

The Brazilian Production Sharing Auction Model: How has the game changed?

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Overview

One of the main goals of the reforms implemented in Brazil from the mid-1990s in the energy industry was the introduction of competitive pressures in industries traditionally characterized by an organization based on state-owned monopolies. The convergence between the different models adopted in distinct segments was that the deregulation of these industries was, in general, based on the construction of market-oriented governance structures. Changes both in the legislative and regulatory dimensions were adopted so that general rules could be enacted; and the existing public companies monopolies were terminated.

In the oil and gas industry, the Oil Act (Law n. 9478/1997), among other measures, ended Petrobras monopoly in the upstream activities. According to the law, concession contracts should be granted through annual public auctions. For those auctions, the National Petroleum, Natural Gas and Biofuels Agency – ANP (the Brazilian oil and gas federal regulatory agency) chose a competitive first price, closed envelope, multi-unit, simultaneous auction. (i.e. the winner is the highest bid, and all bids must be presented in sealed envelopes, which must contain bids for all the areas in which the agent has an interest).

The original reforms, however, were directed towards reducing the state's direct participation in the markets and creating incentives for private investment in the oil industry, resulted in an institutional environment that favored the government's low capacity for interference in matters related to the execution of the activities. Thus, the announcement of the discovery of significant hydrocarbon reserves in the Brazilian pre-salt layer in 2007, motivated the government to propose legal measures to amend the previous regulatory framework.

In 2009 the Lula government proposed new laws that created a mixed regime for exploration and production of oil and natural gas in the country. The concessions regime was maintained, which, as of the end of 2010, passed with the approval of Law no. 12.351 / 2010, to coexist with a production sharing regime, which would be the contractual modality to be established for new bids in the pre-salt areas. The changes included an overview of the strategic role to be played by the Brazilian petroleum sector different from that one previously defined, both regarding the (at the time) newly global Brazilian insertion and supporting conditions of such insertion. The core of this change was focused on the control over the exploitation of pre-salt resources, in order to achieve maximum benefits from such exploitation, under a long-term strategic perspective.

This included the establishment of Petrobras (the Brazilian oil and natural gas industry, which until 1997 had a monopoly on hydrocarbon exploration and production in the country) as the sole operator in the pre-salt province (with a minimum participation of 30% in any block contracted within the polygon), and the creation of another state-owned company, Pre-Sal Petróleo SA to hold the interests of Brazil in the Pre-Salt system. In addition - and perhaps unintentionally - the new model triggered the adoption of a new model of auction, with different results from those observed until then.

Araújo et al show that the normative change transformed the auctions for contracting in the pre-salt polygon into bidding auctions under affiliation. As demonstrated in the paper, although under a symmetric common values model with a risk neutral seller and risk neutral bidders it is possible to conclude that the revenue share bidding auction generates expected revenue at least as large as the bonus bidding auction, the first pre-salt auction did not have a good outcome for the Brazilian Government. In fact, the auction failed to draw a larger number of competitors, and this lack of competition entailed a minimum revenue for the Union.

By the end of 2016, the Brazilian government approved a modification in the pre-salt legal framework. Seeking to give Petrobras greater autonomy and to not limit the exploration capacity of the pre-salt oil province to the exploration capacity of the company, the government amended Law 12,351 / 2010, granting Petrobras preference to act as operator each pre-salt field, and as a consequence to ensure the minimum stake of 30 percent of this field.

Therefore, from the end of 2016 on, for all blocks inside the pre-salt polygon or for those considered strategic, the National Council for Energy Policy (CNPE) decides if bidding rounds will be held or if Petrobras will be hired directly. In both cases, contracts are signed under the regime of production sharing. If it decides to conduct the bidding round, CNPE first offers Petrobras the preference to be the operator of the blocks to be contracted. When Petrobras expresses the interest of acting as the operator, it must inform in which areas it wants to exercise this right, declaring its participation in the consortium (which cannot be less than 30%).

Shortly after the amend was approved, Decree No. 9041/2017 further defined that Petrobras will have 30 days to express its opinion on the exercise of the preemptive right (before the auction). Unlike the previous model, under the new rules Petrobras may withdraw from forming the winning consortium after the auction, if the auction winner bid is higher than the minimum bid. As a result, the auction model adopted for oil trading within the pre-salt polygon was changed again: the auction has changed from a simultaneous game to a sequential game, where there is a sequence of plays and one of the players takes part under different rules of the too much. This adds complexity to the issue, and a detailed analysis of this auction would merit further economic modeling - which is beyond the scope of this paper. However, it is still possible to discuss, from the point of view of auction theory, some general and first-order implications of the new rules of the auction of sharing for the behavior of the participants, which are then compared with the results obtained in the 2nd and 3rd Pre-Salt auctions, held in October 2017. This analysis is the goal of the present paper.

Methods

The paper will present a brief synthesis of the legal framework that regulates the Brazilian Pre-Salt Auctions, in order to define a model reform to be used in the analytical sections. Also, some existing results available in the economic literature will be presented, and those results will be the starting point for an analysis of the new auction model. The paper will, then, through an analytical game theory analysis, draw conclusions based on the observed results of the 2nd and 3rd Pre-Salt Bidding Rounds in Brasil.

Results

The main results of this paper is to identify the incentives in the new auction model, and its results for the Brazilian Government.

Conclusions

The new rules of the Brazilian Pre-Salt Bidding Rounds promoted changes not only on the behavior of Petrobras but also on the behaviour of the other players in the game. It will be shown that the changes brought positive results for the Brazilian government. In both the 2nd and 3rd Pre-Salt Auctions a reasonable degree of competition was observed, with the majority of the offered blocks being sold for higher bids than the minimum established by the government.

References

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