***Challenges and Oportunities of LNG in Brazilian market by the Government Program “New Gas Market”***

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## Overview

This aim of this paper is to show the challenges and the opportunities that are emerging with the new program created by the Brazilian Governmemt in 2019. This program will allow the creation of new sources of Natural Gas (NG), so that this study will evaluates the feasibility of this supply to a Brazilian industrial company.

Brazil has a natural gas market with several industrial consumers, but just one company responsible for a whole supply as a monopoly model. The scenario has changed in its regulatory base and has become a really open market the coming years, as can be seen in others countries with a modern market. The motivation for this is due to a Brazilian government, wich joined efforts to implement a new program for natural gas sector: the opening of a single supplier market for the entry of other companies interested in the supply of this energy represents an evolution and generates competitiveness of cost. In this way, a series of opportunities arise, with the development of new projects to overcome the obstacles and challenges that will arise.

In 2019, this new program called “New Gas Market” was created, when Petrobras no longer has the role of sole producer and importer, opening the market to new production agents, in addition to being forced to sell some os its plants and properties, distribution and processing units, responsible for processing natural gas. Therefore, allowing the acquisition of structures such as transmission and distribution ducts, as well as regasification terminals by other companies or the possibility to share the operation with other companies.

The Brazilian government foresees a series of legislative and regulatory changes that will allow the opening of the market, with the evolution of the natural gas sector, generating a new conception of the matrix composed by the importation of Liquified Natural Gas (LNG) and other currently sources (domestic production in pre and post salt basins and import from Bolivia).

This new scenario will cause companies in this area to invest in this kind of projects, for example, the called Blue Corridor Project, where a partnership between Golar Power and Alliance GNLog intends to install up to 35 LNG gas stations in 10 Brazilian states. It is part of a plan to develop the LNG market, based on small-scale transportation, bringing the fuel inside the country.

In the field of thermoelectric power generation using natural gas, several projects are underway to obtain natural gas fuel from LNG imports, such as those being implemented in Sergipe, Rio de Janeiro, Santa Catarina and Pará States. According to the project in the Sergipe State, it should consume around 20 LNG shipments imported from Qatar per year. Financially, the price of LNG has not been disclosed, but long-term fuel contracts generally require lower prices as they reduce supplier’s risk. This project will be able to generate and insert energy in the grid for about UDS 50 to 60/ MWh, a value that represents about a quarter than that charged by the thermoelectric plant in recent years and, despite this, must be considered that the price os fuels represent about 90% of the production cost of these projects.

The Decennial Energy Expansion Plan 2029 (PDE 2029), which shows Brazilian energy projects to be implemented in the next 10 years published in 2019, issued by the Ministry of Mines and Energy (MME), indicates a total of 60 GW of expansion electricity generation, with 28 GW of fossils divided into 7 GW can be coal and the remaining 21 GW must be LNG by projects on the Brazilian coast. It also considers that some existing coal and fuel oil thermal plants will have to be retired over the next ten years, because they are ending their useful lives. These large projects serve as an anchor for a thermoelectric plant, but it can create the opportunity for a surrounding secondary market. Because it is connected to the natural gas network, it can meet the local gas costumers. Although, these projects are often far from existing pipeline networks, they can therefore generate a new network and, thus, develop the region with previosly unviable industrial and commercial opportunities.

## Methods

The development of the work is based on review of primary and secondary data from exportations and markets demands from Brazil and other countries, as data from Brazilian Ministry of Mines and Energy, data from São Paulo State Energy Secretary, and data from international institutions such as the American Energy Agency, International Energy Agency - IEA and private consultants and pricing platforms like Argus, Reuters, IHS Markit and S&P Global Platts. They also draw from sources of books and internationally published articles and analysed historical data from decades ago involving up to the last years in order to compile a database of global information on LNG and thereby generate a statistical base and evaluate financial conditions to demonstrate possible viability in LNG imports and applying the quantitative and statistical method with the data obtained. The Net Back Price methodology will be used to show each stage of LNG import from United States to Brazil to prove the viability of this supply.

## Results

The Brazilian Government creates a program called “New Gas Market” in 2019 to improve national laws and create betters condicions to oil and gas companies to make a necessary investments, such as a regulations to acess and share existing gas structures, as processing and transport units across the country and help the states improve the rules and conditions or creating a free market. Thus, there are several projects on thermal generation of electric energy and in others sector of the economy in line, almost of then at norh of Brazil.

With the recent evolution of LNG market with the boom of shale gas in the south of United States that make the price becaming lower levels of the reference price Henry Hub, it represent a great opotunity to import LNG to Brazil creating a competitive with other NG sources in Brazilian Marketing.

## Conclusions

In order to help the Brazilian natural gas sector, the New Market Gas Program is providing regulatory conditions for companies to use the entire existing structure at an high rate os its capacity for almot time. In addition, understanding of the LNG market and importing into Brazil can take advantage of its current low prices in North American market, composing the supply matrix with others. Whit a competitive pricing, LNG allows the delivery of natural gas to locations not served by the pipeline network and provides for large volumes to be served, regardless of pipeline capacity limitations.

As demonstrated in the literature, the trend is that LNG low prices materializes on the international market. Including Brazil, which could enable competitive supply contracts on some conditions like long term contracts and, structural costs such as liquefaction and delivery costs.

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