

ENERGY TRADING IN ORGANIZED MARKETS IN BRAZIL – MARKET DESIGN AND REGULATORY ISSUES

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Overview

Similar to other markets, the creation of an organized environment for energy trading could potentially increase efficiency in the sector in Brazil. Through the provision of services related to custody, clearing, settlement and risk management, such trading platforms can add transparency and therefore improve the price formation process. Also, transparency of price formation leads to increases in efficiency and better decisions by investors interested in energy assets. Recently, Brazilian government launched a public consultation process (MME CP 033/2017) to improve the regulation for entire energy sector in the country; however, little attention was devoted to the establishment of a truly organized market for energy trading in Brazil. According to current rules, the Energy Commercialization Chamber (CCEE), a civil association operating under the supervision of ANEEL (Brazilian Regulatory Commission), is responsible for compiling data related to energy production and consumption and by the registration and settlement of contracts among counterparties, but there are no clearing and risk management services, typical in organized over-the-counter markets. In spite of some initiatives from energy trading companies by themselves, in order to get around CCEE problems, there is a lack of minimum corporate governance principles, risk management procedures and prudential regulation – in fact, energy trading contracts in Brazil are financial products totally independent from financial regulators such as Central Bank (Bacen) and Securities & Exchange Commission (CVM). Thus, based on the principles of economic market design and taking advantage of international experience about financial energy products in organized markets, this paper proposes structural improvements to energy trading in Brazil, considering the technological changes related to distributed generation, mechanisms of demand response, and energy storage.

This paper is organized as follows: after the introduction, which gives more details about the situation of energy trading and related regulation in Brazil, the second section describes the fundamentals of market design and its relationship with the development of organized commodity markets and risk management practices related. Based on these fundamentals, third section presents needed building blocks to improve Brazilian energy trading markets and a comparison with similar countries. The fourth section presents a counterfactual study considering some different possible structures and their impacts. The final section discusses policy implications and recommendations.

Methods

Market Design, Regulation, Finance Theory, Risk Management

Results

A proposal to improve price formation process and governance in the Brazilian electricity sector should be guided by the establishment of market structures that will really allow allocation of resources from interactions between buyers and sellers. In this context, the target model must integrate three markets: (i) physical market - energy flow and capacity; (ii) energy over-the-counter market; (iii) energy financial market. Note that the existence of (ii) depends on (i), and the existence of (iii) depends on (i) and (ii). This paper focuses on markets (ii) and (iii) and their interaction with financial regulators. Therefore, it is necessary the creation of an independent Market Operator, under the rules of Central Bank and CVM and responsible by trading environment, with technical characteristics of the contracts defined by ANEEL. Thus, power contracts and derivatives must be discussed between ANEEL and the Market Operator, which in turn authorizes the products to be traded and enforces rules of operation and governance aiming the proper functioning of OTC market. Financial regulation is needed to establish clear rules for: (i) management of participants' credit risk (counterparty credit risk - CCR) through the establishment of margins and other collateral

arrangements; (ii) centralized settlement of contracts (clearing), (iii) transparent price formation with clear and well-known methodology, based on market participants.

The central counterparty will assume the risk of all counterparts; therefore adequate risk management is essential in order to preserve the stability and financial integrity of the market. As a consequence, without the establishment of an over-the-counter market for energy (ii) with credible prices, it will not be possible to operate an energy financial market (iii) in the future. This kind of organization, combined with the development of the physical market for energy (i), has potential to benefit the entire investment process within the sector through more reliable prices, credible forward curves and better risk management and governance.

Conclusions

Based on the principles of economic market design, this article assesses the situation of energy trading in Brazil, proposing improvements that may advance towards an environment with more transparent price formation and better governance and risk management. As explicit policy implications we have the introduction of a new agent – the Independent Market Operator, under the rules of both energy and financial regulators, and some guidelines to integrate all needed markets, taking into account the features of energy transition – demand response, prosumers participation, capacity markets, storage and digitalization.

References

- Ausubel, L.M. & Cramton, P. (2010). Using forward markets to improve electricity market design. *Utilities Policy* 18, 195 - 200
- Cramton, P. (2017). Electricity Market Design. *Oxford Review of Economic Policy*. Vol 33, number 4, 589 - 612
- Gonçalves, E. , Jardim, F., Dutra, J., Reis, M. & Soares, R. (2017). Long-Term Finance and Risk Allocation. FGV - CERI – Center for Regulation and Infrastructure Studies & The World Bank.
- Wilson, R. (2002). Architecture of Power Markets. *Econometrica*, 70 (4), 1299 - 1340