NATURAL GAS MARKET AREAS DESIGN IN BRAZIL

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Overview

The restructuring of the natural gas industry in Brazil followed the model and advances made by the European Union, which in turn was inspired by the pioneering case of the United Kingdom with the establishment of the National Balancing Point (NBP). Shippers contract capacity in the integrated system, in defined capacity market areas, allowing the molecule to be traded at a (virtual) trading point. The systems follow the common carriage model in which gas transportation is structured as a network with regulated access to interested third parties. The network is operated by a transportation system operator (TSO), responsible for offering transportation and balancing services. The regulation of the segment advocates network neutrality and seeks to guarantee non-discriminatory access, separating the network segment from competitive activities through models of independence of carriers certified by the regulator [1].

The New Gas Law in Brazil [2] defined the organization of the transportation network in a system with capacity contracting by entry and exit, which can be contracted independently of each other by different shippers. The system may have more than one capacity market area, which is currently the case considering the areas associated with the three existing TSOs: TBG, NTS and TAG. The current guidelines also indicates the merger of market areas and defines the transition period for market opening as the time required for integration. When there is more than one transporter in the market area, the law requires the establishment of an area manager, regulated and monitored by the ANP (National Oil and Gas Regulatory Commission), responsible for coordinating the operations of the transporters in the capacity market area. The regulation of the new gas law also determines that the ANP must regulate "the capacity market areas in order to favor the merger process among them, with the objective of progressively reducing the number of areas and increasing the liquidity of the virtual trading point".

However, the regulatory commission agenda has not yet defined the deadlines for regulating the market area manager. In view of this context, we present a preliminary assessment for the Brazilian case, based on the European experience, in order to understand the process of formation, integration and coupling of market areas, how the possible coexistence of different TSOs in the same area is structured, the main challenges in the integration and merger process and the possible solutions. The strategy presented in [3] will be adopted, in order to present a guide for evaluating the mergers models possible to be applied in Brazil. If possible, the approaches describe in [4] and [5] will also be applied.

After the introduction, the rest of this paper is organized as follows: section 2 presents the current situation of Brazilian Natural Gas Market, with focus on TSOs and Market Areas; section 3 presents an overview about the European experience and market design challenges, including an assessment about risks, incentives, costs and benefits; section 4 provides an assessment about which model is more favorable to Brazilian situation and presents some market simulations and section 5 discusses some policy recommendations. Finally, section 6 presents opportunities for future work and concluding remarks.

Methods

- Bibliographical and documental review about European experience (Western Europe) and including data from Germany, Italy, France, Spain, Austria and Hungary
- Cost-Benefit Analysis
- Scenarios simulation
- Market Design

Results

As main contributions we will have:

i) a framework for model assessment, allowing the understanding of each model that is possible for Brazil and considering the current results from European experience

ii) an analysis of possible improvements in terms of regulation and functioning of the markets involved;

iii) a detailed evaluation about the trade-offs and incentives involved in each design identified with the necessary adaptations for Brazilian case and emphasizing all stages of integration, not just the tariff setting.

Conclusions

This study proposes a framework for the assessment of models for natural gas market areas that are possible to be implemented in Brazil, considering the local regulation and the experience from Western Europe. It is expected that the results can be used by policymakers, utilities, TSOs and different stakeholders in the Brazilian power sector, in a context where the country has been implementing reforms to improve the liquidity and efficiency of natural gas markets.

A better informed Cost-Benefit Analysis will allow the creation of wholesale markets for the molecule in Brazil, a process that occurred more intensely in Germany, which had 41 market areas in 2006, which were grouped into two large areas and were recently integrated into a single area: Trading Hub Europe (THE), formed by the merger of the Gaspool (GPL) and NetConnect Germany (NCG) hubs. Beyond the mergers, the possibilities of integration in Brazil will also be evaluated in terms of coupling of adjacent market areas – in this case, they would be connected in commercial terms but remain independent regarding physical and balancing issues.

References

[1] Anstey, G. & Schonborn, M. Setting the Boundaries: Defining the Limits of Gas Market Areas. NERA Economic Consulting (2022)

[2] Brazil. New Gas Law in Brazil - Law No. 14,134 (2021)

[3] ACER – Agency for the Cooperation of Energy Regulators. European Gas Target Model – review and update. Annex 6: Tools for gas market integration and connection (2015)

[4] Keller, J.T., Kuper, G.H & Mulder, M. Mergers of Germany´s natural gas market areas: Is transmission capacity booked efficiently? Utilities Policy 56 (2019) 104-119

[5] Keller, J.T., Kuper, G.H & Mulder, M. Challenging natural monopolies: Assessing market power of gas transmission system operators for cross-border capacity. Energy Policy 170 (2022)