A FINANCIAL ANALYSIS OF THE IMPORTATION OF LIQUEFIED NATURAL GAS FROM THE UNITED STATES AS A NATURAL GAS SOURCE TO THE BRAZILIAN MARKET

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Overview

The aim of the present work is to analyse information about the Liquefied Natural Gas (LNG) market worldwide, focusing on financial viability of this supply format to importation LNG from United States (US) as a supplier to the Brazilian market, making the comparison to the current national supply, complementing the matrix of multiple sources of natural gas (NG).

Due to the significant increase in oil and natural gas production through the exploration of Shale Gas, the United States has become one of the world’s leading LNG exporters. With the recently movement on the Henry Hub (HH) price, going to levels below USD3.00/MMBtu (Millions of British Thermal Unit) and with a long-term future forecast below this level considering the increases of production as the news projects of exploration and production begin its operations. It will be also assessed the feasibility of exports of LNG from US to Brazilian regasification terminals. In the last years, the natural gas markets in the US faced strong development in the application of technologies used for hydraulic fracturing, that enabled a significant increase in the US oil and NG production. This growth in production and export capacity was about 5 times in the last 2 years (IEA, 2018).

Currently, the low LNG prices available in the international market are presented by ARGUS (July 2018) as USD5.25/MMBtu FOB (Free on Board), reflecting the price in the Delivery Ex-ship (DES) condition of USD9.70/MMBtu, as shown by ARGUS or even USD4.305/MMBtu published by S&P Global Platts (August 2019) as DES net forward prices. The IEA (2018) points out that even with this over- supply, global demand for NG and global LNG trade should increase substantially in the medium to long term due to low energy costs in a number of global markets. The imported LNG price is competitive to the Brazilian market when it is lower than the domestic and imported supply option or if there is a short of supply from existing sources. The Ministério de Minas e Energia (Brazilian Ministry of Mines and Energy) (2019) and the Secretaria de Energia do Estado de São Paulo (São Paulo State Energy Secretary) (2018), published the domestic gas price around USD8.00 to 9.00, that comparing to the imported LNG operation can represent a commercial viability to Brazilian market. This theory was presented by Arend (2019) at Buenos Aires Energy meeting.

One way to validate this price reference in US LNG contracts is to apply the most used formula among international contracts. These agreements are composed by the cost of natural gas in the source (HH), adding a rate of 15% as the standard risk costs. Besides, it must include a transportation rate in the order of USD2.00/MMBtu and liquefaction cost of USD2.50/MMBtu. This equation corresponds to the liquid product delivered on the Brazilian coast. Finally, to gasify Natural Gas, there is a cost of approximately USD1.00/MMBtu. This formula results in a final price just under USD9.00/MMBtu.

While analysts and market are now predicting that Brazil’s domestic gas production could grow significantly from current levels, it’s unlikely that much of that new supply will make it way to regions isolated from the gas grid. The LNG source is independent of the limitation of capacity on the national gas grid. Regarding this expectation of growing production, in fact it depends on the quality and the considerable contaminant content the production of deep-water subsalt region, in particular carbon dioxide (CO2), leading to increased removal costs and the structure necessary to bring this gas to the coast (EPE, 2019).

In this way, this article discusses the possibility of development and implementing new sources of energy for the Brazilian NG market, being this one of the potential elements of the country’s energy transition. This issue is in line with the proposal of this forum, which deal with the creation of new transportation routes and mechanisms to delivery energy sources to world markets.

Methods

The development of the work is based on review of primary and secondary data from exportations and markets demands from the United States and Brazil. Data from Ministério de Minas e Energia (Brazilian Ministry of Mines and Energy), the Secretaria de Energia do Estado de São Paulo (São Paulo State Energy Secretary) and 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. To show the availability of this United States LNG supply to Brazil will be showed by net back
methodology, that, as a simplified explanation, determine the price by removing the costs of production and downstream costs from the average price.

Results
The trending is that LNG low prices get currently available on the international market including Brazil. This competitive opportunity depends on some conditions like long term contracts of other that will be soon demonstrated. In this way, the authors expect to show that US LNG exportation could supply demands on Brazilian energy market. Based on the data presented above, this present study demonstrates the existence of favorable commercial conditions for the importation of LNG from the United States to Brazil and how such perspectives may alter the relative competitiveness of the suppliers of Natural Gas already consolidated both national and importers. Some authors have already shown this opportunity a few years ago, treating LNG as an interesting market to Brazil, as it is seen commercially by some agents with price around USD4.305/MMBTU, or calculated by netback price methodology as USD9.00/MMBtu. This lower values, compared to domestic prices, represents feasibility of the operation.

Conclusions
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. This combined with other conditions and some scenarios on the global markets, could favour, South American LNG market. In this sense, the authors believe that United States LNG exportation could supply demand on Brazilian energy market. With the American boom, toppling Henry Hub (HH) prices and since US had become one of the major supplier of LNG cargos around the world, the LNG contracts have changed its price references from JKM (Japan Korea Marker gas price) or NBP (National Balancing Point gas prices from UK) for a HH pricing benchmark in many of the current contracts, and as the reference price is seeing as a low level price for the future, it will provide more attractive financial conditions for importing to South American countries such as Brazil, Argentina and Chile. Some national companies demonstrate that they are envisaging this feasibility with, the implementation of regasification terminals tied to a unit of thermal generation of electric energy.

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