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REVISTA DE DIREITO DA ADMINISTRAÇÃO PUBLICA

ISSN 2595-5667

REVISTA DE DIREITO DA ADMINISTRAÇÃO PÚBLICA

ANO Nº 06 – VOLUME Nº 01 – EDIÇÃO Nº 01 - JAN/JUN 2021
ISSN 2595-5667

Editor-Chefe:
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Rio de Janeiro, 2021.

Revista de Direito da Administração Pública

Law Journal of Public Administration

LIBERALIZATION AND EVOLUTION OF FREE COMPETITION IN THE ENERGY MARKET IN BRAZIL, THE US AND THE EUROPEAN UNION: A COMPARATIVE STUDY FOR THE DEMONSTRATION OF FACTORS PREJUDICIAL TO THE ESTABLISHMENT OF COMPETITIVENESS IN THE ENERGY MARKET

LIBERALIZAÇÃO E EVOLUÇÃO DA LIVRE CONCORRÊNCIA NO MERCADO DE ENERGIA NO BRASIL, ESTADOS UNIDOS E UNIÃO EUROPEIA: UM ESTUDO COMPARATIVO PARA A DEMONSTRAÇÃO DE FATORES PREJUDICIAIS AO ESTABELECIMENTO DA COMPETITIVIDADE NO MERCADO DE ENERGIA

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Data da Submissão: 11/06/2020
Data da Aprovação: 07/07/2020

RESUMO: O presente trabalho busca analisar o panorama jurídico da livre concorrência no desenvolvimento do mercado de energia, especialmente em relação à distribuição ao consumidor final, no Brasil, na União Europeia e nos Estados Unidos da América. No caso, busca-se compreender os graus de similitudes e diferenças entre os modelos de regulação enérgica adotados nesses três cenários jurídicos, de modo a expormos os acertos e desacertos quanto à inserção da competitividade no mercado varejista de energia. No caso, tornou-se necessário entender como o serviço de energia se inseriu no ordenamento jurídico de cada região e dentro das funções do Estado, bem como compreender as circunstâncias positivas e negativas de experiências práticas de implantação de um mercado energético competitivo.

PALAVRAS CHAVES: Regulação. Energia Elétrica. Direito Econômico-Administrativo. Direito Comparado. Livre concorrência.

ABSTRACT: This paper aims to analyse the legal paradigm of free competition in the energy market development, especially in relation to distribution services to final consumers (retail services), in Brazil, European Union and United States of America. In this work, seek out to understand the level of similarities and differences between the energetic regulation models adopted in these three legal backgrounds, in order to expose the strikes and mistakes of the create a competitive energy market in retail level. In this case, it was necessary recognize how the energy services inserted on each legal framework and in the roles of the state, and identify the positive and negative circumstances of experiences of implementation of a typical competition energy market.

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KEYWORDS: Regulation. Electricity. Economic-Administrative Law. Comparative Law. Free competition.

1. INTRODUCTION

The present work aims to analyze the circumstances of free competition in the energy market development, especially in relation to distribution services to final consumers (retail services).

Plentiful are the discussions about benefits and difficulties in releasing public utilities to ample competition. The idea behind for the liberalization and privatization of public services is that private participation, under a competitive regime, could be useful for service's technological evolution, increasing quality and expansion. In addition to, it is also argued that production costs could be reduced and thus the final prices of consumer services.

However, in Brazil, despite having experienced successful privatization of public services (as in telecommunications, for example), there was a great difficulty in liberalizing the energy market for free competition, both wholesale and retail level.

Therefore, the present work seeks to understand the legal and extrajudicial factors detrimental to the liberalization of the wholesale energy market, through a comparative analysis of the evolution of energy regulation in the US, European Union (EU) and Brazil.

This paper presents, in theoretical terms, the parameters for the evolution of the public services provision in countries that always assumed it as Public Power (such as Brazil and several continental European countries). In the first part, we intend to expose the factors associated with public service liberalization and the increase of government regulatory activity. Subsequently, the normative and institutional experiences of the energy structuring in USA, EU and Brazil will be presented.

As for the comparative method adopted, it is important to clarify that not every citation of foreign law by the proposed research corresponds to the use of the comparative method. According to Marrara (2014, p. 30), the comparative method concerns "a specific operation, which is comparing or confronting objects, indicating their common points and their differences, in order to contribute to the improvement of legal systems or of the legal discipline of the objects confronted".

Samuel (2014, p. 5 et seq.) well indicates that the comparative methodology cannot be dissociated from *epistemology,* being necessary, sometimes, the dialogue between the researcher and bibliographies external to the legal area, in a commitment to interdisciplinarity. Using comparative method is not merely to reproduce norms from other countries, as a way to seek solutions to our own problems. It is, on the contrary, to understand how Law is applied, in consideration of the political, economic, and cultural context involved. For this reason, it is inevitable, whenever necessary, to seek sources from other applied social sciences, so that the objectives of comparative method can be succeed.

In the present case, the comparative regulatory analysis is a task that involves a broader study of the rules that regulate the role and the functioning of the Public Administration. As stated by Bignami (2016, p.6):

> Comparative administrative law is focused on bureaucratic authority, broadly speaking. The object of comparison is the institution of public administration and the national laws that govern the operation of public administration in different jurisdictions (Goodnow, 1893; Ziller, 1993; Fromont, 2006; Bell, 2008; Rose-Ackerman and Lindseth, 2010).

In this case, it is necessary to develop an object of legal study that is centered on the functional task of regulating, not on the historical and nation-specific contours of public administration, in order to successfully cross borders and understand the regulatory process in the many jurisdictions (BIGNAMI, 2016, p. 9).

In order to understand the evolution of the liberalization process in the energy markets in the United States and the European Union, in the light of the legislative changes in Brazil, this article aims to analyze, in a more critical way, the limits for the implementation of free competition in the wholesale and retail of the Brazilian energy market, after verifying the differences and similarities between these legal systems.

2. THE "LIBERALIZATION" OF PUBLIC UTILITIES AND THE CONSEQUENT INCREASE IN THE ACTIVITY OF ADMINISTRATIVE REGULATION

It is known that, it is assigned an inescapable function to the State (broad sense): the unconditional search for the fulfilment of the public interest. For this, it is granted to the State a series of powers and attributions that shall be used whenever the interest of the community so

demands.

Among the most diverse attributions granted to the State, in different parts of the world, it is the duty to provide some activities that bring some convenience or material usefulness that can be individually enjoyed by each citizen and whose supply is, indisputably (in a given historical and political context), indispensable.

In Brazil, jurists standardized the understanding that "public services", in the narrower sense, are activities that provide certain material facilities that can be enjoyed individually and that could, normally, be practiced by individuals; but, in view of its relevance to the interests of the community, the State has reserved, in the legal system, the ownership in the provision for itself. In this case, the State is obliged to provide this type of activity, directly or indirectly, through concession contracts. On the other hand, the so-called "economic" activities, *strictu sensu*, are typically carried out by private initiative, and whose performance is foreign to the typical attributions of the Public Power.

The initial notions of the 'public service' go back to the absolutist phase, distinguishing between private activities and 'king's services', evolving into the idea of essential services made available to the population (MEDAUAR, 1992, p. 101). The conception of public service, as a typically state activity, with its own legal characteristics, took shape in France from the second half of the nineteenth century. The doctrine indicates as a "landmark" for the so-called "public service theory" the "Blanco" decision of 1873, which identified a different normative system for liability arising from damages caused by "wagon of a tobacco manufacture, member of the French Administration", which is why it was given the administrative court the power to decide the question. (MEDAUAR, 1992, p.102).

In the French conception [followed by Brazilian legal doctrine], a typically state service is characterized by a subjective aspect [because it is the attribution of the State], a formal aspect [facing specific obligations of public services that differentiates it from norms applied to other economic activities], and a substantive aspect, which is related to the public interest that involves the provision of this activity.

However, throughout the twentieth century, an alleged crisis of this classical conception of public service was identified, especially in view of a greater inclusion of the private sphere in the exercise of these activities. In fact, "with the growing interpenetration of private and public activities, especially since the 1940s, there was a confusion of the organic and material notions and the legal regime" (MEDAUAR, 1992, p.106). After World War II, the State began to exercise an increasing role of public services, characterizing the so-called *Welfare State.*

However, as state powers accumulated, the management structure of the Public Power was increasingly inefficient. In this context, it is known that the most current administrative reform, titled "New Public Management", emerged to solve efficiency problems in the bureaucratic management model. The growth of the state machine, which experienced the Welfare State, generalized serious concerns regarding the efficiency of the public services provided by the Public Administration, resulting in a crisis of the State molded according to the Weberian bureaucratic precepts.

In this context, new public management reforms has had a significant impact on the French conception of public service, especially as it seeks to reorder the administrative architecture around the strategic/operational poles (CHEVALIER, 1996, p. 52). Consequently, as Jacques Chevallier (1996, p. 52) argues, there is no longer a conception that public service cannot be achieved through free initiative and competition.

In Brazil, the creation of Law nº. 8.987/1995, which regulated the legal regime for the decentralization of public services, presented, in its "justification" of the project, the need for a separation between the State's own services, from those not suitable to the State, which would have its execution transferred to individuals, under the control of the Public Power.

The new tendency of decentralization of public services, by some understood as an economic liberalization of public utilities, has highlighted this crisis in the idea that the public service must be provided by the State. Di Pietro points out that the crisis in the concept of the public service was especially stimulated by the replacement, in the European Union, of the term “public service” by “services of general economic interest”, through the Treaty of Rome of 1957 (article 86º) and the Amsterdam Treaty of 1997 (article 16º). (DI PIETRO, 2015, p. 144 *et seq.*). According to Vital Moreira (2009, p.12), these changes of economic and political paradigm necessarily *led to the re-elaboration of the concept of public service itself.* As the author states:

> In fact, there are some fundamental changes, mainly the following:
> (A) the "commodification" of public services, which have become services available on the market for a price, often in competition;
> B) The consequent transformation of users of public services into consumers or customers;
> C) The freedom of choice of supplier or supplier, the public service being a subsidiary figure of the market, in case the interested party does not find in these conditions of supply adequate.
> Where there was a public monopoly there was a market and competition between

> operators (public and private or only private). Where there was a public service of an administrative nature, there was a merchandize transacted in the market. Where there were users there were customers / consumers. (2009, p.12 et seq.)

However, the State's decision to refrain from carrying out certain activities, or even the release of monopolies in the provision of public services and the resulting liberalization for free initiative, according to world trends, did not mean that there was no risk of such a restructuring. New public management´s theorists point out that the total equalization of the public sector with the private sector brings problems of policy effectiveness, given the asymmetry of interests between the "partner" and "citizen" poles.[2]

Otherwise, it is undeniable that the increasing private participation in infrastructure investments played a key role in the 1980s and 1990s, with the goal of increasing efficiency and expanding service coverage, through significant investments. Finally, the State's fiscal and management inability to conduct infrastructure investments, especially in the 1980s, was decisive for the state's decision to transfer this role to the private sector. And the importance of the private sector, in collaboration with the Public Power, has been notoriously increased in the face of the constant technological evolution, that has allowed the private sector, especially small investors, to act in spheres (telecommunications, electricity, individual land and air transportation, basic sanitation, among others), previously not allowed or economically viable, in collaboration with the Public Administration in the pursuit of activities entrusted to it, such as the universalization of access to amenities and material utilities of great public interest.

In this context, the regulation of public utilities has become essential in order to overcome a lack of institutional efficiency in the strategy of privatizing activities of public power: the alignment between the profit-making interest of the private sector and the interest of the citizen, which the State must preserve, in view of the supremacy of the public interest.

Administrative regulation, involving numerous economic activities, is often concerned with avoiding the abuse of economic law and the preservation of a generic public interest, such as protection of competition, safety and public health, the environment and urban aesthetics, environmental protection, etc. This type of regulation, inherent in the exercise of administrative police power, aims safeguarding the public interest, but as a way of limiting the freedom of the

[2] In this sense, according to Paula (2006, p. 82), the managerialism experienced by the "New Public Management" presents limitations, especially with respect to a supposed inadequacy of managerialism in the public sector and with the socio-political dimension of the State. In this case, the innovations of managerialism (which motivated several neoliberal reforms) do not objectively, in essence, respond to the needs, desires and wishes of the majority of citizens, but rather presuppose that the public interest is consolidated through performance of public services.

individual. On the other hand, the rules of the public service have a clearly directing role in the conduct of the private partner, establishing expected results, among them, the quality, modesty and effectiveness of the services provided. In this case, the administrative regulation of public services assumes a different role: it is not only a question of avoiding "abuse of rights" and of freedom, but of establishing directives for the exercise of the activity that was open to free competition, similar to the contractual regulations and bidding terms of reference.

It is interesting to note that this regulatory mechanism can be very well explained in the literature related to the agency's economic theory (POSNER, 2000).[3] In regulatory activities, this economic theory has application when the regulator creates mechanisms that imply "transaction costs" for the private agent, if all the results expected by the activity are not reached, such as mechanisms of service universalization and result verification in its provision, as conditions for the non-cassation of the administrative act bound of license for its exercise. In this context, administrative regulation assumes an important function that can affect the supply conditions of new suppliers and enable the implementation of mechanisms designed to introduce, in an induced manner in the context of free competition, the promotion of social and economically desirable goals.

Bignami explain that, except for the United States, regulation has become a pervasive form of state governance only in the past thirty years, when the rise of regulation activity could be appointed to direct consequence of the extensive privatization and liberalization of that occurred in Many countries beginning in the 1980s (BIGNAMI, 2016, p.14). Before that, the government intervention in the economy and public utilities was direct, through state ownership of market sectors and extensive industrial planning (BIGNAMI, 2016, p. 15).

It can be said that the regulation of public services, or economic activities of general interest, is a modern instrument of *administrative governance*, which evidences the presence of

[3] According to this theory, in every economic relation, there will always be two parts: the "principal", who engages another part, the "agent", to perform some service on his behalf, always involving the "delegation" of a competence for the Agent, in which three conditions occur naturally: (i) the agent has different possibilities of action; (ii) the agent's action influences both parties; and (iii) the actions of the agent are hardly observable by the principal, given the asymmetry of information, which creates an undesirable "moral hazard" (POSNER, 2000, p. 2 et seq.). This relationship can be verified in several institutional situations, such as: between the managers (agent) and shareholders (principal); Lawyers or other agents (agent) and client or other grantors (principal); Between contractor (agent) and contractor (principal). In the Public Administration, this relationship can occur in the exercise of the political function - in which the government is the "agent" and the citizen is the "main" - as well as in the relationship between the Public Administration and private employees. In all these cases, the economically verifiable assumption is that in this type of situation, when the two parties have inherent interests (profit, agent, and effective outcome, for principal), there are economically defensible reasons why Agents did not seek to serve the best interests of the principal, unless mechanisms are created that aim to minimize the impacts of informational asymmetry between the parties, called "agency costs" (JENSEN; MECKLING, 1976).

the State in the realization of its constitutional competencies. As discussed by Vasconcelos (2008, p.189), the debate about administrative governance is related to the concern to try to better understand the "interactions between government and society, within a renewed public administration, where the role of Government tends to blur (*'Governing without government*').

According to the author, governance through administrative regulation created a new phenomenon that brought new lines to the concept of regulation, which not only went on to regulate monopolized activities, but especially those granted for free competition. (VASCONCELOS, 2008, p.193).

Thus, the "escape" from the direct operationalization of economic activities and public services *(strictu sensu),* by the State, was proportionally accompanied by the growth of administrative regulation.

3. THE EVOLUTION OF REGULATION AND LIBERALIZATION OF THE ENERGY SECTOR

3.1. Overview in the United States of America

The history of Administrative Law, in the United States of America, did not occur as in French Law, with the search for the definition of the public service and its legal regime. US Administrative Law is confused with the creation of dependent and independent *agencies.* The emergence of the discipline, by American doctrine, is identified as the concentration of the state competencies shortly after the "Great Depression" and the emergence of the *"New Deal",* whose political context brought the understanding that the Executive Branch would have greater ability to regulate economic activities against the excesses of economic liberalism (FUNK; SEAMON, 2012, p. 3).

Thus, to implement this regulation, the US Congress created the "agencies" that, in theory, would be apolitical and technical bodies and entities that, with the legislative endorsement, would have powers to regulate economic activities. The growth of the regulatory function has made it essential to create a standardization by the judicial power *(common law)* to control the decisions made by these agencies, whose rules turned out to be created by the Supreme Court. However, not satisfied with the regime of rules judicially created *(common law),* the American Congress, influenced by the *lobby* practiced by economic interests, created, in 1946, the *Administrative Procedure Act,* which is, today, the legal framework of "Administrative Law" in

this country (FUNK, SEAMON, 2012, p. 3).

Therefore, it is interesting to note that "Administrative Law" in the United States of America is *the right of regulation*, by agencies, of the economic activities and of the private exercise of *public utilities.*

As well known, the United States of America (USA) is a federation of states with broad legislative autonomy, which is why they are not part of the regulatory system of the federal government. As Funk and Seamon points out:

> The federal administrative law system includes all there branches of government: congress creating agencies and giving them their mandates; the agencies constituting the Executive in executing the laws; and the courts ensuring fidelity to the law and Constitution. The states as separate sovereigns do not appear to have a role in this system. Indeed, in recent cases, the Supreme Court has made it clear that it is unconstitutional for Congress to command states to act as agencies, even with respect to matters otherwise clearly within the power of Congress under the Commerce Clause of the U.S Constitution. (FUNK; SEAMON, 2012, p. 18 *et seq.*).

This American characteristic has revealed a difficulty for the country in establishing a uniform policy regarding the liberalization of the energy market for free initiative.

In the USA, as in Brazil and in the European Union, the energy market operates based on three stages: generation; transmission and distribution to the final consumer.[4] The difference between these activities, added to the ample regulatory autonomy of the States, created different energy models scattered in the country. In this case, we can identify three energy models scattered in the USA, constructed according to the regulatory evolution verified in each state or in the federal government. They are: (i) the traditional cost-of-service model, (ii) the fully restructured model, and (iii) hybrid model.

During the late nineteenth and early twentieth centuries, when electricity was generated

[4] Boyd and Carlson (2016, p. 821 *et seq.*) explain these process: "Generation converts primary energy (fossil hydrocarbons such as coal or natural gas, nuclear, wind, solar, hydro, and other renewable sources) into electricity. Generators must then step up the voltage of their electricity for it to be transmitted long distances over high voltage power lines. This system of high-voltage transmission lines is used to move large amounts of power across the three major grids in the United States and is sometimes known as the bulk power grid. At the other end of the transmission system, the electricity is then stepped down to lower voltage and distributed, via local distribution systems, to electricity consumers. […] Viewed as a whole, the electric power system is a complex, highly interdependent machine that operates on multiple time scales, ranging from milliseconds to years. Because electricity cannot be stored on any significant scale and cannot be directed (as in the case of classic switched networks), and because generation and load must be precisely balanced in real time, sophisticated systems operation capabilities are necessary to ensure continuous delivery of reliable electric service. The electric power industry has been described, in this respect, as the ultimate just-in-time system".

in small power plants located close to demand, there was little need for state or federal regulation (BOYD, CARLSON, 2016, p. 822). The presence of state regulation becomes more apparent when the system was growing and transposing to *independent public utility* commission (PUC).

In this time, when electric utilities expanded in the early twentieth century, interstate transfers of power became more common, until the Supreme Court prohibited states from regulating such transfers in 1927, creating a gap in the regulatory scheme (BOYD; CARLSON, 2016, p. 823). In response to this gap, the U.S. Congress created new legislation, "that gave the Federal Power Commission (FPC), predecessor of the Federal Energy Regulatory Commission (FERC), jurisdiction over rates for wholesale sales of electricity in interstate commerce and transmission of electricity in interstate commerce" (BOYD; CARLSON, 2016, p. 823).

Regardless, the regulation of the US federal government was limited, especially due to the presence of investor owned utilities (IOUs) that owned generation, transmission, and distribution and provided a bundled service to retail customers, and because this new regulation reserved to the state jurisdiction the planning and siting of generation infrastructure and ratemaking for retail sales of electricity a use of local distribution.

Therefore, the main role of PUCs, in the most of twentieth century, as related by Boyd and Carlson:

> "[…] was to establish rates for the services provided by IOUs". Under the typical approach, which remains dominant in traditional states, IOUs received long-term monopoly franchises in return for a commitment to provide reliable electricity to all customers within a defined service area at rates, terms, and conditions set by the commission. Retail rates were established through trial-type "rate case" procedures based on cost of service" (BOYD; CARLSON, 2016, p. 827).

This basic approach was the core of the traditional cost-of-service model of ratemaking that dominated public utility regulation up until the advent of electricity restructuring in the mid-1990s.

However, the traditional "cost of service" model fell into decline with the 1970 oil crisis, which resulted in an increase in the price of oil for public utilities and, consequently, an increase in the price of electricity and a reduction in demand. The 1970s-crisis paved the way for a growing movement for deregulation in the 1980s in the power sector, as well as pressure from critics of energy regulation to open up to the competitive market, both retail and wholesale. In this sense, as the author explains, the jurisdiction of the states was finally preserved to determine if and how

the regulated wholesale competition would occur:

> Congress signaled its general policy preference for competition in a comprehensive package of energy legislation in 1992, amending existing law to relax barriers to entry for independent generators and to enhance FERC's authority to mandate transmission access. In doing so, however, it left largely intact the basic jurisdictional split at the heart of the FPA. By failing to enact a broad statutory overhaul to deregulate the industry and by preserving state jurisdiction, Congress thus left FERC to utilize its existing authority under the FPA to create new markets for wholesale power. States retained their ability to choose whether and how they would participate in these markets. (BOYD; CARLSON, 2016, p. 831).

In this context, the FERC moved to open the wholesale of Energy to the competitive Market in 1996, by encouraging public utilities to make the separation between generation and transmission, in order to promote greater competition and, consequently, price reduction of energy. As part of these measures, FERC sought to induce the creation of Independent System Operators (ISOs) and Regional Transmission Organizations (RTOs) (see Figure 2) to administer nondiscriminatory open-access transmission tariffs for member utilities and to oversee these emerging wholesale power markets (BOYD, CARLSON, 2016, p. 831 *et seq.).*

As the FERC sought to open the wholesale energy Market to free trade, several US states sought to restructure the retail energy market to be offered through free trade, from different suppliers, to offer different prices and service options to the final costumer. However, this model of retail competition, for the energy market, showed its incongruities during the electricity crisis in California:

> But in the wake of the California electricity crisis of 2000–2001, with supply shortages, capped retail rates, blackouts, and the bankruptcy of Pacific Gas & Electric, many states retreated from retail competition. Today, only sixteen states, including Texas and most of the northeastern and mid-Atlantic states, have competitive retail electricity markets. And even in these states, most residential consumers simply default into the incumbent utility and most continue to pay flat rates.
>
> Thus, whereas the overall goal of electricity restructuring was fully competitive wholesale markets across the entire country with retail

> competition in all fifty states, the result was a messy, uneven process that never fully replaced the traditional cost-of-service model. (BOYD; CARLSON, 2016, p. 833).

In this context, the U.S. Congress never made efforts to seek a unification of the competition model in energy. Rather, Congress decided to leave the FPA's jurisdictional model intact, allowing states to decide on their adherence to the new restructured model. So, in the United States the energy market was divided as follows:

- *Traditional Model*: this is the model under a traditional cost-of-service model across all or some of their territories. The energy utilities in these states are vertically integrated that bundle together generation, transmission, and distribution. Tariffs are more stable and established through a cost analysis and have a greater regulation and authority of the PUCs in the definition and design of tariffs for various objectives (BOYD, CARLSON, 2016, p. 836).
- *Restructured Model:* this model was structured in the 1990s to combine the competitive market in the wholesale and retail energy markets. As Boyd and Carlson (2016, p. 837) affirms "states operating under this model are in regions covered by RTO s or ISO s that administer markets for wholesale power and coordinate and manage the bulk transmission system across large interstate areas." In these models, there is still the regulatory presence of the PUCs, in establishing tariffs, certification of energy distributors and in establishing other rules for the proper functioning of the sector. In this model, states, Retail Electricity Providers (REPs) buy electricity in the wholesale markets, either through auction or through longer-term Power Purchase Agreements with electricity generators. REPs then compete for retail customers along with number of dimensions, most importantly price (BOYD; CARLSON, 2016, p. 837).
- *Hybrid Model:* combines the Competitive Market in Wholesale Energy, and the traditional IOU franchises model to the end consumer level. "The major difference between traditional states and hybrid states is that regulated utilities in hybrid states have the option to purchase power through wholesale markets administered by the RTOs or ISOs, do not have any operational control over their transmission systems, and do not control how Power is dispatched over that system." (BOYD, CARLSON, 2016, p.838).

The restructuring of the energy market in the US began with the assumption that the opening to the competitive market, both wholesale level, or retail, would result in reasonable rates and in reducing it, as well as the market would replace the regulatory task in definition of tariffs. But, according to Boyd and Carlson (2016, p. 840), this assumption proved to be wrong, for two reasons:

> First, as we have described, the actual course of electricity restructuring in the United States has been uneven, leaving large segments of the country without any competitive markets at either wholesale or retail levels. Second, even in those parts of the country that have made the transition to robust wholesale and retail competition, PUCs continue to grapple with important ratemaking issues involving the distribution system, incentives for distributed energy resources, time-variant rates, and the rates that customers who refuse to choose a retail electricity provider will pay to the distribution utility that offers default services.

Thus, it can be concluded that, in the US, the liberalization of the energy market for energy distributors (retail), both in relation to the constant regulatory presence of PUCs in the restructured markets, in the definition of obligations and tariff values, and in view of the coexistence of different energy models scattered in the country, which mix: (i) a vertically structured market (generation to distribution), based on the cost of service; (ii) other markets with competitiveness in the wholesale purchase of energy, but monopoly in their distribution; and (iii) market with competitiveness in production, as in the distribution of energy, but with a limitation in the establishment of tariffs, in view of the maintenance of the regulatory presence of PUCs in the sector.

3.2. Overview in the European Union

The European Union (EU), as it is known, originated from the European Coal and Steel Community and the European Economic Community, formed by seven countries in 1957. In its origins, the European Union emerged and developed through a new corporativism after the Second World War, on a continent heavily affected by lives and property damages. The Maastricht Treaty established the European Union under the current name in 1993.

Without intending to present all the paths to the formation and the characteristics of this

common European market, currently composed of 28 countries[5], this paper aims to identify characteristics and regulatory changes in the EU energy market, whose main source of regulation comes from the founding Treaties that establish the European Union: the Treaty on the EU and the Treaty on the Functioning of the EU (TFEU), the EURATOM Treaty, and the Charter of Fundamental Rights (VEDDER *et al.*, 2016, p. 188).

Although the institutional contours of the EU have originated before, the concept of an internal energy market in the EU is relatively recent. According to Vedder *et al* (2016, p. 253):

> […] the concept of an internal energy market was launched in 1988 when the European Commission presented the IEM [internal energy market] working document, which identified the need for change in the organization of the European energy sector, including the downstream electricity and gas markets.

Traditionally, the state's presence in the energy sector in most of the countries that composes the EU is very similar to what happened in Brazil. By being considered a "public service", public and private companies are subject to a greater state regulation for the supply of energy in network-bound systems, often under a monopoly regime (VEDDER *et al.*, 2016, p. 253). Therefore, the intention to establish an internal energy market in the EU, it was recognized the importance of creating common rules for the members of the bloc, to remove the vicissitudes of a vertically integrated system, for more cross-border interconnections, harmonization of tariffs, and the need for third party access to the networks. (VEDDER *et al.*, 2016, p. 253).

The process of creating an internal market and of liberalizing energy market sectors in the EU, has been achieved by a series of legislative and regulatory measures, which can be divided into three phases:

First phase: 1996 and 1998 Directives.

This phase was characterized by a legislative package, including Directive 96/92/EC and the Directive 98/30/EC. The first is the introduction of Directives governing the Internal Electricity Market. The second one is related to the Internal Gas Market Directive.

Both directives are similar in the objectives. Thus, the Directives envisaged a gradual

[5] Germany, Austria, Belgium, Bulgaria, Cyprus, Croatia, Denmark, Slovakia, Slovenia, Spain, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, United Kingdom (popular referendum approved EU exit on 06/23/2016).

and minimum level market opening, involving at least the large and medium sized customers. In this case, "due to the diversity of structures and the special characteristics of system in Member States, the Directives provided for different options for system access, ie regulates and negotiated third party access and a single buyer system which only applied for the electricity sector" (VEDDER *et al*, 2016, p. 256).

These Directives sought to establish rules on the generation, transmission and distribution of electricity and, although flexible a lot, it was intended to establish minimum requirements for Member States, in particular non-discriminatory procedures and tariffs.

It is important to note that, in the preamble of the Directive 96/92/CEE, the premise adopted was that "the completion of a competitive electricity market is an important step towards completion of the internal energy market"[6]. Thus, this preamble affirms that "establishment of the internal market in electricity is particularly important in order to increase efficiency in the production, transmission and distribution of this product, while reinforcing security of supply and the competitiveness of the European economy and respective environmental protection". It is important to highlight that this directive has also sought to establish definitions, such as auto producer, independent producer, wholesale customers and final customer, to enable uniform application between Member States.

In this context, Directive 96/92/CE determined the prohibition of monopoly of production activity. To that end, in its Article 4º, it established that "for the construction of new generating capacity, Member States may choose between an authorization procedure and/or a tendering procedure. Authorization and tendering must be conducted in accordance with objective, transparent and non-discriminatory criteria". This normative forecast, however, was not sufficient so that new producers had equal access to the networks and equal chances of competition for customers (KRÜGER, 2014, p. 71).

It is also important to note that Article 7, item 6[7], predicts an unbundling in the administration of transportation and distribution networks of other production activities. However, despite the intention to liberate free competition, what happened was a generalized abstraction of the rules provided for in those directives. Therefore, in view of the principle of subsidiarity, member states should establish regulations to enable the implementation of their

[6] CONSELHO EUROPEU. PARLAMENTO EUROPEU. Diretiva 96/92/CE que estabelece regras comuns para o mercado interno de eletricidade. Available in: http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:31996L0092&from=PT. Access in 12/04/2017

[7] "Article 7 […] 6. Unless the transmission system is already independent from generation and distribution activities, the system operator shall be independent at least in management terms from other activities not relating to the transmission system."

guidelines. Therefore, what happened was the difference in the opening in the energy market between the member countries, and consequently distortions in the competition. (VEDDER *et al,* 2016, p. 256).

Central countries in the EU, such as Germany, France and Italy, were reluctant to open their market, dominated by influential companies in the region. France, the birthplace of the "public service" concept, owned *Électrecité de France* (EDF), the world's largest producer of electric power, responsible for producing 22% of EU energy. Until 2004, when it was transformed into S.A., France still owned more than 80% of its voting capital (KRÜGER, 2014, p. 70). Germany, in turn, has one of the largest energy companies, formed by the merger, in 2000, of VIAG and RWE (KRÜGER, 2014, p. 70). Italy, whose ENEL company had a monopoly in the energy market in the country. (KRÜGER, 2014, p.71).

Second phase: The 2003 Directives

The low effectiveness of the 1996 and 1998 package of measures regarding the liberalization of the energy market to competition has led to the enactment of legislative packages, comprising the Regulation 1228/2003, on the conditions for access to the network for cross-border exchanges in electricity, and the Directive 2003/54 /CE, which established common rules for the internal electricity market, repealing Directive 96/92/CE.

What has happened since then is an EU path opening the free choice of energy suppliers to the totality of consumers in the bloc, to the free market operations [unlike in Brazil, by the brand-new model, which, as will be seen below, centralized sales and restricted free consumers, contrary to the European trend]. It was intended to ensure a greater freedom of choice for consumers by trying to guarantee that eligible customers could effectively switch suppliers and that any eligible customers could be supplied by a producer's or supplier's direct line, as defined in Article 22[8] of the Directive 2003/54/CE.

[8] "Article 22 –
Direct lines
1. Member States shall take the measures necessary to enable:
(a) all electricity producers and electricity supply undertakings established within their territory to supply their own premises, subsidiaries and eligible customers through a direct line;
(b) any eligible customer within their territory to be supplied through a direct line by a producer and supply undertakings.
2. Member States shall lay down the criteria for the grant of authorisations for the construction of direct lines in their territory. These criteria must be objective and non discriminatory.
3. The possibility of supplying electricity through a direct line as referred to in paragraph 1 shall not affect the possibility of contracting electricity in accordance with Article 20.

This package of measures was not only concerned with increasing competition, but with consumer protection and sustainability in the supply, in particular, for the differentiation of energy from renewable sources, as well as for the energy efficiency mechanisms.

Directive 2003/54/CCE, it should be noted, also required the separation of transmission and distribution system operators from other activities in the energy sector, in the case of vertically integrated companies, according to Article 10, which was elaborated with the aim of making monopoly companies operate independently.

This package also aimed to recognize the need for an effective regulation by an autonomous regulatory entity, as set out in Article 23. In this case, regulatory authorities would be responsible for regulating the conditions for access to networks and setting tariffs. Previous experience has shown that free competition alone would not serve the best fare conditions, since conflicting interests made commercial negotiation between the network operator and the users almost impossible (KRÜGER, 2014, p.95).

As well summarized by Vedder et al (2016, p. 256 *et seq.),* the 2003 Directives contain both quantitative and qualitative elements:

> In respect of the *quantitative* elements, they foresee a progressively achieved but ultimately complete freedom for all electricity and gas consumers to choose their supplier. This ensures that all EU companies and consumers receive the full benefits of competition in terms of lower bills and increased efficiency. As regards the *qualitative* elements, the 2003 Directives required Member States to introduce a regime of regulated third party access, the legal unbundling of the transmission and distribution function where vertically integrated undertakings exist, and a minimum set of consumer protection rights. With the entry into force of these directives, transit of electricity and gas is no longer considered as separate activity but merely as any other transmission system. In addition, Members States had to establish independent regulators with an active ex ante function and a minimum set of competences as required under the Directives.

Based on the recognition that free market rules would not properly lead to gains in energy efficiency, sustainability and modesty of tariffs, this new package of measures increased public service rules for this activity (services of general economic interest), impinging on free-market

4. Member States may make authorisation to construct a direct line subject either to the refusal of system access on the basis, as appropriate, of Article 20 or to the opening of a dispute settlement procedure under Article 23.
5. Member States may refuse to authorise a direct line if the granting of such an authorisation would obstruct the provisions of Article 3. Duly substantiated reasons must be given for such refusal."

economic rules with non-economic rules. (KRÜGER, 2014, p.98). According to this author, two merits of this second directive were the introduction of the regime of access to third parties through pre-determined tariffs and the legal separation scheme between vertically integrated companies. (KRÜGER, 2014, p. 98).

The 2003 Directives were an important step forward in creating a fully integrated energy market. However, as appointed by Vedder *et al* (2016, p.257 *et seq.),* "it soon became apparent that more was needed to ensure that all costumers (commercial and household consumers) received the full benefit of market opening". Several shortcomings were highlighted, such as: lack of integration between national markets, insufficient cross-borders competitions, delay of the implementation of the directives by most of Member States, high degree of market concentration, lack of liquidity on wholesale markets, discriminatory use of networks and other energy infrastructure thus preventing from entering the market, a lack of market integration, etc (VEDDER *et al.,* 2016, p. 257 *et seq.).*

Third phase: The 2009 Directives

This stage was represented by the Third Energy Package, represented by Directive 2009/72/EC, which replaced Directive 2003/54/EC, Regulation (EC) nº 714/2009 repealing Regulation 1228/2003 on condition for access to the network for cross-border exchanges in electricity, and these Third Energy Package is the current regulatory framework for electricity and gas sector in EU.

As pointed out by Vedder et al (2016, p.258), the aim of the Third Energy Package is to achieve further liberalization of the national energy markets and greater market integration in both the European and regional levels. The 2009 Directives require a further unbundling of TSOs from production and supply and trading interests, while the Regulations facilitate more cooperation among the TSOs through the establishment of the European Networks of Transmission System Operators (VEDDER et al, 2016, p.258).

This new package of measures is, therefore, intended to establish concrete provisions to ensure fair conditions in the energy market, reducing risks of market domination and ensuring non-discriminatory transmission and distribution tariffs, and to protect the most vulnerable consumers (KRÜGER, 2014, p. 106).

The current energy regulation in the EU, despite having increased the competitiveness in several aspects, has not been able to undermine some of the remaining counterpoints in energy

liberalization, especially in retail. According to Krüger (2014, p. 127), of all member states, Germany stands out in the implementation of the 2009 directives. Several other Member States have open procedures, instituted by the European Commission, against themselves, because of failures in implementing the 2009 directives, among them: Bulgaria, Estonia, Cyprus, Lithuania, Luxembourg, Poland, Romania, Slovenia, Slovakia, Ireland, Finland, Sweden and the United Kingdom, remaining as the main difficulty the separation of the ownership of transmission systems operator (KRÜGER, 2014, p. 127).

In addition, there are still large price differences in energy tariffs in the European internal market for both domestic and commercial consumers, due to different tax burdens, as well as in the cost of energy production and import, as in the case of Malta, Cyprus and Ireland, considered as "islands of energy", for failing to receive imports (KRÜGER, 2014, p. 127). As the Commission Staff Working Document has already stated, consumer price convergence is still the target to be pursued on the block (KRÜGER, 2014, p. 128).

Even though the benefits of liberalization have been lower than it was first anticipated, given the differences in prices, costs and degree of state interference in the sector, for the European Commission, the liberalization of the sector, especially to the final consumer, remains as the best strategy for strengthening and integrating the internal energy market in Europe (KRÜGER, 2014, p. 128).

3.3. Overview of the evolution of liberalization and energy market regulation in Brazil

In Brazil, until the energy reforms occurred in the 1990s, the State was very present in the execution of energy sector activities. Since the first half of the twentieth century, Brazil has recognized its hydraulic potential for the production of electric energy, adopting this type of main resource for electric generation.

It had to be this way. The technical potential of hydroelectric power in Brazil is among the 5 largest in the world: the country has 12% of the surface fresh water of the planet and adequate conditions for exploration of the hydroelectric generation. Hydroelectric potential is estimated at about 260 GW, of which 40.5% is located in the Amazon basin. However, only 63% of the potential was inventoried. The north of Brasil, in particular, has great potential yet to be explored. Some of the hydroelectric plants, located in Amazon basin, under public delegation, will participate in the list of the ten largest in Brazil: Belo Monte (which will have installed capacity of 11,233 megawatts), São Luiz do Tapajós (8,381 MW), Jirau (3,750 MW) Antônio (3,150MW). Among the largest hydroelectric plants generation in operation are Itaipu (14.000 MW, or 16.4%

of the energy consumed in Brazil), Tucuruí (8,730 MW), Ilha Solteira (3,444 MW), Xingó (3,162 MW) and Paulo Afonso IV (2,462 MW).[9]

Therefore, in view of this natural characteristic advantageous to Brazil, in 1934, the Brazilian central government published the Water Code (Decree no. 24.643/1934). In this legal instrument, a specific regulation was created to regulate the use of the hydroelectric potential in the country, which should be implemented by public procurement for delegation and authorization the produce, transmission and distribution of electricity. That is, the energy production by a private company depended on the consent of the central government, which delimited the limits of its performance. The importance of hydroelectric potential in Brazil is so prominent that it has always been considered a public good.

The strategic importance of the sector and the lack of private investment in energy generation and transmission activities led the state to make large public investments in the 1960s and 1970s, especially in the generating activity. For example, it is worth mentioning the creation of Eletrobrás and the nationalization of Ligth Company in 1978. Also worthy of note is the construction of the Itaipu hydroelectric power plant between 1975 and 1982, which until today is a leader in the production of hydraulic energy in the world.[10]

With the decentralizing and neoliberal tendency assumed by the Brazilian state in the 1990s, important reforms in energy regulation were made. In the 1970s, due to global economic crises and fiscal crises, the monopoly model of the electricity sector revealed problems that needed repair.

Through Law no. 8.631/1993, the bases for competitiveness in the energy sector in Brazil were created. This law established a flexibilization of ratemaking, which would be proposed by the provider of the activity, for subsequent approval of the State (Article 1). The non-manifestation of the State on the rate proposal in 15 days would imply its tacit approval (Article 1, §1º). In addition, this law of 1993 allowed providers to contract with consumers, based on differentiated tariffs, considering the cost of their service or the existence of excess energy (Article 14).

In 1995, with the creation of Law No. 8.987/1995, the federal Brazilian government created the normative bases to provide greater security for the delegation of public utilities and

[9] Information obtained on the official website of the Brazilian Federal Government. Available in: http://www.brasil.gov.br/infraestrutura/2011/12/potencial-hidreletrico-brasileiro-esta-entre-os-cinco-maiores-do-mundo. Access in: 13.04.2017.

[10] With the construction of the Three Gorges Plant in China, it was speculated that Itaipu would lose its position as the world's largest producer of hydroelectric power. But the production of 2016 asserted the leadership of the Brazilian hydroelectric power plant.

others public services [in which the energy market is inserted], determining that the concessions [including the provision of services of electricity] are compulsorily preceded by a competitive procedure. In addition, this law consolidated consumer rights, defining what would be "appropriate service" (Article 6) and the minimum guarantees to be provided to consumers by the public service provider (Article 7).

In the same year, Law no. 9,074/1995 was created, which represented a legal framework for the attempt to liberalize the energy sector in Brazil. This law inaugurated a new model of electric energy production, with the flexibility of legal concepts previously assumed as premises, as well as of state prerogatives in the accomplishment in the material execution of this activity, in order to try to attract private capital investment for expansion of the system and the attendance of the hole energy market as a means of avoiding energy rationing and blackouts. (CALDAS, 2001, p. 169 *et seq.*).

In order to achieve this, this Law create the "Independent Power Producer", allowed the production of energy by authorization for all independent power producer, which could market the freely produced energy in the wholesale market. This law, as well as Law no. 9.648/1998, attempted to de-characterize energy production as a "public service" [as State ownership], by not previously defining the tariffs to be applied (CALDAS, 2001, p. 171). In addition, Law no. 9.074/1995 allowed the use of hydroelectric potentials equal to or less than 3,000 kW (3,000 kilowatts) and the installation of thermoelectric power plants of 5,000 kilowatts or less by simple communication to the energy authority without the need for an previous authorizing act.

Thus, the existence of the independent energy producer (Article 11) could provide energy to certain types of users through free market mechanisms. According to article 12, the sale of electric power by independent producer could be made at wholesale: (i) for other electric utility service providers; (ii) for new electricity consumers with a electricity load of more than 3,000KW; (iii) or to consumers of industrial or commercial complexes in certain conditions; (iv) a set of consumers of electricity, independent of voltage and load, under pre-established conditions with the supplier; or (v) any consumer who demonstrates that the local power provider, operating under a monopoly regime, cannot deliver a large and specific demand within 180 days.

In addition, this law allowed companies to autonomously produce energy at their own risk and sell it wholesale to other transmission and distribution providers, in monopoly markets. Direct sales to final consumers were also permitted by direct distribution, or by using the transmission structure of other electricity suppliers. However, there was no liberalization for common final consumers (retail level).

Additionally, in 1998, Law no 9.648/1998 permitted the free negotiation of energy between the delegated providers, observing the regulation of the National Electric Energy Agency (ANEEL), creating the basis for the privatization of several state-owned companies operating in the sector.

However, this movement towards the liberalization of the energy market, which occurred in the 1990s, was stopped with the electricity reform carried out in 2004, under the presidency of Luís Inácio Lula da Silva. This reform created a series of measures aimed at reducing competitiveness between the electricity providers, especially through the creation of the "regulated contracting system", laying the foundations for what they called the “The Newest Model”.

Lohbauer and Santos (2012) asserts that the energy reform, here known as “The Newest Model”, was based on the following pillars: 1) competition in generation; 2) central planning and security of the electricity supply; 3) the coexistence of two energy contracting environments, one free and other regulated; 4) disengagement from the distribution service of any other activity; 5) the low tariff.

According to the “explanation of the reasons” “EM Nº 00095/MME” of December 11, 2013, The Newest Model conceived two energy contracting environments, to be operated by the “Electric Energy Trading Chamber” (“CCEE”), successor of the “Wholesale Electricity Market”:

> “Regulated Contracting Environment - ACR: includes the contracting of electric energy by distributors to serve regulated consumers (captive consumption of distributors) through regulated contracts with the objective of ensuring a low tariff and
>
> Free Contracting Environment - ACL: includes the contracting of energy to serve free consumers through freely negotiated contracts. Existing bilateral contracts involving distributors will remain within the scope of the ACL until their expiration.”

According to the legislator's intentions, as set out in this explanation of the reasons, one of the main reasons for the creation of a regulated procurement environment would be to value the "principle of tariff modality", which would be met through "structuring planning and greater transparency in rules of the performance of distribution concessionaires, including the obligation to do bidding procedure for lowest tariff criterion in all regulated energy contracting, in order to serve captive consumers". On the other hand, according to this explanation of the reasons,

> In the environment of free contracting, the access of large consumers and autoproducers to hydroelectric sources, admittedly of lower cost, contributing to the greater competitiveness of the national industry and, consequently, to the economic and social development of the Country is allowed. In addition, the coexistence of the two hiring environments constitutes a permanent reference of prices for regulated consumers.

The regulated contracting system [whick characterizes The Newest Model] no longer believes that free competition in the purchase of energy supply contracts by distribution providers would be sufficient to create the necessary incentives to invest in the expansion of the sector and to guarantee low rates (KRÜGER, 2014, p. 28 *et seq*.). Through Law no. 10.488/2004, the rules for the purchase of electricity for distribution providers were completely changed: these companies can no longer choose who to buy the commodity (KRÜGER, 2014, p. 28). According to article 1, paragraph 2, of this law, any purchase of electricity by distribution providers submit to the regulated contracting system. Thus, the distribution service companies are obliged to buy through public bidding process, in the regulated contracting system, moving away from the free market mechanisms at the wholesale level (KRÜGER, 2014, p. 28).

However, independent power producers and preexisting energy producers were not obliged to offer energy in the regulated contracting system, in which case it was allowed to operate in the free contracting system. But, the new distribution providers may be obliged to offer a minimum percentage of electricity [to be defined by the State] in the regulated market.

Thus, in the free contracting system, remained the existence of "free consumers" of Law 9.074/1995, considered those that purchase an amount higher than 3,000 kW and serviced at a voltage equal to or higher than 69 kV, which may opt for the purchase of electric energy from any electricity supplier belonging to the same interconnected system (Article 15, §2º). Law no. 9074/1995, Article 3, also established the possibility of free sale of surplus energy generated.

However, from Law no. 12.783/2013, the renewal of operating contracts and authorization of electric generation, with costs already amortized, only may be carried out if all the energy produced is fully supplied to the electricity distribution providers (Article 1)

Competitiveness in the generation and wholesale of electricity was performed in Law 9.074/1995 with the figure of the "independent energy producer", which were the legal entities that received the authorization of the State to produce electric energy, and set it free trade, at his own risk (Article 11). This competitiveness in the wholesale market remained intact in ‘The

Newest Model' of 2004, considering that generators sold their energy in highly competitive auctions (LOHBAUER; SANTOS, 2012).

However, according to Lohbauer and Santos (2012), Law No. 12.783/2013 will reduce competition in wholesale generation to 20% of the national generator market. With this reform of energy regulation beyond 2013, there was a reduction in the supply to the free contracting system due to the new legal obligation to suppliers, with a renewed contract, sells electricity to the regulated contracting system. This will make it unfeasible to develop the free contracting environment due to the forced reduction of energy supply, which cannot be compensated by the increase in price, especially since the regulated supply environment with a higher supply will have cheaper prices (LOHBAUER; SANTOS, 2012)

In this context, it is possible to affirm that there are negative factors that inhibit the establishment of free competition in the energy market in Brazil, especially in retail level. The essentially hydric base is pointed as one of the factors that undermine the competitiveness in the energy sector in Brazil. In order to have an idea, Loureiro (2007, p.17) estimated that the "hydraulic potential in Brazil has a capacity of about 260 GW of energy, of which only 66 GW was actually used, that is, something around 25% ". In addition, 105GW of this potential is found in the Amazon, whose use and operation of these hydroelectric potential in 2007 was around 0.5% (LOUREIRO, 2007, p. 17). In this case, it is pointed out that the long distance between the large urban centers is responsible for the unfeasibility of this energy use, because the high transmission costs involved (LOUREIRO, 2007, p. 17).

In addition, we must also point out the difference in the economic-financial structure for the installation of hydroelectric plants compared to thermoelectric plants. In this sense, Loureiro (2007, p. 164) appointed:

> Another aspect that greatly differentiates the two plants is the one related to the construction times: while the thermoelectric plants normally require a shorter period for starting up (2 to 3 years from conception), those hydroelectric plants consume long periods from the phase of studies and inventory of the hydraulic potential, through the construction projects and environmental studies, construction, water tank formation, until the effective entry into commercial operation. Because of this, it is not uncommon to have hydroelectric projects completed over a period of more than 6 years. [*our translation*]

Regarding the invested capital, although the electric industry as a whole is a big

investment, the economic-financial volumes required by undertakings built and operate the hydraulic potential are usually higher than those moved by thermoelectric ventures of the same capacity. In absolute terms, hydroelectric plants are the enterprises that most require capital mobilization throughout the hole electric industry (LOUREIRO, 2007, p. 22).

More recently, the advance of the technology of photovoltaic systems has been recognized by the National Electric Energy Agency ("ANEEL"), which sought to create several regulatory conditions for consumers to enjoy these systems, in order to generate greater investment and try to increase the installation of such equipment, which can be a solution to the shortage of clean energy production in a not too distant future.

The ANEEL Resolution no. 482/2012 - amended by ANEEL Resolution No. 687/2015 - in addition to providing for the electric energy compensation system, regulated the figures of the "enterprise with multiple consumer units", "generation shared "and" remote self-consumption ". Through the procedures defined in this regulatory decree, it gave more legal certainty to individuals invest in the production of photovoltaic energy, that will be connected to the public network managed by the distribution provider operating in monopoly. On the other hand, an energy credit will be granted to be used within 60 (sixty) months. And, for the adhesion to the systems of compensation and shared generation (under the terms of article 4, of that Resolution), it will not be necessary to sign contracts for use and connection as the generating plant. It is sufficient to conclude an "operating agreement", which will be effected by simple request of the interested party. Through this ANEEL regulation, what is more important, it was possible to supply this energy to other energy consumers within the same area managed by the distribution provider, through energy-sharing contracts.

Although this "structuring" is carried out at a more restricted level, the pretension of massification of the use of this type of energy generation will substantially alter the entire Brazilian energetic macro policy.

Thus, despite the difficulties in establishing a competitive market at the wholesale and retail levels in Brazil, regulatory authorities recognize the importance of massification in energy production and the creation of mechanisms for the breakdown of monopolies for the sale of electric energy in Brazil.

4. CONCLUSION

After exposing the regulatory trajectory of energy in US, EU and Brazil, it is possible to

verify that there are local, institutional, ideological and environmental factors that influences the structuring of free energy market, especially at the retail level.

The EU is a global example of establishing a large competitive market in the production and distribution of energy, both wholesale and retail level. In the US, wholesale and retail competitiveness only occurs partially, with several states maintaining the traditional cost and service of the production and distribution of energy in monopolized markets. In Brazil, the free market of energy sector only occur at the wholesale level, with the creation of independent energy producers. Free competition at the retail level has not been established in Brazil, since direct marketing by independent energy producers only occurs for "large consumers", and through higher loads and different voltages.

Even though UE has presented a model in opening up the energy market to free competition at the wholesale and retail level, it is possible to point out negative aspects. As seen, many member states have investigative procedures and penalties for non-application of the 2009 Directives, excepting countries that stand out for the full application of their precepts. The biggest difficulty was the mandatory separation of ownership from the transmission network operator (KRÜGER, 2014, p.127). In addition, the convergence of prices in the final purchase of electric energy is still a challenge to be faced in the EU, not only because tax differences, but especially for differentiated production and import costs.

In the US, increased competitiveness at the wholesale and retail level encounters difficulties, primarily because its partial implementation. In other words, the political-administrative structure in the US allowed several states to remain in the traditional monopolized form of energy services, which prevents the expansion of the competitive market. Even in the states that opted for the restructured model, which introduced competitiveness on electric market in retail level, there are still challenges to the creation and improvement of competitiveness, since regulatory authorities (PUCs) remain strongly present in the definition of criteria for the fixation of tariffs, especially for the alternative supplier which have fixed tariffs.

Consequently, the EU and US experiences in free competition at retail level did not necessarily imply in a significant reduction in energy prices.

In Brazil, the project to liberalize the energy market to free competition found obstacles related with ideological and structuring factors. The neoliberal government of ex-President Fernando Henrique Cardoso sought to create the bases for the liberalization of the energy market by allowing the free purchase of energy between electricity providers and the creation of the figure of the independent energy producer, who could produce and supply energy for distributors or

especial final consumers. However, the energy reform of 2004 was an obstacle to market opening, especially with the creation of a regulated trading system, which prevented the free purchase of energy between generation and distribution providers.

The restriction on competitiveness was further evidenced by the 2009 legislative changes, which restricted the trade of independent energy producers by determining that energy concessions extensions, with costs already amortized, could be made as long all the energy produced was allocated to certain energy distribution providers.

It is possible to affirm that the energy reforms of 2004 and 2009 were motivated by ideological criteria, which assume that the production and distribution of energy is a property of the State, which must dominate aspects of planning and suplly structuring.

Natural aspects have also highlighted the difficulty of free energy competition market in Brazil. The predominantly hydroelectric model and the long distances between production and the consumer centers evidenced the need for big investments in energy production and transmission. The costs associated with the construction and operation of a hydroelectric plant, which is much higher than a thermoelectric one, made the need for government presence in the conduction of this activity.

It can be concluded that there is no clear recipe for the establishment of a competitive market in the energy field. Each nation has its economic, institutional and natural particularities to be considered, as we can visualize in this paper.

Moreover, despite of the local differences, it is not possible to affirm that the introduction of free competition in the wholesale or retail energy market could imply in prices reduction to final consumers. The costs related with import and production are very important in price measurement, as well as the standards established by the regulatory authorities.

Regardless of the competitive model to be followed, the comparative analysis of the EU, US and Brazilian experiences shows that liberalization of the energy market cannot be dissociated from the state presence.

It is intrinsic to government the role of create regulatory, indicative and directives rules for energy generation, transmission and distribution activities, especially in ratemaking. This is the main factor hindering the full and successful establishment of a free market in the field of energy, in the traditional patterns of free trade.

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