

## The Regulatory Framework of the Pre-Salt

The announcement of the discovery of oil and gas resources, in reservatories, in 2007, indicates the existence of a new and relevant oil province in Brazil, with estimates of a large amount recovery in the basins of Espírito Santos, Campos and Santos, in an area known as Pre-Salt. This fact implied an evaluation of necessary changes in the regulatory framework that it can be suited for a new paradigm on the production and exploration of oil and natural gas, respecting contracts, which are currently in force.

The establishment of a new institutional framework aims to assure the strategic and harmonic feature of the decisions related to oil and gas production in the Pre-Sal area. The proposal brings three innovations on the formulation and implementation of public policies in the energetic sector:

- i) Fixing a new regulation due to the sharing regime of the production in the Pre-Salt area, preserving the rules for the current concession contracts. Petrobras will be the operator of all production share contracts, holding 30% minimum of participation on the consortium.
- ii) Creating a New Public Organization, which will be responsible for the administration of production share contracts, as well as the trading of oil and gas in the Pre-Salt area, preserving the Federal Union interests.
- iii) Creating a New Social Fund to manage the resources in a more adequate way, allowing great investments, especially in social programs related to education, science and technology, in other words, in the combat of poverty.
- iv) In this context, emerges the discovery of the new petroleum region, the Pre-Salt, which gives us the expectation of increasing the oil and gas production. A new perspective is presented to the Brazilian oil industry.

## The Oil in Brazil

- Brazil is the 7<sup>th</sup> largest oil consumer in the world and ranks the 41<sup>st</sup> in natural gas consumption.
- Brazil is among the ten largest oil and gas consumers, only Saudi Arabia, Russia and Canada are self-sufficient regarding these energetic resources.
- Average world production of oil was 81.8 million of barrels/day, in 2008.
- International oil reserves, on 12.31.2008, reached 1.258 billion barrels
- Average oil consumption in China, in 2008, was 8 billion barrels/day (= 9.47% of total production)
- Average oil consumption in the USA, in 2008, was 19,419 million barrels/day (= 22.99% of total production)

## Time Line

**Brazil Colony** - The existence of petroleum had already been recorded during the imperial regime. In that time, the Marquis from Olinda gave José Barros de Pimentel the right to do the extraction of bitumen at Marau riverbanks, in Bahia. Until the first decades of the twentieth century, some anonymous experts and explorers, tried to drill some petroleum wells, unsuccessfully.

**1919** - The first drilling was done by the Brazilian mineral and geological service, in the city of Mallet (PR). The well reached 84 meters, but it was let aside in the following year.

**1927** - A specific law was proposed to the oil sector, in which the subsoil property and exploration was exclusively designated to native Brazilians.

**1937**- The new Brazilian Constitution was signed and the rights to explore the mineral resources were granted “to Brazilians or companies controlled by Brazilian shareholders.”

**1938** - Decree nº 366 was signed adding a new section within the Minas Code, which established the legal framework regulating oil and natural gas deposits. Decree nº395 was also signed, establishing the National Council of Petroleum (CNP).

**1939** - The first petroleum discovery in Brazil, done by the Mineral Production Fomentation Division of the National Department of Mineral Production (DNPM), well nº 163, located in Lobato, Bahia. The discovery was considered sub-commercial.

**1941** - The first Brazilian commercial oil field was discovered in Candeias (BA). This year is also marked by Decree nº3.236, determining the ownership, by the Federal Union of all oil and gas deposits found in national territory. A natural gas field was found in Aratu and petroleum in Itaparica, both in the state of Bahia.

**1945** - The National Petroleum Council supports the presence of foreign investments in oil industry, and allows the participation of national private companies in the imported petroleum refining.

**1947** – The campaign “The Oil is Ours”. This campaign for the Brazilian autonomy in the oil sector was one of the most polemic campaigns in the Republican Brazilian history, lasting from 1947 to 1953. The country was divided between those who thought that only a Brazilian state company should be allowed to explore the oil and those who defended that the prospection, refining and distribution should be explored by Brazilian or foreign private companies.

**1951** - President Getúlio Vargas sends to Congress, a project for the creation of the Brazilian Oil Corporation – Petrobras.

**1953** - Getúlio Vargas signs Law 2004, which originated Petrobras (October 3<sup>rd</sup>.)

**1954** - Petrobras begins its activities (May 10<sup>th</sup>.)

**1955** - The President Bernardes Refinery starts operating, in Cubatão, SP. Oil discovery in Nova Olinda (AM), later on considered sub-commercial.

**1956** - The Madre de Deus Terminal starts operating, allowing exportation of the oil’ surplus, produced in the state, to Cubatão.

- Efforts were made to obtain, in the domestic market, increasingly larger amounts of materials and equipments. The President Bernardes Refinery acquired 78 % of its supplies, in Brazil.

**1961** - The Duque de Caxias Refinery, RJ, starts operating. This fact enables self-sufficiency in the production of the main oil by-products.

-The first Petrobras gas station was opened in Brasília,DF

-The exploration of the continental platform started from Maranhão to Espírito Santo states.

**1962** - The state-owned monopoly was extended to importation and exportation of oil and its by-products.

- Production boundary of 100 thousand barrels per day was reached.

**1963** - Discovery of a petroleum field in Carmópolis (SE).

**1966** - Leopoldo A. Miguez de Mello Researches & Development Center - CENPES was created.

- Fortaleza's asphalt factory was opened. Later, this would be called the Northeast Lubricants and By-products (Lubnor).

**1967** - The first subsidiary was formed, Petrobras Chemical Corporation – Petroquisa.

**1968** - The first undersea well was drilled in Campos Basin, RJ. First time petroleum was found undersea, in Guaricema field, SE.

- Gabriel Passos, in Betim (MG) and Alberto Pasqualine, in Canoas (RS) refineries were opened.

**1971** - Petrobras Distributor Corporation, a Petrobras company subsidiary, was created.

**1972** - The Internacional Petrobras – Braspetro Corporation, was established.

- The first petrochemical Pole starts its activities.

- The shale oil extraction starts, in São Mateus do Sul, PR.

- The largest refinery of the country, called Plateau Refinery, was opened.

**1974** - Oil was found in Campos basin, RJ

- Petrobras purchased the private refineries of Capuava, SP and Manaus refineries.

**1975** - The oil exploration, in national territory, was opened to private capital through risk contracts.

**1976** - Petrobras Fertilizers Corporation – Petrofértil was established.

**1977** - First risk contract for the oil exploration was signed with British Petroleum.

- Campos Basin (Anchovy's Field) starts its production.
- President Getúlio Vargas Refinery, in Araucária, PR, was opened.

**1978** - Juruá gas field was found. This was the first discovery with commercial possibilities, in the Amazon region.

- The second petrochemical pole was installed in Camaçari, BA.

**1979** - The commercialization of hydrate alcohol as vehicular fuel starts.

**1980** - The Henrique Lage Refinery, in São José dos Campos, SP, was opened.

**1981** - The Early Production Systems, a technology developed by Petrobras' specialists, was installed, in Campos Basin.

**1982** - The third petrochemical pole was established, in Triunfo, RS.

**1984** - The challenging goal of producing 500 thousand daily oil barrels was achieved.

- The first giant Field of the country Albacora(Campos Basin, RJ) was discovered.
- The first Model Center to Combat Pollution of the Sea by Oil, in São Sebastião, SP.

**1985** - Marlim Field was discovered, the second giant Field of the country, in Campos basin.

- Natural gas was discovered by Pecten, in Santos basin and oil, as well, by Azevedo Travassos Brazilian Company, in the landside of Potiguar basin as the ones accomplished by the risk contractors.

**1986** - Procap was launched, a technologic training program for production in deep and ultra deep waters.

- Petrobras consolidated the beginning of the exploration and production in deep waters, with well drillings in waters with over 1.200 meters of deepness and production in waters with around 400 meters, setting a world record.

**1987** - The East Marlin Field was discovered, in a water depth of 1.251 meters and 120 km distant from the coast.

**1988** - The Urucu River, in Upper Amazon, starts its production.

**1989** - The tetraethyl lead was eliminated from our gasoline.

**1992** - Petrobras wins the OTC Award, as the company that contributed the most for technological development of the offshore industry.

**1993** - A deal was signed between Brazil's and Bolivia's government for the importation of Bolivian natural gas and the construction of a gas pipeline with 2.233 kilometers.

- The first semisubmersible platform starts its activities, totally developed by the Petrobras specialists (Petrobras XVIII), in Marlim field (Campos basin).

**1995** - Constitutional Amendment nº 9 was approved, giving more flexibility to the Federal Union Monopoly over the oil, allowing the engagement of private and state-owned companies in order to execute the activities.

- The giant field Roncador was discovered, in Campos's basin.

- The contract of gas distribution between Bolivia and Petrobras was signed.

**1997** - The Oil Law 9.478, which creates the ANP, the CNPE and introduces the regulations for the activities execution related to the Federal Union monopoly about the oil, was approved.

- The production surpasses the threshold of one million oil barrels per day.

- The construction of the Bolivia-Brazil gas pipeline started.

**1998** - The first partnership agreements between Petrobras and private companies, for the petroleum exploration, were signed.

- Petrobras obtains, from the Petroleum National Agency, 397 concessions in exploration blocks of development and production fields, corresponding to 7.15% of the country's sedimentary area, also known as "Round Zero".

- Petrobras Transporte – Transpetro was created.

**1999** - First stage of the Bolivia-Brazil gas pipeline starts.

- The ANP calls for the 1<sup>st</sup> Round of Bids on exploratory blocks for oil and natural gas.

- The production in Roncador starts, establishing a new world record of water depth (1.853m).

**2000** - Petrobras produces oil at 1877 meters of deepness, in the Roncador Field, a world record.

- The Bolivia-Brazil gas pipeline was completed.

- The production of 1.5 million of barrels/Day of oil was surpassed (Marlim field produces 500 thousand of daily barrels, 40% of the national capacity).

- The ANP calls for the 2<sup>nd</sup> Round of Bids on exploratory blocks for oil and natural gas. (It included the majority of the blocks discovered in the Pre-Salt area).

- Shell is the first private company to start the oil exploration in Campos basin.

**2001** - Petrobras receives, for the second time, the OTC Award, the most important award in the world oil industry.

- Petrobras' shares are issued in the New York stock market.

- The Jubarte giant field was discovered, in Campos basin, in Espírito Santo state coast.

-The ANP calls for the 3<sup>rd</sup> Round of Bids on exploratory blocks for oil and natural gas.

**2002** - The ANP calls for the 4<sup>th</sup> Round of Bids on exploratory blocks for oil and natural gas.

**2003** - The Field of Mexilhão, the largest natural gas deposit in the Brazilian continental platform, was found in Santos basin.

-Shell is the first company to produce oil after the end of the State monopoly, starting production of Bijupirá & Salema, in Campos basin.

-The ANP calls for the 5<sup>th</sup> Round of Bids on exploratory blocks for oil and natural gas.

-Petrobras' production surpasses the threshold of two million oil barrels per day, in Brazil and abroad.

**2004** – On December 30<sup>th</sup>, 2004, a drillship was sent to Santos basin. Its mission: Drill some pioneer wells in the search of oil on the BMS-10 exploratory block. The first area chosen by geologists and geophysicists was Parati. Sandy rocks deposited in deep waters were identified, over the salt layer, similar to what once was found in Campos basin, where almost 80% of the national oil deposits are located. The idea was to start the exploration on those rocks. If there was found oil, the well would be extended and the pre-salt area could be reached, where the specialists believed that large oil reservoirs could be discovered. The project was taken forward.

-The ANP calls for the 6<sup>th</sup> Round of Bids on exploratory blocks for oil and natural gas.

**2005 - July** - There were found the first signs of oil in the pré-salt, in Santos basin, at the BM-S-10 block (Parati), in Rio de Janeiro coast.

**2006 - July** - A new oil deposit was found at the BM-S-11 block, in Santos basin (Tupi);

**October** - The tests results of the first well drilled at the BM-S-11, in Tupi, were released.

- The ANP calls for the 8<sup>th</sup> Round of Bids on exploratory blocks for oil and natural gas, which was suspended by two injunctions after the auction of few blocks.

**2007 - March** - A new deposit of light oil was found in the pre-salt section, originating the Caxaréu Field, North of Campos basin.

**June** - A new deposit of light oil was found in the pre-salt section, from the Pirambu Field, North of Campos basin.

**August** - A new deposit of light oil was found in the pre-salt section, at the BM-S-9 block – Carioca, in Santos' basin.

**November** - The analysis of the second well at block BM-S-11 (Tupi) was completed. This indicated recoverable volumes between 5 and 8 billion of oil and natural gas barrels.

**December** - A new deposit of light oil was found in the pre-salt section, at BM-S-21 block – Caramba, Santos basin.  
-The ANP calls for the 9<sup>th</sup> Round of Bids on exploratory blocks for oil and natural gas, with the extraction of blocks located over the Pre-salt area.

**2008 - January** A new deposit of natural and condensed gas was found at the BM-S-24 block – Júpter, in Santos basin.

**May** - Light oil was found at BM-S-8 block– Bem-Te-Vi, in Santos basin.

**June** - A new deposit of light oil was found at BM-S-9 block – Guar´a, Santos basin.

**August** - A new deposit of light oil was found at BM-S-11 block, Iara, Santos basin.

**September 2<sup>nd</sup>** Petrobr´as starts the production of the first oil from the pre-salt layer, at Jubarte Field, North of Campos basin (ES) (well ESS-103);

**September 10<sup>th</sup>** The recoverable volume of Iara's accumulation, a smaller area located at the same block of Tupi, was estimated in 3 to 4 billion of light oil barrels (30° API) and natural gas.

**September 24<sup>th</sup>** The existence of a large deposit of light oil and gas in Jupiter was confirmed, also the conclusion of a well located 290 Km off the coast and 37Km east of Tupi, in Santos basin;  
-The north-American oil-tanker Anadarko discovers oil in the pre-salt layer of Brazil. This is first discovery done by a foreign company, as an operator in exploration blocks in the country.

**November** -The drilling of two new wells in the pre-salt section, Esp´rito Santo's coast was completed and an expressive discovery of light oil was confirmed in the Parque das Baleias (Park of the Whales) region. The discoveries were done in reservoirs of pre-salt located below the heavy oil fields of Baleia Franca, Baleia Azul, Jubarte and Cachalote. The recoverable volume from these discoveries estimated between 1.5 and 2 billions of light oil barrels and natural gas.

**December** - The ANP calls for the 10<sup>th</sup> Round of Bids on exploratory blocks for oil and natural gas, exclusively composed of blocks located on land.



**2009 - March** -The Law of Gas was sanctioned.

**April** - The existence of a new deposit of oil was confirmed at the BM-S-9 block. The reserve was found with the drilling of the well 4-SPS-60, called Iguaçu. The consortium is evaluating the discovery.

**May** - On May the 1<sup>st</sup> the Long Duration Test (TLD) of Tupi starts to operate the FPSO BW (Bergesen Worldwide Offshore of Brazil) in the city of São Vicente, anchored about 290Km off the coast. Its duration will be 15 months. Able to process a maximum capacity of 30 thousands oil barrels through two wells, one at a time, for six month each, still depending on some technical definitions. During the three remaining months, complementary test will be necessary. The oil company Exxon announced the ANP, signs of oil at B-M-S-22 block, in the Pre-salt area.

**June** - Petrobras started June 30, 2009, in Capuava Refinery (Recap), São Paulo, the first oil refining of the pre-salt layer, Santos basin. It is a landmark in the world oil industry. It is at 28.5° API, with low acidity and low sulfur. This oil, of great quality, is extracted under very severe conditions: water depth of 2.140 meters, over 3.000 meters from the bottom of the sea, 2.000 meter below the salt layer and from a distance of 300Km off the coast of Sao Paulo. The pioneer process of this oil will prove, in commercial scale, the incomes and the quality of its by-products.

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