Getting into Deep Water in Brazil

Recent ultra-deep-water offshore discoveries are re-confirming Brazil as the largest and most significant new oil-and-gas prospect of the last few decades. Brazil produces around 2.8 million barrels of oil equivalent per day, including biofuels, ranking ninth among oil producing countries today. Meanwhile, Petrobras is forecasting daily production of 6.4 million barrels by 2020, which would place Brazil in the top five globally. The aggressive targets particularly for the deep-water development over the next ten years will require as much as a trillion dollars investment, in an extraordinary undertaking, which represents the most challenging frontier yet for the offshore oil industry. Despite the general belief that the country may fall short of its ambitious goals, there can be no doubt that Brazil will become one of the leading non-OPEC producers in the coming decade. While political unrest in the Middle East continues to create volatility in global oil markets, the value of a major new stable source of supply cannot be underestimated. Such an important development is also destined to have a profound effect on Brazil’s economy, already the sixth-largest in the world and on a fast growth trajectory as one of the BRIC economies. The greatest impact is expected to occur in the oil-and-gas service sector, which accounts for ten percent of Brazil’s economy now and by 2020 its share is predicted to grow to twenty-five percent. This provides a unique opportunity for Brazil to become leader in the high tech deep-water industry and for international suppliers and investors to participate in a share of the prize, but only if they can avoid the supply-chain becoming a major bottleneck in meeting their objectives.

The Oil Boom in the Pre-salt and Beyond...

Deep-water discoveries in the pre-salt or pré-sal (“below the salt”) fields offshore southeast Brazil commenced in 2007 and have increased the country’s total estimated recoverable reserves by over 50 billion barrels. Many believe the recoverable reserves could eventually be as much as 100 billion barrels or greater. As a result Brazil now vies with Russia for second place among non-OPEC countries in terms of potential reserves. Meanwhile, Brazil is only just getting started on expanding its production, as new wells come on stream it is projected that the pre-salt oilfields will account for forty per cent of the country’s production by the end of the decade, up from less than two per cent at the moment.

Early exploration success in the Campos and Santos basins has put the spotlight on the pre-salt there. Yet many more opportunities exist: late last year Petrobras, the state controlled oil company, reported one of several new ultra deep-water discoveries off the coast of Sergipe in northeast Brazil, where they proved a reservoir with characteristics similar to the Campos Basin. In addition to the focus on deep-water offshore, it is worth observing that Brazil has twenty-nine sedimentary basins with oil-and-gas potential, covering five million square kilometers, with less than 5% under concession and over 50% onshore. Vast areas of this resource rich country are yet to be explored, serving to highlight the extensive underlying prospects and representing an upside not so far taken into account by Petrobras.
In essence the Brazilian oil-and-gas opportunity can be divided into four main segments:

- Deep and ultra-deep offshore
- Shallow offshore
- Mature onshore
- New frontier onshore

Hence, Brazil’s potential production is significantly greater than even Petrobras’ projections, assuming no development constraints. For now the main burden for the development of the deep and ultra-deep basins falls upon Petrobras, as the primary driver of the industry in partnership with the oil majors. The company is planning massive capital expenditure of almost $225bn in the five years to 2015 and is grappling with the huge tasks involved in bringing-on stream pre-salt production in a timely manner. Yet other players are finding a niche; OGX - the largest independent Brazilian oil company, has recently demonstrated that substantial reserves lay in the more accessible the shallow waters of the Campos Basin.

Additionally, there remain a number of mature onshore basins, which continue to produce up to 20,000 bpd, which Petrobras is seeking to divest from, as their attention is increasingly drawn to the key challenges of the pre-salt. Moreover, ANP the Brazilian regulatory body has been encouraging new frontier exploration in recent licensing rounds, such as in the Amazon region with the Solimões basin, but as prospects are typically in remote areas they have high associated costs for infrastructure development they are attractive only to those with a long-term perspective.

The True Prize

In spite of such a huge opportunity, the pursuit of oil in the pre-salt will not be successful without the ability to effectively manage the growth over the coming years. This is not only because of the massive capital budgets involved and the immense technical challenges of deep-water development, but also because of the underlying need to develop a world-scale oil service industry to support the expansion. Brazil is very quickly becoming capacity constrained in terms of production, rather than reserve constrained as most non-OPEC nations are. On the other hand the true prize will be in generating a sustainable benefit, based upon creating the right conditions for the oil service industry to flourish and to attract the necessary capital and technological capability; then providing trained resources to meet the challenge.
Much depends upon how the politicians react to the situation. Countries with big oil finds are prone to the curse of oil and an ominous list of economic ailments such as: Dutch disease - oil exports pushing the currency to a level that hurts other industries; capital absorption - the diversion of funds from other worthwhile investments; and reform fatigue - governments’ unwillingness to tackle structural economic problems when they can see vast wealth on the horizon. Perhaps mindful that the real bottleneck is in the oil services industry; the government does not appear to be in a hurry to hold the next round of tenders for the deep-water blocks. The process has been bogged down anyway by a political row between Brazil’s state governments over how to distribute royalties.

Conquering the Deep Frontier – Technology and Politics

So far Petrobras has been drilling in the pre-salt fields to verify reserves and to fine-tune the technology, but has been producing little oil. The pre-salt development represents an enormous technical challenge, and not just because of the depth, and thus the pressure, at which the drills must operate. New seismic techniques are needed to see what’s going on due to the thick layer of salt. The salt shifts during drilling, as the salt layer is softer than rigid rock, which means that solidifying drilled wells is more difficult and expensive. The oil comes out of its reservoirs very hot, and must then pass through wellheads that are only a few degrees above freezing. There are contaminants in the pre-salt oil that make it highly corrosive, so Petrobras has been working on new alloys for its equipment.

The possible complications are numerous. Huge, technically challenging projects always tend to run late and over budget. There is a lot of national pride is at stake. As a Brazilian friend remarked the other day, “This is not Africa.” Outsiders must recognize that Petrobras is set to overtake Exxon Mobil as the world’s biggest listed oil company by 2016 and it already leads the industry in a number of technical areas. Yet the rumors of delays abound, as well as suggestions that the 2020 target will be missed by as wide a margin as one million barrels per day or more. Petrobras are highly sensitive to the political implications of this and appear unwilling to openly acknowledge any possibility of set-backs. Meanwhile, it has struggled to meet its 2011-15 business plan and over the past three years has been able to add only 150,000 b/d in supply.

A recent incident underlines the fragility and the sensitivity of the Brazilian authorities to the technical risks and the possibility that something might go wrong on the scale of the BP oil spill in the US Gulf.
Brazilian federal prosecutors in December 2011 announced that they are seeking $10.6 billion in damages from Chevron because of environmental harm caused by an offshore oil leak. Oil from the Frade leak, which occurred 230 miles offshore after a pressure kick during drilling later, resulted in oil seeps of about 3,000 barrels from the seafloor, which never even reached the Brazilian coast. Most believe that this is an over-reaction, and the massive damages sought in the case are unreasonable. Taken to its logical conclusion the increased country risk, such fines represent, would scare away most potential investors and likely bring the country’s ambitious plans for the pre-salt to a grinding halt.

Only for the Big Boys

The huge capital budgets and numerous challenges for E&P asset development in deep-water Brazil mean that it is only for the big players. Since Shell became the first international operator to start oil and gas production in Brazil in 2003, under a concession agreement, ending the former monopoly of state-owned oil operator Petrobras, at least 36 foreign companies have entered the country’s upstream market. Most of the other international oil majors are represented in Brazil as well – aside from Shell: BG, Chevron and ExxonMobil have interests in blocks in the country and BP has bought $7bn in assets from Devon Energy that include interests in Brazil.

As part of their global quest for resources, Chinese companies have become the largest foreign investors in Brazilian oil and gas, particularly the oil and petrochemical group, Sinopec. This mirrors the economy where China has overtaken the U.S. as the largest foreign investor as a whole, over the last two years. In November Sinopec paid a total of $5.2bn for a 30 per cent stake in the Brazilian assets of Galp Energia, the Portuguese energy company. This follows Sinopec’s $7.1bn purchase of the Brazilian assets of Repsol YPF in 2010. Among the other Chinese groups, Sinochem has a $3.1bn stake in a field off Brazil’s south-eastern coast operated by Norway’s Statoil.

After a major revision to the Petroleum law in late 2009, all E&P activities relating to the pre-salt region are now governed by Production Sharing Contracts (PSCs). This new production framework is designed to replace the concessionary model in place since 1997 for those blocs denominated “strategic.” Furthermore, the law dictates that pre-salt reserves are to be explored and developed in partnership with Petrobras, which has a minimum interest of 30% in any given consortia. In addition, the law declares that Petrobras can be awarded pre-salt exploration contracts without a competitive bidding process. After incorporating the various taxes and government takes, an operator can expect to keep 25% to 30% of revenues, making the offshore development robust down to $35 - $40/bbl oil prices.

The government regulatory body, the National Agency of Petroleum, Natural Gas, and Biofuels (known as the ANP) has held twelve exploration and production licensing rounds, under the concession framework. The licensing rounds begin with the publication of the bidding pre-notice and drafting of the
concession contracts. Public consultations are held to address technical, environmental, fiscal and legal issues. Upon resolution of any substantive issues, the ANP makes the necessary data available to interested companies and opens up the qualification process. Interested parties make their bids through a transparent, sealed auction. The bids are evaluated by a special committee, the winner is selected and the contracts are signed.

**Long Gestation in the Service Sector**

Brazil already accounts for 22% of the world’s deep-water production, a share that is expected to grow to 50% by 2020. With the main focus of the offshore oil industry globally now on Brazil, international players in the oil and gas service industry are scrambling to set-up business locally. One international joint-venture manufacturer of offshore equipment recently described how they were unable to meet even five per cent of the potential demand from national sources, which is not untypical.

However, perhaps the biggest challenge for Petrobras will come from the strict local-content requirements the government is imposing on pré-sal projects. The government intends to make these progressively more demanding, applying them to the entire supply chain. By 2017 they may reach as high as 95% for some parts of it. Meanwhile, Brazil’s FPSO fabrication yards are operating at maximum capacity. The outgoing Petrobras head Mr. Gabrielli recently stated: “What’s going to be the main constraint that we face is the speed of the supply chain worldwide to provide the goods and services that we need.” By contrast, in her first press conference in February, Maria das Graças Foster the incoming Petrobras President highlighted the importance of the government’s policy of incorporating local content of up to 65 per cent in the national oil services industry. Petrobras says its level of local content is close to three-quarters.

Undoubtedly, meeting the world’s largest corporate capital expenditure program, valued at $225bn over five years would be a challenge even without local content targets. Increasing the local content remains a basic requirement of the nation and of Petrobras according to Ms. Graças Foster. Arguably, the ambition to get the most out of the know-how being developed and to become the world leader in “ultra-deep” drilling is the right approach for Brazil. However, experience of other countries local content programs would suggest that the creation of true national capability will take many years to bear fruit. Even if Brazil did have the manufacturing capacity, its industry is not yet internationally competitive – a mid-range tanker can cost $66m to build in Brazil – twice as much as in China, Credit Suisse estimates. In line with its policy, Petrobras recently approved a major contract for 26 rigs. All units, which have local content requirements ranging from 55% to 65% and are to be delivered within 48 to 90 months. The project includes the construction of new shipyards in Brazil and the use of existing infrastructure. Nevertheless, there are already concerns about higher costs and delays.
The attempt to stimulate supply-chain industries is in part a way to offset the Dutch-disease damage of high exchange rates. Yet forcing Petrobras and its partners to buy Brazilian, and international companies to re-locate it is estimated will cost the Brazilian oil and gas industry 10-40% more than world market prices.

Meanwhile, companies in Brazil’s Exploration and Production sector struggle today to recruit key workers. For instance, the Brazilian government estimates that 250,000 skilled workers will be needed for the development of new oil fields over the next four years. Brazil’s labour market is already so tight that employers complain about a “labour blackout”. While Petrobras itself is unlikely to suffer: it gets hundreds of applicants for each job, its suppliers are struggling.

**The Politics of Oil**

Petrobras’ downstream operations weighed heavily on its performance, as demand in Brazil for petrol is soaring on the back of a growing economy. This is straining Petrobras’ domestic refining capacity and forcing it to import fuel at higher global market rates and sell it at lower local prices. Although Brazil does not officially subsidise fuel, Petrobras has not increased prices for eight years. Analysts believe this has been at the insistence of the government, which uses Petrobras as a means to control inflation.

The company has forecast it will more than double production to 6.4m b/d by 2020. While this target is based on existing fields, it will require Petrobras and the government to also make more progress in developing the vast new ultra-deepwater discoveries. This is amid continuing concerns of government meddling in the company and that the push for locally made equipment is leading to supply chain holdups.

Since the pré-sal was discovered Brazil’s politicians have talked much less about reforming burdensome tax and labor laws. The corrupting tendency of oil is worrying in a country where the president sacked five ministers last year over accusations of illicit enrichment. Without a lot of care, oil might block development as much as spur it on.

**Investor Perspective**

With only a few wells drilled to date in the high potential pre-salt fields, largely underexplored interior and coastal areas, Brazil will become a major focus for E&P activity worldwide over the coming decade. Equally important, sustained global demand for hydrocarbons and political instability in the Middle East will continue to make deep-water, pre-salt and other high cost developments in Brazil, relatively low risk and thereby highly attractive. This dynamic will continue to direct capital towards the country. Local and foreign companies with experienced and competent management teams in the E&P sector will take advantage of this; these companies will have a high chance of achieving exploration success and consequently generating significant profitability. In the near term, investors with exposure to such companies will benefit from the country’s exploration potential. However, the huge energy infrastructure deficit, stringent local content requirements and the rush to develop multiple projects simultaneously will undoubtedly lead to delays in the development of projects and erode value. The oil service industry is not yet getting the traction it needs to fulfill its promise. Levels of foreign direct investment in this sector are not yet hampered by the high “Brazil cost” and complexities of doing business in Brazil. Nationalism is also on the ascendancy; with the new Petroleum law which grants Petrobras an effective monopoly over all future pre-salt projects; with the push for local content; with the excessive fines of Chevron for the recent oil spill and with political arguments between the states over the sharing
of royalties. While, the near term opportunities in Brazil are compelling, investors have to remain cognizant of project development, execution and political risks.