Perspectives on the Brazilian Petroleum and Natural Gas Industry in the 2000 to 2020 Period: The Results of a National Survey

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Introduction

The coming of a new millenium almost coincides with the opening of Brazil to international oil and gas investors. It is, therefore, interesting to analyze the market perception regarding the perspectives for the Brazilian petroleum and natural gas industry to face the challenges of the next millenium. This work presents the results of a survey undertaken by the University of São Paulo, Brazil, from December 1999 to February 2000. We asked several participants on an email list, including different representatives from the government, academia, people from the oil industry, bankers and lawyers, about their perspectives for Brazil in the oil and natural gas world during the 2000 to 2020 period. After reviewing the methodology adopted in the survey, we summarize the results without identifying the individual answers, but trying to express the contradictions found among the different opinions as well as identifying the topics for which certainties do not exist. We conclude by underlining what we believe to have been the most important results of this survey.

Presenting the Questionnaire and the Methodology

The questionnaire was composed of the following questions:

- Question 1: What will the role of oil and gas in Brazil be during the period 2000 to 2020?
- Question 2: Which are the most important factors that will mark the evolution of the oil and natural gas industry in Brazil during the period 2000 to 2020?
- Question 3: How do you see the future evolution of international oil prices in the 2000 to 2020 period?
- Question 4: How will the competition develop in the Brazilian petroleum and natural gas industry during the period 2000 to 2020?
- Question 5: Will Brazil be competitive in the following areas: E&P Offshore? E&P Onshore? Downstream activities? And Natural gas?

The questions were sent by email to participants of a list called Oil Forum, which is also a University of São Paulo's initiative, bringing together different representatives from the Brazilian oil and gas industry, government, academia, bankers and lawyers. The participants were invited to contribute to the survey knowing that only the aggregate result of answers would be published. The questionnaire was sent at the end of December 1999, with the answers being received, also by email, from January to February 2000. In the next section, we summarize the results, trying to express the contradictions between the different opinions as well as identifying the topics for which certainties may not prevail.

Brazil's Perspective in the Oil and Natural Gas Business in the Period 2000 to 2020

For most participants in the survey, oil and natural gas will continue to be the world's main primary energy during the period 2000 to 2020. This twenty years period is considered too short for major changes in the global energy mix, with the development of any alternative energy that can provide the same cost/benefit relation in terms of energy quantity per volume per monetary unit as oil and gas do. Therefore, alternative renewable energies such as biomass, solar and wind will remain restricted to niche markets, finding it difficult to reach big energy consumers which demand large amounts of reliable energy. Hydrogen is believed to continue rising as a competitive energy source, being likely fully available by the middle of the new century. Meanwhile, it will increase its share in the transportation sector. However, over the 2000 to 2020 period, hydrogen, as well as electricity, will only be competitive for specific passenger vehicles and in smaller cities.

In the developed world, most responders believe that oil and gas will see their economic importance and political influence decline as the richest countries speed up their entrance into the New Economy, based mainly on information and communication. The amount of energy consumed per dollar of GDP created will keep falling in the United States as well as in Japan and West Europe. Total oil and gas demand in those countries will likely increase, but only marginally as compared with their economic growth.

As far as Brazil is concerned, most responders believe the country will see an increasing role for natural gas in the national energy matrix while the dependence on imported oil will likely decline over the 2000 to 2020 period. As the country opens up its upstream sector for private investors, it will boost national oil and gas production. Taking oil and gas together, Brazil, as other less developed countries, might become even more dependent on fossil fuels as natural gas strengthens its role in electricity generation, diminishing the relative share of hydropower generation. Since the country is making only minor efforts in developing alternative energies, most responders believe Brazil will keep its high dependence on hydrocarbon until the middle of the century.

By 2050, the country might actually start increasing its dependence on imported oil and natural gas again, as national production may no longer keep pace with the growth in national energy demand. This perspective can significantly change if the country restarts investing massively in new energy technologies. Brazil's perspectives for renewable energies such as solar, hydro and biomass are considered high, with fast prospect for market insertion.

The survey presents the evolution of the international oil prices as the most important variable that will determine how the international and national oil and gas business will evolve during the 2000 and 2020 period. If anything, the only certainty among the answers is the uncertainty about the future evolution of the oil prices. From those that believe a broad price stability at approximately 20 US$/barrel (at current dollar) will prevail over the next 20 years and those expecting continuing instabilities, with prices oscillating from 10 to 30 US$/barrel, we find no common ground. Some responders see oil prices declining to 10 US$/barrel or less, following productivity gains and cost reductions; others

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foresee a rising curve with prices growing with more or less oscillation up to a sustainable 30 US$/barrel by the year 2020, reflecting oil and gas scarcity. However, within the range of 15 to 30 US$/barrel, most responders believe that international oil prices will cause no significant shift in the trends and competitive forces that are already in place in the international oil business.

With the end of the former national monopoly, and as long as newcomers start investing in the country and more transparency is achieved in the management of the Brazilian national oil company, Petrobras, and in the definition of the national oil policy and regulation, Brazil will be much more influenced by international oil prices. According to most opinions, Brazil, in terms of upstream activities, must be seen as an important alternative Non-OPEC country. The country's competitiveness depends on the behavior of international oil prices whose collapse to 10 US$/barrel or less may undermine Brazil's position in the global upstream business. With prices oscillating within the 15 to 30 US$/barrel range, Brazil is competitive and can attract upstream investors. In downstream activities and with natural gas, Brazil's competitiveness is primarily founded on its internal market, with a high propensity to grow faster than the world average.

The opening up of the former national monopoly and the development of new technologies, especially for deep-water offshore activities, will certainly be the two major driving-forces in the Brazilian upstream industry. In addition, new business and technological approaches are expected to appear and increase the competitiveness of Brazilian onshore activities, which might be especially attractive for small-and-middle-sized oil companies. In the downstream sector, the entrance of new players and the full opening of the market for oil product imports are also expected in the 2000 to 2020 period. The major challenges for Brazilian refineries are seen as the need of strong cost reductions and the improvement of both refined product quality and of operations to comply with more stringent environmental and safety regulation. In addition, as natural gas is expected to substitute for fuel oil in important industrial markets, major investments will be needed in refining upgrading units.

For natural gas, the national consumption is expected to increase quite steeply. In power generation, natural gas will favorably compete with hydropower and other energy sources such as biomass, fuel oil, nuclear and coal. Nevertheless, in the shorter term, many barriers such as price and market uncertainties must still be removed. Other final consumers will also gradually perceive the advantages of natural gas, raising their acceptance of this energy source. However, more sophisticated gas markets will only develop if heavy investments take place in building up the transportation and distribution infrastructures.

Regarding the future competition scenario within the country, the most obscure factor is whether or not (and when and how) the Brazilian national oil company, Petrobras, will be privatized in the 2000 to 2020 period. Several responders do not expect Petrobras' full privatization over this 20 years period, believing the company still has a role as a state-owned enterprise that will allow the government to go through a long transition period towards a more competitive market. Some answers point out Petrobras' privatization as essential condition to construct this competitive market. In addition, some responders are convinced that the state-company will only be competitive if detached from its current governmental budgetary constraints. Regardless of its status, Petrobras will nevertheless have to compete with other players both in the upstream and downstream sector as well as in the natural gas segment.

As far as the upstream is concerned, most answers suggest that the Brazilian geological and technological competitiveness is already proved in offshore activities and particularly in the deep-water offshore areas. Onshore prospects are still seen by most participants as something with low geological competitiveness and low attractiveness for larger international oil companies and for the introduction of necessary new technologies. Some responders believe, on the other hand, that Brazil will hardly experience a major upstream boom during the 2000 to 2020 period. Brazil is still perceived as a country with high political and economic risk. Macroeconomic stability is far from being accomplished and oil is seeing by the government as a "cash cow" (government take on high-prospect offshore activities is high; there is no incentive for low-prospect offshore and onshore investments; indirect taxation is confusing and with important impacts on upstream projects). Furthermore, social pressures arise everywhere in the domestic political scene and may eventually shift the current political color, pro-foreign direct investments, towards more nationalistic movements, scaring potential oil investors. According to those opinions, Brazil will stand as just a minor Non-OPEC player in the global upstream business.

Despite any further extensive consideration, most responders believe Brazilian domestic upstream competition can still deepen over the next 20 years period, although Petrobras is unlikely to lose its leadership and ability to orchestrate domestic competition. By entering into partnerships with private investors, Petrobras will be required to develop more transparency and a more commercial behavior. The national company will also have to compete with other players to acquire new exploration and production areas in the country through the bidding processes organized by the National Petroleum Agency (ANP). From 2001 and on, the company will start relinquishing some of its current exploration areas, opening new opportunities for ANP to grant those areas to new investors. On the other hand, as Petrobras starts its plan to restructure its upstream asset portfolio, giving up some E&P areas, there might be more room for the birth of other small-and-middle-sized private oil firms. In spite of all those expected evolvements, the domestic upstream competition in Brazil will remain healthy over the whole 2000 to 2020 period. According to most responders, competition may only become fierce if international oil prices decline towards the 10 US$/barrel level and/or when larger-and-with-more-impact projects become scarcer in the country (possibly not before 2020).

For downstream activities, the competition issue is believed much more complex and the survey hardly found a dominant opinion. As far as the economic scale and the growth potential are considered, Brazil is certainly seen as a competitive market with strong attractiveness for potential investors in new refining, distribution and marketing activities. However, in an open market environment, domestic production will have to compete with imported refined

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products coming from Argentina, the Mediterranean region, the U.S. Gulf Coast and/or from Venezuela and the Caribbean area. As believed by some responders, in the short and middle term, maybe up to 2005, the availability of idle capacity in those exporting regions may diminish the interest of building new refineries in Brazil. Competition will take place only between domestic and imported products, with an important location advantage for national refiners. As long as Petrobras keeps its almost full monopoly on the Brazilian refining industry, competition will be restricted, and the national oil company will alone enjoy this geographic advantage. The strategy to speed up competition in the Brazilian downstream sector divides the survey's responders into two groups. The first group believes the partial privatization of Petrobras' refineries will speed up the entrance of newcomers and, therefore, the competition in the Brazilian refining sector. Petrobras should speed up downstream investments abroad offsetting losses of market share domestically. The second group holds that this strategy violates the current global concentration trend, compromising the Brazilian national oil company's ability to compete globally with other mega-players. Among those supporters, some responders believe the government would underrate Petrobras' value by splitting up its downstream assets rather than privatizing the company as a block.

The answers have also highlighted some future perspectives for the distribution and marketing sectors. Again, no common ground is found. On one hand, some responders suggest the continuous strengthening of small-and-very-small companies, playing a strong focus strategy and conquering the loyalty of local consumers through personal attention and a long-term relationship, will gradually reduce the power of big distributors and marketers. On the other hand, we find answers pointing out concentration as the major driving force. The development of small players is seen as a transitory phenomenon. The most successful small players will end up on the hands of a big company. Acquiring such companies might be the easiest strategy for entry into the Brazilian market. Small companies will be restricted to insignificant niche markets. The only common opinion among most responders is the general view that distribution and marketing margins might decline over the 2000 to 2020 period.

As far as natural gas is concerned, the current infant industry has an enormous growth potential. Petrobras as well as many international and national private companies look for the best opportunities to position themselves in this new market. In the first step, the most prominent gas distribution companies have been privatized and distribution monopolies were transferred to private agents. High-pressure transportation infrastructures are still in Petrobras' hands, through its gas branch, Gaspetro, although Gaspetro shares its most important asset, the Bolivia-Brazil gas pipeline, with other international private actors through the company called TBG. From an optimistic scenario, where the market was expected to grow steeply, mainly through gas-fired power stations, the industry dived into a structural impasse with many price and market uncertainties slowing down investment decisions. As agreed by most responders, over the 2000 to 2020 period, competition will probably be almost absent in the construction of the Brazilian natural gas industry. Regional private monopolies will dominate gas distribution. Petrobras will keep a large majority share in gas transportation and production. The government will take the whole risk on gas-fired power generation, securing private investors from commercial and financial risks.

Conclusion

This survey clearly shows that, according to Brazilian experts, the oil and natural gas industry is expected to decline in importance as a leading business in the more developed world. Gradually, other sectors such as the information and telecommunication industries will surpass the oil and natural gas sector in terms of economic and political power. However, oil and gas will still be the world main primary energy, fueling global economic development during the period 2000 to 2020. In Brazil, the economic context is different and the energy sector, and particularly the oil and gas industry, will continue being the nation's greatest business. Oil and gas will still hold strong economic and political influence, fueling national economic growth, attracting private investment and creating the necessary energy basis for Brazil to also enter the new information and communication economy. The market perceives those two different realities when it analyzes Brazilian potential in the global and natural gas industry.

Another important conclusion from this survey suggests that Brazil seems reasonably competitive in oil and gas activities, particularly if international oil prices move within a 15 to 30 US$/barrel. This price scenario is convincing. That is why Brazilian specialists fairly believe the country will maintain its competitiveness to attract investments, although a very big and sustainable oil and gas boom is more questionable over the considered 20 year period. Therefore, although optimistic, the market seems cautious in forecasting the future. Moreover, the market recognizes major uncertainties and their potential impacts on the evolution of the national industry. Realism seems less present regarding the natural gas sector. Here, given the absence of tradition and the infancy of the industry, the market seems much more confident of a brilliant future despite important obstacles that are still in place slowing industry development.

Also essential to mention is that the survey's results show a discerning view of the market, dismissing traditional Brazilian nationalistic feelings, which used to indicate some market immaturity. According to the responses presented in this survey, the specialists are aware of Brazil's potential and difficulties as well as of the country's competitive advantages and disadvantages in the oil and the natural gas business. The general understanding is that Brazil is still far on the road of defining and establishing adequate and pro-active actions that can transform the country into a really attractive zone for oil and gas investments. Yet the general belief is that the new institutional order will be more successful in screening out and selecting those actions. Finally, the survey concludes that, over the 2000 to 2020 period, the time may turn out to be too short for creating strong competition in the Brazilian oil and gas market, diminishing the influence of the country's former state-controlled monopolies. However, the opening up process will continue advancing, gradually changing the competition environment.