing this project Petrobras and Shell have recently incorporated a 50/50% Joint Venture named GNL do Nordeste (NE LNG). LNG supplies are likely to come from the Atlantic basin liquefaction plants.

The implementation of the Suape Terminal and the introduction of LNG as an alternative source of energy in a poor and dry region will extrapolate the common commercial boundaries of similar projects with significant social implications such as the release of water currently used for power generation to irrigation and other uses.

The paper will discuss the challenges associated to the introduction of LNG (for Power Generation purposes) in a market with such unique characteristics mainly due to the enormous seasonality related to river regimes in tropical areas. The requirements of this particular hydro-thermal system will challenge the traditional structure of LNG contracts and creativity will play a major role in accommodating market/suppliers needs in an initial small scale project although with significant growth potential.

It will be also discussed the operational and commercial implications deriving from the integration of both domestic and imported gas, the emerging marketing and trading opportunities and the potential benefits for the development of the Region.

RESUME

Le Brésil, qui est l'un des seuls pays au monde où la génération d'électricité est presque exclusivement de sources hydriques, commence à développer un important programme de thermoélectricité. La décision du Gouvernement de diversifier la matrice énergétique et le croisement substantif et constant de la demande d'énergie (> 5% par an) constituent les piliers du programme. Le Nord-est du Brésil où le potentiel

hydroélectrique non-utilisé et les réserves de gaz locales sont limitées nécessitera d'une solution particulière pour satisfaire la demande future: l'importation de GNL.

La première Terminale de Réception et de Régaséification du Brésil et de l'Amérique du Sud sera construite à Suape, État de Pernambuco. Comme premier pas, Petrobras et Shell ont incorporé commercialement une association 50%-50% avec le nom de 'GNL do Nordeste'. La provenance du GNL sera, en toute probabilité, d'usines de liquéfaction du bassin Atlantique.

L'implantation de la terminale de Suape et l'introduction du GNL comme source alternative d'énergie dans une région pauvre et aride étendra les frontières commerciales des projets de régaséification de GNL établis jusqu'à présent. Les conséquences sociales seront importantes car la thermoélectricité permettra la libération, pour l'agriculture d'irrigation, d'importantes quantités d'eau aujourd'hui destinées prioritairement à l'hydroélectricité.

On discutera les défis particuliers associés à l'introduction de GNL, comme matière de base pour la thermoélectricité, dans un marché électrique caractérisé par une hydroélectricité de saisonnalité tropicale très marquée. Accommoder ce système hydro-thermoélectrique représentera un défi pour les structures contractuelles employées traditionnellement dans le marché GNL; conséquemment, des solutions créatives devront être déployées pour trouver l'équilibre commercial dans le contexte d'un projet initial réduit avec un potentiel de croisement significatif.

Les implications commerciales et opérationnelles dérivées de l'intégration gaz de production locale- gaz importé seront discutées, ainsi comme les opportunités de commercialisation et d'échange(trading), et les bénéfices pour le développement de la région Nord-est du Brésil

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I. INTRODUCTION

The Suape LNG project is the first LNG receiving terminal to be built in South America. It is a very particular project, not only for its pioneerism, but also for the great challenges associated to putting together the expectations and particularities of two dimensions of a complex business chain.

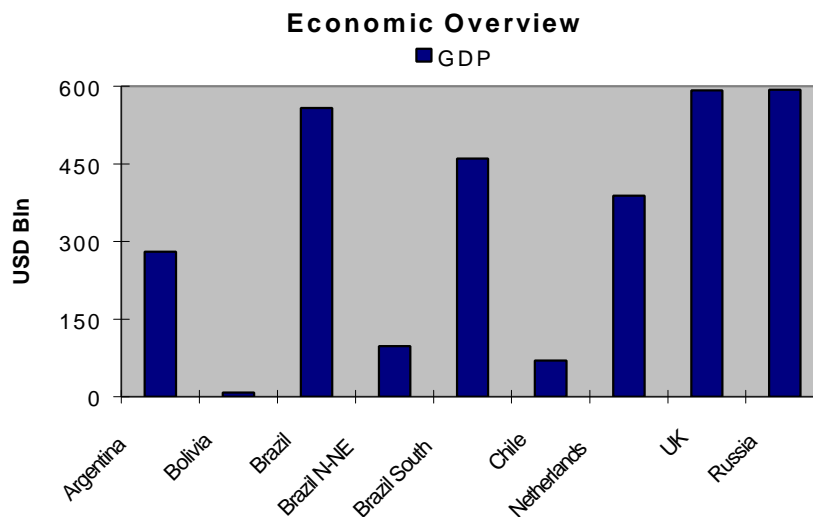
On the market side, the LNG volumes will be mostly dedicated to thermal generation, in a 93% hydro based country, going through a full restructuring of the electricity sector, with an ongoing regulation re-establishment. The gas market, in turn, has just been born, with lots of infrastructure to be built and regulations to be put in place.

On the supply side, a new greenfield project, with its associated issues on prices and flexibility, which will be competing against well established and stable bigger markets that are also being heated up by an world-wide increasing demand for LNG.

A lot of work has been done over the last three years on this project which resulted on a clear understanding of both market and supply requirements, creative engineering and corporate solutions which have successfully ended up in a concrete project.

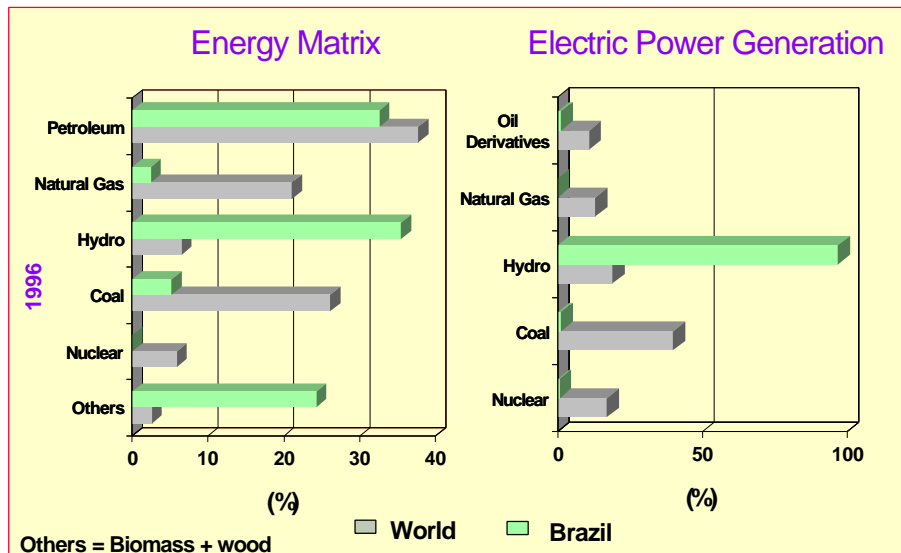
I.1. Brazilian Energy Scenario – Hydro Perspective

Brazil is a continental country, the biggest of South America and one of the biggest in the world. Current country's GDP is around USD 558 bln, being the tenth economy of the world. The chart below puts the Brazilian Economy in perspective:



As a consequence, and due to its continental size, energy consumption is huge and largely concentrated on electricity and oil products.

The figure below shows current the Brazilian energy matrix. It should be noted that natural gas accounts for no more than 3% of the total energy consumed in the country.

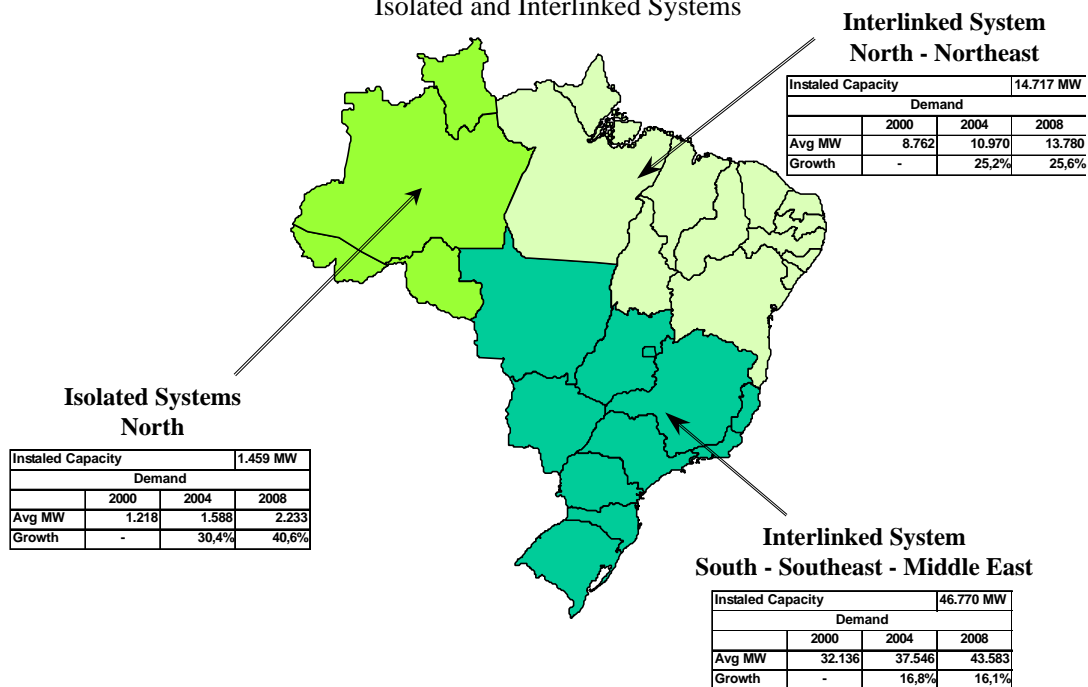


Electricity generation is currently mainly based on hydro due to the country's geographical/hydrological characteristics. Brazil counts today on 64,5 GW of installed capacity (93% hydro). The hydro schemes implemented since mid 40's have been key to underpin the development of the country, since they have provided some independence from other imported sources of energy. The government has taken the lead in putting in place most of the hydro developments through its various power state companies and for the last 50 years, the electric sector has been under its administration, from generation to distribution.

The picture below shows Brazil's installed capacity, current and forecasted demand over the country's territory.

Installed Capacity and Demand - 2000

Isolated and Interlinked Systems



The 10-Year Electricity Plan, annually issued by the Mines and Energy Ministry, indicates that the Brazilian electricity consumption is expected to grow substantially in the short term, i.e., some of 5,2% per annum over the next decade.

In 1997 the government has launched a vast privatisation program starting with distribution. Over the last two years most of the Power Distribution Companies all over the country have been successfully privatised. Prominent international power players have paid substantial goodwill to be part of such a promising market. Several concessions for new generating plants have also been made available through public bid rounds so that the expansion of electric power offer relies now entirely in the hands of the private initiative.

Most of the viable economic hydro schemes have already been implemented, being the remaining opportunities located in the Amazon Region. This is a flat ground region, implying on extensive flooded areas with consequent huge environmental impacts, which would difficult international financing. Moreover, the new sites for hydro generation are located far from the main markets requiring substantial investments in transmission lines, with significant transmission losses and compromising the stability and confidence of the whole electric system. It is important to point out that in terms of economic attractiveness, hydro schemes are usually less appealing to private enterprises as construction and payout times are long and the risks are high.

For a decade, prior to the privatisation period, the Government reduced quite drastically the investments on generation, and the last three years were especially difficult for fresh investments due to regulatory uncertainties. Therefore the Government is now facing an urgency to build new capacity to make sure that blackouts and/or power rationing can be avoided in the next years.

Apart from the above mentioned difficulties, the development of a new hydro scheme, from planning to operation, takes in average eighth years to be put in place. Thus, for the short term, this alternative seems not to be an effective solution for the country's energy needs. In September 1999 the Ministry of Mines and Energy launched a National Emergency Thermal Power Program with the aim of signalling to the market the Government's choice for thermal generation as a solution for capacity increase requirements in the short/medium term. The figure below shows the various Emergency power plants (49 in total) scheduled in the referred plan:



This Government initiative has driven a major change in the Brazilian energy scenario, transforming natural gas, from a crude by-product, into a major future player in the country's Energy Matrix.

But where will the gas come from?

1.2. The Natural Gas Step into the Brazilian Energy Matrix

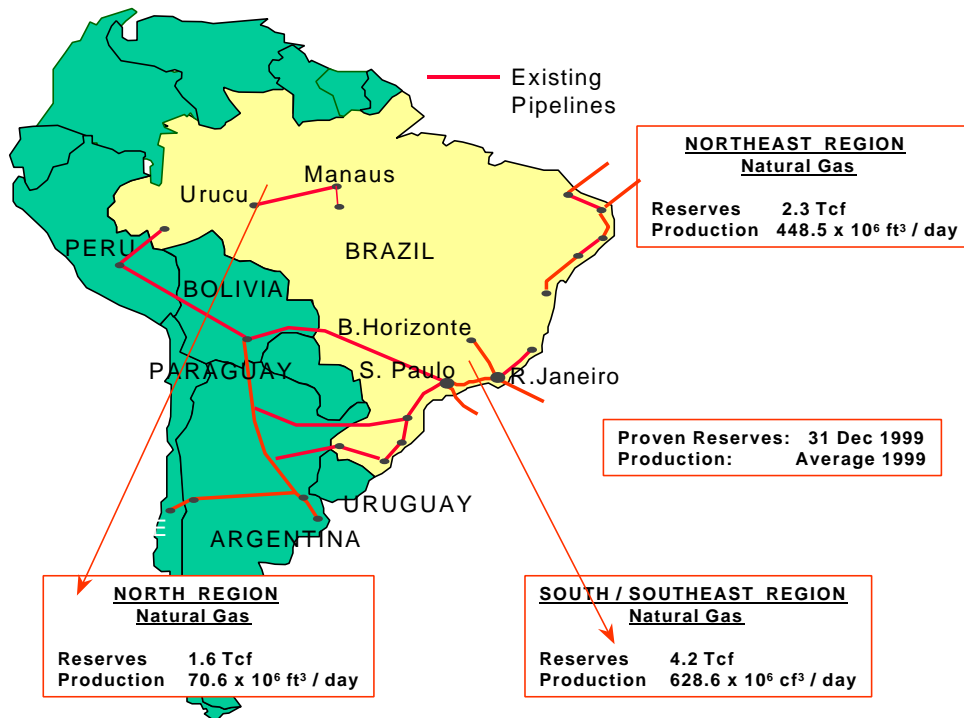
Back in 1996, the Brazilian Government had figured out that the gas would have to play an important role in country's energy matrix. Reasons being:

- Viable hydro generation was close to exhaustion, the country has no significant coal reserves, thus thermal generation most economic option would be gas fired;
 - Increasing environmental awareness which has been motivating the industry to change from fuel oil to gas (mainly in the big/polluted cities) and captive car fleets to change from diesel/gasoline to compressed natural gas;
 - Increase of oil production, with associated gas that would have to be burnt or re-injected.

But local reserves would not be enough to underpin the gas usage on a large scale, creating limitations for the signature of bankable long-term contracts, that would support

the required investments in infra-structure. Moreover, South America was facing a situation of huge and stranded gas reserves, located in Bolivia, Peru and NW Argentina, waiting for a market to be materialised. This situation has led Brazilian and Bolivian Governments to sign a 30 million cubic meters per day (MMcmd) gas sales contract for 20 years. This contract has enabled the construction of a 2,000-km pipeline (BBPL) linking the two countries and bringing to Brazil the missing guarantees to effectively promote the gas market in the South/Southeast parts of the country.

The figure below depicts the proven natural gas reserves of Brazil as per 1999 figures:



II. THE NORTHEAST REGION IN PARTICULAR

II.1. Economic/Energetic Perspective of the Region

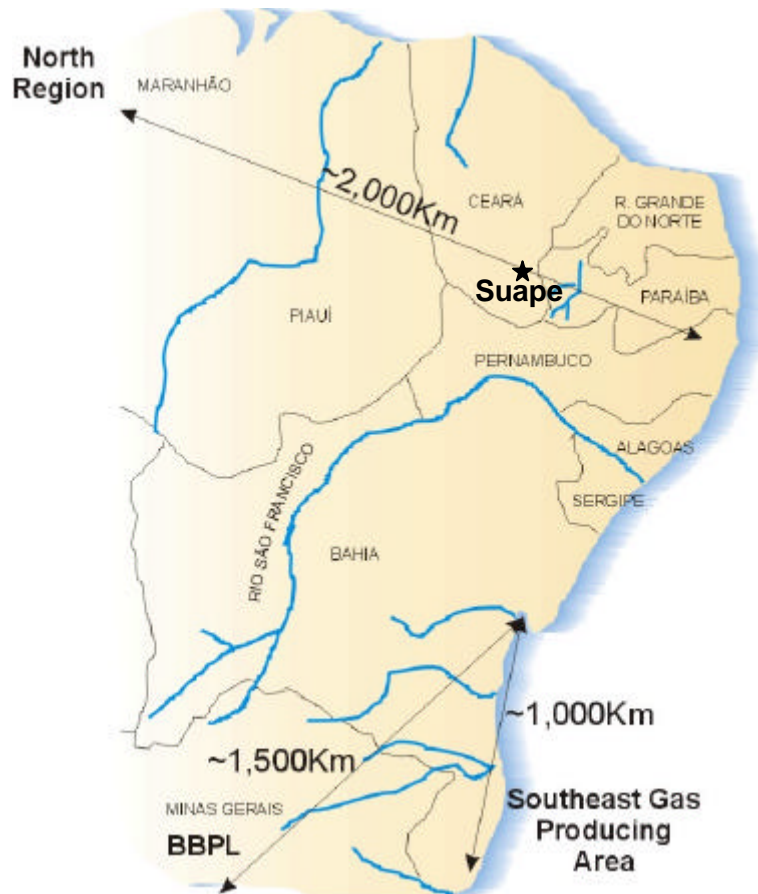
The Northeast region of Brazil should be understood on its particular geographic and economic context, as it is economically and geographically separated from the rest of the most developed regions of the country.

The Northeast region has been consistently showing, over the last decade, higher GDP growths than the rest of the country. Moreover, electricity consumption has been growing at higher rates than the GDP itself. Recent research have shown a migration flow of industries from the South/Southeast to the Northeast due to manpower abundance (at lower costs) and fiscal incentives offered by the various State Governments to promote regional development.

However, a key issue to a sustainable growth is energy availability, notably electricity. Currently, the main source of electricity supply is hydro deriving from the São Francisco River dams, whose potential has already been totally exploited. The new hydro schemes economically viable are more than 1500 km far from the main markets, requiring high investments in reinforcing/duplicating transmission lines. The North Region, which would be the first choice due to existing interconnections, is 2000 km far. The required duplication of this interconnection would cost over USD 1 billion. Moreover, the Northeast has critical problems with dryness,

being also the São Francisco River the main source of water in the region. Therefore there is a strong drive from Federal and State Governments to give to this water a more noble destiny rather than power generation. This trend reinforces the view that gas-fired power generation is the most suitable solution.

Therefore the government choice for gas thermal generation is more critical in this region and is expected to promote a substantial demand for gas in this particular market. The picture below gives an overview of the Northeast region and the distances from other potential sources of energy.



As well as for the country as whole, the Northeast gas is expected to play a key role in the regional energy matrix, and again gas is not available in the required amounts. Current industrial demand (with marginal growth) plus the Emergency Plants planned for the Northeast would represent a market of 120 Bcm for the next 20 years. Existing proven gas reserves, spread over the coast, are 60 Bcm. New discoveries (already announced but not proven) are expected to account for an additional about 20 Bcm.

In this scenario, at least 20 Bcm of gas imports will be needed as a first step.

Should power generation needs after the emergency plan be computed in this calculation, the gap between supply and demand is potentially twice bigger in the medium/long term.

II.2. The LNG Window

Since the real anchor for the gas market in the Northeast region will be the planned thermal plants, long term guarantees/contracts of supply will be required, as most of the plants are expected to be project financed. As mentioned above, existing gas reserves cannot assure supply for these power plants in the long term.

The distances to the Southeast producing region and to a possible connection to the BBPL pipeline are huge, and have proven not to be economically viable. The distances themselves would be enough to generate unbearable transport tariffs for this gas due to the limited size of the market. To worsen the situation, the pipelines routes would have to pass through areas of low population with little chance of adding additional markets that could justify the investments.

This conjunction has created a single window of opportunity for the LNG in the Northeast of Brazil. However the Brazilian electricity market, with its strong hydro basis and particular characteristics under enormous changes, associated to the LNG market, with its traditional commercial approach with well established rules and practices, make the challenges for the Suape LNG Project unique. Understanding the particularities of both business and finding a creative way of matching both sides requirements will be key to materialise this first receiving LNG terminal in Latin America.

III. ELECTRICITY MARKET “RULES” IN BRAZIL

III.1. New Deregulated and Privatised Market

The Brazilian Government has done a tremendous job in the Electric Sector over the last fifty years by building huge hydro schemes and thousands of kilometres of transmission and distribution lines. The system was based on centralised planning responsible for demand forecasts and investment requirements/decision. Dispatching was also centralised and based on a particular set of rules applicable to a system largely hydro-based.

Hydro-based systems are driven by river regime seasonalities, which are remarkable in Brazil. Therefore, huge dams have been constructed improving system's reliability to international levels. Being a tropical country, in some regions like the North of Brazil, wet season's flow can be four times bigger than dry one. Dispatch is then a function of this huge seasonality and of the dam's optimisation. Very careful calculations are made using statistical hydrological data to forecast future rain falls and determine which plants should be dispatched, when and where.

The new regulation now being put in place, again with a centralised dispatch, will have to continue optimising dams and water availability, but will now have to take into account the less expensive available MW. Declared capacity plus variable cost, with the objective of creating a wholesale energy market will measure the cost of the MW. But on a hydro-based system, the variable cost is minimal, as the fuel that moves the engines is water. Moreover, as most of the existing generation units are now over ten years old, being partially or totally depreciated, reducing the capacity charge, the so-called “old energy” is relatively cheap. When the decision of inserting gas fired thermal generation was taken the issue of competitiveness of this source, where the cost of gas is probably half of a thermal plant's tariff, has become a major issue. On the wet season, when water is worth nothing, the situation is even worst.

The first movement from the Government was to allow for new thermal plants to declare themselves inflexible, being dispatched regardless of its variable cost. This is an acceptable solution while gas fired plants will represent a small portion of the produced energy (less than 10%), not affecting system's least cost principle and causing minimal water spillage. Nevertheless, as the gas fired participation increases, more and more inefficiencies will be brought into the system. In other words, some flexibility from the gas will be required in order to guarantee a balanced solution to the Brazilian generating system while offering enough guarantees to the gas market to remunerate the infrastructure investments that will have to be done, without creating non-necessary wastefulness.

The new thermal plants, from the Emergency Program, will be signing PPAs (Power Purchase Agreements) with 70% guaranteed dispatch on a yearly basis and 55% on a monthly basis. These plants will represent the bulk of the new generation in the next three to six years, becoming probably the market practice over this period.

Apart from the dispatching issue associated to the gas competitiveness, the nature of this commodity and its price drivers will be a major step change into the electricity market. If for the time being the variable cost has been mostly determined by the water availability, gas prices will vary according to:

- Foreign exchange rates, as contracts are being signed in foreign currencies (US Dollar vs Reais-Brazilian Currency);
- International crude market, as the indexation formulas will take oil products as parameters.

The Dollar variation has become a major problem after the maxi-devaluation of the Real in January 1999. Although Brazilian Economy situation is now stable, having positively reacted to the economic turmoil, the cost of the gas and consequently its parcel on the energy cost has doubled. It is true that the gas is not the only dollar parcel of the energy cost, since both hydro and thermal plants need foreign capital/investments for their implementation. But the result is that the new energy is going to cost significantly more than the already mentioned "cheap old energy", directly impacting inflation, product costs, etc. This is a very sensitive issue when the Government is fighting hard to maintain low levels of inflation. To decrease this impact the Government has proposed that all the plants included in the Emergency Plan will received a "mix" of gas, which is a mix of the dollar indexed imported gas with the Reais indexed domestic one.

The imported LNG will also be "mixed" with the domestic one, as it will be dedicated to the Northeast Emergency Plants. The particularities of the LNG market, however, will have to be carefully understood by all the elements of this complex value chain.

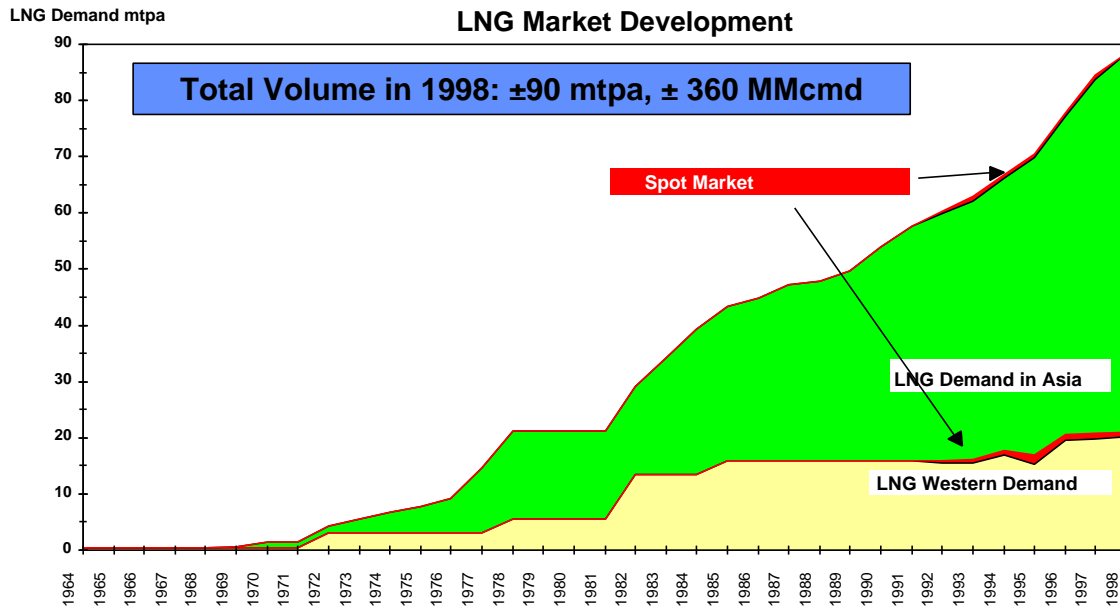
IV. LNG MARKET "RULES"

IV.1. The Traditional LNG Market

The LNG market, since its beginning back in the sixties, has been characterized by very strict rules. Sales are usually based on long-term contracts with high take-or-pay obligations and prices in US Dollars indexed to oil products quoted in the international market. Liquefaction plants have been constructed, involving huge amounts of capital that need guarantees of remuneration. The new LNG technology emerged in those days as a

new solution to bring gas from remote areas to markets like Japan, where energy supply has always been a major issue, turning the LNG trade into a “suppliers market”.

As indicated in the chart below, from the almost 90 mtpa of LNG traded worldwide in 1998, some of 70 mtpa were concentrated in the Asian markets. The western markets, where the Suape project will be inserted, are relatively small, accounting for not more than 20 mtpa. Although different in size, the two markets have been showing the same small (2-3,5%) percent of spot sales, reassuring the preference of the LNG producers and buyers for long term traditional contracts.



The last two years however, have shown some increase in spot sales. In the western market, this resulted from either de-bottlenecking volume in existing plants or build-up volumes in new plants.

Nevertheless, an almost dead US market and some excess capacity (mainly in the huge Algerian liquefaction complex) has left the market stable for almost three decades, with relatively stable prices behaving as expected according to their old contracts.

Over the last two years, the US economic prosperity associated to an emerging gas market in the Atlantic basin has been, however, threatening this stability imposing new rules and new ways of thinking on to the traditional LNG market. The sellers that will succeed in this new environment will be the ones able to find creative solutions to comply with the needs of these new markets.

IV.2. LNG Market Re-shape—the US Market

The US is the biggest gas market in the western, trading 1,5 Bcmd. In the seventies, when gas supply from local production seemed to be not enough to cope with a growing demand, four LNG receiving terminals were build in this country. Some years later some domestic gas discoveries and a pipeline from Canada have completely changed the US supply/demand balance from lack of gas available to an over supply situation. As a consequence, the four newly built LNG terminals were shut down being sporadically used for receiving spot cargoes at heavy winter periods.

This market has always had a clear seasonality, related to heating needs for the winter, when gas prices used to increase due to the increase in consumption. Over the summer though, when consumption used to drop together with prices, it was a time to recuperate the gas stocks, getting ready for the new coming winter. Nevertheless, the last decade was a particular growing period for the US economy, not only increasing average gas consumption over the year but minimising the winter summer seasonality, since more thermal electricity started to be produced over the summer, to support more air conditioning and more electric gadgets. The new reality changed the market routine of recuperating stocks in the summer, not only compromising the winter supply but also causing a major increase in gas prices related to the risk of lack of product. At this point, not only the gas price seasonality paradigm was broken, but the historical links between gas and crude oil prices.

The perfect environment for the re-birth of the LNG market was then ready. Over the last two years the four LNG terminals were revamped and available capacity was offered in successful bid rounds to several LNG players. These companies have invaded the western market, heating a thirty years stable situation, creating an incentive for new LNG liquefaction plants to be built. At the end of the day the old “suppliers market” has been turned into a “buyers market”, where mature markets demand like the US and also Europe are now seeking for LNG. Moreover, the big traders now purchasing LNG have gas portfolios of supply and demand, which will promote more gas to gas competition and enable molecule swaps, imposing more flexibility and dynamics to the market. In fact, a very strong feature of the gas markets. The regional boundaries imposed by geographical barriers are now being broken and the market is becoming more and more global.

IV.3. New Price Reality

The new re-born western LNG market, now inserted in a much more dynamic environment, has turned around pricing reality. If before almost all of the contracts had similar strict and almost inflexible pricing clauses, the new dynamics require some paradigms to be broken. LNG buyers are now looking for new indexation formulas linked to their own market realities. Market seasonalities will have to be taken into consideration and the key element in the LNG negotiations will be flexibility. Moreover, the real and important major change will be that other markets price realities will have to be taken into consideration for every single market in the same area of influence. US and European prices are likely to become references for the Mediterranean, African and even Latin American markets, that cannot any longer be analysed in isolation.

In the particular case of the Suape project, there is a major obstacle to be surpassed, apart from the obvious difficulties of building a new LNG terminal in a new market like Brazil, which is the competition and influence of the US and other Atlantic basin mature markets. Price competition will be a major issue, as the market is heated as it has never been before, with the US market willing to pay high prices for LNG. But the competition against hydro electricity, which requires a significant step change in pricing levels for the new gas fired plants as mentioned before, not to mention the differences in price indexation, will be essential in this new Market.

IV.5. Contracts and Take-or-Pay Obligations

Although the market dynamics have changed dramatically over the last two years, it is interesting to notice that the contracting models, with high take-or-pay obligations have

been maintained. Obviously liquefaction plants and LNG carriers need to be build and the enormous amount of capital involved requires adequate and some guaranteed remuneration. It is also truth that old plants are unlikely to change their practices to comply with new customers requirements, harming the old customers that have bear the pioneers risk. How would the “old” players become flexible and agile to play the new market dynamics game?

What is happening effectively in the market place is that buyers continue to sign classical long-term contracts with the suppliers then playing trading, seasonality and price arbitrage games inside these contracts. This is reinforcing the position of the players that have large and diversified portfolios of demand for their gas, coupled with different sources of gas supply. These are the ones which will be making money in this new dynamic environment.

The new name of the market game is then risk management, as the old formula of one to one supplier to buyer, based on back to back contracts, will no longer be the practice. A single purchase contract might have to serve several clients, maybe in different countries, even continents. This means that different flexibility and price requirements from different countries will have to back a specific supply contract. In other words the ones that most quickly learn how to play with the risk management tools and come up with the most creative ideas to satisfy the market requirements will be the ones that will have a very important competitive advantage in this new LNG world.

V. HOW TO MATCH SUCH DIFFERENT REALITIES—THE PROJECT CHALLENGES

V.1. Take-or-Pay vs Seasonality vs Dispatch

The LNG business has an expensive value chain. Investments are required in gas fields, gathering systems, liquefaction plants, carriers and receiving terminals. All this investment needs to be remunerated and that is where the high take-or-pay obligations, as high as 95%, come from. It is the guarantee of a continuous revenues flow that will pay the capacities charges. The hydro electricity market, in the other hand, needs some flexibility in order to be able to optimise the system, avoiding non-effective water spillage. The Suape project has guaranteed a 70% take-or-pay, as the thermal plants have guaranteed dispatch at the same level, in a context of 100% deliver-or-pay required by the Government thermal power emergency plan. As one of the project partners has local gas reserves, even some non-associated gas, the foreseen solution is to have a base load LNG contract at the guaranteed take-or-pay level, supplying the peak demand from local reserves. This unique ability of using local gas is probably one of the major strengths of this project and is likely to guarantee its success against other projects that might arise in the region. Moreover, the São Francisco river hydrological seasonal regime might well be coupled with the winter/summer in the Northern Hemisphere allowing some price arbitrage games between NE Brazil and Northern Hemisphere markets.

V.2. Pricing

A heated market, where there seems to be more demand than supply, is a propitious environment for high prices regardless the international crude market situation. On the other hand, the electricity market has, at present, a relatively low level of tariffs as a result of the depreciated existing hydro plants. Of course, as the government has made a clear choice to go for thermal generation, not forgetting that new hydro would be as expensive as thermal an increase in the tariff levels is expected. Nevertheless, this change cannot be on a single step as major economy issues are involved like inflation and competitiveness of Brazilian products that rely on electricity. The Government has already set up a compromise solution, mixing the domestic cheaper gas with the more expensive imported. These are the major challenges of this project and a lot of creativity together with careful risk management will be the key to find a solution. A combination of flexibility, seasonality, maybe trading opportunity, will probably become a great step into the new LNG ways of doing business.

VI. PROJECT STATUS

Suape project has achieved several important milestones over the year 2000.

By January 2000, a company named GNL do Nordeste has been incorporated, a first 50/50% joint venture between Petrobras, the state-owned Brazilian Oil Company, and a private company, Shell. The required LNG import licence and environmental licence for construction have already been issued. Along 1999, a complete Basic Design Package has been developed aiming at defining the required investment cost. Several meetings with potential suppliers have taken place, with the objective of identifying the most competitive LNG molecule for supplying Northeast Brazil. A short list of suppliers has already been agreed and the negotiations with the chosen supplier are expected to be concluded by mid 2001. The gas sales contracts are expected to be signed by mid 2001 with Petrobras, who will be taking the role of mixing the LNG with domestic gas.

The last quarter of 2000 was of particular importance to the successful development of the project, as a contract with the Suape Port was signed, granting to GNL do Nordeste the right to use an already existing jetty in the Suape Port area, that will represent a significant investment saving. At the same solemnity, with the presence of the Country's Vice President, the Minister of Mines and Energy and the Pernambuco State Governor (where Suape Port is located), important fiscal incentives were granted to the project.

The figure below shows the Suape project site for start-up scheduled to mid 2005.

Port Facilities



VII. CONCLUSIONS

The Brazilian Gas Market is undoubtedly one of the most flattering growing markets in the world for the next decades, but there is a lot to be done prior to achieving its maturity. Infrastructure needs to be built, regulation should be completed and the market itself has to be materialised.

As mentioned earlier the anchor for the project will be thermal generation and a set of key milestones should be achieved to transform a 93% hydro based market in a market where powergen will play an important role. Find a solution for relevant issues such as seasonality, dispatch rules, dollar and crude indexed tariffs and regulations will be key to increase the gas participation in this market.

In the Northeast Region of Brazil there is not enough domestic gas to supply foreseen demand and LNG was chosen as preferred supply option to complement local reserves. Nevertheless the LNG business itself has its own particularities and ways to operate which are been heavily challenged by new market realities such as NE Brazil.

The Suape project has already gone really far in finding creative solutions to bring together such different expectations from the suppliers and the market. Flexibility, seasonalities, take-or-pay and other issues are being studied, analysed, mitigated and this huge effort will certainly turn Suape into the first LNG entry in South America.