

Working Paper

Brazil: Trailblazing the Hydrocarbon Frontier

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Introduction

Throughout its history Brazil has sought to balance its pursuit of energy security with a sense of pragmatism and strong nationalistic tendencies. The pursuit of energy security galvanized the 1950's constitutional debate and led to greater state control over most aspects of the hydrocarbon fuels sector and the creation of - *Petróleo Brasileiro S.A.* (Petrobras). The creation of the state oil company as an enterprise obliged to follow commercial legal requirements, instead of a state company insulated from market forces, was the first indication of the pragmatism that has come to define Brazil's approach to energy resource management.

Unlike other regional energy producers Brazil's lack of large onshore oil and gas reserves made the challenge of developing a vibrant hydrocarbons sector much more difficult. Consequently, both Petrobras and the Brazilian government recognized that the only solution would be to focus on the potential thought to exist offshore. In another illustration of its pragmatic leanings and in spite of the fervent nationalism, foreign firms were hired to conduct seismic and other technical studies that would lead to the first offshore discovery in 1969 and subsequent success in the offshore.¹

This balance has served Brazil well. Only forty years later, Brazil has become self-sufficient in oil production and a leader in deepwater exploration and development. Success in the oil and gas sector is partially the product of maintaining an open investment environment that created a dynamic and competitive sector where the most experienced, technologically advanced and well-capitalized companies joined forces with Petrobras to aid in Brazilian resource development. Petrobras, now a state-controlled mixed capital company, operates alongside 71 national and foreign enterprises², in Brazil and abroad, and is well respected in international circles as well as a great source of domestic pride. Now the discovery of a new oil frontier in 2007– the pre-salt reservoirs – is likely to catapult Brazil from 24th to 8th or 9th place in global reserves and turn the country into a major oil and gas producer.

Given the potential for an unprecedented level of oil wealth in a time of oil market uncertainty, the Brazilian government withdrew blocs with pre-salt potential from the National Petroleum, Natural Gas, and Biofuels Agency (ANP) 9th licensing round in

¹ For a thorough historical analysis of the evolution of Brazil's energy sector see Hester, A. and Jean Paul Prates "The Energy Sector in Brazil: Lessons in Ingenuity and Compromise" *Canadian Foreign Policy*: Vol. 13, Number 2 (2006).

² BNDES, "Estudo de Alternativas regulatórias, intitucionais, e financeiras para a exploração e produção de petróleo e gás e para o desenvolvimento industrial da cadeia produtiva de petróleo e gás no Brasil" http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Apoio_Financeiro/Apoio_a_estudos_e_pesquisas/AEP/chamada_presal.html, June, 2009 (accessed on October 20, 2009)

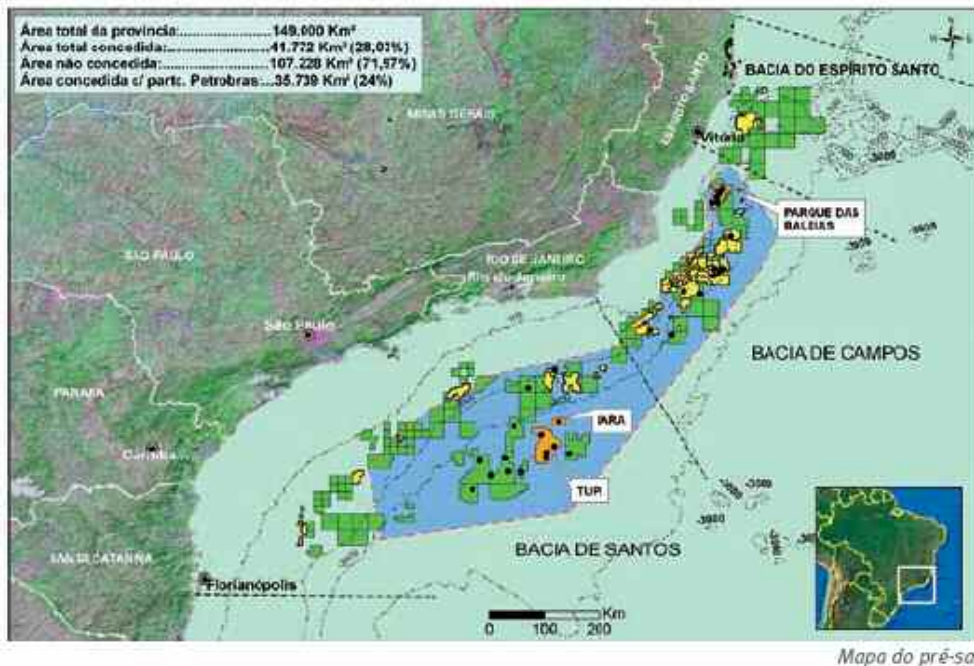
November, 2007 to re-evaluate the strategic approach to their development. While many foreign companies expressed concern over this decision, Petrobras CEO Sergio Gabrielli justified and defended the move on the basis that acquiring rights to these blocs was akin to buying a “winning” lottery ticket. To guide the next steps, President Luiz Inacio Lula da Silva convened an inter-ministerial commission to either propose changes to the existing legislation that would reign-in oil and gas exploration and production in the still unlicensed pre-salt areas or come up with a new model that would concurrently respect existing contracts, be efficient, and increase the government’s control and revenue from the resource.

On August 31, 2009 President Lula tabled four bills for congressional approval. The proposed legislation includes four key components:

- (1) a new production-sharing system,
- (2) the creation of a new state company,
- (3) the establishment of a new sovereign wealth fund, and
- (4) the “onerous relinquishment”³ of five billion barrels of oil from the state to Petrobras to facilitate the company’s ability to raise capital for projects.

The remainder of this paper provides an overview of the legislative proposal, the arguments for and against each provision, and some insight on the process and challenges ahead for passing legislation.

The Pre-Salt Reservoirs



Source; Petrobras, November 5, 2009

³ Brazilian legal term for relinquishment of assets for a cost. In other words "selling the rights to explore the reserves."

The pre-salt reservoirs span an area of approximately 149,000 square kilometers (app. 57,530 square miles). The hydrocarbon accumulations are found in ultra-deep waters (5,000 -7,000 meters depth) and underneath a 2,000 meter layer of salt. Of the total area, 28 percent is already licensed, and most of it (24 percent) to Petrobras.⁴ The original pre-salt cluster, an area of 15,000 square kilometers in the Santos Basin, is considered the “best” of the pre-salt areas so far because all blocs have the same physical and geological attributes, and the accumulations are found under a solid (not-fragmented) thick layer of salt. In this area, to date, Exxon drilled the only dry non-commercial well while Petrobras claims 100 percent success rate (see table below).

Block	Well	Hydrocarbon	Recoverable Volume	Joint venture	Operator	
BMS-8	Bem-te-vi	Yes	N/A	PBR (66%), Shell (20%), Petrogal (14%)	PBR	
BMS-9	Carioca	Yes	N/A	PBR (45%), BG (30%), Repsol (25%)	PBR	
	Iguaçu	Yes	N/A			
	Abaré	Yes	N/A			
	Guará	Yes	1.1 - 2 bi boe			
BMS-10	Parati	Yes	N/A	PBR (65%), BG (25%), Partex (10%)	PBR	
BMS-11	Tupi	Yes	5 - 8 bi boe	PBR (65%), BG (25%), Petrogal (10%)	PBR	
	Tupi Sul	Yes				
	Tupi Nordeste	N/A				
	Iracema	Yes				N/A
	Iara	Yes				3 - 4 bi boe
BMS-21	Caramba	Yes	N/A	PBR (80%), Petrogal (20%)	PBR	
BMS-22	Azulão	Yes	N/A	Exxon (40%), Hess (40%), PBR (20%)	Exxon	
	Guarani	No	N/A			
BMS-24	Júpiter	Yes	N/A	PBR (80%), Petrogal (20%)	PBR	

Source: Petrobras, Oct 30, 2009

Pre-Salt Cluster – Santos Basin

Further north, in the Campos Basin off the coast of Espírito Santo State, five wells have been drilled in the Wales Park cluster – 100 percent owned by Petrobras. The company has announced preliminary results of reserves ranging from 1.5 to 2 billion barrels of oil equivalent (boe).

Aside from these two specific areas, the Santos Basin Cluster and the Whales Park, there are other blocs where pre-salt reserves have been found and/or are being tested. In addition, companies are re-entering already drilled wells to explore deeper into the pre-salt layer.

With so much activity, complete information on the success rate is hard to find. However, according to quotes from Minister Rousseff the success rate for 31 wells drilled in all of the pre-salt area is of 87 percent.

⁴ These percentages are based on the figures quoted by Petrobras.

These numbers are impressive. Over-reliance on success rate estimates based on so few wells over such an extensive territory is unwise; however, there is no denying the reserve potential is indeed significant. In 2008, Brazil's total reserves were booked at 14 billion barrels. Brazil's reserves could be doubled with just the estimated finds of Tupi, Iara and Wales Park. The Brazilian government wants to seize the opportunity to ensure the country uses the wealth generated by these resources to fuel a stage of development and prosperity to be shared equitably among all its citizens. Still, these reserves are costly to produce – approximately US\$100 million per well according to the latest figures provided by Petrobras' CEO Sergio Gabrielli. Moreover, costs could be even higher if yet untested carbon capture and sequestration technologies are implemented, with the carbon used for re-injection to boost production in some wells.

Many argue that the current concession regime could be changed to achieve the government's stated objectives. Today, licensing of exploration areas is administered by the ANP through licensing rounds open to all companies, including Petrobras, on an equal basis. Bids are awarded to companies who offer the best combination of signature bonus and highest percentage of national content in exploration services. The concession terms include:

- a signature bonus,
- royalties (between 5 and 10 percent),
- special participation for very productive wells (ranging from 10 to 40 percent of net profits), and
- payment for rent or area retention.

The revenues are shared by the federal, state, and municipal governments.

Instead of modifying the existing system to capture a higher percentage of the profits, the inter-ministerial commission recommended a complete overhaul of the regime for the unlicensed pre-salt areas.

The Proposed Legislation

The proposed legislation sets out a new method for governing the development of the pre-salt resource areas yet-to-be licensed (i.e. the already licensed blocs will be developed under the old regime). The proposal was introduced in four separate pieces of legislation and is subject to change as it moves through the Brazilian Congress for consideration and approval.

The new proposals were presented by President Lula with much fanfare and the slogan "Pre-Salt: Inheritance of the Nation, Wealth of the People, Future of Brazil" which is reminiscent of the nationalistic "The Oil is Ours" campaign that led to the creation of Petrobras. The government's rationale for introducing a new regime is that the concession contract is best suited for reserves that have high exploratory risk and low returns. In contrast, the pre-salt reserves are defined by low exploratory risk and high returns. This classification methodology does not take into account the pre-salt reserves'

high development/extraction cost and technical challenges. Through this new regime, the government hopes to gain greater control over the pre-salt resource and a larger portion of the revenues, to ensure both a sustainable rate of production and that the wealth generated is not squandered.⁵

The proposed legislation includes four key components:

- (1) a new production-sharing system,
- (2) the creation of a new state company,
- (3) the establishment of a new sovereign wealth fund, and
- (4) the “onerous relinquishment” of five billion barrels of oil from the state to Petrobras.

Production Sharing Regime – The production sharing regime will cover all unlicensed pre-salt areas (72 percent of the exploration area) and eventually any additional areas considered strategic by the National Energy Policy Advisory Council (CNPE).⁶ Contracts will be based on the sharing of the “profit oil” which will be calculated subtracting the “cost oil”⁷ from the production. The bid that offers the combination of signature bonus with the largest share of the “profit oil” to the state will win the exploration and production rights to the auctioned area. Instead of the current system where all areas are awarded through a bidding round, awards on the new system can be made either via public auction in which Petrobras is – without exception -- the sole operator with a minimum 30 percent stake in any consortium or awarded directly to Petrobras without public auction (in the case of strategic areas).

Companies can only present one bid per bloc (alone or in a consortium). The government will be represented in each deal by a newly formed company – Petro-Sal (subject of another proposed bill). The administration of the project will fall to the operational committee of which Petro-Sal will appoint half of the members including the chair who will have the quality vote and veto power. Petro-Sal will not assume any financial liability in the project, thus project financing will be the sole responsibility of Petrobras and other private companies involved in the project. Petro-Sal will be the recipient of the government’s share of the “profit-oil.”

The bill also lays out the responsibilities of the CNPE as well as those of the Ministry of Mines and Energy (MME), and the regulator, ANP. In addition, given the state’s need to acquire information on the delimitation and potential of the reservoirs, in a departure of traditional roles, the bill determines that Petrobras can be contracted to conduct exploratory studies on behalf of the MME directly or via the ANP. In other words, the bill establishes that the government can contract Petrobras to provide geological and drilling services.

⁵ The pace of production would be set to give the country’s industry and human resources time to develop.

⁶ In addition to the two previous categories, high risk/low returns reserves under the existing regime and low risk/high returns pre-salt reserves, the government added a third reserve category, “national strategic interest.”The government did not offer a definition for these reserves. One can speculate that the category was included in the legislation to allow the government to bypass the licensing process altogether in the future.

⁷ Total production minus E&P expenses and investments and royalty payments.

Finally, the original draft of the bill established that only the signature bonus and royalties would be included under the new production sharing regime. In a last minute compromise with the states that would receive the substantial revenues from the special participations (Rio de Janeiro, Espirito Santo and São Paulo), a provision was made that the existing fiscal framework (bonus, royalties, special participation, and rent) would apply to the new production sharing until the final bill was approved by both houses of congress. It is likely that the government did not want to negotiate with three states alone. By leaving this discussion to congress, it ensures that all other states of the Union will lobby to also secure some income from the newfound wealth. Consequently, in a larger forum, the three states in question would be under increased pressure to negotiate their share with other states as well as the national government.

The New State Enterprise, Petro-Sal - The company will be constituted as a commercial company – with all the reporting and legal obligations of similar enterprises – but wholly owned by the Brazilian government and linked to the MME. Although headquartered in Brasilia, its central office will be located in Rio de Janeiro. Petro-Sal will be a partner in all pre-salt exploration and production contracts but assumes no financial liabilities. The enterprise will represent the state in the daily operations of these contracts (but not be involved directly in the exploration and production) and will be responsible for the commercialization (sale) of the product received as payment for the state’s share of the profit oil. Petro-Sal will receive a management fee (for both E&P and commercialization) as well as portion of the signature bonus.

Petro-Sal will be managed by an administrative council and an executive board, both named by the president of Brazil. The legislation determines which ministries are entitled to nominate board members. The fiscal committee will be composed by three individuals (two named by the MME and one by the Finance Ministry) and it will be accountable to the federal Revenue Accountability Office. The hiring of all other employees (estimates of 130) will follow formal hiring guidelines.

The New Sovereign Fund (Social Fund) – The objective of the Social Fund is to provide funds for poverty alleviation (policy and program design and implementation), educational development, culture, science and technology and environmental sustainability programs. The fund will be directly linked to the president’s office. It will receive a portion of the royalties and signature bonus, a percentage of the revenues generated by the commercialization of the oil received by the state, as well as interest received on investments. Other revenues will be considered. The bill deals with the permissible investments, which include financial and other instruments, in Brazil or abroad, chosen based on their expected return, low risk and liquidity. Investment policy will be determined by a non-remunerated financial committee whose members serve at the discretion of the president. The use of the fund’s resources will be governed by a non-remunerated deliberating council composed of individuals from civil society as well as the federal bureaucracy. Its membership, competencies and procedures will be established by presidential decree. The Finance Ministry will report on the fund’s activities to congress quarterly.

The Onerous Relinquishment of Oil, Natural Gas and Other Hydrocarbon Fuels to Petrobras⁸ - The term “onerous relinquishment” means, in this case, exchanging the rights to hydrocarbons for stock in the company. The expectation is that an extra 5 billion boe will increase Petrobras’ borrowing leverage needed to undertake the massive efforts required to develop the pre-salt fields. The state is thereby authorized to relinquish, without a bidding process, the hydrocarbons contained in a not-yet-licensed area of the pre-salt reserves limited to no more than 5 billion boe. The transaction must take place up to one year after the bill’s approval and publication. The transaction involves two simultaneous steps:

1. An area containing 5 billion boe (likely adjacent to a field already owned by Petrobras) will be ceded. Government bonds will be used to pay the state for the hydrocarbons. Initially, an independent consultant will establish the discounted value of these reserves, noting that royalties will be payable and distributed according to existing legislation. After two years, adjustments will be made based on the realized, as opposed to estimated, volume and discounted value, with either Petrobras or the state compensating one another for any difference in value.
2. In order to secure the funds to pay for this transaction, Petrobras will issue additional stock. The value of the 5 billion boe will be equal to the payment the government must make to secure the additional stock proportional to its current percentage holding in the company. Minority holders will be able to purchase additional stock – using cash – in proportion to their current percentage holdings.

The Process

Originally President Lula sent the bills to congress requiring “fast-track” approval which limits the discussion in each house to 45 days (90 days total). President Lula took this aggressive approach because he wanted to give the impression that his government took the issue seriously and would be effective at getting the job done. The time limit was necessary as future candidates to any public office in the October 2010 elections must excuse themselves from current posts by April, 2010. Approval of the new pre-salt regulatory and fiscal frameworks means that his preferred presidential candidate, Minister Dilma Rousseff, who previously served as Minister of Mines and Energy and since 2003 has served as Chairman of the Board of Petrobras, would have an issue that is close to her heart and well within her competence to campaign on. President Lula couched the argument in a very nationalistic tone to brand any movement against the bills as “entreguista” or “sell outs” – the same strategy used during the original 1953 campaign for state control of hydrocarbons and for the creation of Petrobras.

Still, the opposition voiced a strong adverse reaction to discussing such important and dense subjects in an unrealistic time-frame. President Lula relented and accepted a house compromise, setting the beginning of the vote on the bills for no later than November

⁸ The explanation of this bill includes both the statements contained in the proposed legislation as well as the guidelines from Petrobras on how it will deal with this transaction.

10th. It is not clear how long the voting procedure will last. The government party and its allies are in firm control of the four special committees that are overseeing the amendments. Consequently, they control what version of the bills reach the floor.

In contrast, government control of the senate is much more fragile. That means that ending the discussion in time for the Christmas break and summer recess (until February 2nd) would be difficult. What happens next is anyone's guess. It all depends on how certain the government is of the legislation's approval before many ministers and legislators from the government base start their election campaigning in earnest. If necessary, albeit politically costly, congressional leaders can invoke a special session forcing everyone back to Brasilia in January.

The Issues

As noted in the introduction, stakeholders are involved in vigorous debate. For instance, the states that stand to gain from the pre-salt production want to ensure the new legislation does not diminish the revenues they would otherwise receive. For its part, the federal government wants a larger share of the rents, ostensibly so it can distribute it among all states.

Oil companies – domestic and international – see this new legislation as the opening for further government encroachment in the market. If the legislation is approved as tabled, they are clearly going to be at a disadvantage because Petrobras will be the sole operator and together with Petro-Sal will have almost complete control of the operating committee, even if their combined investment is far less than of those made by other consortium partners. The service industry is divided. On one hand, it knows that the new reserves will translate into a golden opportunity for new business. On the other, to have Petrobras as the sole operator translates into dealing with a monopolist buyer (monopsony).

Environmentalists and ethanol producers take issue with the lack of focus on the effects this significant increase in hydrocarbon production will have on the sustainability of the Brazilian energy matrix and its global position as defender of sustainable fuels. Industry and many legislators question the wisdom of concentrating all of the country's investment capacity in only one sector, to the detriment of much-needed investments in country-wide infrastructure, health, and education.

Labor unions have retreated to their historical position of support for total state control over the economy, and defend the position that these bills are only the beginning of a much needed re-nationalization of Petrobras. The same organizations, however, are pressuring for amendments that would allow domestic minority shareholders of Petrobras to use their government pension accounts to purchase stock in the new issue.

The debate is fluid and while the bills are being debated and voted on by Congress, it is impossible to write a definitive account of the arguments and positions – they change daily. Nevertheless, they are worth reviewing.

Initially there were many questions directed at the logic behind changing the concession contract to one of production-sharing, because if the government was sincere in its justification for changing the system, it would be easier to modify the current regulatory and fiscal regime to accommodate the new reality. Insistence on the production-sharing model where a new state company (as opposed to Petrobras that answers to both government and private investors) will have access to all the information indicates that the government actually wants more control of the sector from within and it wants to gain a window into Petrobras' operations.

The government's desire for more control is evidenced by several declarations made in response to questions on the possibility of the government ending up with a larger percentage of the company if other shareholders do not take full advantage of Petrobras' stock offer. Another point of domestic political contention is the possibility that the domestic investors could lose their proportion of shares relative to the better capitalized international investors.

In order to mount a defense against what it perceived to be a violation of its right to competition, the industry lobby, the Brazilian Petroleum Institute (IBP), commissioned a legal opinion on the constitutional compliance of the proposed legislation. The study suggested that the change to a production-sharing contract was on defensible legal grounds. In contrast, Petrobras' new status as sole operator is questionable. The study found that many aspects of the legislation infringe on the principle of competition embedded in the Constitution. A recent report on the proposed legislation issued by the Senate research service reaches the same conclusions.

Companies also have good reasons to request changes to Petro-Sal's control of the operational committee. The logic is self-evident: it is hard to justify total control for an entity that makes no financial investment. Still, unless Congress understands how this will affect their individual members' electoral chances, it is not clear what changes will be allowed to go forward.

At the time of writing, the special commission on the production-sharing contract has presented its proposed amendments to the committee. The amendments excluded special participation from the production-sharing model, but offered a compromise with the states by finding a more equitable distribution of the royalties. On the issue of Petrobras being the sole operator, however, although the committee was willing to propose a compromise, newspapers reported that Dilma Rousseff vetoed any change to this clause. The committee could not reach a decision on the amendments to be tabled and consequently, it postponed voting until the first week in November.

Government control of the resources and of an increasingly strong Petrobras will clearly be the battleground. The governance challenge will be great. Dilma Rousseff is one of the most powerful ministers in the government, is a presidential candidate and is the Chairman of the Board of Petrobras. The compromises developed in the process of approving this legislation and the requirements imposed on different individuals

regarding the roles they are allowed to play will not only shape the long-term energy plan for Brazil, but will also reveal to the world Brazil's ability to separate politics from policy.

While it is certain that the pre-salt reserves will be regulated by different rules, it is impossible to predict what the regulatory and fiscal framework will be. In addition, even if these changes are implemented, there is chance they could be reversed if a different party wins the October 2010 elections. Nonetheless, if the Brazil's history of energy sector development offers any insights, regardless of the momentary up and downs, Brazilians will be pragmatic and find a compromise that will include a strong presence of the state, as well as room for a dynamic private sector to operate.