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ABOUT FGV ENERGIA

FGV Energia is a center of studies dedicated to the energy department of the Getúlio Vargas Foundation, created to make FGV a leader in research and discussion about the country's public policy on energy. The center seeks to formulate energy studies, policies, and guidelines, and establish partnerships to assist companies and the government with decision-making.

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Technical-scientific, educational, and philanthropic institution, created on December 20, 1944 as a legal entity under private law, which seeks to work broadly with all subjects of scientific nature with emphasis on the social sciences: administration, law, and economics, contributing to the country's social and economic development.

Introduction

The year 2015 has been striking for Brazil's oil and gas sector. National records in oil production, a national political and economic crisis, and serious problems for Petrobras and its suppliers of goods and services resulting from Operação Lava Jato (Operation Car Wash) are all taking place simultaneously.

Internationally recognized for its technology and operational capacity, Petrobras faces challenges in the financial field that will be overcome with the correct pricing of its products and adjustments to its investment plan.

FGV Energia, in partnership with Accenture, worked on diagnosing the main barriers to the development of the Brazilian oil industry. The result of the work is consolidated in this publication, where we address issues we understand to be critical for the industry to provide, in addition to oil supply, a positive outcome for the entire economy, such as creating more jobs and resources throughout the country.

In addition to having an interest in understanding the current challenges faced by the oil industry, it is important that readers understand its global historical importance as a vector for development.

The diagnosis presented in this work was analyzed from an economic and structural standpoint, and despite the economic importance, emphasis was given to structural issues. This methodology is necessary in order to outline a deeper discussion and serve as a platform for the evolving debate about the direction of the oil and gas industry.

FGV would like to thank everyone who directly or indirectly contributed to preparing this folder, especially the partnership with Accenture, which joined forces in order to make this work possible. With the certainty that the Brazilian oil industry is a success story, representing national pride, we hope to contribute to the debate evolving into a purposeful discussion, aiming to overcome the challenges and create new paths for the sector.

Sincerely,

Sergio Franklin Quintella
Vice president of FGV

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We would also like to take this opportunity to express our gratitude to those who work with us at FGV Energia and Accenture. Daily conversation, full of questions and disagreements, served as inspiration and helped to enrich our work, because with a multidisciplinary view, we were able to develop a more complete picture of the sector.

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Contents

The scenario has changed. Now, more than ever, we need to act.

In countries with vast hydrocarbon reserves, the oil and gas industry tends to be very important to the local economy because of the high levels of investment throughout the production chain. In Brazil's case, the extractive and oil production markets began to have influence in the 1970's, as the result of the discovery of oil in the Campos Basin and increased domestic demand.

Until then, the proved reserves in Brazil were about one billion barrels of oil equivalent (boe) and the daily production of 160,000 barrels per day (bpd), respectively 0.2% and 0.3% of the global reserves and production. Investments in Petrobras, which was the only player at the time, were around US$ 4 billion per year[1], intended primarily for its refineries.

The first phase of discovery at the Campos Basin caused the company to direct its efforts toward the upstream operations, concentrating practically all of its investments on the development of the new area. With the successive discoveries of new reserves over the subsequent decades, Petrobras consolidated itself as an integrated oil company, operating in a monopolistic system until the market opened up in 1997.

In the years following the end of the monopoly, the sector watched the barrel price rise from US$ 16 in 1998 to US$ 80 in 2005, and the country's favorable conditions prompted the strengthening of local content policy, mainly throughout the decade of 2000. The government tried to establish a solid industrial base that could contribute to the country's social development, taking advantage of the exploration of existing natural resources. During that time, Petrobras structured itself to operate in a competitive system and consolidated its leading position in the sector, which would become even stronger after the discovery of oil in the Pre-Salt region in 2007.

Considered to be the largest discovery in the world in the last ten years, Pre-Salt put the Brazilian oil and gas sector in an internationally prominent position. It was expected that the exploration of oil on a new oil frontier, over 7,000 meters deep and hundreds of kilometers off the Brazilian coast, would positively affect the country's social and economic structure, not only through royalties, but also through the development of the entire sector. It was a positive context for attracting large suppliers, development of medium, small and micro Brazilian enterprises, generating new work stations, and mainly, consolidating Brazil as a cutting-edge techno-

1- Current values (2014)

logical hub. In addition, what international Exploration and Production (E&P) company would not be interested in a growing market with a huge potential for reserves?

Considering only E&P, the investment of Brazilian operators in the last ten years was over US$ 220 billion – and about 80% of this amount was invested by Petrobras. In December 2014, Brazil ranked 15th among the proven reserves, with about 16 billion boe – 1% of global reserves – capable of doubling that amount in a short time after incorporating reserves identified in areas such as those under Onerous Transfer of Rights[2] and Libra. Recent industry forecasts[3] estimate a total of approximately 176 billion boe of undiscovered and recoverable oil in the Pre-Salt region, considering the Santos, Campos, and Espírito Santo Basins.

Production in Brazil in 2014 was 2.3 million bpd, about 3% of global production, and after reviewing the projections of Petrobras under its new investment plan (2015-2019), the country's production should reach 3 million bpd in 2020.

However, despite the strong growth of reserves and production, technological development in drilling and subsea activities, and having attracted world-class suppliers to Brazil, leveraged by the discovery of Pre-Salt, some recent events have affected the Brazilian oil industry.

The sharp drop in oils prices, the country's macroeconomic scenario, the depreciation of the Real against the Dollar, the loss of investment grade in the Standard and Poor's (S&P) credit rating, Petrobras's difficulty in financing its operations – aggravated by the failure of the investment strategy and recent corruption scandals – and the obstacles related to the regulatory framework, highlight some of the structural problems that generate weaknesses for the sector.

Recent revision of Petrobras's production goals for 2020, from 4.2 million to 2.8 million bpd, resulting from investment cuts and disposal of assets, corroborate the setback experienced by the sector.

Considering the challenging environment the sector is facing, **FGV Energia**, in partnership with **Accenture**, decided to conduct a study in order to understand how the key players view the current situation and the prospects for the Brazilian oil and gas sector. **FGV Energia** researchers and energy specialists at **Accenture** carried out several interviews with industry leaders, seeking to identify the root causes impeding sustainable development.

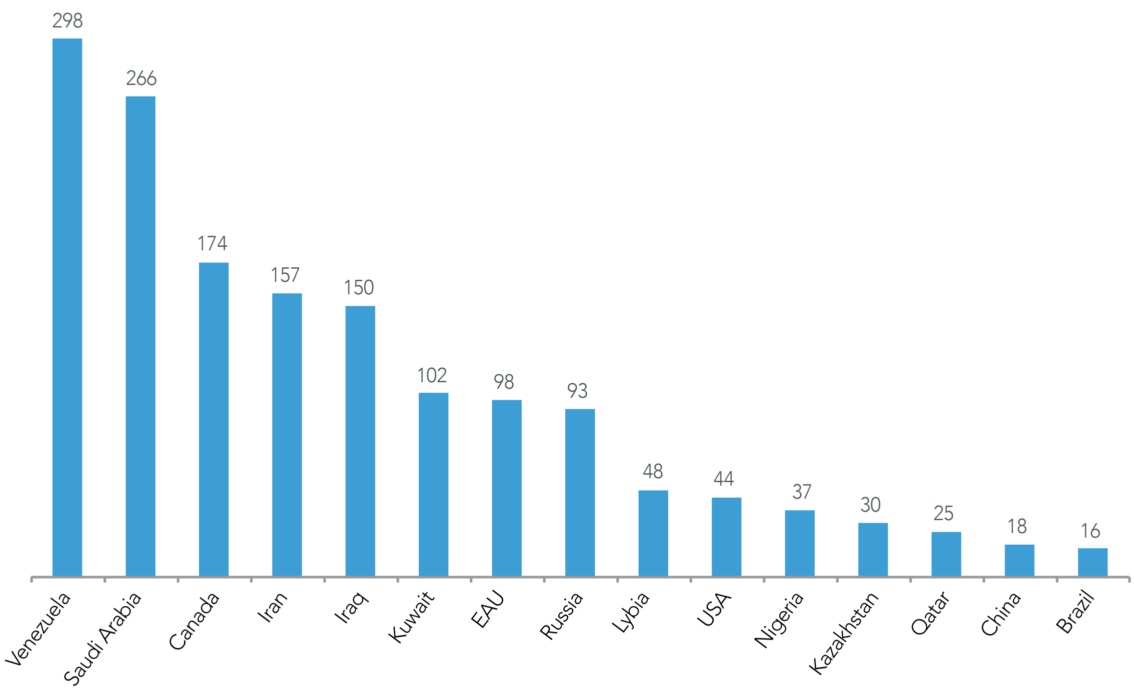
It is a convergent opinion among all executives interviewed that such a strategic sector for the country, due to its representation in the industry, and its ability to directly impact the lives of millions of Brazilians, deserves to be treated with the most clarity possible when defining its

2- Contract between Petrobras and the Government granting the right of the company to produce 5 billion boe in the areas of Franco, Entorno de Iara, Southern Guará, Northeastern Tupi, and Florim

3- The National Oil and Gas Institute of Rio de Janeiro State University (UERJ) – August, 2015 role in Brazilian energy and industrial policy. Reformulation of the sector is understood to be necessary, including integrated planning based on an objective agenda focused on results, where credibility and predictability are not placed at risk. The development of this folder is intended to stimulate the debate about the strategy for conducting this reformulation and indicate possible directions so that the key structural drivers can support the industry's growth in Brazil.

In a global scenario, where competition is increasing and the search for effective investments assumed to be mandatory, it has become urgent and necessary to give a clear message to industry players about the path to be taken from this point on. Although international eyes continue looking toward Brazil, the risk of losing ground to other markets should not be underestimated.

CHART 1 - PROVEN OIL RESERVES (BILLIONS OF BARRELS): RANKING OF COUNTRIES



Source: BP Energy Outlook (2015)

How we got here: the logic behind building the Brazilian oil sector

The path of the Brazilian oil and gas industry in the last two decades until the point where it is today was marked by relevant events. Among them, the following can be highlighted i) the end of the monopoly in 1995 for extraction, refining, and distribution activities, and the enactment of Law 9,478 (Oil Act) in 1997; ii) the implementation of incentive policies for local content since 1999, which were strengthened in 2003; and iii) the discovery of the Pre-Salt region in 2007, with the creation of a specific regulatory framework, sanctioned in 2010. In addition to these events, the increase in domestic demand for oil products as a result of government policy encouraging consumption, and the rise in the price of oil, which have stimulated the increase in investments in the sector in recent years, contributed to the development of the sector.

THE END OF THE MONOPOLY AND THE SUCCESS OF THE CONCESSION MODEL

Since the creation of Petrobras in 1953 until the enactment of the Oil Act in 1997, the company operated as a monopoly in exploration, production, refining, and transport of oil in the country. During that time, the company played an important role in the growth of the sector's supplier industries – such as metalworking and shipbuilding.

The Oil Act established the concession model for exploration and production activities and instated the National Agency for Oil, Natural Gas, and Biofuel (ANP) as the regulatory agent for the sector. This movement encouraged the private sector to enter the E&P market and attracted international investment to the country, boosting the Brazilian oil industry.

The favorable environment paved the way for twelve bidding rounds from 1999 to 2013, with the participation of several companies of different sizes. From local companies focused only on domestic production activity, to international oil companies (IOCs), from many global markets, several companies rounded off 979 blocks, which yielded public funding of over US$ 4 billion in signing bonuses alone.

TABLE 1 - Summary of ANP Bidding Round

	Round 1	Round 2	Round 3	Round 4	Round 5	Round 6	Round 7	Round 9	Round 10	Round 11	Round 12
	1999	2000	2001	2002	2003	2004	2005	2007	2008	2013	2013
Blocks Offered	27	23	53	54	908	913	1134	271	130	289	240
Blocks Sold	12	21	34	21	101	154	251	117	54	142	72
Signature Bonus (US$ thousand)	180.919	261.670	240.795	33.883	9.153	222.061	484.071	1.140.653	37.942	1.407.591	70.000
MEP (US$ thousand)	N.A	N.A	N.A	N.A	121.219	683.276	801.319	739.405	259.359	3.441.392	214.000
Average LC - Exp	25%	42%	28%	39%	79%	86%	74%	69%	79%	62%	73%
Average LC - PD	27%	48%	40%	54%	86%	89%	81%	77%	84%	76%	84%
Winning Companies	11	16	22	14	6	19	30	36	17	30	12
Domestic winning companies	1	4	4	4	2	7	14	20	12	12	4
Empresas Vencedoras Estrangeiras	10	12	18	10	4	12	16	16	5	18	8
New operators	6	6	8	5	1	1	6	11	2	6	nd

Source: ANP - www.brasil-rounds.gov.br (July 2015)

With the market opening to E&P companies and the consequent growth of the sector, segments of society raised the debate about the participation of local industry in the supply of goods and services to the oil industry. In order to address this issue, the ANP implemented, from the 1st round, the requirement of a certain percentage of purchases carried out within the country. The encouragement of Brazilian supply industry development through concession contracts began, then, through the concept of "local content."

In 2002, just five years after the Oil Act, Brazil already had 26 companies carrying out oil exploration activities in 88 exploration blocks resulting from the four rounds that had taken place up to that point. The Brazilian oil sector began to be recognized abroad, showing itself as capable of capturing the attention of investors and major global suppliers. The potential for exploration in the country, supported by a solid and stable regulatory framework which adhered to what was being practiced by mature production centers, indicated that the sector was going in the right direction.

STRENGTHENING LOCAL CONTENT POLICY IN SEARCH OF A COMPETITIVE INDUSTRIAL FOUNDATION

In 2003, the newly elected government identified a window of opportunity for implementing an industrial policy that could contribute to reducing the unemployment rate, which at the time was at 14%[4]. After discussions with representatives from the supply industry, a process of reformulating the local content requirements began, focused on labor-intensive segments, such as shipbuilding and the capital goods industry.

Thus, **specific requirements for over 60 items, including equipment and services, were placed**

4- Source: Ipea Data/IBGE

in the concession contracts starting with the 7th round (2005). The percentages reflected the existing view at the time of the supply capacity of the domestic industry to meet the demands of Petrobras and other operators, in an annual investment scenario of US$ 6 billion per year.

In addition, through Prominp – the National Program for the Mobilization of the Oil and Natural Gas Industry -, **a much more rigorous methodology was developed for measuring the local content realized, whose approval would come through certifying companies accredited by the ANP.** This regulatory process of Local Content Certification, according to the contract requirements established beginning the 7th bidding round, was completed in November 2007.

PRE-SALT: A NEW ERA FOR THE BRAZILIAN OIL INDUSTRY

In 2007, the discovery of high-quality oil in ultra-deep waters in the layer known as Pre-Salt, was considered one of the greatest events in the global oil industry in the last decade due to the potentially recoverable volume of 5 to 8 billion boe – about half of the country's proven reserves at the time. The communication of the discovery to the National Energy Policy Council (CNPE) occurred through the process of carrying out the 9th bidding round, which led CNPE to request ANP to remove 41 blocks located in the Pre-Salt area.

The Ministry of Mines and Energy (MME) was then given the task of evaluating the new legal framework considering the low exploratory risk and the great return potential of areas of the Pre-Salt. After intense debate, the Pre-Salt regulatory framework was approved by legislation at the end of 2010 (Law 12,351), establishing the production sharing model and determining Petrobras as the only operator in these fields, with minimum share of 30%. **Discussions about the development of regulatory changes, however, dragged on, which culminated in a period of five years without new bidding rounds.** Without access to the new reserves, the operators, driven by the rise of oil prices to between US$ 70 and US$ 100, directed their investments in the country to developing the areas obtained in previous rounds.

The situation was so favorable that Petrobras announced, in 2011, a record investment plan, with forecast of US$ 225 billion in five years, and a production goal in 2020 of 4.9 million bpd. To this end, over 100 vessels, between platforms, oil tankers, and rigs were expected to start operating, and several orders were placed in the Brazilian shipbuilding industry. As a result, the number of jobs in shipyards increased from 7,000 in 2003 to over 80,000 in 2014.

In the global scenario, the industry made major investments due to the high price of the barrel driven by geopolitical tension in the Middle East. In the United States, shale gas began to gain relevance, showing itself as a solid alternative to the American dependence on OPEC member countries. In Africa, on the other hand, great discoveries were made, similar to our equatorial margin; however, they were not attractive enough to divert attention from the Brazilian Pre-Salt.

In 2013, the ANP resumed bidding rounds with three events: two under the concession model and one under production sharing regime. Round 11, in mature sedimentary basins and new technological frontiers, showed the appetite of operators after a long period without bidding, beating the record of signature bonuses (US$ 1.4 billion).

Round 12 offered, for the first time, areas with unconventional gas potential, without having completely defined regulations for this type of activity. This fact led to, contrary to the previous bid, less competition, and only a third of the blocks offered were sold, accounting for a signature bonus value of US$ 70 million, well below forecast.

Pre-Salt's first bidding round, carried out under the production sharing model, auctioned the area of Libra, discovered in 2010. The only offer was made by the consortium composed of Petrobras, Shell, Total, and the state-owned Chinese CNPC and CNOOC, which paid the minimum amount of US$ 6.9 billion for the signature bonus. With the price of oil over US$ 100, a barrel, the absence of other consortiums at the auction for the largest area offered in Brazil – with a recoverable volume estimated between 8 and 12 billion boe -, and one of the largest in the world, made it clear that there was mistrust on the part of global operators concerning the new regulatory model implemented in the country. The result of the auction demonstrated that, with the new rules, competitiveness would tend to be low, even in a favorable market scenario.

Beginning 2014, after over a decade of favorable conditions, with the barrel price exceeding US$ 100, the global oil industry began to notice a sudden change in the scenario. The abrupt drop in oil prices resulting from a rapid increase in the oil supply combined with decreased growth in global demand decreased the return expectations of oil companies.

In Brazil, the reversal of the favorable global situation began to reveal a series of weaknesses in the country's structural and regulatory issues, which increased the obstacles to the harmonious growth of the sector. Throughout the next section, we aim to discuss the inflections in these variables, which generated the change in perspective for the Brazilian oil scenario. We give greater emphasis to the debate on structural issues, which we believe to be of fundamental importance to the critical moment the sector is experiencing.

The structure complicating the outlook: structural factors that intensify the negative effects of the oil sector's current outlook

The recent scenario, characterized by the drop in oil prices, the decrease in Petrobras's investment capacity, and the Brazilian macroeconomic scenario, waved a red flag for the sector, showing a clear need for change in the structural aspects interfering with the development of the sector.

The sharp drop in the price of this commodity, beginning mid-2014, started with a combination of shocks on both the global demand side and the global supply side of oil. On one hand, the smaller growth of consumer countries, such as China and other emerging countries, and the economic downturn in industrialized countries, mainly in Europe, in addition to the increase in energy efficiency, led to a slowdown in the growth of the demand for oil products. On the other hand, increasingly greater production of tight oil and shale gas in the United States, and the decision of members of OPEC not to restrict production, caused the supply imbalance. Recently, the possibility of returning to Iran's oil exports increased the risk of maintaining or worsening the drop in oil prices, which had already dropped below US$ 40.00 for a barrel of WTI oil.

In this scenario, companies in this sector began rethinking their strategies, focusing on reducing and postponing investments, carrying out divestments, and reducing operating costs, including layoffs and increasing operational efficiency. The drop in the value of assets has also favored opportunities for mergers and acquisitions.

In the case of Petrobras, the drop in oil prices was just another factor decreasing its investment capacity, which was already adversely affected by an extremely ambitious investment plan (2014) – forecasting 35 new platforms in operation by 2020 and requiring higher rates of local content, even with a national supply industry undergoing a competency and production capacity development phase.

Coupled with this scenario, there were corporate decisions questioned by the market and minority shareholders. As an example, we highlight the fuel price maintenance policies aiming to reduce inflationary pressure, and the focus on projects with negative NPV (net present value), such as the two refineries in the Northeast – later cancelled. In addition, the confirmation of surcharging projects investigated by *Operação Lava Jato* generated impairment in the company's assets, leaving the company's equity situation even weaker.

In addition to these aforementioned factors, the Brazilian macroeconomic scenario has contributed to the sector's instability. The devaluation of the Brazilian real increased Petrobras's debt, given that the majority of its debt is in foreign currency. Increase in unemployment rates caused Petrobras's divestment plans to generate impacts even more sensitive to the population. In addition, higher unemployment rates impose restrictions on the government to implementing policies that may reduce investment costs and terms – such as possible flexibility in local content regulations.

In this context, the importance of structural issues is further emphasized. The scenario requires additional caution so that all control variables can be appropriately addressed in order to promote harmonious growth of the sector at a delicate moment such as this one.

This section addresses structural obstacles that, regardless of the current domestic and international outlook, are present in the domestic oil industry.

Industrial policy - the lack of industrial policy that effectively defines the role of the oil and gas sector in Brazil

Just over ten years ago, the country returned to a more explicit industrial policy agenda, which mainly focused on creating jobs. This recovery was brought on by the launch of three national industrial policies: (i) Industrial, Technological, and Foreign Trade Policy (PITCE), in 2004[5]; (ii) Productive Development Policy (PDP), in 2008, which proposes to improve and broaden the scope of action of the PITCE, and (iii) the Greater Brazil Plan (PMB), in 2011. All had similar motivations in common, as well as similar objectives, to encourage domestic consumption and stimulate the economy by focusing on specific sectors.

The first of the plans, the PITCE, did not include oil and gas as a strategic sector. It was only after the PDP in 2008 that the sector was clearly placed in a national industrial program with specific goals. Each sector on this front[6] was placed under the management of an agency. Petrobras

5 - PITCE prioritized the semiconductor, software, capital goods, and pharmaceutical and medication sectors. The mining industry, which includes oil and gas extraction activity, was not included in the guidelines for this first policy.
6 - In addition to Oil, Gas, and Petrochemicals, this front included other sectors, such as Aeronautics, Bioethanol, Mining, Steel, Pulp and Paper, and Meat.

was left responsible for the oil, gas, and petrochemical complex, as the only sector without a ministry involved in its management[7]. The fact that a sector had Petrobras as the manager of its industrial policy generated questions due to possible conflict of interest concerning its position as an E&P operator and the needs of the country.

Interactions between the sectors included in the PDP, from the perspective of a single industrial policy, were not taken under account. In addition, measures that should have been taken under the PDP for the purpose of increasing production made Petrobras's central role clear. The plan considered the goals in the ambitious Petrobras Business Plan 2008-2012, with total investments of US$ 112.4 billion (annual average of US$ 22.5 billion) and increase in production to 2.4 million bpd in 2012. With the exception of Petrobras, no description was included about how the government would promote the increased production goal taking into consideration the private E&P companies operating in the country, which contributed to creating an environment of uncertainties for long-term planning in the sector.

In addition, the plan aimed at self-sufficiency in oil, with specific goals to increase the production of oil and gas, maintaining the participation of local content at the levels of 2007. Concerning production, the goal was to increase the volume of oil and liquefied natural gas produced to 2.4 million bpd, and of natural gas to 637,000 bpd in 2012[8]. These production goals conflicted with ambitious goals of maintaining 75% of local content in 2010[9] [10], since high prices and extended terms for domestic products were adversities identified in unison by industry players.

Finally, the PBM was implemented in 2011 as a response to the international crisis. In practical terms, however, the PBM was a continuation of the PDP. The direct measures in the oil and gas sector were limited to tax relief and subsidized

7 - In other sectors on the "Program for Consolidating and Expanding Leadership" front, management was carried out by the Ministry of Development, Industry, and Commerce (MDIC) or by the Cabinet of the Chief of Staff. Management of sectors belonging to other fronts were also carried out by ministries.

8 - BRAZIL. Ministry of Development, Industry, and Foreign Trade. Part of the Productive Development Policy Presentation. Available at: http://www.desenvolvimento.gov.br/pdp/arquivos/destswf1224095287.ppt.Page 109. Access on: July 17, 2015.

Acesso em: 17, de julho de 2015.

9- The diagnostic, at the time of the launch of the PDP, was that there was an increase from 57% local content participation in 2003 to 75% in 2007.

10 - The plan mentioned the goals for local content up to 2010.

credit. As for tax relief, the plan proposed extending the Special Customs Regime for Exporting and Importing goods for the exploration and production of oil and gas (REPETRO[11]) beyond the producer. REPETRO will remain in force until 2020 and the sector expects it to be extended even longer.

Intended to include the entire oil and gas supply chain, the Special Regime for Oil and Gas (REPEG) was created, aiming to ensure tax relief on investment and equal terms for both domestic and foreign suppliers. However, REPEG did not actually occur. **Just like previous plans, formulating the production expansion plan was the responsibility of Petrobras, which carried out the role of policy formulator and conductor – and not MME, the highest representative of the sector.**

In addition to the aforementioned national industrial policies, the government launched the Program for the Mobilization of the National Oil and Gas Industry (PROMINP) in 2003, creating a discussion forum among main stakeholders in the oil and gas sector. The objective of PROMINP, "to maximize the share of national industry in the acquisition of goods and services to implement oil and gas projects in Brazil and abroad, on competitive and sustainable basis" was based on the assumption that, although there were no debates within the program's scope about production goals in the country, the bottlenecks identified would be addressed through actions coordinated by the industry itself.

Focusing on the oil industry, without representing a broader industrial policy integrating the oil sector with other sectors that are also strategic to the economy, PROMINP did not seek to encourage possible cross-industry synergies[12]. In its conception, the program comes from the assumption that the **growth of oil and gas production would come mainly from Petrobras as the country's main oil producer.** As PROMINP's greatest tool, "local content" became the effective industrial policy carried out by the government in the Brazilian oil and gas sector. However, its guidelines and implementation are criticized by the stakeholders interviewed.

11- REPETRO is a customs regime focused on oil and gas production companies, exempting federal taxes from the supply of goods for E&P. REPEG was a tax regime for the oil and gas production supply chain. This regime removed import taxes, excise taxes (IPI), COFINS, and additional on freight for merchant marine renovation (AFRMM).

12 - As an example, the growth of the Brazilian shipbuilding industry, resulting from the demand in ship and platform construction for the oil sector, should be combined with building ships for regional freight, such as coastal shipping. The shipbuilding sector, in turn, should be related to the improvement of Brazilian ports in order to meet the increased demand for freight. This type of interaction was not explored by the program.

WHY IS THERE SO MUCH CRITICISM ABOUT LOCAL CONTENT REQUIREMENTS?

Since 1997, auctions of E&P oil and gas blocks have taken three variables into consideration: Signature bonus, Minimum Exploration Program (MEP), and the local content offered by operators. However, the offers of local content were free and without a minimum requirement, a model that lasted until Round 4 (2002).

Beginning in 2003,[13] the ANP established a global minimum percentage of local content, for exploration and production development phases, and in 2005, after the 7th round, the requirements were extended to over 60 items and sub-items (equipment and services). In 2007, the PROMINP Local Content Booklet was developed, which became the official measuring methodology, and the process of certifying local content through companies accredited by the ANP was introduced.

From the point of view of industry players, a broad industrial policy should guide industry policies, for example, of oil, through a central coordinator that considers interactions with the entire economy. However, the promotion of the oil sector, both for producers (oil and gas operators) and their suppliers, should be combined with the promotion of other economic sectors. **The main criticism of the Brazilian local content Policy is that it does not in fact represent an industrial policy, but a tool that should be placed within a broader concept of public policy focused on the industry.** Still, there is the argument that there is a lack of clarity about the greater purpose of the tool – increase in jobs, income, or technological development, for example - which complicates the evaluation of results and the analysis of its efficiency.

Additionally, there is criticism about the scope of the policy and the fact that it does not prioritize sectors and activities with comparative advantage in the country. The subsea equipment segment in Brazil, for example, is considered competitive by industry players. In other segments, however, this is not true, and Brazilian suppliers end up less competitive than international suppliers. Incorporating minimum goals for local content in auctions for practically all sectors in the production

TABLE 2 - Change of weights of the variables that make up the offers from the companies in ANP bidding

Rounds	SB	MEP	LC
1,2,3 and 4	85%	Defined in the Call for Bid	15% (3% Exploration + 12 % Production Development)
5 and 6	30%	30%	40% (15% Exploration + 25 % Production Development)
7, 8, 9, 10, 11 and 12	40%	40%	20% (5% Exploration + 15 % Production Development)

Source: Update of Table 3 from IPEA and PETROBRAS (2011), with data from the ANP.

13 - Bônus de Assinatura (BA), Projeto Exploratório Mínimo (PEM) e Conteúdo Local (CL).

chain – metalworking, electrical, automation, steel, mechanical equipment, and services of engineering and building and assembly -, the winners have a commitment to purchase from domestic suppliers, regardless of their competitiveness compared to international peers, creating a kind of market reserve.

The concession agreements even foresee the possibility of ANP waiving obligations from operators in cases of excessive prices or delivery schedules of domestic suppliers compared with international parameters, or in the case of new technology. However, this waiver procedure still requires regulation, and in practice, it has not worked. Basically, the Brazilian local content policy has not proven to be effective in improving suppliers, resulting in a policy without dynamics and effectiveness. In other words, the growing volume of investment in local content does not necessarily translate into an evolving supplier industry.

The operational side of the current policy brings difficulties in practical terms. The process of measuring local content has proven to be very bureaucratic and costly, with the need to fill out numerous spreadsheets which break down, for example, production units into thousands of pieces of equipment and their respective raw materials and components exhaustively, with the need to present numerous supporting documents and an extensive local content certification process. To make matters worse, this complex process does not measure or consider relevant impact on the economy such as supplier development and

investment in R&D, since local content is calculated only considering the national portion of items that make up the price of the sale of goods and services. Operators that invest in and promote competitiveness at par with international suppliers, for example, do not receive any type of benefit, such as reduced local content obligations for future projects.

Additionally, in the current contractual model, the local content obligation exists only for investments (exploration and production development), causing doubt about the application of requirements for operating expenses, such as chartering production platforms. This fact reveals another incongruity in this model, since it creates the possibility for operators to charter platforms abroad instead of requiring their construction within the country.

Finally, another point raised by the stakeholders during the interviews was that even when the required local content is reached for all items and sub-items on the contract table, the overall local content might not be reached, since the cost structure and the respective weights for calculation of the overall local content for operators often differ from the parameters considered by the ANP for calculating goals of overall local content, which characterizes mathematic inconsistency in the contracts.

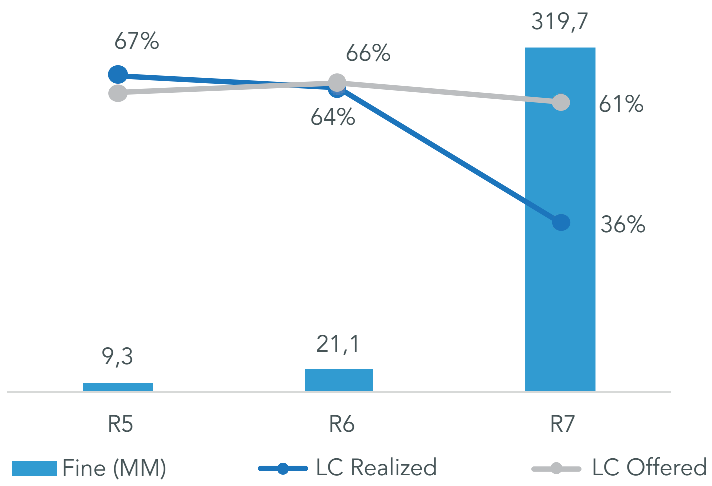
The number of fines recently applied for noncompliance with local content has increased, indicating the local industry's lack of capacity to meet the demand of operators and revealing the need for improvement in local content policy. In 2015, until July 17, there were fines applied of a total of US$ 84 million (of which US$ 73 million were in one block alone), quite an increase compared to recent years. There was also an increase in the number of fines for noncompliance with local content requirements. For the blocks in the 5th round, a total of 18 were fined, while 60 of the blocks offered in the 6th round were fined. For the seventh, so far, 12 blocks have been fined[14 15].

14 - With the resolution of the CNPE 8/2003.

15 - There are no records of fines for rounds before the 5th, on the http://www.anp.gov.br/?pg=76768&m=conte%FAdo%20local&t1=&t2=conte%FAdo%20local&t3=&t4=&ar=0&ps=1&1437245917448.

16 - Beginning with the 8th round, all other rounds are still in the initial phases of the exploration process.

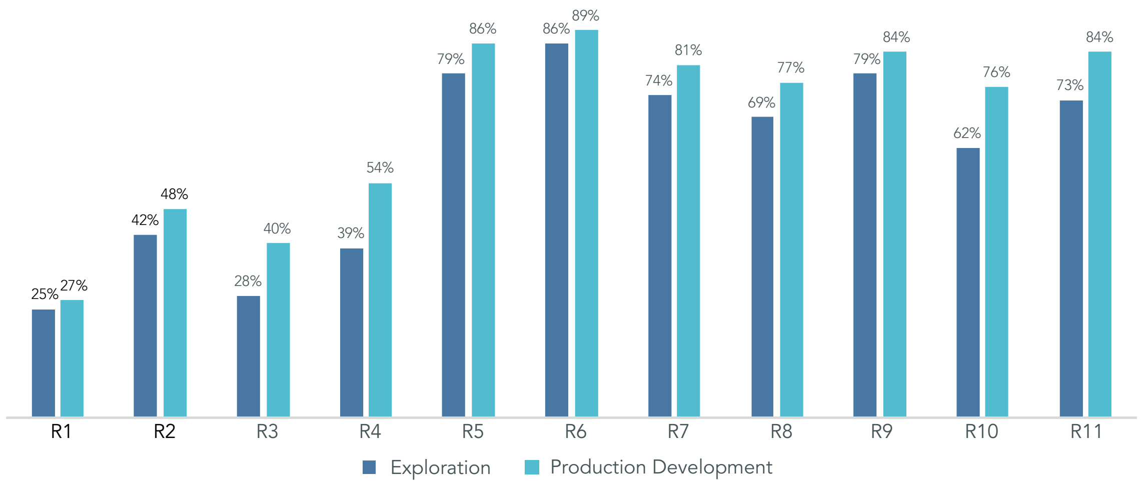
CHART 2 - Fines Assessed for Local Content



Note.: Local content realized and offered referring to blocks with fines above R$ 1 million, representing R$ 350 million in fines of a total of R$ 359 million. For the 5th round, the overall local content realized was, on average, more than the amount offered. The amount of the fines refers to noncompliance with drilling activities.

Source: ANP - http://www.anp.gov.br/?pg=76768&m=&t1=&t2=&t3=&t4=&ar=&ps=&1440730450406 (August 2015)

CHART 3 - Average Local Content Offered



Source: ANP - www.brasil-rounds.gov.br (July 2015).

This increase reveals that the punitive model adopted does not work. Note that such fines refer only to the exploration phase – the expectation of the operators is that the future value of fines for the production development phase will be much higher, given the planned investment volume and the current situation of local suppliers. With high average percentages of local content offered to blocks throughout the years and rounds, this scenario tends to become critical.

Although many companies have made very high and not very feasible bids for local content, such behavior by the players reflects the rule for the bid. The E&P auction occurs with great uncertainty on the part of the players regarding the value of the objects to be auctioned, and players value the gain (winning the auction) more than the future risk (fine for noncompliance of local content). In addition, according to the bidding rules, a high offer of local content may work as a compensation for a lower signature bonus offer. It is as if the operator chooses to replace the payment of the signature bonus, due upon execution of the agreement with the ANP, with a potential risk of future fines, to be paid after the exploration and/or production development phases. **In other words, the rule designed for the bid ends up favoring very high bids for local content.** Over time, the companies incorporate this cost in their business plans and in future E&P evaluations, which ultimately results in an assessment of greater risk.

With the assumption of "what can be made in Brazil, will be made in Brazil," the country loses the opportunity to use its comparative advantages to benefit society and promote sectors that may bring more domestic development, such as taking advantage of the oil sector as one of the drivers of this process. **Prioritizing all segments of the supply chain, means, actually, a lack of**

prioritization and planning. So, while there is domestic demand, mainly originated by mandatory percentages agreed upon at the bids in the auctions, supply is guaranteed. However, in case of downturn in the sector, whether for internal or external reasons, investment in exploration and production drops, making the entire supply chain less viable. This fact could be mitigated if competitiveness were to be encouraged, which would lead the national goods and services industry to dispute auctions in the international market, guaranteeing a more long-term project portfolio.

Distortion in the role of institutions, excessive intervention, and the gap in industry-government dialogue

Within the structure of governmental agencies related to the Brazilian oil sector, the MME is the planning agent, which bases its policies on studies made by the Energy Research Company (EPE) while the ANP acts as the regulatory agent, in an independent way from the sector. But the main entity ends up being Petrobras. Due to the proportion of Petrobras's participation in Brazil's overall production, the main driver for growth became the company's investments in E&P, which created direct dependence between domestic oil production and the growth plans of Petrobras.

The role of Petrobras, including in planning, ultimately prevented the EPE from being recognized by players as a promoter of studies and industry planner. Over the years, Petrobras has led most discussions, taking the place of the EPE, which has the institutional role of developing studies and research aiming to support the energy industry's planning, including the oil sector.

With Petrobras focused on its internal reorganization and discussing its repositioning in the Brazilian market, a gap was created in the progression of the Brazilian oil sector. This disorder among the institutional roles ended up reducing the technical nature of decision-making within the sector, facilitating political ownership of the discussions and allowing other governmental agents to seek more active participation.

For example, there are now two law projects in the House and in the Senate, which discuss possible reformulation of the Sharing Production Regime Law[16]. Regardless of the judgment on the review of the single operator rule, or Petrobras's mandatory minimum participation, this debate should be guided and directed by planning agents (EPE and MME), focusing on the technical aspects of the issue. After discussion and ordering the sector's priorities, the matter should be addressed by Legislation, with the technical discussion already consolidated as a base for political discussion.

17 - For example, Bill 4973/13 at the House of Representatives.

Table 3 - Bills

Legislative House	Law Project No.	Author	Summary	Proposed Outcome
House of Representatives	600/15	Jutahy Junior PSDB/BA	Amend and repeal the provisions of Law No. 12,351, of December 22, 2010, which "Provides on the exploration and production of oil and natural gas and other hydrocarbon fluids, under the production sharing regime, in the areas of Pre-Salt and strategic areas, and other measures."	Take the monopoly over field operations from Petrobras and release the company from the obligation of participating 30% of investment in exploration.
Senate	417/14	Aloysio Nunes Ferreira PSDB/SP	Amend Law No. 12,351 of December 22, 2010, which provides on the exploration and production of oil and gas and other hydrocarbon fluids, under the production sharing regime, in the areas of Pre-Salt and strategic areas, and other measures; create the Social Fund – and regulate its structure and sources of funding; amend Law No. 9,478, of August 6, 1997, which provides on a national energy policy, the activities related to the oil monopoly, institute the National Energy Policy Council and the National Oil Agency and take other measures to extinguish the production sharing regime.	Extinction of the production-sharing regime of Pre-Salt, giving way to the concession model.
	131/15	José Serra PSDB/SP	Amend Law No. 12,351, of December 22, 2010, which establishes Petrobras's minimum participation in the Pre-Salt exploration consortium, and the requirement for Petrobras to be responsible for "conducting, executing, directly or indirectly, all exploration, evaluation, development, production, and decommissioning of exploration and production facilities."	Revoke Petrobras's minimum participation in the exploration of oil located in the Pre-Salt reserves.

Source: Prepared based on data from the House of Representatives and the Senate.

Similarly, the increase of ANP's influence over the development of the sector was also demonstrated by the new regulation for the use of resources for Research and Development (R&D). Recently, the agency launched a proposal for implementing a Technical-Scientific Committee (COMTEC)[17] for R&D projects, where there will be only one representative from supply companies and one representative from research institutions among the eight members composing the committee. In addition to the imbalance in representation, this proposal does not take into consideration the sensitivity of the oil companies' need for research and development, by guiding the country's technological agenda based on the view of an entity whose role should be to regulate and supervise the sector.

According to ANP's[18] public consultation about the new proposal for rules on the use of resources for R&D, the Brazilian Institute of Oil, Gas, and Biofuel (IBP), which represents all the oil and gas operators, argues that the demands for new technology, products and processes, and technological bottlenecks are under constant monitoring, on a level that not even national R&D institutions can carry out. The way that the committee's operation is proposed, brings the risk that projects recommended do not meet the needs of the industry or do not create innovative gains for Brazil. It should also be noted that decisions about the technological development of the project should be based on technical competence, strategic issues, market issues, or even on training – and not merely on distributing resources across the country through the lens of social development.

This role assumed by ANP, not including several of the industry's contributions and positions, reveals another of the sector's weaknesses: industry-government dialogue, critical during difficult moments, has not been working. **From the point of view of private players, there is a lack of a more effective communication channel so that the sector's strategic decisions are not made unilaterally**, meeting only the political agenda and ignoring the importance of who has the role of effectively transform government guidelines and programs into products and services that provide wealth to the country.

The most recent example of this position was the publication of the public consultation result for ANP's 13th bidding round, which occurred in October of this year, where several suggestions made by IBP were ignored

In short, there is no long-term central planning that indicates a clear direction for the market about the goals of the Brazilian oil sector. Without a doubt, **the institutional leadership role in these discussions should be occupied by EPE, having the MME as the developer of political strategies, plans, and goals, and an interlocutor of the players of the sector.** ANP

18 - ANP Resolution No. 33/2005 and ANP Technical Regulation No. 05/2005.

19 - N° 10/2014.

should focus on its institutional role as a regulatory agency, and Petrobras, which will always have an important role in implementing guidelines defined at government level, should act as a producing agent, and not be responsible for determining the directions to be taken by the Brazilian oil and gas sector.

The regulatory challenges to expanding the sector

The lack of leadership in the agenda for change in the sector also presents regulatory challenges. The role of Petrobras and the limited recognition of the contribution of private companies in domestic production and future investments give rise to the development of a regulatory framework governing the sector in an unbalanced manner.

SHARING MODEL, ROLE OF PPSA, AND THE SINGLE OPERATOR

The concession regime, created through the 1997 Oil Act is used all over the country[19]. According to the act, the concessionaire has the ownership of oil and gas extracted during the term of the agreement. To operate in deep waters, for example, the right to operate is granted to operators as category "A"[20], and one of the companies from the winning consortium at the auction acts as the operator. In this regime, decisions about investment as well as the production curve are determined by the operator/consortium.

With the new 2010 regulatory framework, Pre-Salt and other areas considered strategic must be explored under the sharing regime[21], where the ownership of oil and gas extracted

20 - Except in areas determined by Law 12,351/10 (Pre-Salt and strategic areas).

21 - For the purposes of classifying as operator "A," "B," or "C," a score is assigned according to criteria described in the Call for Bid, such as the volume of operated production, experience in onland and off-shore exploration and production activities, the company's international experience, and the history of respect and care for the environment in its operations.

belongs to the Government. As suggested by the name, this regime has as its main negotiating criteria the proportion of the share of surplus oil that goes to the Government. In it, the state-owned company Pré-Sal Petróleo S.A. (PPSA), assumes the role of supervisor, in addition to ANP, and also influences investment decisions, by mandatorily participating in all winning consortia with the power to veto. Petrobras then acts as a single operator, with a minimum of 30% share in all winning consortia.

The change in the regulatory framework and the introduction of the sharing regime were fundamental for rebalancing the distribution of return between operating companies and the Government, given the high economic potential of the discoveries in the Pre-Salt region. In fact, the huge volume of lighter crude oil reserves, combined with the low geological risk, represented an expectation of significantly higher profitability for the areas of the Pre-Salt compared to conventional areas.

The operating companies, generally, do not refute the logic of redistributing the returns due to the high potential of Pre-Salt. However, they argue that the concession model could be adjusted to facilitate the achievement of this goal, without increasing the control and influence of the government, and avoiding the complexities of governance introduced by the Brazilian sharing model.

In addition to leading the sector toward greater involvement and control by the Government, our sharing model **also increases the complexity of management, supervision, and measuring results, compared to the concession model.**

The first peculiar characteristic of the Brazilian sharing model is the creation of an entity such as the PPSA. The role of the PPSA in the supervisory process is arduous, due to the expected operational challenges. In addition, the entire exploration and development plan, as well as accounting[22] of contracted projects, should go through the PPSA, which will appoint the chairperson of the consortium and will have 50% of its operational committee.

Therefore, the technical-financial critical duties are attributed to the PPSA for the efficiency of the whole process of exploration and production in the Pre-Salt region.

22 - In the sharing regime, the Government is the owner of extracted oil. Part of production goes to offset its cost (cost oil), and the rest, called surplus (profit oil), part is appropriated by the Government and the remaining stays with the producer, characterizing the sharing of profit oil. In addition to its part of the surplus oil, government revenue is through production royalties, the occupancy rate of the area, and the signature bonus.

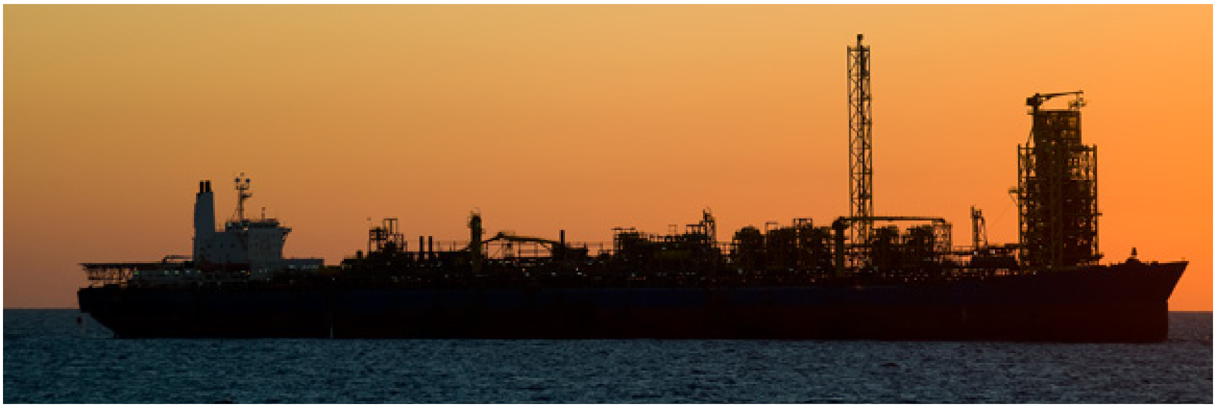
23 - According to Neto (2013), the costs observed by the PPSA come from accounting audits, and often do not reflect shared resources, provisions related to other activities, and are unable to reflect, for example, cross-subsidies or gains from productivity. The information observed ex-post, whether technical or financial, is also incomplete due to its extreme complexity, often not revealed because of confidentiality issues or difficulty in interpretation.

This regulatory framework, in addition to taking freedom away from companies participating in the consortium, burdens the whole process, due to costing of PPSA and increased bureaucracy. The more serious fact is the increase in uncertainty among the players, since every strategic decision is subject to government scrutiny[23], affecting the risk and return on investment.

An even more delicate issue, and also originated from the new Brazilian regulatory framework, the Single Operator model is now a major complication. According to this model, Petrobras is obligated to make at least a 30% contribution to the winning consortium, characterized as an "operational monopoly" over Pre-Salt. Having Petrobras as a single operator implies in several negative effects on the dynamics of E&P in Brazil.

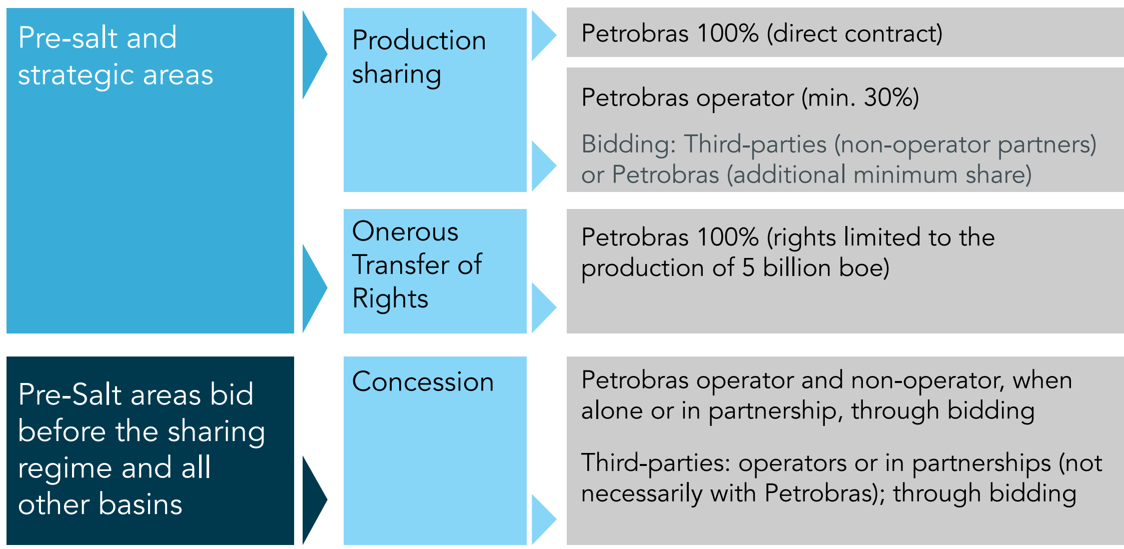
Although Petrobras is a large company, having technology and a technical staff capable of producing great quantities of oil in the Pre-Salt, the rate of exploration and development in the region should not be tied to the financial capacity of the company, since it ends up becoming a limiting factor for the production of the sector. Another controversial point about having Petrobras as a single operator is the fact that it may not define the regions where it would like to operate, which, inevitably, implies developing projects that might be less attractive from the point of view of optimizing its portfolio.

Due to its expertise in E&P in Brazil's deep waters, the company would be able to continue acquiring the majority of the blocks, regardless of the regulatory model. In the sharing model, in addition to its blocks of interest, the company will be obligated to participate in at least 30% of projects outside of its development plans due to their low appreciation. Damage to Petrobras may be even greater, since there will be a tendency toward greater passiveness in the investment profile on the part of other companies participating in the consortium, since they may not act as operators.



24 - For example, limitation of volume produced

FIGURE 1 - Petrobras Areas of Operation in E&P.



Source: Petrobras Website[24] (Layout adapted from the figure on http://www.petrobras.com.br/pt/nossas-atividades/areas-de-atuacao/exploracao-e-producao-de-petroleo-e-gas/marco-regulatorio/).

Finally, this type of model aggravates the monopsony problem faced by local oil and gas industry suppliers. Approximately 92% of Brazilian oil production comes from Petrobras. Naturally, the majority of the demand for goods and services that meet the operational and investment needs of the sector comes from this company. With the requirement of the single operator, suppliers depend a lot on Petrobras demands, which in a restricted investing environment, ends up being revealed as a measure which is countercyclical to the development of the country's oil industry.

The responsibility for the Pre-Salt assigned to Petrobras goes beyond its direct or indirect contracts – through the single operator model – in the sharing model. The Government also granted, in 2010, through direct contracting, the right for the company to explore up to five billion barrels of oil and gas. Called Onerous Transfer of Rights, this contract served as a way to capitalize the company without the need for governmental funding, by exchanging the amount of oil of potential reserves for the equivalent of 2.4 million of the company's common shares. The negotiation aimed to cope with the company's future cash needs for investments in

E&P in the Pre-Salt, while making sure that the government does not lose its majority position in the company's shareholding structure.

This process of transferring to Petrobras the responsibility for leading the national oil agenda may be translated as a lack of a greater policy defining goals and measures for production growth. The choice for higher percentages of local content, combined with the sharing regime, creates another trade-off for the country. Aiming to promote domestic industry, the government might be a burden on the cost of E&P for the operators. According to the opinions of those interviewed[25], domestic products are, on average, more expensive than international products and have inferior quality, resulting in a lack of incentive for suppliers to become internationally competitive. Add to this the issue, the delivery time of domestic suppliers tends to be longer.

These factors contribute to more cost, which, in turn, decreases oil profit for the sector. Less oil profit means less revenue for the federal government. The trade-off is exactly that: encourage domestic industry and reduce oil profit, also reducing the government's discretionary powers when stimulating other sectors of the economy, and vice-versa.

This is also the challenge faced by the PPSA. When representing the government's interests, it needs to ensure low costs in order to provide more oil profits for the Government, while meeting the local content policy requirements. How can the two variables be equated? What will weigh more in decision-making?

The future of the oil E&P industry is clearly conditioned upon Petrobras's operational and investment capacity in the current regulatory model, the result of the direct dependency created by Pre-Salt's regulatory framework.

Besides the assumption of greater ownership of the country's natural resources in the sharing model, the government ends up discouraging the exploration in the Pre-Salt by private companies, which in the end is a trade-off for the country. These ties may, at first, ensure greater share for the country in the Pre-Salt profits, but by creating so many obstacles, the discouragement of the private sector may result in less production. The model has not yet been tested and represents a great uncertainty as to the success of the exploration and production of the Pre-Salt reserves in Brazil.

25 - Accessed on 29/07/2015

26 - It is important to note that there are efforts from several oil sector analysts through specific studies to quantify the competitive advantage of price, delivery time, and quality of domestic products compared to imported, but there is no single value that expresses this relationship.

PACE OF ROUNDS, RULES FOR UNITIZATION AND ENVIRONMENTAL CHALLENGES

While self-sufficiency and leadership goals were presented for the country, there was no regularity in the bidding rounds. There were not any rounds between 2008 and 2013, and during the five-year interval, there was only the Onerous Transfer of Rights, a "round" exclusive to Petrobras. The lack of rounds for the private sector and exclusivity of Petrobras in the Onerous Transfer of Rights revealed the government's intention to keep the rate of domestic production restricted to the capacity of Petrobras.

This fact goes against the intention of promoting the local supplier industry. **For companies to be able to build a lasting production park, constant rounds are necessary so that the flow of contracts ensures the industry's sustainability.** What happens in practice is that the perceived lack of predictability by suppliers makes the mobilization and demobilization of their teams a spot occurrence to cater to a given contract that they may come to win. In the case of the shipbuilding industry, for example, this point becomes a barrier to Brazil effectively moving along a learning curve that could make it increasingly more productive in its deliveries. Once again the importance of stimulating international competitiveness is reinforced.

The volume of Petrobras investments in recent years has allowed the demand for domestic goods and services to grow, maintaining the oil industry active, which hid the consequences of a long period without any rounds. However, with the current restrictions on Petrobras's investments, in the case of possible recovery of the commodity price, we will be in a position below the potential production planned years ago.

Despite the growth of the sector in recent years, it is important to note that in an industry where pre-operational investments are high and lengthy, the effects on production capacity will be felt in the following years. This fact may impact the self-sufficiency goals in oil, and, as already stated, the development of the domestic supply industry.

Similarly, the government fails to acquire large amounts with the results of the auctions and interest in future production. By showing that there is no long-term plan for auctioning exploratory blocks, we add another fact of uncertainty to the E&P environment in Brazil, reducing international competitiveness and questioning our potential as a major producer of the world's oil.

The absence of bidding rounds caused Brazil to lose a great opportunity to continue consolidating its oil industry. From 2008 to 2013, the structure of the world oil industry drastically changed with the emergence of the production of unconventional oil in the USA. In this new scenario, with the recent drop in the price of oil, the attractiveness of projects in deep and ultra-deep waters – such as Pre-Salt, was placed in context. We therefore lost the window of opportunity to attract even more private investments to the sector when the price of the commodity was high and there was strong interest of producers in the Pre-Salt.

On the demand side, the reduced waste and more efficient use of energy, along with the discussions about climate changes, raise the issue

of the use of oil as an energy input in the future. Despite the difference in opinions, it is important to consider the possible impact of such issues on the demand for oil in the medium and long terms. In the scenarios imagined by experts[26], gas has been appointed as a transition fuel in a world seeking a cleaner energy matrix. Thus, oil will face increasing competition with cleaner energy inputs, which may affect the attractiveness of our high reserves in the Pre-Salt, as well as implicate yet another loss of a unique window of opportunity.

Domestically, the environmental challenges faced today by operators also represent an important obstacle for the industry. Once again, there are mixed signals from the government. Impact studies and the licenses required for the initial stages of exploration, development, and production should be expressed by the MME and the MMA, and included when offering blocks, in order to minimize uncertainty for operators regarding authorization to begin exploratory activities.

What has been currently happening is a delay in the progression of projects due to the delay in issuing environmental licenses. For example, until January 2015, a total of 45 out of the 172 blocks acquired in the 11th bidding round had not yet obtained licensing for the exploration stage, which is the first stage of any E&P project for any block. An environmental license for seismic survey takes an average of six months to be obtained, and IBAMA's lack of knowledge about the Equatorial Margin, which includes several conservation areas, required previous studies that take about two years. The direct result is the impact on the domestic production curve, compromising growth objectives and the future domestic supply.

Besides the direct impact on 11th bidding round projects, this environment of uncertainty influences decision-making by the operators concerning future rounds. In the 13th round, for example[27], environmental agencies indicated that proposed blocks shouldn't be offered in only one round, due to the extensive area and the lack of previous structured evaluation. There is, therefore, an indication of rigor in the environmental licensing process, and it is up to the MME and MMA to coordinate a pre-auction policy to mitigate possible delays in issuing environmental licenses for the next rounds.

27 - FMI, April 2015.

28 - Technical opinion GTPEG No. 01/2015 (Working Group – MMA Ordinance No. 218/2012) concluded that the proposed area to be offered in the 13th round is very extensive, and "in the absence of a previous strategic and structured evaluation which would allow for a better assessment of cumulative effects, a conservative approach is recommended to the energy sector, that the proposed blocks not be offered in their entirety in a single bidding round, especially the blocks located in more sensitive environmental areas."

After investing in the signature bonuses, the operators, who should be able to begin the exploration stage in the acquired fields, are required to postpone their exploration and development plans, changing the expected return over investment - an amount that is important to determine the bid made at the bidding round and the signature bonus itself. What has actually been occurring is that not even the auctions guarantee a future increase in oil production, a situation that reflects the lack of political coordination between energy sector planners and the environmental sector.

Finally, another factor in the Brazilian scenario that deserves attention, because of the legal uncertainty, is the process of production individualization (unitization) already in progress. There is still great uncertainty about how to carry out this process in different combinations of possible tax regimes existing in the country – concession, sharing, Onerous Transfer of Rights, and areas still not bid. Given the complexity inherent to any production individualization agreement, under any circumstances, due to the uncertainties involved, the existence of more than one tax regime in Brazil makes the process in this country even more uncertain. The low attractiveness demonstrated in the 13th round showed that in Brazil the obstacles generated by governmental policies further heighten the sector's cyclical challenges.


A4

In search of recovery: the necessary debates and potential paths toward a solution

The Brazilian oil and gas sector appears to lack a strategic vision and strong identity, which, in these adverse conditions, may increase loss for the sector and the country itself. Different points of view caught during the interviews show that, although each player (government, operators, supply industry) has its own agenda, integration of the efforts of all stakeholders is vital to the sustainable growth of the sector.

Over the past decade, structural guidelines ruling the oil sector were designed based on the assumption that Petrobras and its investment plan should drive oil industry development in Brazil. Petrobras, therefore, would not be working just to maximize value for its shareholders. As the sector's government representative, Petrobras would also be seeking to enable low oil prices in the Brazilian market (stimulating the economy and controlling inflation), encourage the development of the goods and services supply industry (with local content, even with higher prices and longer delivery times), and take on the role of protagonist in the development of projects fundamental to the country's oil production growth curve.

However, the combination of an unfavorable cyclical scenario in the oil sector, in addition to the deterioration of the Brazilian macroeconomic scenario, and the weakening of Petrobras's results, made it impossible for the company to implement its ambitious investment plan and this raised questions concerning its financial capacity to keep exercising the leadership it once desired. With all the limitations imposed by this new scenario, and understanding that the sector's ambition to grow should not be repressed or slowed down by Petrobras's possible inability to invest, it is necessary to introduce changes in the structural guidelines in order to reestablish the growth of the sector.

Some responses to this new crisis scenario have already been modestly discussed and implemented. On the part of Petrobras, there have been efforts to define a new governance model and appoint more independent board members who favor decision-making that seeks to generate value for the shareholders. In addition, review of the growth plan and development efforts appear to confirm that the company is beginning to prioritize projects with a better potential of return, aware of the challenges imposed by its high indebtedness and consequently its financial restrictions. Doubt still remains in the market regarding Petrobras's independence, for example, when determining the price of oil, despite the adjustments in the price of gas and diesel that were recently announced. On other fronts, projects are under analysis to eliminate Petrobras's obligation as the "single operator in the Pre-Salt" with 30%, and ongoing discussions about the improvement of local content policy.

However, the magnitude of the structural changes under discussion seem timid in comparison to the industry's current challenging scenario, **and the proposed changes need to be better coordinated with technical base, thus avoiding the mere political appropriation of strategic debates for the country.** Additionally, the current scenario is of extreme urgency, for both Petrobras and the sector suppliers, while the measures under discussion may only be effective in the medium and long term.

The supply chain of goods and services has already suffered from the cancellation and postponement of projects, with companies going through financial difficulties and the increase in unemployment in the sector. In this scenario, it is fundamental to evaluate alternatives with the immediate potential to generate cash for Petrobras, which at the same time generate demand for the supply base. Among the options available, there is the need to facilitate Petrobras's divestment of unattractive projects or projects that are not a priority in Petrobras's current business plan.

Since it is characterized as a sector with long investment cycles, **predictability is an important factor for the harmonious growth of the oil and gas sector.** Even though the 13th round was a sign that the government desires to reestablish the pace of offers, the policies guiding the Brazilian sector and the unfavorable rules defined for the auction associated with the current outlook destroyed its attractiveness. A faster pace of rounds (number of offers), with attractive blocks and rules (quality of offers) and more participation from international operators, will facilitate the construction of a more robust and lasting investment portfolio in the sector, increasing future prospects for job creation in Brazil, ensuring ongoing demand for goods and services from local industry.

Additionally, if there is no change in the rules for exploration in strategic areas, the development of the Pre-Salt will continue to be limited by Petrobras's ability to invest. The vision resulting from the interviews points out that, with Petrobras's limited investment capacity, **the obligation of participating with 30%, and to act as the "single operator in the Pre-Salt," puts the growth of the production curve at risk and abruptly reduces the expected speed of the development of the oil sector in Brazil.**

It is very important at this point that the role of the oil sector and its policies be guided by a broader program, coordinated adequately between political players and the market, and clearly communicated to society. In this context, coordination between technical areas of the respective ministries is very important, which are MDIC (Development), Planning, MME, MMA (Environment), and others, and their respective areas of operation. The EPE is also important, with a fundamental role in the technical guidance of discussions, strengthening the role of planning agent played by the MME.

Regarding policy coordination, it is **fundamental to avoid the distortion of the role of institutions, excessive intervention, and the limited dialogue between the government and the industry.** The disarrangement of the role of institutions reduces the capacity for technical coordination and facilitates the political appropriation of important discussions to the solution to the obstacles in the sector.

Given the current outlook, this is the time for Brazil to give clear signals about the direction that it intends to take to reformulate the sector, which already finds itself in a crisis and may incur the loss of attractiveness compared to other major producers. The reality shock that the industry is experiencing should cause it to reposition itself so it may proceed more firmly and realistically. **FGV Energia** and **Accenture** intend, by releasing this folder, to contribute to a constructive discussion in that direction, beginning an agenda of debates that may result in proposals and initiatives for facing the observed challenges.

(FOTO PENDENTE)

LIST OF ACRONYMS

ANP - Agência Nacional de Petróleo, Gás Natural e Biocombustíveis (National Agency for Oil, Gas, and Biofuel)

CNOOC - China National Offshore Oil Company

CNPC - China National Petroleum Corporation

CNPE – Conselho Nacional de Política Energética (National Energy Policy Council)

COMTEC – Comitê de Tecnologia (Technology Committee)

EPE – Empresa de Pesquisa Energética (Energy Research Company)

FGV - Getúlio Vagas Foundation

FMI – International Monetary Fund

GTPEG – Grupo de Trabalho Interministerial de Atividades de Exploração e Produção de Óleo e Gás (Interministerial Working Group for Oil and Gas Exploration and Production Activities)

IBAMA – Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute for the Environment and Renewable Natural Resources)

IBGE – Instituto Brasileiro de Geografia e Estatística (Brazilian Institute of Geography and Statistics)

IBP – Instituto Brasileiro de Petróleo, Gás e Biocombustíveis (Brazilian Institute of Oil, Gas, and Biofuels)

IOC - International Oil Company

LC - Local Content

LNG – Liquefied Natural Gas

MDIC – Ministério do Desenvolvimento, Indústria e Comércio Exterior (Ministry of Development, Industry, and Foreign Trade)

MEP –Minimum Exploration Program

MMA – Ministério do Meio Ambiente (Ministry of the Environment)

MME – Ministério de Minas e Energia (Ministry of Mines and Energy)

OPEP – Organização dos Países Exportadores de Petróleo (Organization for Oil Exporting Countries)

PBM – Plano Brasil Maior (Greater Brazil Plan)

PDP – Política de Desenvolvimento Produtivo (Productive Development Plan)

PITCE – Política Indústrial Tecnológica e de Comércio Externo (Industrial, Technological, and Foreign Trade Policy)

PPSA - Pré-Sal Petróleo S.A.

PROMINP – Programa de Mobilização da Indústria Nacional de Petróleo e Gás Natural (Program for the Mobilization of the National Oil and Natural Gas Industry)

REPEG – Regime Especial de Petróleo e Gás (Special Regime for Oil and Gas)

REPETRO – Regime Aduaneiro Especial de Exportação e Importação de bens destinados à exploração e produção de petróleo e gás natural (Special Customs Regime for Exporting and Importing Goods for the Exploration and Production of Oil and Natural Gas)

SB –Signature Bonus

UERJ – Universidade Estadual do Rio de Janeiro (Rio de Janeiro State University)

USA - United States of America

WTI - West Texas Intermediate

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