


Article

The Regulation of the Spanish Electricity Sector: A Long Way to Convergence

Josean Garrués-Irurzun 

Faculty of Economics and Business, University of Granada, Campus Cartuja s/n, 18071 Granada, Spain; jgarrues@ugr.es

Abstract: The regulation of the electricity sector, in general and in the particular case of Spain, has been brilliantly analysed by economists and contemporary jurists placing the emphasis, preferably, on economic efficiency and social justice. This article, based on the writings of economic historians in recent years, has as its objective to shed light on the logic to regulatory changes in Spain. Exactly as has been done for other countries, the explanation of factors and of the characteristics of this regulatory change, without doubt, will contribute to the understanding of its special nature within the overall international panorama, as well as a better understanding of the contributions of other previous and future works from different perspectives of analysis. The conclusions on the historical construction of the regulation of the electricity industry until the twentieth century allow us to define four big stages, deeply conditioned by their political regimes and the economic circumstances of the country, as well as by the unequal importance of economic agents in the taking of decisions: powerful energy companies, weak governments, and a complete lack of consumer input.

Keywords: regulation; utilities; business history; industrial organization



Citation: Garrués-Irurzun, J. The Regulation of the Spanish Electricity Sector: A Long Way to Convergence. *Energies* **2022**, *15*, 6931. <https://doi.org/10.3390/en15196931>

Academic Editor: Mohsen Banaei

Received: 5 September 2022

Accepted: 19 September 2022

Published: 22 September 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction: Regulation Seen as a Historical Construct

The present article takes as its point of analysis the new institutional economics because it better fits the type of historical economic study that this study aims to achieve, although it also takes into account what the normative theory prescribes. As Menard and Shirley indicated [1], quoting North [2], the new institutional economy did not abandon neoclassical theory but rather completed it, because “neoclassical economics was not created to explain the process of economic change, much less political and social change”. The new institutional economy (henceforth referred to as NIE) abandoned the neoclassical assumptions of perfect knowledge and unlimited rationality, as well as any supposition that sees transactions as free and spontaneous. To the NIE, the performance of an economic market depends on its institutions, both formal and informal, and the models of organization that facilitate transactions and cooperative behaviour. The NIE focusses on studying how these institutions are born, operate, and develop, paying special attention to how the agreements that support production and exchange are decided, in addition to how the agreements and/or conflicts between agents, in times of uncertainty and risk, change the rules of economic play.

If electricity is an international phenomenon of modern society, and the technological and institutional changes of recent years appear to promote an international convergence of structures between the different national electricity sectors, the businesses dedicated to its production and the regulatory systems employed by governments do not always coincide because both are subject to the influence of their particular national traditions, political culture, and experience. As Gilbert and Kahn indicate, “The interactions between government and the electricity industry vary widely from country to country” [3]. In this respect, as North points out [4], although we know very little about the interaction between the quantity and quality of human actions and the system of beliefs—knowledge—of the society and of

the organizations that shape the economy, less still do we know about these actions and institutions through time.

The demand for the regulation of network industries such as the electricity industry, characterized for a long period as natural monopolies, has its justification in the desire of governments and citizens to maintain social control over these activities because they have such particular characteristics. The existence of economies of scale and specific assets (capital-intensive, of long life, and unmovable), especially in electricity distribution, gave the proprietors of the transport network considerable market power. The political and social demands for control over this market power grew because electricity is an essential service or good for the community—both for big customers and for individuals. Moreover, this essential character creates a great dependence for the consumer in relation to the producer, although the electricity companies take on a large economic risk because, as they cannot store electricity, they have to invest at a level way above average demand, taking into account that they have to satisfy every change or fluctuation in demand, be it daily, monthly, or annual.

Given this context, governments, national and/or local, have always sought fair terms in the supply of electricity. As the utilities need licenses to operate and rights of way—concessions, authorizations, or administrative licenses—governments have the opportunity to set technical conditions; safety, stability and quality of service, and economic conditions; and fiscal conditions and tariffs, which best suit their interests in the different contractual relationships that are established with the companies that will carry them out.

However, the need for regulation does not come exclusively from the need to protect consumers from the possible monopolistic rates of the electricity producer/distributors. The companies usually require certain guarantees in their contracts with the administration to safeguard their financial interests, such as the right to exclusivity of supply in their area of operations—a monopoly position—and remunerative prices to cover their costs of installation, operation, and profit for provision of the service during a reasonable length of time. It has to be taken into account that the companies do not take on all of the risk involved in the investment if there is not a minimum guarantee that their assets will not be expropriated in the medium term, either directly or indirectly by way of undercapitalization due to electricity prices that do not cover their costs. However, it is also true that, if the legal and contractual conditions agreed to for the supply of electricity are not set with sufficient attention beforehand, they can change in favour of consumers in the short term through lower prices, or against their interests if the producers, due to not keeping up to date with investment, are threatened by bankruptcy. As Gilbert and Kahn state, “*Durable investments thus require the rule of law, and specifically the law of property, which is a public good provided by the state*” [3].

History from the end of the nineteenth century until the present day provides a wide casuistry on the contractual relationships established between the economic and political agents involved (investors, consumers, and regulators), as well as their associated conflicts. The failure to establish efficient and credible regulation, at its extreme, led to the post-war nationalization of the electricity sector in important European countries, such as France (1946), the United Kingdom (1948), and Italy (1962). In the same way, the failures of regulation from the beginning of the 1980s were the breeding ground after the economic paradigm change to neoliberalism, which explains—through the restructuring and/or privatization of sectors that were either nationalized or under heavy state intervention—the new regulatory changes, which have been termed the “new regulation for the market”.

While there is no ideal regulatory system because there are many solutions that change through time and place, as Gilbert, Kahn, and Newbery demonstrated in *International Comparisons of Electricity Regulation*, it would be interesting to know what has happened in this respect in Spain.

Before embarking on this task and given that—as Ricketts points out—“*Regulation is not, however, a very precise term*” [5], it would be a good idea to specify more closely the use of the term regulation in this article.

Regulation in this work, as appears in the title, is seen as a historical construct [6]. Therefore, the special features of this regulation would depend upon the technological and organizational characteristics of the producers, the conditions of demand, and institutional conditions (historical, political, and legal) of the country or economic region concerned. We can already say that, for example, as far as technological characteristics are concerned, the choice of hydroelectricity by the Spanish electricity sector since its early days has had important consequences for the structure of the sector, as well as on its particular rhythm of development [7]. In addition, it is necessary to take into account a level of demand appropriate to a country that was late in its industrial development [8] and the long-term relevance of domestic uses, which have also conditioned this type of regulation. In the same way, regulation has also been conditioned by the dominant political system, especially if we are talking about dictatorial regimes or weak democracies or regimes under construction [9].

As obvious as it may seem, there is no regulation if there is no entity that can regulate nor any activity that is the object of regulation. For regulation to exist, therefore, an organization is required, at the local, regional, or national level, that stands for the rights of a community and takes decisions in its favour. At the same time, there must exist an activity—in this case, economic, i.e., the production and distribution of electricity—that is susceptible to having its activities controlled or limited by certain principles of justice and social welfare. Both the regulator and the regulated have different organizational forms, which depending on multiple factors, characterize the system of regulation and its efficiency. Evidently, regulation does not start from zero, as path dependence is influenced by previous processes, decision making, and conditions. In the case of the Spanish electricity sector, as in other countries, the intervention by the state followed the pattern of the administrations' actions in other economic activities, such as those related to the postal system, railways, telegraphs and telephones, gas, and the supply of water to the population [10].

The main aspects regulated, as we shall see, are at first centred on aspects related to safety, and once there is an opportunistic attitude of the regulated against the consumers, the state establishes controls both beforehand and after the event (norms, laws, etc.) that refer firstly to safety of supply and after to the related economic activity (almost always on prices, firstly in relation to entry conditions—concessions, authorization—and later to functional aspects—transport, public companies, etc.—financial—incentives, penalties—and coercive—the exchange of assets).

Normally, the administration sets itself up as regulator based on legal title, which has changed through time. It has normally been based on the use of public domain or the opportunistic behaviour of the businesses towards consumers, and later, the continued and regulated intervention is explained by the concept of public service or service of general interest [11].

In principle, the institutional relationships established around an economic activity can be analysed as if they were a game (Figure 1), where the field of play is the activity being carried out—in this case, providing electricity supply—and the regulator is the referee who makes or does not make the decisions (settlements, rules, and laws) to resolve the underlying conflict of interests between the players: producers (shareholders) and consumers, who aim to maximise their business objectives or social welfare. Needless to say, the combinations are multiple.

This work does not aim to measure the level of efficiency of the different models of regulation that have existed in the Spanish electricity sector throughout the twentieth century; they have already been analysed in detail by, among others, Antolin [12] and Garrués [13]. The principal objective is to underline the main lines of the development of regulation in this sector paying attention to their historical and institutional configuration. In particular, this article will pay attention to determining the phases of continuity and rupture of each historical phase in relation to their specific economic characteristics. As has become clear in this introduction, the absence of this type of institutional analysis on the regulation of the electricity sector in Spain in the very long term is one of the

shortcomings of the European scientific literature specializing in these issues. For this reason, the contribution of this article should be understood as relevant and original and, ultimately, is intended to spark new and interesting intellectual debates.

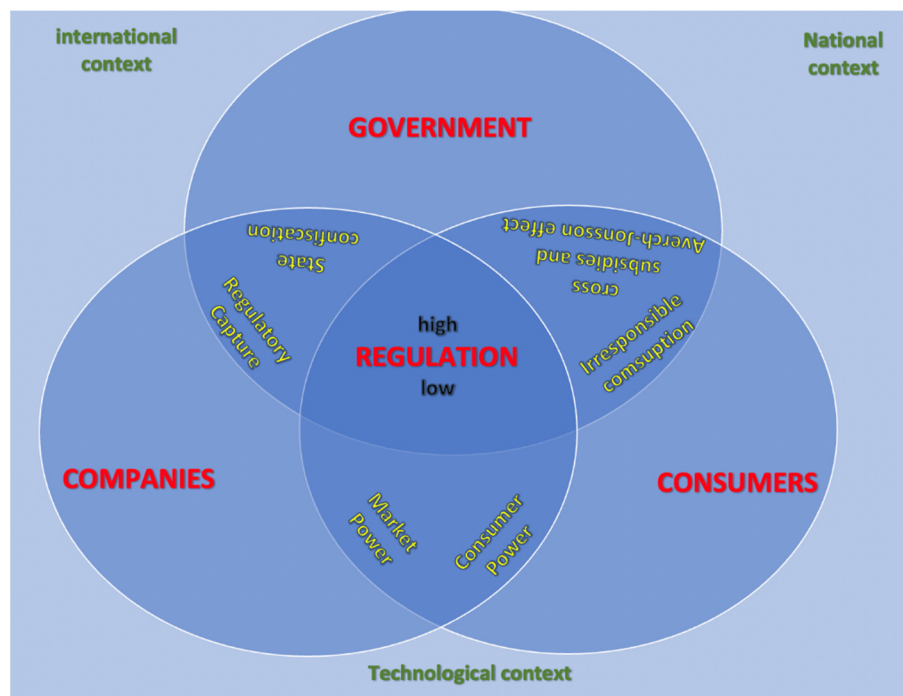


Figure 1. The simplified dynamics of the regulation game and some of its risks. Note: The main players are in red, the contextual factors in green, and some of the regulatory risks in yellow. Source: Elaboration by the author.

This empirical demonstration on the sequence of momentum [14] of the Spanish regulatory process acquires interest and importance, in the final analysis, because it verifies the theory that regulation is a complex economic and social phenomenon, as well as being dynamic, which consequently should be analysed from a wide variety of viewpoints, preferably multidisciplinary, and taking into account routines from the past.

Therefore, the specific questions that this article will set out to answer are: When, how, and why was the regulatory system established in the Spanish electricity sector? and What were the factors that caused the regulatory changes?

Consequently, discounting the introduction, the article is structured in three sections. In Section 2, the interpretation perspective and the methodology used in the article are briefly explained. In Section 3, the four models that have predominated in the Spanish electricity sector from the end of the nineteenth century to the present day are presented from a chronological perspective. Firstly, we will speak about the intervention and technical rules for establishment and safety (1881–1924/39). Afterwards, we will deal with public interventionism (military), privately monitored self-regulation, and tariff rules. Subsequently, we will present the late implemented traditional regulation (1982–1997). Finally, we will address the problems posed by the new regulation for competition (1997–2020). In Section 4, finally, we shall conclude with some reflection on the main ideas presented in this article.

2. The Sources of Information and Methods

The sources of information in this article are indicated in the bibliography. As this article is not quantitative, but rather one of interpretation, the reader cannot replicate it from the works cited therein. The method of analysis is that employed in the studies of Business History case studies, which was started at the University of Harvard at the beginning of

the twentieth century and is still used in its Business School today, because it is the most suitable to provoke debate among researchers interested in the article, and eventually, when there is a critical mass of work on the subject, makes it possible to establish a hypothesis of a more general character. As Moore stated: “*The history of business may not be just about the history of a particular business (. . .) but may encompass the history of regulation, government business relations, (. . .)*” [15]. In fact, the clearest benefit from case studies, as explained by Claus and Marriot, “*is that a case helps bridge the gap between theory and practice*” [16].

3. Results and Discussions: The Three Phases of Regulation in the Spanish Electricity Sector during the Twentieth Century

3.1. The Techniques of Organization of the Electricity Activities That Predominated until the First World War

The production of surveillance and good governance legislation in defence of the public interest at the end of the nineteenth century in Spain, in relation to the electricity sector, was mainly carried out by local corporations. This is not in any way surprising if one remembers that Spain was economically backwards, and as a result, the state apparatus was very weakly equipped with staff or resources and, therefore, was liberal in commercial affairs. Consequently, with this administrative intervention in surveillance and good government, there was no intention to reform the sector design. Until the 1920s, the electricity business was, in fact, characterized as an activity that anyone offering a service could freely enter, both in contracts between the parties involved and prices. The mechanism of this limited administrative intervention was simply authorization (license and franchise) by local authorities, in legal terms that could be defined as having a regulated subjective right and non-discretionary character.

This situation changed considerably when the Spanish state established minimum legislation in favour of electricity consumers in response to the opportunistic approach of many of the electricity companies, which managed to pass on the inflation in costs suffered during the First World War to the customer by threatening them with cutting off their supply. The Administration, aware of the social problem caused by this tension between producers and consumers and also that electricity had gone from being a luxury good to being an essential, undertook the setting up of a public regulatory entity for the electricity business with the aim of harmonizing the economic interests in play. The initial progressive introduction of rules and conditions was set some years later through the legal recognition by the Government that electricity supply was a public service (RD 19-4-1924).

The arbitration of the Administration in the matter of tariffs and the companies’ obligation to supply had a bearing on the fact that electricity supply was then a controlled activity. This was so because the state, along with its previous powers, established legislation on two matters. Firstly, the Administration obliged the distribution companies to not cut off supply to customers who were up-to-date with their bills. Secondly, the Administration delegated to the Civil Governors of each province the fixing and, eventually, the modifying of maximum tariffs for electricity applied by companies for domestic and commercial consumption. The justification for both measures could be found in the anti-inflation policies followed by the Government during the First World War (Subsistence Act [17]), which were maintained in the post-war years, as well as—from the legal perspective and with retroactive application—in the administrative concession regime for setting up granted by the governing authorities to the electricity companies.

Over and above whether the state, with these measures, did or did not assume control of the regulation of electricity supply and whether, as a consequence, the electricity business was no longer a completely free activity, what is certain is that the Administration did not extend its regulatory power beyond those aspects mentioned, and if it did, it did so in a lax manner. In relation to this latter aspect, the system of tariffs that was implemented did not establish a homogeneous methodology of fixing the maximum tariff across the whole country as could occur in other nations with systems of rate of return or price cap, resulting in each company setting different tariffs in accordance with multiple factors [18,19].

The action that really would have permitted the state to exercise more directly a decisive influence over regulation in the Spanish electricity sector would have been the construction and management (publicly or privately) of an electricity network that connected the main centres of production and consumption throughout the country. This project, conceived between the end of the decade of the 1910s and the beginning of the 1920s [20–23], however, never came to fruition.

The reasons for this “failure” to establish a national network, apart from the institutional weakness of the State already mentioned, were related to the changes that had taken place in the structure of the sector. The formation of the first regional monopolies, especially related to the burgeoning production of hydroelectricity after the First World War, and the privileged situation that the large companies had enjoyed up to that time meant that the electricity companies maintained their traditional market power over customers [24]. Once the State assumed new powers of intervention and promotion, and the traditional strategies used by the electricity companies (the establishment of barriers to entry, and collusion with their competitors to maintain the electric status quo) were no longer an effective weapon in the regional sphere, the companies decided to organize at the national level as well. The Association—later, the Chamber—of Producers and Distributors of Electricity (1920/1931– . . .) was constituted and was the main sectorial lobby. We do not know what successes this organization had, but it is known that, as well as defending the private running of any eventual National Network, they fought, among other things, for maximum influence over official decisions and, of course, for increases in the tariffs. It is no surprise that the matter of tariffs was the main agglutinating factor for companies of very differing characteristics. In fact, the freezing of tariffs was a very big disincentive to investment, and as a result, as the economies of scale and network did not increase in the medium term, financial deficits were widespread among electricity companies, especially the medium and small-scale distributors and traders (Traditional Electricity System) [25].

3.2. Public Interventionism (Military), Monitored Private Self-Management, and Tariff Regulation (1939–1981)

The long period, approximately four decades, that stretched from the beginning of the Franco dictatorship to the early years of the transition to democracy was affected by multiple economic variables and policies of differing nature and significance.

During the first period of the Franco regime, new directives—based on the desire for a forced industrialization that would allow the economic independence of the country—gave the public companies of the National Institute of Industry (INI) entry into the electricity business. Although the initial orientation of the electricity companies of the INI was with the exclusive objective of supplying their own industrial establishments, various circumstances led these companies to try to gain access to the electricity distribution market. The desire of public electricity companies to go from mere self-producers to being commercial companies that competed with private companies was seriously resisted by the latter. The introduction of the INI electricity companies was justified by the Administration, in the end, because management by the private companies had failed to avoid serious restrictions of supply prevailing in the urban and industrial markets of the country during the early 1940s—restrictions that, as we know, persisted until the end of the 1950s [26,27].

This public intervention, a heritage of military corporativism [28], was characterized by: (a) lacking transparency; (b) being barely planned, as far as the majority of the decisions depended on the desires of its director, Suanzes [29]; and (c) guided by criteria that were distanced from all economic rationality [30]. Consequently, private electricity companies soon felt threatened by the possibility of nationalization of the sector. In fact, the response of private electricity companies was quick: in August 1944, the trade organization was formed—Electric Unit, PLC (UNESA)—and four months later, its president managed to be appointed by the dictator General Franco to be personally in charge of the coordination and interconnection of the national electricity system at a supra-regional level. In contrast, months later, in November of the same year, the public firm National Electricity Company,

PLC (ENDESA) appeared on the scene to give effect to the electricity aspirations of the INI, and later came ENCASO (1942/49) and ENHER (1946/53).

In short, it can be said that the entry of the public sector into the electricity business, despite the fact that they used the term “electricity plans” in its management, was a sectorial intervention without the least bit of combined planning [31], aimed at a rapid industrialization first and at a rapid elimination of serious electricity restrictions later, seeking the lowest management and social costs to the State.

In parallel to this state intervention, the instrument of which was public electricity companies, the Franco regime institutionalized, through the powers conceded to UNESA, a long period of self-regulation led by private companies. To a great degree, this circumstance was conditioned by the existence of serious energy restrictions and the incapacity—economic, technical and functional—of the Administration to take on the nationalization of the sector or regulation in the strictest sense.

As a consideration for the efforts put in by the electricity companies to reduce restrictions, the Francoist government rewarded them with one of their strongest desires: the setting of a new tariff regime (initially with a dual-rate structure) that would update automatically.

However, the Administration established that the tariffs had to fulfil two important conditions: they should be homogeneous throughout the territory, and they should not have a big effect on the consumers. With the experience of the electricity exchanges between the different electricity regions of the country to ameliorate restrictions, the former condition meant that (given that each company had a different cost structure) the INI companies were forced to ask for state subsidies for their electricity production (mainly of thermal origin), and all of the companies, both private and public, demanded compensation for their investments, which were recognized as incentives.

The second aspect—that the new tariff regime should not have a strong effect on the consumers—must have influenced the Administration’s eventual decision to eliminate the dual-rate structure. Be that as it may, the fact is that, through the decree 12-1-1951, the government approved a system of maximum tariffs based on standard costs (TTUs), which—because it was not supported in the concessional system (hydroelectric power stations) nor in the authorizations (thermal)—actually conceded competence to the state in matters of tariffs, which, although recognized legally since the 1920s, had never been practised effectively.

This new “contractual” situation established for the first time a clear link between the regulator and the regulated. At the same time, as it introduced the first criteria of rationality by promoting more efficient use of the electricity consumed—blocks—and stimulating an indirect reduction in business costs—subsidies—working together, these avoided the costs that globally planning the system would have meant for the State. The regulator, in exchange for requiring the companies to provide sufficient quantity and quality in the electricity supply, guaranteed the companies the necessary economic–financial equilibrium for their electricity business through the tariffs and their corresponding updates. As such, the principle of risk and reward linked to the first concessions was abandoned, and the principle of sufficient coverage, appropriate for a public service, was confirmed, although a good number of years after its first publication in 1924.

A problem occurred, however, when, aware of the growing market power achieved by the electricity sector in previous years—whose main champion in maintaining the status quo in the sector was UNESA—the government took the political decision to contain inflation and the associated social disquiet by freezing the tariffs. Obviously, the power of control held by the electricity companies did not exclusively originate in the possibility of gaining monopolistic income by raising the price of electricity. In this, as on other occasions, their market power had its origins in the process of entrepreneurial concentration favourable to the more financially powerful electricity companies and, above all, in the reduction in costs arising out of economies of scale and network associated with its productive and commercial expansion. It is necessary to remember that, in the 1950s and 1960s, the electricity business benefitted, on one hand, from large hydroelectric and thermal

power stations coming on line due to the building of large dams and new production technology, respectively, and on the other hand, from the extension of the high voltage network and improvements in the coordination of the distribution and commercialization of electricity. These benefits—although they improved the quality of service provided by electricity companies—were not always passed on automatically to the customers in real terms.

All this happened against an international background highly favourable to economic growth, which the progressive change of direction by the Francoist regime hoped to take advantage of for its international recognition and internal legitimacy [32]. In the electricity sector, this change of economic policy was reflected in a less belligerent attitude by the INI electricity companies towards private companies and vice versa. The regime of self-regulation of the electricity sector was also strengthened by the companies themselves, given that the government commissioned no less than UNESA to draw up the first National Electricity Plan and the modification of the TTUs.

This last tariff modification was done with the intention of encountering a new system that, essentially, sought to fulfil three objectives. The first—to eliminate the serious “tariff” deficit (OFILE) accumulated by the electricity companies caused by the generous policy of incentives of the Administration, which included in the tariff—was not always passed on to the companies. The second was to achieve a better control of consumption. The third was to share business costs in a fairer way by better adjusting the final price of electricity to changes in the real costs of production (dual-rate structure).

Despite this, the measures adopted by the Administration to solve the problems mentioned were insufficient to achieve satisfactory economic regulation for the companies. In fact, according to the electricity companies, the combination of various matters related to the financial rewards for the service provided by them at the end of the 1960s and the beginning of the 1970s [33] intensified the regulatory risk that hung over private companies—aspects that the companies considered essential to correct so that they could achieve sufficient reward to pay adequate dividends to their shareholders or to embark on a realistic investment plan.

However, while the problems of regulation referred almost exclusively to the subject of tariffs, the companies enjoyed a system of self-regulation that allowed them important fields of activity until the beginning of the 1980s. At the collective level, the employers’ association (UNESA) maintained the coordination of the electricity network and decision making over planning investments [34]. At the individual level, the companies had total freedom of action in the running of their businesses. However, most importantly, the companies achieved both of these aims without endangering the traditional oligopolistic structure of the sector and the advantages they derived from it [35].

In summary, this regulatory duality of tariffs and self-regulation was maintained to a great extent because, despite multiple productive efficiency costs that were unrectified, it benefitted the regulator as much as the regulated. The regulator—as the bureaucratic institutional and business framework (INI) was strengthened—obtained a type of regulation that, although of limited reach, was very effective in terms of running costs, given that the majority of their actions were exclusively related to negotiation and supervision. On their part, private electricity companies—despite repeated complaints about the financial weakness of tariffs that were irrational and political—felt comfortable with the aforementioned regulatory duality. The deep asymmetries of information, which favoured the electricity companies, also allowed them the advantage of influencing how standard necessary costs were determined for the fixing of tariffs. In addition, and no less important, it allowed them to design the dimensions, structure, and configuration of the regional markets for each company and, as a result, of the whole sector. A completely different matter were the repercussions this type of “dual” regulation could have on consumers from the viewpoint of allocative efficiency, because when it comes down to it, it was they who had to cover a large part of the costs of this singular model of regulation.

3.3. A Late, Convenient, and Questioned “Traditional” Regulation (1982–1996) [36]

In Spain, the establishment of an effective electricity policy to face up to the petrol crisis and the change to democracy after the death of the dictator (Franco, 1975) involved transferring the institutional and market power of the electricity companies to the State. This was no easy task. The regulator possessed a firm resolve to transform the old habits—and the legal resources to do so—but lacked technical experience, an adequate institutional system, and above all, precise enough information to set a perfectly defined regulation agenda. In addition, the economic panorama (depression, suffering the effects of the petrol crisis and its consequences for an economy in process of transformation) and the political and social climate (unsettled, with multiple uncertainties inherent in a new democracy) were not the most ideal for unveiling an electricity policy that was efficient. The room for the early democratic governments to manoeuvre was very limited and was highly conditioned by the task of constructing a new political regime [37].

The socialist government (1982–1996), faced with the “dual” regulation system (monitored self-regulation and tariff regulation), opted for a model of alternative regulation and rupture of all that had gone before despite being formally agreed with UNESA. Among other aspects, with the National Energy Plan (1983), the government regained a large part of the decision making over sectorial planning, which had been in the control of UNESA. With the nationalization of the high voltage network (Red Electrica de España, 1985) and the law of unified exploitation of the national electricity system (1984), the government could exercise management and control of the electricity service in two ways: as the regulator of supply and distribution, a role previously fulfilled by UNESA, and as the manager of production and transport, an activity until then consubstantial with the companies’ business [38]. Motivated by the policy of financial restructuring, the Administration organized changes in the sector’s structure (Exchange of Assets, 1985) at the same time as it notably reinforced its tariff powers (Legal and Stable Framework, 1987). The latter made reference to the “global” cost of the service and counted on all the information necessary on standard costs. The perfecting of the system of incentives and compensations opened the door for the regulator to intervene in the “black box” of the companies’ financing. Meanwhile, as well as receiving privileged treatment, the public electricity company ENDESA collaborated with and was a key partner of the Administration in this process of regulatory change. All of these actions were in essence collected and legally integrated in the first general law on the electricity sector in Spain, the Law of the National Electric System (LOSEN, 1994).

The new regulatory model, although qualified as “traditional”, had important virtues. Firstly, with the country absorbed in political change, there was little social opposition. Secondly, the establishment of standard tariffs, although imperfect, based on the cost of service (Legal and Stable Framework) eliminated much of their previous opacity and, given their downward trend in real terms, benefitted the consumer; because of the greater stability and predictability they brought, they were not criticized by the companies except for the favourable treatment given to ENDESA. Thirdly, the creation of a pool of surplus electricity (Red Electrica de España) directed for regulation had an unprecedented effect on the optimization of generation and transport within the Spanish electricity system—in particular when, with a reduced temporary and economic cost, that became the keystone in the new regulation for the market, in accordance with new European Union directives tending towards liberalization and competition in the sector. Fourthly, the strong sectorial regulation achieved its objective of democratizing electricity policy, and as a result, it was formulated under an institutional and professional complex that was better equipped and trained, which allowed the assuming of the management and criticism of the new regulation challenges with a greater guarantee of success within the new European framework for energy. As a consequence of all these changes, fifthly, the electricity companies were obliged to modernize their business culture, which created a richer and more stable balance between their traditional vocation of investment and management of energy resources—an efficient financial and economic administration that was ever more complex and diverse—and a

growing social-environmental responsibility in the service provided to the social whole, and especially to their consumers.

3.4. *Towards Regulation “for the Market”, but without Regulation “in the Market” (1997–2020)*

The main driver behind the changes in this new regulatory stage has been determined by the European Union’s policy in favour of creating an internal energy market based on competition and the free movement of goods and services [39]. In fact, Directive 96/92 CE on the internal electricity market had, as a correlate in Spain, Law 54/1997 of the Electricity Sector (LSE in its Spanish initials). This law is the basis of the legislative framework to this day.

The orientation and speed of regulatory changes, however, have been marked by the styles of successive governments, conservative (1996–04/11–18) and socialist (2004–11/19– . . .), which have governed in the last quarter of a century in Spain, as well as the economic situations that marked these legislatures.

As in the previous stage, dialogue between the government and electricity companies laid the foundations for the new electricity law (LSE). On this occasion, however, the neoliberal ideology of the conservative government, as well as the process of business concentration (around Iberdrola and the privatized Endesa), reduced the costs of negotiation [40]. In fact, the electricity companies received questionable Transition to Competition Costs (EUR 8664 million) to make up for the damage caused in the amortization of their investments prior to the LSE, when a remuneration model based on recognized costs (MLE) was replaced by another market-based model.

In this favourable political context, the process of liberalization of the electricity sector in Spain came to anticipate what was established by some European directives. In effect, Law 17/2007 of the new socialist government transposed Directive 2003/54/EC, which had already been largely developed by the LSE. This was the case, for example, of the legal separation of transport operators from the electricity sector or the free choice of supplier by retail consumers, achieved three years earlier than scheduled.

All in all, the comprehensive electricity tariff did not yet have the market value as a reference, but rather a mix of auctions plus toll and marketing costs. In fact, the non-increase in the regulated tariffs generated in the electricity companies the so-called “tariff deficit”. This imbalance intensified as a result of cost inflation stemming from the 2008 financial crisis and hindered the maintenance of the ambitious renewable energy promotion plan designed years earlier. Given the inefficiency of the corrective measures (RD-L 6/2009, RD-L 13/2012 and L 15/2012) and the financial obligations with the European Union, the conservative government enacted urgent measures to guarantee stability (RD-L 9/2013) as a preliminary step to a new law on the electricity sector (L 24/2013). This new law, however, did not tackle the historical problems of the sector regarding the structure of the market in order to achieve an economically and environmentally sustainable electricity system. Once again, the measures focused on mitigating the “tariff deficit”. In 2014, for example, the pricing mechanism was changed, based on the auction system since 2009, for domestic customers and SMEs. This system, among other things, meant that the variable component of the rate included the daily variation in wholesale market prices and forced the marketers to offer consumers a fixed annual price.

After 25 years of liberalization process and technical advances, the Spanish electricity sector has undergone a profound reorganization. The vertical disintegration of large companies and new technologies have allowed the entry of new agents, new installations, and a change in the electricity mix, with a notable increase in the weight of renewable energies. All of this has contributed to improving the environmental sustainability of the peninsular electricity system and reducing foreign energy dependence [41,42].

Although these general changes are recognizable, the reorganization of the sector has not been throughgoing since it has dragged with it old and important problems. These drawbacks, from the point of view of efficiency and distributive equity, have resulted in a suboptimal generation mix and, ultimately, in a continuous transfer of income from

consumers to companies. To solve these regulatory deviations, some specialists propose a new design for the Spanish electricity market that prioritizes “competition in the market” (investments through access auctions—free entry against the market power of the largest incumbent electricity companies) as a preliminary step to delve into the already developed “competition for the market” [43,44].

In summary, in the last quarter of a century, the Spanish electricity sector has quickly adapted to regulatory transformations designed in favour of the formation of the internal European energy market. However, everything points to the fact that this process of regulatory convergence of “competition for the market” will not be complete if it is not achieved—breaking the historical dynamic—by regulatory changes in favour of “competition in the market”.

Proof of this imbalance in efficiency and distributive equity is reflected in the negative and progressive evolution of Spanish prices (domestic and industrial) with respect to the European average (See Figure 2).

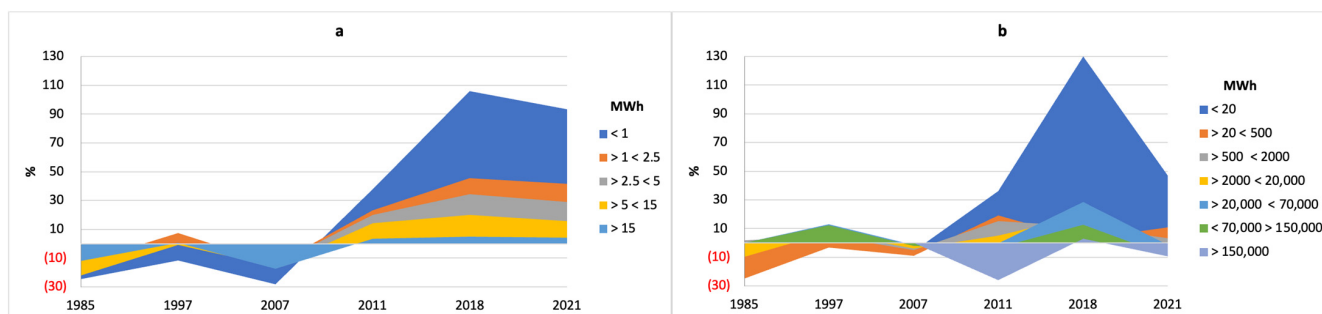


Figure 2. Evolution of domestic (a) and industrial (b) prices by consumption segments (MWh) with respect to the European average (%). Note: On the horizontal axis, the years studied are collected through six chronological sections from 1985 to 2021 (1985, 1997, 2007, 2011, 2018, 2021). On the vertical axis, we can see with different colours (according to different sections or segments of consumption and in percentage) the Spanish domestic prices (graph on the left) and the industrial prices (graph on the right) with respect to the European average (which in all chronological cuts takes the value 0%). The twelve consumption segments of the legend (five domestic and seven industrial) are expressed in MWh. The Figure offers us two important ideas: (1) First, the average prices (domestic (a) and industrial (b)) until 2007 did not compare very unfavourably with respect to the European average. Since then, both have had a growing and very striking evolution. This reality calls into question whether the theoretical, not real, introduction of more markets would translate into greater transferable efficiency in low prices for consumers. In addition, bringing the subject to the present day, it seems clear that the Ukraine War, as opposed to what some point out, is not the only cause of the increase in current prices. The explanation for this negative evolution of prices has to do, as explained in the text, with the disastrous regulation in the market. (2) The second important idea that can be drawn from reading the Figure is that the largest consumers (domestic (a) and especially industrial (b)) have always been the ones that have had more favourable prices compared to medium- and low-consumption subscribers. Given this strong inequality, it seems reasonable that the less favoured social classes in Spain are especially sensitive to the upward trend in electricity prices and that they demand a drop in rates. In addition, on the contrary, it seems questionable or a better subject to study carefully (although the prices of large consumers are suspiciously secret for researchers) the complaints of capital-intensive industrials for suffering relatively high prices in relation to many other European industrial consumers. Source: Own elaboration based on Eurostat.

4. Conclusions

The regulation of the Spanish electricity sector throughout the twentieth century, as is logical, underwent important modifications. In very general terms, it went from technical intervention and regulation of supply and safety (1881–1939) to the establishment of the first steps towards a market-oriented regulation (1997– . . .).

Between the two phases, there existed a singular system of regulation, which on one hand consolidated the business self-regulation model of the previous stage and on the other hand combined strong public interventionism (INI) and made a first serious attempt at a tariff policy (TTUs).

Coinciding with the coming of democracy and the energy and economic crises of the second half of the 1970s, a change of tendency was put in motion, which was consolidated with the arrival to power of the socialist party, when the basis of authentic “traditional” regulation was established. This should be understood as an attempt by the State to make up for lost time and set up a regulatory model that was close in its characteristics (central planning, state-run, prices based on cost recovery, with the title of a public service) to the models established in various earlier decades by neighbouring European countries (e.g., France, United Kingdom, Italy), which had nationalized the electricity sector. In the case of Spain, however, the property of production and distribution of electricity remained in private hands.

The failures of this system of “traditional” regulation influenced by the new European policy (focused on restructuring [45–47], privatization, and deregulation of the electricity sector in several countries) was taken advantage of in Spain by the new conservative government (Partido Popular) to radically change the way the electricity business was governed. With the Law of the National Electric System (1997), a model of regulated competition was initiated based on the principles of business planning, decentralized exploitation, and financial reward based on prices, under a title appropriate to a service of general interest. If in the “traditional” regulation, the fundamental objective was the safety of the supply and energy efficiency, the method employed did not necessarily follow the rules of the market; for regulated competition, in theory, the objective is economic efficiency and finding the best way to achieve competition.

As one can deduce from what has been stated, and from the consideration of regulation as an institutional construct that was continually being shaped throughout its historical process, the models of regulation established in each period depended essentially on the interaction between the political configuration adopted by the State and its capacity to take decisions that affected the economic activity and the development of the structure of the electricity business.

From this perspective, for that reason, reducing the analysis of regulation to studying the system of financial reward (tariffs) in each historical period—although important and with studies of undoubtable scientific value—is no more than part of the problem: a good shortcut to measuring the results in terms of efficiency as long as we remember that regulators and regulated were not always guided by these criteria [48]. Likewise, the legal studies of regulation—essential for precise knowledge of the legal-formal configuration of regulation—have not always taken into account the praxis of what was laid down by the law, focusing above all on exhaustively justifying the titles that conceded legal right to one type or other of regulation, and therefore, have paid less attention to the political–economic profile and the real motives for the changes in regulation [49].

Therefore, to the extent that the governance of the electricity sector is the result of the combination of multiple factors (political, economic, and historical), the objective of this work is not so much to give a definitive response on the configuration and logic of development of the Spanish electricity sector, but rather to better put forward a first historical–institutional approach to the matter from a somewhat different and wider perspective than has been previously done.

Evidently, the methodological preference for carrying out a qualitative analysis, which prioritizes explaining the interaction processes of the factors that intervened in the different historical types of regulation (according to how it happened), has the limitation of leaving aside a quantitative vision of the phenomenon studied (by not measuring how much more/less each factor influenced). In addition, within this first qualitative option, the use of the evolutionary and neo-institutionalist perspective supposes a choice against other more static neoclassical interpretations that focus on productive efficiency with-

out paying attention to the logic of the different interests in action and distributive and dynamic efficiency.

Funding: This research was supported by the Ministry of Science, Innovation and Universities (Spain): Ecological transitions in Contemporary History. Approach to economic and social development in an environmental key (PGC2018-096640-B-100).

Acknowledgments: This article has benefited from the comments received by many colleagues. However, as it was the first forum where it was presented, I would like to thank the comments made to the first version of the text: “From technical intervention to market-oriented regulation: electrical sector in the 20th century” presented at the Seminar organized by the Department of Economic History of the University of Barcelona, entitled Governance and regulation of network industries in Spain: A historical perspective (2010).

Conflicts of Interest: The author declares no conflict of interest.

References and Notes

- Ménard, C.; Shirley, M.M. Introduction. In *Handbook of New Institutional Economics*; Ménard, C., Shirley, M.M., Eds.; Springer: Berlin/Heidelberg, Germany, 2008; pp. 1–18, ISBN 978-3-540-77660-4.
- North, D.C. *Understanding the Process of Economic Change*; Princeton University Press: Princeton, NJ, USA, 2005; ISBN 0-691-11805-1.
- Gilbert, R.J.; Kahn, E.P.; Newbery, D.M. Introduction. In *International Comparison of Electricity Regulation*; Gilbert, R.J., Kahn, E.P., Eds.; Cambridge University Press: Cambridge, UK, 1996; pp. 2, 4, ISBN-13 978-0-521-49590-5. [[CrossRef](#)]
- North, D.C. Institutions and the Performance of Economies Over Time. In *Handbook of New Institutional Economics*; Ménard, C., Shirley, M.M., Eds.; Springer-Verlag: Berlin/Heidelberg, Germany, 2008; pp. 515–544, ISBN 978-3-540-77660-4.
- Ricketts, M. Economic Regulation: Principles, History and Methods. In *International Handbook on Economic Regulation*; Crew, M., Parker, D., Eds.; Edward Elgar Publishing: Massachusetts, USA, 2006; p. 34, ISBN 9781843766711. [[CrossRef](#)]
- Baldwin, R.E.; Cave, M.; Lodge, M. *Understanding Regulation: Theory, Strategy and Practice*; Oxford University Press: Oxford, UK, 1999; ISBN 10 0199576092.
- Bartolomé, I. *La Industria Eléctrica en España (1890–1936)*; Banco de España: Madrid, Spain, 2007; Available online: <https://repositorio.bde.es/bitstream/123456789/7388/1/roja50.pdf> (accessed on 1 July 2008).
- Prados de la Escosura, L. *Spanish Economic Growth, 1850–2015*; Palgrave Macmillan: Cham, Switzerland, 2017; ISBN 978-3-319-58041-8. [[CrossRef](#)]
- Fontana, J.; Villares, R. *Historia de España*; Marcial Pons: Madrid, Spain, 2010; ISBN 978-84-8432-917-6.
- Matés, J.M.; Fernández, M.; Ortúñez, P.P.; Antolín, F.; Calvo, A.A.; Garrués, J. La regulación de los servicios públicos en España en perspectiva histórica. *Rev. Hist. Indust.* **2016**, *25*, 1–206. Available online: <https://revistes.ub.edu/index.php/HistoriaIndustrial/issue/view/1772> (accessed on 1 March 2017).
- Szyszcak, E. Introduction: Why Do Public Services Challenge the European Union? In *Developments in Services of General Interest*; Szyszcak, E., Davies, J., Andenæs, M., Bekkedal, T., Eds.; Springer-Verlag: Berlin, Germany, 2011; ISBN 978-90-6704-733-3. [[CrossRef](#)]
- Antolín, F. Regulación y gestión de los recursos eléctricos durante el primer siglo de la industria eléctrica. *Rev. Hist. Indust.* **2016**, *61*, 111–140. [[CrossRef](#)]
- Garrués, J. La transición eléctrica en España de la regulación tradicional a la regulación para el mercado, 1982–1996. *Rev. Hist. Indust.* **2016**, *61*, 183–206. [[CrossRef](#)]
- Adler, P. *Momentum. A Theory of Social Action*; Sage Publications: Beverly Hills, CA, USA, 1981; ISBN 978-0803913073.
- Moore, M.E. *Teaching from the Heart: Theology and Educational Method*; Fortress: Minneapolis, MN, USA, 1991; p. 34, ISBN 978-0800624972.
- According to Claus, P. and Marriott: “Theoretical constructs can be exemplified by a case, and they can also be drawn out of concrete case descriptions. A concrete case can yield multiple theoretical constructs, defying simple identification between one general truth and one concrete situation. Thus, theory and practice are visibly related in case study, but not in a simplistic way. In-depth case reflection reveals theory already inherent in practice, and practice actively shaping theory. Theorizing itself comes to be seen as a form of practice, so dichotomies between theory and practice begin to fall away.” Claus, P.; Marriott, J. *History: An Introduction to Theory, Method and Practice*; Routledge: New York, NY, USA, 2017; p. 214, ISBN 978-0800624971.
- The government’s concern about possible social conflicts, which could be triggered by supply difficulties and inflation, led the government to create a Supreme Subsistence Board in 1916 to guarantee supply throughout the national territory, but it remained, after World War I, as Commissariat General for Subsistence, reporting to various ministries on necessary transport, convenient exports and imports, and miscellaneous matters.
- Garrués-Irurzun, J. Traditional Electricity Systems in Spain: Fensa (1927–1991). *Rev. Hist. Econ.* **2012**, *30*, 245–285. [[CrossRef](#)]
- Martínez Ruiz, J.I. Sistemas de tarificación y precio de la electricidad para fuerza en España antes de la Guerra Civil. *Rev. Hist. Indust.* **2016**, *62*, 143–180. [[CrossRef](#)]
- The first initiative was the result of a request from the Ministry of Public Works to the Permanent Electricity Commission (RD of 11-1-1919) and was subsequently finalized in a public ideas competition, in 1925, but it did not materialize.

21. Garrués-Irurzun, J.; Hidalgo-Mateos, A. Strategies of international financial capitalism and the integration of the Spanish electricity system: The Levantine coast. *Rev. Hist. Indust.* **2021**, *30*, 73–103. [CrossRef]
22. Bartolomé, I. La red nacional y la integración de los mercados eléctricos españoles durante los años de entreguerras: Otra oportunidad perdida? *Rev. Hist. Econ.* **2005**, *23*, 269–298. [CrossRef]
23. Bartolomé, I. Les antécédents de la régulation du service d'électricité en Espagne (1890–1945). *Hist. Économie Société* **2018**, *3*, 47–63. [CrossRef]
24. López-García, S.; Garrués-Irurzun, J. Estado emprendedor? El transporte de electricidad en España (1918/82–1985). In *XI Congreso Internacional de la Asociación Española de Historia Económica*; AEHE: Madrid, Spain, 2014; Available online: <https://www.aehe.es/wp-content/uploads/2014/09/Sesio%CC%81n20-LOPEZ-Y-GARRUES.pdf> (accessed on 30 July 2014).
25. On the incorporation of this concept to the literature of industrial organization, see Garrués-Irurzun, J. *Empresas y Empresarios en Navarra. La Industria Eléctrica, 1888–1986*; Gobierno de Navarra: Pamplona, Spain, 1997; ISBN 84-235-1657-1. Available online: https://www.culturainavarra.es/uploads/files/Empresas_empresarios_Navarra.pdf (accessed on 22 December 2020).
26. Sudrià, C. Les restrictions de la consommation d'électricité en Espagne pendant l'après guerre: 1944–1954. In *1880–1980. Un siècle D'électricité Dans le Monde*; Cardot, F., Ed.; Presses Universitaires de France: Paris, France, 1987; pp. 425–435, ISBN 978-2905821034.
27. Díaz-Morlán, P.; San Román, E. Causas de la restricción eléctrica en el primer franquismo: Una aportación desde la historia empresarial. *Investig. Hist. Econ.* **2009**, *5*, 73–95. [CrossRef]
28. San Román-López, E.C. *Ejército e Industria: El Nacimiento del INI*; Crítica: Barcelona, Spain, 1999; ISBN 84-7423-992-3.
29. Ministro de Industria y Comercio, 1945–51 y presidente del INI, 1941–1963.
30. Gómez-Mendoza, A. Unesa y la autorregulación de la industria eléctrica (1944–1973). In *Electra y el Estado. La Intervención Pública en la Industria Eléctrica Bajo el Franquismo*; Gómez-Mendoza, A., Sudrià, C., Pueyo, J., Eds.; Aranzadi Thomson Reuters: Cizur Menor, Spain, 2007; Volume 1, ISBN 978-84-470-2710-1.
31. Pueyo, J. La regulación de la industria de producción y distribución de energía eléctrica en España, 1939–1972. In *Electra y el Estado. La Intervención Pública en la Industria Eléctrica Bajo el Franquismo*; Gómez-Mendoza, A., Sudrià, C., Pueyo, J., Eds.; Aranzadi Thomson Reuters: Cizur Menor, Spain, 2007; Volume 1, ISBN 978-84-470-2710-1.
32. De Riquer i Permanyer, B. *La Dictadura de Franco*; Marcial Pons: Madrid, Spain, 2013; ISBN 978-84-989-2063-5.
33. Among them, the freezing of rates established from an opportunistic application of the TTUs and their subsequent poor updating, already under the new Integrated Electric Energy Billing System—1973–, as well as the festering problems of OFICO—former OFILE—and the costly inclusion of ENDESA's energy in the private electricity distribution system.
34. De la Torre, J.; Rubio-Varas, M.M. Nuclear Power for a Dictatorship: State and Business Involvement in the Spanish Atomic Program, 1950–1985. *J. Contemp. Hist.* **2016**, *51*, 385–411. [CrossRef]
35. Garrués-Irurzun, J.; Rubio-Mondejar, J.A. The Nuclear Business and the Spanish Electric-Banking Oligopoly: The First Steps. In *The Economic History of Nuclear Energy in Spain. Governance, Business and Finance*; Rubio-Varas, M.M., De la Torre, J., Eds.; Palgrave: Basingstoke, UK, 2017; pp. 67–96. [CrossRef]
36. Garrués-Irurzun, J. Market Power versus Regulatory Power in the Spanish Electricity System, 1973–1996. *Renew. Sustain. Energy Rev.* **2010**, *14*, 655–666. [CrossRef]
37. Núñez Seixas, X.M.C. *España en Democracia, 1975–2011*; Marcial Pons: Madrid, Spain, 2017; ISBN 978-84-17067-29-8.
38. Garrués-Irurzun, J.; López-García, S. Red Eléctrica de España S.A.: Instrument of regulation and liberalization of the Spanish electricity market (1944–2004). *Renew. Sustain. Energy Rev.* **2009**, *13*, 2061–2069. [CrossRef]
39. Available online: <https://www.europarl.europa.eu/factsheets/en/sheet/45/el-mercado-interior-de-la-energia> (accessed on 1 October 2021).
40. Agosti, L.; Padilla, A.J.; Requejo, A. El 'mercado' de generación eléctrica en España: Estructura, funcionamiento y resultados. *Econ. Ind.* **2007**, *364*, 21–37.
41. Díaz Mendoza, A.C.; Larrea Bastera, M.; Álvarez Pelegry, E.; Mosácula Atienza, C. De la liberalización (Ley 54/1997) a la reforma (Ley 24/2013) del sector eléctrico español. *Cuad. Orkestra* **2015**, *10*, 1–104. Available online: <https://www.orkestra.deusto.es/images/investigacion/publicaciones/informes/cuadernos-orkestra/De-la-liberalizacion-a-la-reforma.pdf> (accessed on 21 April 2015).
42. Consejo Económico y Social. *El Sector Eléctrico en España*; Advantia: Madrid, Spain, 2018; ISBN 978-84-8188-373-2.
43. Fabra-Portela, N.; Fabra-Utray, J. Para que no se repite el pasado: Un diseño de mercado para el sector eléctrico español. *Pap. Econ. Esp.* **2009**, *121*, 141–158.
44. Crampes, C.; Fabra, N. *The Spanish Electricity Industry: Plus Ça Change ...*; Cambridge Working Papers in Economics 0502; University of Cambridge: Cambridge, UK, 2005.
45. Newbery, D.M. *Privatization, Restructuring, and Regulation of Network Utilities*; MIT Press: Cambridge/London, UK, 1999; ISBN 9780262140683.
46. Hirsh, R.F. *Power Loss: The Origins of Deregulation and Restructuring in the American Electric Utility System*; The MIT Press: Cambridge, UK, 2001; ISBN 9780262082730.
47. Chick, M. *Electricity and Energy Policy in Britain, France and the United States Since 1945*; Edward Elgar: Cheltenham, UK, 2007; ISBN 978-1-84720-689-3.

-
48. Arocena, P.; Waddams Price, C. Generating efficiency: Economic and environmental regulation of public and private electricity generators in Spain. *Int. J. Ind. Organ.* **2002**, *20*, 41–69. [[CrossRef](#)]
 49. García Ariño, G.; López de Castro, L. *El Sistema Eléctrico Español, Regulación y Competencia*; Montecorvo: Madrid, Spain, 1998.