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Artículo

The Integration of the Spanish Electricity System: Volta's Business Model (1910-1960)

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A B S T R A C T

Research on the Spanish electrical sector provides a fairly precise understanding of the evolution of its main macroeconomic indicators, as well as the behavior of its companies. However, the success of universal companies and the belief that the theory of natural monopoly applied to all phases of the business (production, distribution, and marketing) until the end of the 20th century, has led to a lack of precise knowledge about the functioning and transformation of traditional electrical systems into integrated ones. Therefore, the objective of this communication is twofold. First, to shed light on the role played by companies involved in regional integration processes. Second, and particularly, to highlight the entrepreneurial function of distribution/marketing companies. To achieve this, we analyze one of the largest Spanish distribution companies between 1910 and 1960, understanding that this case study represents a model followed, with nuances specific to their economic and business contexts, by many other Spanish and international electric companies.

La integración del sistema eléctrico español: el modelo de negocio de Volta (1910-1960)

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R E S U M E N

Las investigaciones sobre el sector eléctrico español permiten conocer con bastante precisión la evolución de sus principales indicadores macroeconómicos, así como el comportamiento de sus empresas. Sin embargo, el éxito de las empresas universales, así como la creencia de que la teoría del monopolio natural aplicada a todas las fases del negocio (producción, distribución y comercialización) hasta finales del siglo xx, ha llevado a una falta de conocimiento preciso sobre el funcionamiento y su paso de sistemas eléctricos tradicionales a sistemas integrados. Por tanto, el objetivo de esta comunicación es doble. En primer lugar, arrojar luz sobre el papel que desempeñan las empresas involucradas en los procesos de integración regional. En segundo lugar, y especialmente, resaltar la función emprendedora de las empresas de distribución y comercialización. Para ello, analizamos una de las mayores empresas distribuidoras españolas entre 1910 y 1960, entendiendo que este caso de estudio representa un modelo seguido, con matices propios de su contexto económico y empresarial, por muchas otras compañías eléctricas españolas e internacionales.

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Research on the Spanish electricity sector provides us with precise knowledge of the evolution of its major macroeconomic indicators (Sudrià i Triay, 1988; Bartolomé Rodríguez, 2003), as well as the behavior of its companies, among others (Anes y Álvarez de Castillón, 2006; Antolín Fargas, 1989a; Aubanell Jubany, 2000; Bernal Rodríguez, 1994). However, the success of universal companies and the belief until the late 20th century that the theory of natural monopoly operated in all phases of the business (production, distribution, and marketing) have resulted in a less precise understanding of the functioning and processes of change from traditional electricity systems to integrated systems.

While numerous studies have been conducted on the evolution of the electricity sector, outlining the main lines of industrial concentration at the local, regional, and even national levels, the literature on the subject has rarely offered a general explanation of the organizational structural change it entailed, except for the seminal work by Muñoz Linares (1954) (Aubanell Jubany, 1992, 2000, 2003; Bartolomé Rodríguez, 2005; Garrues Irurzun, 1997a; Garrues Irurzun and Hidalgo Mateos, 2021; Hidalgo Mateos, 2012; Núñez Romero-Balmas, 1995). Most of the research has been conducted following standard analysis frameworks in industrial history studies; at the regional level, among others, we have contributions from engaged in addressing certain sector configuration issues (Amigo Román, 1989, 2013; Carmona Badía, 2016; Cayón García, 2002; Garrues Irurzun, 1994; Hidalgo Mateos, 2020; Maluquer de Motes, 1985; Núñez Romero-Balmas, 1994; Sudrià i Triay, 1987a, 1989). Among others, a smaller group of Catalan authors focused on economic growth at the national level (Antolín Fargas, 1988a, 1988b, 1990, 1991, 1997, 1999; Maluquer de Motes, 1987; Sudrià i Triay, 1987b; 1990a, 1990b; Sudrià i Triay and Antolín Fargas, 1994). Particularly interesting are the studies that outline some of the key factors in the Spanish electrical development, especially from an international comparative perspective (Bartolomé Rodríguez, 1995, 2007, 2011, 2014; Betrán Pérez, 2005; Doria and Hertner, 2004; Lanciotti and Bartolomé, 2014; Maluquer de Motes, 1987).

The issue of regulation has also been recurrently addressed (Antolin Fargas, 2016; Aubanell Jubany, 2011; Bartolomé Rodríguez, 2018; Cayón García, 2009; Garrues Irurzun, 2010, 2016, 2022; Gómez Mendoza, Sudrià i Triay and Pueyo Vinué, 2007). To a lesser extent, a wide range of more specific topics have been covered, such as restrictions (Díaz Morlán and San Román, 2009; Sudrià i Triay, 1997), the rural world (Garrues Irurzun y Iriarte Goñi, 2022), financing (Garrues Irurzun y Hidalgo Mateos, 2021), entrepreneurship (Antolín Fargas, 1999; Garrues Irurzun, 1997b) and prices (Hidalgo Mateos, 2012; Martínez Ruiz, 2016).

In this regard, this article aims to address two questions. First, what role did companies play in the integration of regional electricity systems? Second, and more specifically, what was the entrepreneurial function of distribution/commercial companies in these integration processes? Both questions are approached by analyzing a case study, the history of Volta, one of the largest Spanish distribution companies between 1910 and 1960. We work under the assumption that this case study represents a model followed, with nuances specific to their economic and business contexts, by many other Spanish and international electricity companies.

Establishing interpretative models of long-term development in the electricity sector has undeniable advantages. By transcending the rich diversity of existing corporate histories and conducting comparative, temporal, and spatial studies, we can better understand the economic evolution of the sector leading up to the present day. However, stylizing facts should not lead us into oversimplification or determinism. In other words, it should not be assumed that companies or business systems that do not conform to the "dominant" model lack interest, nor should it be believed that there is only one path in successful business dynamics that all companies must follow.

Based on these assumptions, this article aims to highlight the most significant strategic decisions made by Volta (hereinafter the Distributor), in terms of management (leadership, production, marketing, and financial), as well as the organizational structure adopted to compete —first as an independent company and later as a subsidiary of Hidroeléctrica Española (hereinafter Hidrola or the Producer)— in the different circumstances it faced during the first half of the 20th century. All of this is done with the purpose of gaining a better understanding of the functioning of traditional electricity systems (TESs) (Garrues Irurzun, 1997a; Garrues Irurzun and Hidalgo Mateos, 2021, p 75) and their contribution to the early regional integrated systems, typically managed by a major production company and its network of production-distribution subsidiaries. The true explanatory capacity of this model of electricity integration, in relation to what happened in other countries and historical periods, goes beyond the scope of this work, and is left for future research.

The interpretation of Volta's history, based on corporate sources[1] and existing literature on the electricity sector, is structured into six sections. The first two sections of this article focus on the life of this distribution company as an independent entity during the period 1910-1927. The following three sections then examine its integration into Hidrola, the dominant producer company in the central-eastern Spanish market, between 1927 and 1960.

In the first section, it is highlighted how technological change brought about by domestic and industrial electrification opened new opportunities not only for electricity production companies but also for distributors. In the case of Volta, the initiative stemmed from a diversification strategy, originating from a motor trading company.

The second section points out that the dynamism of the Valencian market explains the company's strategy of horizontal integration through the acquisition of other electricity businesses. However, this successful expansion strategy by Volta, like that of many other TES companies, was curtailed in the late 1920s due to financial incapacity, preventing it from increasing its production resources to meet growing demand. Indeed, the third section shows how the failed attempt at backward integration of the distribution business forced Volta to strengthen its commercial ties with its main

[1] The reconstruction of the Levantine electricity market, and the interrelationships among different companies, has been made possible through the consultation of the extensive and rich documentation of the companies associated with the market under study, progressively falling into the hands of Hidroeléctrica Española (Iberdrola). All primary documentation has been consulted from the archives held by Iberdrola, S.A. in Salto de Alcántara (Cáceres). See primary sources in the references.

electricity supplier, Hidrola. In the fourth chapter, in a context of increasing foreign capital interest in the Levantine electricity market, it is described how a change in the Producer's policy led to the conversion of the Distributor into its subsidiary and a tool for consolidating regional markets. The fifth section recounts that, with any competitive element eliminated during the early Franco regime, Volta reorganized the Levantine market according to the interests of its parent company. Finally, in the sixth and last section, the main conclusions of the article are presented with the intention of shedding some light on how, when, and why the integration of local electricity systems into regional/corporate integrated systems occurred in Spain.

1. Related diversification: From motor sales to electricity sales (1910-1914)

On January 19, 1910, a group of local investors established the company Torija, Mateu y Compañía in Valencia, operating under the trade name El Volta. Their primary activity involved the sale of motors and other services related to electricity energy. In March 1913, due to the need to increase their capitalization, the company changed its legal structure from a partnership to a corporation, adopting the name Volta and increasing its share capital from 10,000 to 400,000 pesetas.

Volta's first foray into the electricity distribution business took place in the southern part of Valencia. The company aimed to consolidate and centralize the management of existing electricity networks in the area around the capital to ensure motor sales. To achieve this, Volta entered into a supply contract with the prominent Madrid-based company Hidrola. The abundant availability of electricity provided by Hidrola allowed Volta to embark on an expansion strategy consisting of acquiring or merging with all electricity companies within its area of influence. This business shift explains its entry into the northern part of the Valencia province, including the city of Castellón and its surrounding area, starting in late 1913 (Tedde de Lorca and Aubanell, 2006) [Fig. 1].

The convergence of interests in the southern orchard of the Turia River, near the capital city of Valencia, led Hidrola to reconcile its exclusive electricity sales to Volta with the previously granted ones to Lebón y Compañía. A mutual respect agreement was reached between the two companies on March 15, 1914[2]. Under this agreement, both companies agreed to respect their respective markets (existing before the agreement) and share equally the profits generated from new customers. This was similar to the arrangements already in place in other regions.

2. Rapid expansion through horizontal integration (1914-1924)

2.1. During World War I

Due to restrictions on international trade during World War I, Volta's management decided to focus its business on the most profitable section: the distribution of electricity energy. Difficulties in importing electrical equipment and subsequent commercial disorganization had a negative impact on its financial situation, leading it to consider a reorganization of its workshops.

The sale of electricity also faced challenges, mainly due to price competition from other electricity companies, including producers (Ps), producer-distributors (PDs), and/or marketers (Ms) already established in the region where Volta operated. The Distributor, in fact, needed to be constantly vigilant against frequent breaches of the fragile mutual respect agreements established with other firms, as exemplified by the case of Lebón y Compañía.

Gradually, as Hidrola provided the required amount of electricity energy, Volta began to expand like an oil stain throughout the hinterland of the Valencian orchard [Fig. 1]. The initial expansion moves were directed towards the northwest of the province, specifically to Campo del Turia. In this area, the Distributor sold electricity to small local companies (Ps, PDs, and/or Ms), following a business model similar to the one the Producer applied to its own customers. This involved signing long-term exclusive contracts at fixed prices.

New demands from municipalities on the left bank of the Turia River and in the southern or-chard of Valencia led Volta to enter into a new contract with Hidrola in April 1916. However, in Campo del Turia, specifically in Moncada, where it competed with Electro-Hidráulica del Turia, the Distributor was forced to acquire electricity from a local producer. Further south, in Ribera Baja, in Cullera, when its own networks couldn't connect with small producers, Volta had to rely on third-party supply or even consider the acquisition of a boiler in July 1917. These solutions were partial and economically unprofitable.

Despite supply difficulties, by the end of 1918, Volta's management highly regarded its commercial expansion in Campo del Turia and the regions of the northern and southern orchards of Valencia. This market, of great importance to the Distributor, represented approximately 28% of the electricity consumption in the Levantine capital. In fact, Volta's executives doubled down on their commitment to conquering the electricity sector by acquiring or merging with small and medium-sized electricity companies.

2.2. Operational and commercial limitations of the distributor and the growing influence of the producer (1919-1923)

Volta's ambitious expansion plan, aimed at quickly becoming the second-largest distributor in Valencia, highlighted one of its most significant weaknesses: its limited financial strength. In other words, the acquisition of new electricity assets could outpace its ability to generate resources, both internal and external. This became evident when the Distributor embarked on the acquisition of new power plants, including two in Meliana and one in Alcácer, as well as expansion into markets in the northern and southern orchards of Valencia and, to a greater extent, in the province of Castellón, specifically in the Plana Baja district [Table 1].

In seeking a solid development strategy for the company, Volta's board members faced two conflicting options. The first option, emphasizing the company's independence, required a corporate restructuring to become an integrated company (producer, distributor, and marketer). To achieve this, it was essen-

[2] Iberdrola Archive. Alcántara Waterfall (A.I.S.A.) Subsidiary Companies Fund. Volta, S.A. Minutes of the Board of Directors (March 5, 1913 to December 19, 1918). Board Meeting of May 15, 1914.

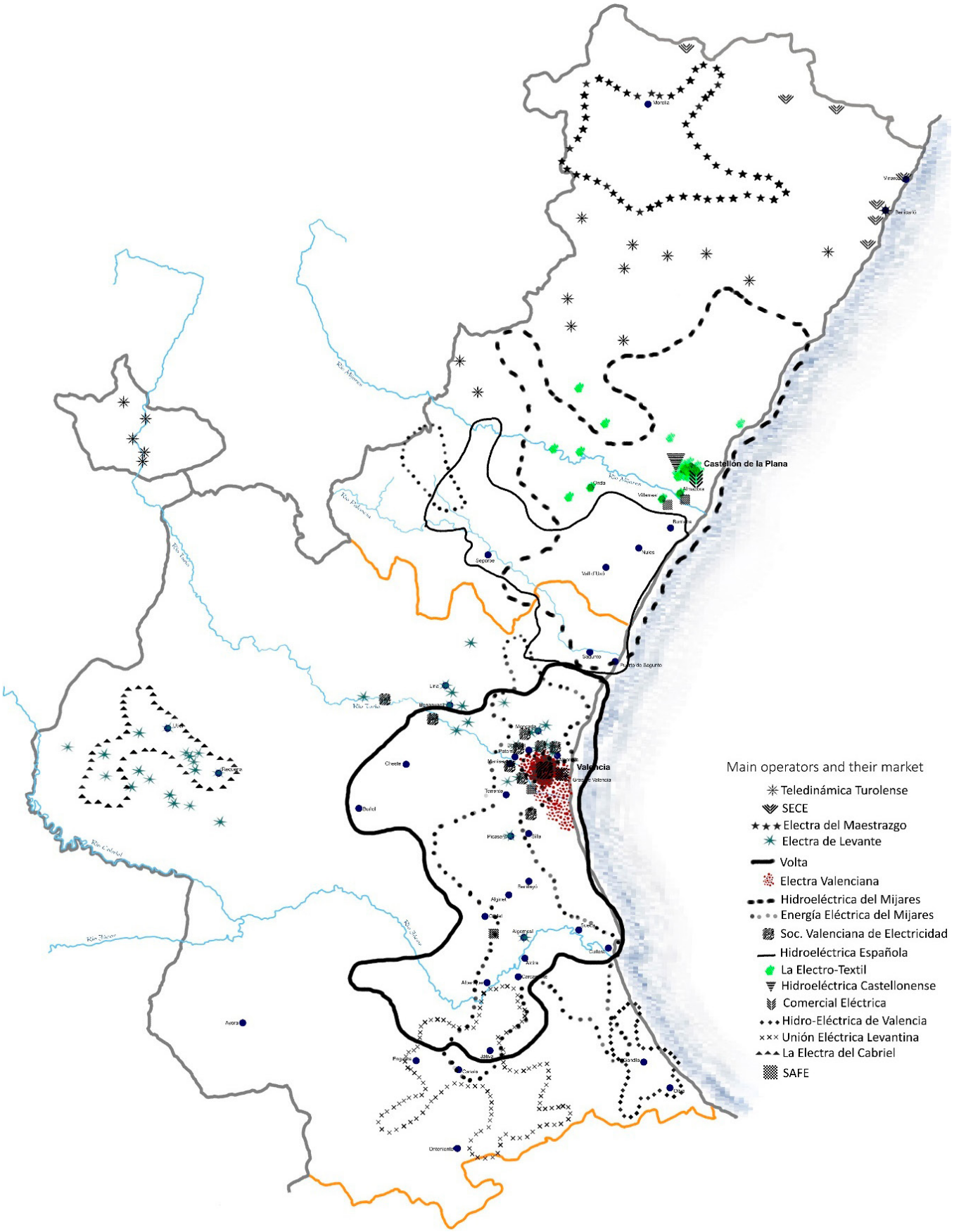

Figure 1. Main electrical operators and their market in Castellón and Valencia (1930).
Source: Garrues Irurzun and Hidalgo Mateos (2021, p. 101).

Table 1.
Estimation of Volta's electricity distribution, degree of autonomy, and relative market share, 1916-1930

Year	New Power Station[1]	Production A (GWh)	Distribuction[2] B (GWh)	Electric autonomy C = A:B (%)	Volta/Region D (%)	Hidrola/ Region E (%)	Volta/Hidrola relative Market Share F = E/D (%)
1916	Cullera (T)	0.2	0.8	26.8	1.5	85.8	1.7
1919	Meliana (T)	0.5	1.8	26.6	3.1	84.3	3.7
1922	Daroqui -Manises- (H)	1.4	11.0	12.7	18.4	84.4	21.8
1925	Navarrés (H)	2.1	14.7	14.1	15.3	88.8	17.2
1929	Alcira (H), Cheste (T)	2.9	14.0	16.0	15.3	54.6	28.0
1930	Central de Anna (H)	3.0	19.6	15.2	18.4	55.1	33.3

(T) Thermal Power Plant. (H) Hydroelectric Power Plant.

1 Not all the facilities (power plants and networks) that Volta purchased during these years were put into operation, as its initial priority was to acquire markets where it could supply electricity from Hidrola.

2 Distributed energy encompasses both losses and self-consumption.

Source: Authors' elaboration.

tial to undertake backward integration of the business, strengthening its electricity generation capacity. The second option, less focused on ownership and control of the company, aimed to consolidate specialization in electricity distribution, strengthening commercial relationships with its main supplier, Hidrola.

Before making a final decision, the Volta's executives contacted Banco de Vizcaya, which was the largest shareholder of Hidrola. The bank supported the company's expansion strategy by offering financial support, on the condition that the company continued to operate as a distributor. To ensure this, and since the bank had become its main bondholder since 1919, a man trusted by the financial institution and Hidrola, Bernardo Gómez Igual, was appointed vice president of Volta. He had already been serving as a director of Electra Valenciana, as mentioned, a subsidiary of Productor. Over the years, this executive would play a crucial role in the "market control" policy exercised by the Producer in the Levante region.

The restructuring of the Board of Directors and the newly acquired liquidity explain how Volta, initially a quasi-family company, transformed into a modern distributor. From a financial perspective, as the expansion policy could not rely solely on external financing, Volta had to use its own resources, which included a significant increase in capital in March 1920[3]. Much of this new liquidity was allocated to the acquisition of the production and distribution company, Ricardo Hernández Hernández, operating in towns in the southern orchard of Valencia and in the northern area of Ribera Baja.

From an operational standpoint, Volta faced technical challenges that had short-term economic consequences, resulting in increased operating costs. Delays in connecting its distribution network with the newly acquired network led to the acquisition of ob solete equipment, such as the Benifayó thermal plant, or leasing hydroelectric facilities with limited efficiency. Additionally, it had to deal with distribution systems that exhibited great heterogeneity in terms of voltage and power.

From a commercial perspective, Volta divided its area of operation around Valencia capital into two zones, separated by the Turia River, one to the north, already under its control, and the other to the south, in the process of consolidation. Furthermore, the company owned the connection line between the north (Moncada-Meliana) and the south (Catarroja-Alcácer) of Valencia capital, making it the main electric company in the central zone of the Valencia province by February 1920. However, beyond the capital's market, the Distributor identified two extensive markets in the Valencian Levante: the south, attractive from a commercial perspective, and the north, with potential for electricity generation. Nevertheless, before absorbing significant producer-distributor companies in both territories, Volta ensured that Hidrola granted it the exclusive right to sell electricity in the most significant municipalities. This permission was crucial in the northern market, where the Maestrazgo region, bordering the Ebro River, had an "electricity no man's land" where powerful electric companies operated. North of this area, the market was controlled by Catalan or Valencian electric companies linked to Fuerzas y Riegos, while to the south, from Oropesa onwards, Valencian electricity companies predominated. Taking advantage of the fact that the division of markets among the country's major producers did not affect third-party companies, Volta acquired one of the leading producer-distributor companies in the province of Castellón in the summer of 1919: Viuda de Federico Estela, Bort y Cía. This operation not only had logistical implications by connecting Sagunto with Valencia capital but also had a strategic interest in interconnecting, starting in 1921, with Hidrola's largest electricity generation center in the Levante: The Dos Aguas hydroelectric plant. With this covert maneuver, the Producer and Distributor strengthened their positions, in generation and marketing, respectively, in a wide territory in the province of Castellón.

In the early weeks of 1921, coinciding with Volta's intensified expansion policy, Hidrola sought to strengthen its relationship with the Distributor in exchange for participating in some of its capital expansions. The Distributor's refusal of this offer should not be interpreted, however, as the company being entirely independent in decision-making. After a lengthy period of negotiations, in July 1922, Electra Valenciana (a sub-

3 This capital injection continued in subsequent years. Consequently, Volta's share capital increased from 400,000 pesetas in 1913 to 6 million in 1921, while its debt to bondholders rose to 3 million in 1922.

sidiary of Hidrola) and Volta acquired Electro-Hidráulica del Turia, providing them with significant assets for production and distribution in the western and northern orchard areas of Valencia. This operation required a significant financial outlay from the Distributor, which led to the issuance of two million mortgage bonds.

From a strategic management perspective, a significant change occurred in the early days of 1922. Following the death of Volta's president, Bernardo Gómez Igual assumed leadership of the company. A year and a half later, in a Board of Directors meeting to discuss the policy in the Castellón market, the confrontation between the two development strategies mentioned in 1919 was rekindled. The more aggressive policy, led by a former executive named J. la Casta, advocated competing with rival companies and strengthening production to improve the Distributor's bargaining position with its main supplier. The more moderate strategy, promoted by Hidrola's representative, B. Gómez Igual, aimed to effectively consolidate the acquired markets and curb any productive investment by the Distributor under various financial and technical pretexts[4]. The stance of the new president prevailed, leading Volta to focus, in his words[5], on "extinguishing the fires in its market" in Valencia, which was in a state of "full competition". This competition was fought against the Sociedad Valenciana de Electricidad (SVE) and the Cooperativa Eléctrica de Meliana in the northern orchard and against Fernando Sastre Seguí –a subsidiary of SVE– in the southern orchard. Towards the end of 1923, the Distributor shifted its attention to the integration of companies close to its area of influence, such as in Ribera Alta.

As the expiration of Hidrola's electricity supply contract to Volta approached, the Distributor's advisers advocated for an improved renewal of this contract. To achieve this goal, they capitalized on the competitive market environment and used the possibility of changing suppliers as a bargaining tool. The response was resounding. In early 1924, Banco de Vizcaya (the reference bank of Hidrola) severed direct relations with the Distributor, although curiously, one of its advisers, Volta's president, was left as a mediator in the conflict. Finally, unable to find other suppliers, in May 1924, the Distributor was forced to resume negotiations with the Producer. However, the unfavorable economic conditions of the new contract for the Distributor reinforced the idea among many of its advisers of increasing the company's electricity generation capacity. This involved the acquisition, through the issuance of bonds, of some completed hydroelectric plants (such as the Albiol plant) or projects under development (located on the Júcar, Turia, and Mijares rivers).

However, Volta's energy production-oriented strategy did not appear to be viable. The company lacked the necessary financial capacity to become an independent producer[6] or to partially emancipate itself from the supply provided by Hidrola. Additionally, the Distributor's economic profitability experienced a continuous decline due to multiple factors, including the repercussions of the new contract with the Producer and the intensification of competition, which escalated in the form of a "rate war" from the late 1923 [Fig. 2].

3. A dead end: The distributor's backward vertical integration (1924-1927)

In October 1924, after facing various difficulties, Hidrola and Volta reached an agreement to standardize supply conditions through a ten-year contract. While some of the Distributor's advisors considered that the new contract had positive aspects, such as providing time to stabilize the financial situation and strengthen the company's production capacity for future contracts, in reality, it was an act of submission. On one hand, the Producer tied the Distributor's commercial expansion capacity to the electricity it could provide. In other words, the Producer granted the Distributor the exclusive right to sell its energy in its market in exchange for restricting its ability to expand its own production capabilities and limiting its acquisition of third-party energy. On the other hand, the Producer safeguarded against any inflationary risk by reserving the right to unilaterally terminate the contract. This way, Hidrola, for the first time explicitly, began to take measures to directly reorganize its sphere of influence in the Levantine market, relegating the interests of its subsidiary distributors and companies' dependent on its electricity to a secondary position.

The problem with Hidrola, according to statements from Volta's executives, lay in the fact that the Producer was limiting the Distributor's profit margin by charging high prices for the electricity acquired, particularly at times when intense competition required the distribution of electricity at reduced prices. Furthermore, the inability to further reduce these selling prices was attracting significant competitors to its market since 1923. This market already had to contend with the competition of other major distributors, such as SVE, and occasionally suffered customer losses due to the poor service provided by the Distributor.

The Producer justified the decrease in the Distributor's profit margin not so much because of the high prices at which it sold electricity but rather due to the lack of accuracy in the billing of the energy sold by it. This argument had some validity. In some markets, competition from small electric companies was not based on setting competitive prices but rather on continuing with inefficient lighting and power supply systems

[4] It is important to note that Bernardo Gómez Igual was closely linked to the interests of Hidrola. In fact, he co-founded its most important subsidiary in the Levante region, Electra Valencia, in 1910, and became its president in 1926. He joined the board of directors of Volta in 1919, probably as a result of Hidrola's entry as a shareholder in the Distribuidora, taking advantage of its two major capital increases in 1919 and 1920. Given that Banco Vizcaya was Hidrola's reference financial institution, it is clear that Bernardo Gómez›s participation in the management of electricity companies had the approval and trust of the Basque bank. When Volta was controlled by Hidrola, he joined its board of directors (1928-1942). His election as president of Volta was also due to his significant influence in the regional economy and politics. Bernardo owned the first department store in Valencia *(El Siglo)*; he was president of the Ateneo Mercantil de Valencia (1900); accountant of the Chamber of Commerce (1895-1916); provincial deputy of Valencia (1911-1915); senator for Castellón (1916-1923); and a member of the board of directors of Hidrola (1928-1942), Cementos Portland and the Caja de Pensiones, among other companies.

[5] A.I.S.A. Subsidiary Companies Fund. Volta, S.A. Minutes of the Board of Directors (10/01/1919 to 13/10/1923). Board Meeting of February 21, 1923.

[6] As an example, it is worth noting that in 1924 the company had once again resorted to issuing 3 million mortgage bonds (guaranteed by Banco de Bilbao and Comercial Español) to finance its expansion policy. However, this type of external financing had a clear limit: the impossibility of putting more company assets as collateral for its credit operations. Ultimately, the lack of liquidity led Hidrola, through a capital increase of 2.5 million, to acquire a third of Volta's new capital, which totaled 7.5 million.

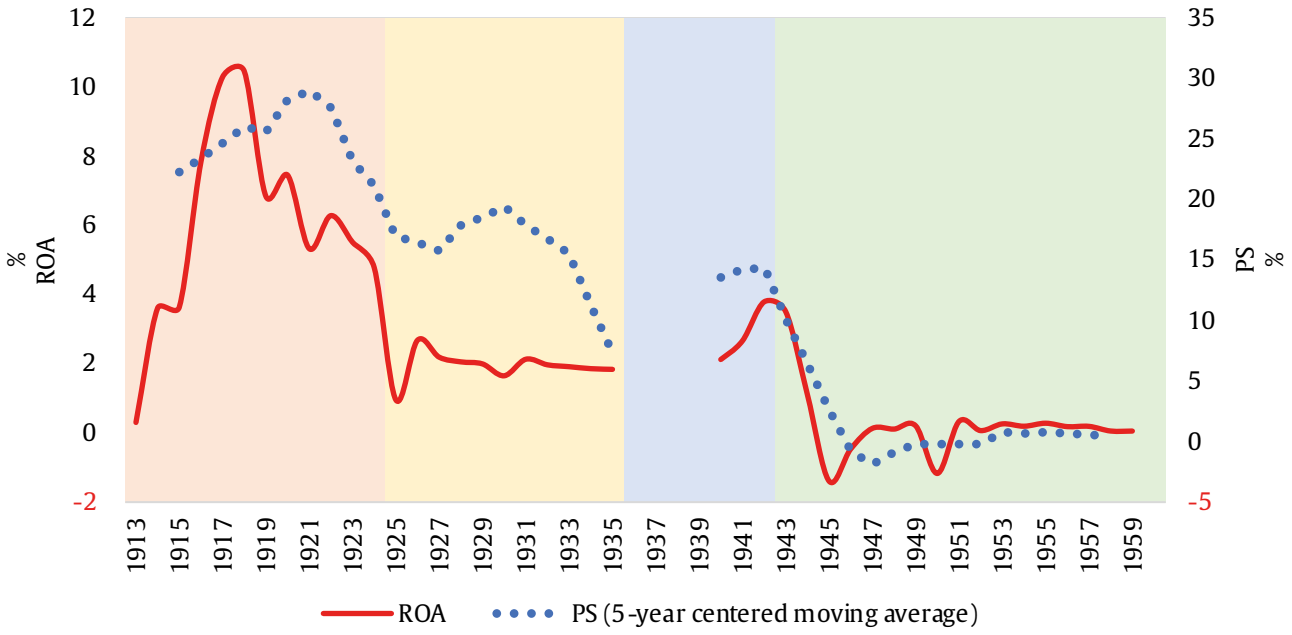

Figure 2. Evolution of return on assets (ROA) and profit/sales ratio (PS) of Volta (1913-1960)
Source: Authors' elaboration based on annual reports of the Shareholders' Meeting.

(at a fixed rate) that did not require a minimum consumption. In these circumstances, an increase in electricity consumption did not translate into a proportional increase in revenue. However, in most competitive markets, such as the one shared with Hidroeléctrica del Mijares, the revenue decline was mainly attributed to an increase in distribution costs. This increase was particularly due to the rising cost of energy acquired from the Producer, which, in turn, significantly affected its commercial margin [Fig. 2].

Under the new contractual conditions, Volta's expansion pace in 1925 continued at a more moderate rate. The company reached agreements with Hidrola's other major distributor in Levante, Energía Eléctrica del Mijares, regarding the distribution of customers in shared markets. Likewise, it established agreements with several small distributors, such as Garrigós e Hijos and Electra Cooperativa Industrial in the Huerta Norte, with the aim of eliminating competition in their areas of operation. By mid-1926, competition in the Distributor's market began to decrease, and by the end of that year, just as Hidrola was strengthening its position as a producer in the Levantine market with the Millares power plant (70,000 HP) and planning its reorganization, Volta sought to partner with several distributors from its Group, such as Cooperativa Valenciana de Electricidad.

While these events were unfolding, Volta became embroiled in disputes with Hidrola related to the interpretation of various clauses in the 1924 contract, which were ultimately resolved in favor of the Producer through the definitive signing on June 7, 1927. The disagreements revolved around who would take charge of industrial customers (less than 30 kW) and markets not included in the contract. While the Producer argued for its freedom to contract in all markets and with all industrial customers, the Distributor sought to retain its industrial customers from before 1924 and its ability to contract outside the "exclusive markets" delimited on this date.

4. Vertical integration of the distributor into the producer (1927-1931)

4.1. Hidrola's new strategy: "Successive Controls"

Starting in 1927, Hidrola's strategy for electricity supply, which previously involved providing electricity to distributors without establishing strong ownership ties, underwent a significant change. The growing competition in the Levante market, especially after foreign capital showed interest in operating in Spain's third-largest electricity market (Garrues Irurzun and Hidalgo Mateos, 2021), highlighted the risk for major producers in allowing the existence of independent small and medium-sized PDs (electricity producer-distributor companies). These companies could serve as a perfect entry point for foreign interests in the Levante electricity sector. The logical response to this threat, as was the case with Volta, was to convert the investee companies into fully-owned subsidiaries. This process, which the Producer called the "Successive Controls Strategy " (SCS), was part of a policy called "market rationalization". In essence, this rationalization took place in two ways. The first, in the Valencian market, consisted of reaching agreements with its main distributors (SVE, Navarro, SAFE, and Cooperativa Valenciana de Electricidad). The second, in the Castellón market, focused on attracting new customers to distribute the available new production capacity.

One of Hidrola's SCS actions was the acquisition of one-third of Volta's shares[7]. With this move, the Producer gained absolute control over the Distributor, making it an essential component of the modernization process of the Levante electricity

[7] In 1927, Hidrola acquired 4,892 preferred shares to collaborate in the development of Volta, aiming to intensify and improve its operations, as stated in the Report of the Hidrola Shareholders' General Meeting (1927, p. 8).

market. This transformation meant that the Distributor became an instrument of technical rationalization, resulting in the optimization of the regional system and the elimination of competition. As a consequence, economic rationalization was achieved. The Distributor had two fundamental strategic assets: one operational, which included an extensive distribution network in the province of Valencia, and another related to its management capacity, backed by experience and know-how personified in its president, Bernardo Gómez Igual. This allowed the Distributor to establish stable agreements with other PDs in the region. However, for these assets, both tangible and intangible, to become a real competitive advantage, the Distributor needed greater investment capacity. Since self-financing and credit options had been exhausted, the Distributor had no choice but to accept financial investment from the Producer in early 1927, even if it meant losing its status as an in-dependent or subsidiary company.

The change in Volta's leadership became evident between June 1927 and early 1929 when, through a capital increase, Hidrola restructured the management bodies of the Distributor, incorporating its advisors (J. L. Orio, L. Pinedo, and A. Ramírez) and providing an exit for the former executives. The new organizational chart included a CEO (J. La Casta), an engineer (J. L. Oriol), and an administrative head (T. Astigarraga). Furthermore, the Producer's control over the Distributor became absolute after the forced resignation of the former managing director, Joaquín La Casta España.

From a commercial perspective, the new relationship between Volta and Hidrola was ratified, as mentioned earlier, with the signing of the June 1927 contract. Henceforth, the Distributor pledged to "sell exclusively" (excluding only its own) the electricity supplied by the Producer to its established market (encompassing roughly a quarter of the Valencian market, excluding the capital city), though this market was restricted to small customers (less than 30 kW). The Distributor limited its own production capacity to the output of its four meager power plants [Table 1]. As a result of this agreement, competition between companies within the Hidrola Group, such as Energía Eléctrica del Mijares, significantly decreased. However, in other specific markets, such as Ribera Baja and Huerta Oeste, competition remained. In most of these cases, the ultimate solution typically involved Hidrola acquiring their facilities and markets.

4.2. Volta's early years as a Hidrola subsidiary

In 1928, Volta experienced increased competition, maintaining persistent rivalry with SVE. Regarding the threats posed by foreign financial agents in the Distributor's market, particularly Regadíos y Energía de Valencia (REVA) and Luz y Fuerzas de Levante (LUTE), the confrontation extended beyond mere competition to offer the best rates or acquire companies and markets. This hostility expanded to the institutional level, where Hidrola and Volta sought to influence different government bodies. In June, the Producer supported the Defense Board of the Turia River waters since REVA's project constituted, in Oriol's words, "a formidable enemy" to the established electricity interests in the region[8]. For the same purpose, the Distributor proposed applying to the Minister of Development for the creation of the Hydrographic Confederation of the Turia. Furthermore, in February 1929, it obtained the administrative concession for the Calderones Dam to prevent REVA from developing the Loriguilla Dam.

From 1929 onwards, Volta's new management, in line with the strategy agreed with Hidrola, prioritized the consolidation of its natural market, its area of influence, through the acquisition of major PDs and markets in its geographical surroundings. In this context, the Distributor established the company Distribución Eléctrica Valenciana at the end of 1929, merging various electricity businesses acquired in Huerta Sur and Hoya de Buñol. Three months later, it acquired one of the most important PDs in the Riberas Baja and Alta, Herencias Pardo-Sánchez. However, the support of the Producer was particularly decisive when it came to countering REVA's competition through strategic acquisitions in Játiva and Gandía.

Volta continued to acquire small electricity properties during the years 1930 and 1931 in communication hubs in the center of Ribera Alta, but its expansion policy was consolidated through two additional operations. The first involved the definitive absorption[9] of Electra de Levante, one of the main competitors in the Valencia market. The second operation was the acquisition of two PDs: Alfredo Bolinches Perales (operating in Canal de Navarrés and Ribera Alta) and Herencias Pardo-Sánchez (working in Riberas Alta and Baja and Huerta Norte). To finance these and other operations, it was necessary to double Volta's share capital, expand the issuance of bonds, and apply for a significant bank loan[10]. All of this could be managed with the direct support of Hidrola and the indirect support of its reference banks (Banco de Bilbao and Banco de Vizcaya), although the specific level of financial participation of the parent company is unknown.

4.3. Seeking market stabilization: Prices, resistance fund, and distribution agreement

Concerning the competitive situation, the policy of signing agreements began to yield its first results. In March 1930, seven major companies (Volta, Energía Eléctrica del Mijares, Electra Valenciana, Electra de Levante, Sociedad Valenciana de Electricidad, Unión Eléctrica Levantina, and Sociedad Hidro-Eléctrica de Valencia) signed an agreement to establish minimum tariffs in the markets under Hidrola's control in the Levante region. However, this agreement strategy was not limited to the Levante market. Around the same time, Hidrola was developing a similar strategy in its main market, Madrid, while also strengthening its SCS[11].

Despite the aforementioned agreements, Volta faced a new challenge, the competition exerted by Sociedad Anón-

[8] A. I. S. A. Subsidiary Companies Fund. Volta, S.A. Draft Minutes of Board Meetings (January 17, 1928-April 11, 1928)

[9] Although Volta had controlled Electra de Levante since 1925, it was not until 1931 that it was definitively absorbed.

[10] Volta's share capital increased from 6 million in 1926 to 13.5 million in 1930. In 1930, a bond issue of 1 million was made, and a bank loan of 4 million was requested in 1929.

[11] Hidrola reduced the tariffs charged to its subsidiaries and strengthened its shareholding in them. This included, among others, Unión Eléctrica Madrileña, Cooperativa Electra Madrid, Compañía Eléctrica Industrial, and Hidráulica Santillana.

ima de Fuerzas Eléctricas (SAFE) and its control by the LUTE Group[12].

The situation worsened in 1931 when LUTE absorbed REVA[13], following the segregation of the agricultural business. In response, the Distributor sought cooperation with Hidrola to offer more competitive tariffs and favorable supply conditions to potential customers. However, the more solid solution offered by the Producer was Volta's incorporation, on October 6, 1930, into the "resistance fund" adopted by its hydroelectric Group. This Mutual Defense Pact was devised to economically withstand the wear and tear that competition could inflict on the financial results of the group's companies.

After these, Volta received a mandate from Hidrola to launch a direct and determined attack against its rivals. However, the problem of competition took on a new dimension when REVA agents promoted discontent among some subscribers, urging them to form electric cooperatives with the intention of destabilizing the market. These cooperatives multiplied rapidly, especially starting in 1929, threatening the service provided by small distributors. This trend also concerned large distributors because if these cooperatives expanded in small and medium-sized towns, they could gain more bargaining power, and their markets could become attractive to other producers, including SAFE. In response, the management of the Distributor launched a vigorous propaganda campaign against the cooperatives, although not always with success.

What was unexpected was the questioning of Hidrola's production capacity due to the rapid growth in demand between 1931 and 1932. The Producer's priority given to the Madrid market resulted in a decrease in the quality of the service provided by Volta, leading to the loss of significant customers, such as the Sociedad Española de Abastecimientos[14]. This situation was especially problematic for customers using irrigation motors, as it was estimated that the Distributor could lose up to 25% of them if the situation continued to deteriorate. The service worsened in some localities to the point where municipal authorities advised citizens not to pay their bills to the electric companies. To prevent new supply requests from going to the competition, Volta acquired a thermal engine (Meliana power plant) in October 1931, although this led to giving up the purchase of some small PDs that were for sale.

However, the direction of Volta paid more attention to the competition from larger companies. In September 1931, the Distributor requested Hidrola's assistance for two reasons. The first was SVE's breach of the agreement, which was reducing prices to competitive levels. The second reason was that Volta could not meet the demands of medium-sized customers, as these were growing faster than its capacity to expand new distribution networks. In fact, the Distributor chose not to engage in confrontation with other companies in marginal markets.

Since competition in the Levantine market had not dissipated and it was difficult to quickly reorganize the market according to the division into three zones (based on the dominance exercised by the LUTE Group, the Hidrola Group, and the area of competition between them), at the end of February 1932, Volta definitively absorbed Electra de Levante and Distribución Eléctrica Valenciana (DEVA) and initiated talks with its main competitor, Luz y Fuerza de Levante (LUTE). Three months later, Volta and LUTE reached a basic agreement that culminated in the signing of an "Electric Market Distribution Agreement in the provinces of Valencia and Castellón". This market cartelization agreement for electricity distribution in the Levante Peninsula remained in effect for 15 years.

4.4. The last manifestations of "external" competition in a context of social and economic instability (1931-1936/1939)

The mentioned agreement represented a significant advancement in the stabilization of the Levantine market, but it didn't manage to completely eliminate competition in the region. A prominent example of this competition occurred during the strike of the workers of the Cooperativa Valencia de Electricidad in 1932. In this situation, Volta and Energía Eléctrica de Mijares took advantage of the opportunity to attract new customers, even going so far as to duplicate installations. On the other hand, the lack of an agreement to update the energy supply contract between Electra de Levante and Volta posed a serious risk of customer loss, which was ultimately avoided when Volta acquired DEVA months later.

Another source of conflict was related to the "eternal question of the Turia River". Volta and Hidrola, as the primary affected parties by the river regulation plans proposed by REVA, joined the Association of Irrigators of the Vega de Valencia. Subsequently, the Distributor decided to also become part of the Syndicate for the Regulation of the Waters of the Turia River. In response to this alliance, Belgian electricity interests mobilized the demands of industrialists.

However, Volta's problems did not originate solely from competition, either in terms of prices or at the institutional level. In a context of widespread strikes in the years leading up to the civil conflict, fraud and payment defaults skyrocketed. Social conflict was particularly motivated by the decline in agricultural income, due to the fall in exports and the damage caused by the mildew disease in the vineyards. Additionally, some customers struggled to contest tariff increases and many municipalities refused to pay their bills. The low quality of service was also affected by acts of sabotage carried out on certain high-voltage lines and meters.

Still, some positive developments arose. In late September 1935, Volta learned that the proposed Pedralba dam project and all other development plans for that section of the Turia river, submitted by REVA, had been rejected by the Department of Public Works. With the Central Valencian Depression[15] now serving as an integrated market and competition limited to smaller centers, Volta turned its attention to creating a unified electrical system. This involved integrating the company's limited electricity production centers with the 14 regional distribution centers powered by Hidrola.

[12] By November 1930, there was already effective control of LUTE over SAFE, as well as over the Valencian Electricity Cooperative.

[13] A highly detailed scheme of all the absorptions in the Levantine market in (Hidalgo Mateos, 2020, apéndice 25)

[14] A detailed analysis of the complex balance between the rapid growth in demand and the limited capacity to increase installed power in Levante in (Hidalgo Mateos, 2020, pp. 240-256).

[15] The Central Valencian Depression hinterland (formed by the following districts: Valencia, Campo de Turia, Huerta Norte y Sur, Ribera Alta y Baja, Valle de Albaida, Campo de Murviedro y Hoya de Buñol) accounts for 70% of the population and 25% of the territory within the provinces of Valencia and Castellón.

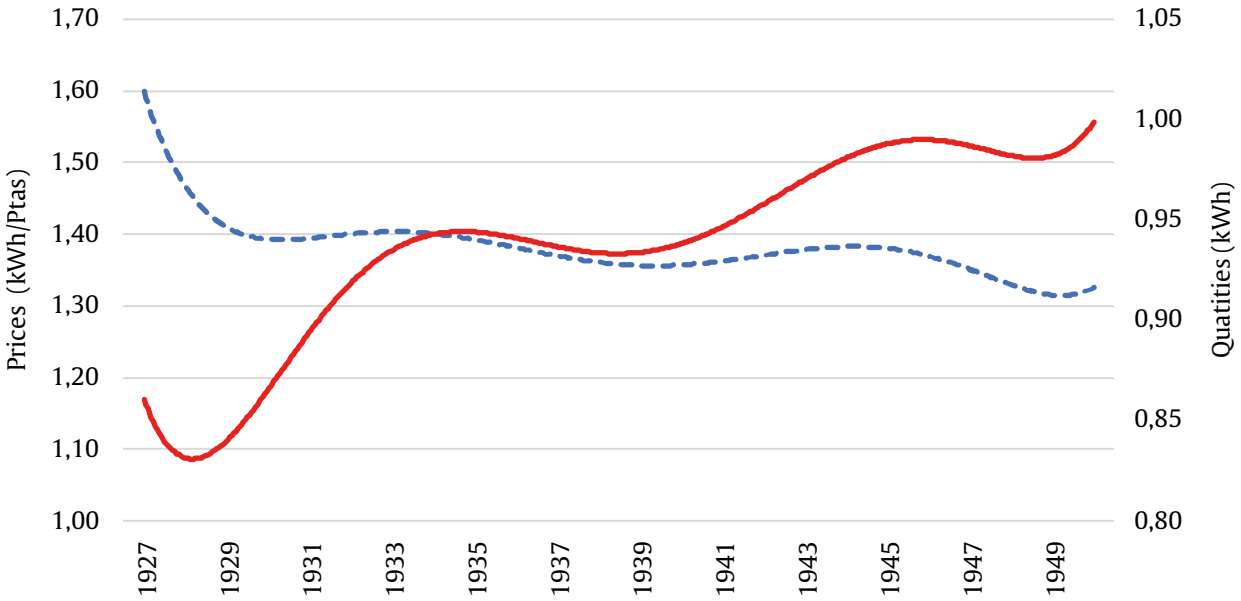

Figure 3. Ratio of electricity purchases and sales by Volta, 1927-1950 (prices and quantities in 6th degree polynomial scale).
Source: Authors' elaboration based on Volta's accounting ledgers.

5. Coordination of management and market reorganization during the early Franco era (1939-1960)

After the significant changes that the Spanish Civil War brought about in Volta's leadership, the Board of Directors took measures to quickly normalize the service and resume the expansion strategy in late May 1939. However, before that, adjustments were made to the company's administrative structure. The president proposed the merger of Electra Valenciana with Volta, unifying the management and administrative services of both companies. Some board members of the Distributor expressed their disagreements, leading to the resignation of three of them in April 1940. Furthermore, the death of Bernardo Gómez Igual in October 1942 paved the way for José Luis de Oriol to assume the presidency. The generational change in the Board of Directors was solidified two years later, similar to what happened in the parent company, Hidrola, when José María de Oriol succeeded his father, José Luis de Oriol. In the 1950s, there were changes in the administrative management at a lower level, with the appointment in April 1951 of the director of Hidrola in Valencia as the CEO of Volta and Electra Valenciana, while the general manager of both companies assumed responsibilities related to regional distribution. The 1950s also witnessed a transformation in middle management. In April 1951, the executive of Hidrola in Valencia became the executive director of both Volta and Electra Valenciana. Meanwhile, the previous directors of both companies saw their responsibilities restricted to overseeing regional distribution.

From a production perspective, Volta, like many other companies, was affected by electricity restrictions that became evident in August 1943 due to an exceptional drought. The Distributor turned to the Valencia Industry Delegation to request electricity assistance. These restrictions, which had different impacts and were not always explained by the drought, persisted until 1954 (Sudrià i Triay, 1997; Díaz Morlán and San Román, 2009)[16].

From a commercial perspective, after the Spanish Civil War, Volta became the key element for Hidrola in reorganizing the Valencian electricity system. Until its dissolution in 1960, the Distributor acquired facilities and markets from other companies within the Hidrola Group, especially in the 1940s. In the late 1940s, the parent company acknowledged the markets conquered by the subsidiary in previous stages. However, it deprived the subsidiary of some of its best subscribers (those consuming more than 30 kW). Moreover, since the 1930s, the parent company had been increasing the prices of its electricity supplies to Volta at a higher rate than Volta was increasing its prices to its customers [Fig. 3].

Between 1941 and the middle of 1948, the Distributor expanded its area of operations through the acquisition of four small operators and a hydroelectric plant (La Pajarilla). In February 1949, the parent company assigned 16 major customers (4 GWh) from the Alcira area to the Distributor. In April 1950, the Distributor took over the supply of Energía Eléctrica del Mijares.

The readjustment plan carried out by Hidrola in the Valencia and Castellón markets was completed in 1955 when Volta sold its facilities near the Alicante-based company La Electricista Alcoyana. As a result, the Levante electricity market consisted of the Hidrola Group, which included Volta, Hidrola's major subscribers, Electra Valenciana, and Energía Eléctrica del Mijares, as well as the LUTE Group, composed of Luz y Fuerza de Levante (LUTE), Sociedad Anónima de Fuerzas Eléctricas (SAFE), Sociedad Valenciana de Electricidad, and Comercial Valenciana de Electricidad [Table 2].

[16] A quantification of the impact of energy restrictions in Levante in (Hidalgo Mateos, 2020, p. 143-253).

Table 2.
The electric groups in the Levantine market, 1956

Group	Company	Customers	%
Hidroeléctrica Española	Volta	89,505	28.0
	Electra Valenciana	63,820	20.0
	Energía Eléctrica del Mijares	32,765	10.3
LUTE	Luz y Fuerza de Levante	94,086	29.5
	SAFE	14,569	4.6
	Sociedad Valenciana de Electricidad	15,211	4.8
	Comercial Valenciana de Electricidad	9,444	3.0

Source: Compiled from Hidalgo Mateos (2020).

In the second half of the 1950s, some additional transactions were closed, but they did not substantially influence the electricity landscape of the region.

The reorganization of the Levantine electricity system executed by Hidrola resulted in the dissolution of Volta in 1960. The merger and absorption agreement were proposed at the General Shareholders' Meeting on April 27, 1960, and materialized on November 4 of the same year. However, the liquidation of Volta was not an isolated case in the Levantine market. In the same year, Hidrola also absorbed other companies, including La Electricista Alcoyana, La Electra del Cabriel, Hidroeléctrica de Levante, Energía Eléctrica del Mijares, Electra de Levante, and Compañía de Luz y Fuerza de Levante (LUTE)[17].

The merger and absorption of all these distributors were nothing more than the legal formalization of a long-standing inter-company relationship. The reason this process took time to materialize was that Hidrola chose to delegate the significant transaction costs associated with the integration of local, regional, and regional markets to its subsidiaries. While the parent company established priorities, timelines, and financial support, it was its major subsidiaries, in this case, Volta, that were better positioned to interact with different companies within traditional electricity systems and work towards their integration.

The explanation for the integration process of Hidrola's electricity system [Fig. 3], which coincided with the trend observed in other regional electricity systems in Spain, relates to both internal and external factors. Internally, the viability of UNESA, the private entity that managed high-voltage electricity distribution in Spain since 1944, was a determining factor. Modernizing UNESA necessarily involved promoting technical and administrative homogenization of the major integrated corporate systems. Despite achieving a significant milestone with the implementation of a nationwide tariff system (TTU), new technological challenges, such as the development of nuclear energy marketing or strengthening future international connections, required further advances in the integration of existing inter and intra-company markets. On the other hand, in a context of international standardization of the Francoist regime, authorities followed the example of other nations that had promoted electrification, especially after World War I. This convergence of business and governmental interests undoubtedly accelerated the corporate consolidation process in the Spanish electricity sector, including that led by Hidrola in the Spanish Levante.

6. Conclusions

Volta's business strategy, like that of many other electricity companies in the traditional electricity system in Spain[18], faced three initial challenges: limited productive and financial resources, highly fragmented demand, and conservative thinking on the part of its executives, in that order. The Levantine region lacked significant hydraulic resources for electricity generation, and thermal options were unprofitable in the early 20th century. Additionally, the region did not have strong regional financial support like the Basque Country, where banks such as Banco de Vizcaya or Banco de Bilbao supported large-scale electricity initiatives (Antolín Fargas, 1989, 2006; Garrues Irurzun, 1994). The Levantine region also did not have the financial and technological foreign support that the Catalan region had during those times, attracted by the abundant hydraulic resources of the Pyrenees and a dynamic industrial district inadequately supplied with electricity (Sudrià i Triay, 1987a). This lack of hydraulic and financial resources primarily prevented Volta, like other distribution companies in Spain, from evolving from a commercial company into a vertically integrated "universal" electricity firm with significant reach.

Volta's trajectory illustrates the increasing difficulties faced by electricity distributors in the early 20th century as their sales grew and demand expanded. This situation led to a growing functional dependence of these distribution companies on their main suppliers, in this case, Hidrola.

It should be noted that Hidrola, like its twin company in the Basque Country, Hidroeléctrica Ibérica, adopted a business model focused primarily on high-voltage electricity generation and distribution from the early 20th century. They allowed

[17] Previously, LUTE had been incorporating the other three mentioned companies that constituted its group: in 1952, the Comercial Valenciana de Electricidad, as well as S.A. de Fuerzas Eléctricas (SAFE) and the Sociedad Valenciana de Electricidad in 1957. See the scheme of the organization and concentration of operational electrical businesses in Levante between 1882 and 1960 in (Hidalgo Mateos, 2020, p. 769).

[18] For a brief definition of the explanatory model called the Traditional Electricity System, see Garrues and Hidalgo (2021, p. 75, note 7).

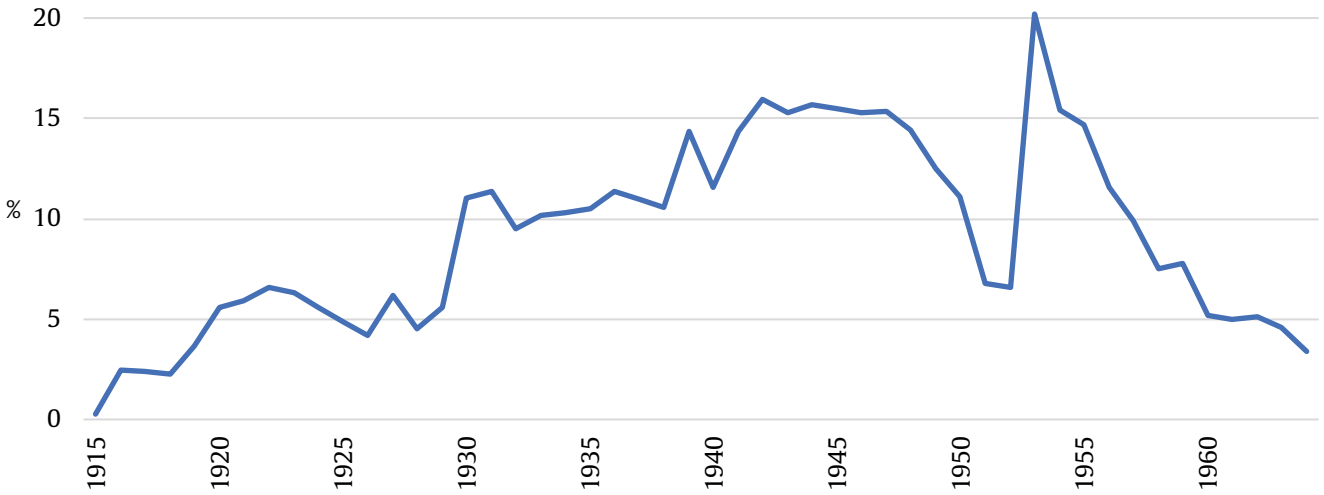

Figure 4. Evolution of Hidrola's unlisted securities portfolio (% of asset value), 1915-1964.
Source: Authors' elaboration based on annual reports of the Shareholders' Meeting.

third-party distribution companies, initially independent and later partially owned or even subsidiaries, to market their electricity at medium and low voltage. Their goal was clear: optimize their profits by externalizing the high operating and transaction costs to third-party companies, reserving the most strategic and lucrative phase of the electricity business: production and high-voltage distribution.

The only way to break this strong functional and economic dependence would have been, initially, for the distribution companies to change suppliers. This opportunity could have materialized in the late 1920s when several European electricity holdings expressed interest and entered the Valencian hinterland. However, financial weakness after the 1929 crisis and the staunch nationalist opposition of Spanish electricity companies hindered the consolidation of a model similar to Catalonia, considering the lower electricity demand in the Levantine market, and instead, a model closer to the Basque one was established.

Faced with the risk that an alternative electricity model might emerge in the Levantine region, Hidrola changed its initial cooperative agreement policy with its main distributors, usually in exchange for a minority shareholding in their management control, to a much more aggressive policy of majority control over their ownership. In the case of Volta, this was termed "successive controls".

In the Spanish context, most electricity companies of some relevance received financial support and strategic guidance from major banking institutions. From the early stages of the electrification process, engineers and bankers in industrialized regions advocated for an electricity model based on what could be called "regional champions". These "champions" would be companies that combined electricity production and distribution, and from them, integrated regional electricity systems would be established, which would later evolve into national electricity systems. However, this strategic vision took a long time to fully develop.

In fact, in the early stages of electricity development, there was a great diversity of business models, encompassing a wide range of styles and sizes. The electricity technology of the time and the characteristics of demand allowed for the coexistence of multiple forms of business organization, ranging from small self-producing electricity companies, through medium-sized producer-distributors, to the less frequent large "universal" companies. As demand justified increasingly larger investments and technological advances allowed for greater economies of scale, diversification, and network expansion, this organizational diversity and flexible specialization gradually diminished as the process of corporate concentration took hold.

The barriers to entry for other alternative business models to those developed by the "regional champions," as was the case with medium or large distribution companies, were insurmountable. This has historically been the case in almost all countries until state/regional regulation allowed free access to private/public distribution networks for all market operators.

As a result, the economic and functional viability of "alternative" electric companies was heavily conditioned by the presence or absence of a large regional producer-distributor company. This situation was different when they entered into competition with new large national producers, as was the case with Saltos del Duero, or foreign ones, as happened in the Spanish Levant from the 1920s onwards with SAFE and LUTE; which, as we mentioned earlier, was not fully consummated (Garrues Irurzun and Hidalgo Mateos, 2021). However, changing the producer would not have completely resolved Volta's energy and economic dependence problems. The only hope for large, medium, and small PDs to coexist or compete with some degree of security in those years lay in the creation of an electricity market based on the construction of a national electricity grid to which they could connect. In Spain, the state's efforts to build such a network in the 1920s failed (Bartolomé Rodríguez, 2005, p. 269)[19], while in other countries, such as England, they were highly successful (Hannah, 1977).

[19] Bartolomé, however, qualifies that "the grid alone would not have resolved the low performance of the pre-war electrical sector, as it did not represent an alternative to the construction of large reservoir-equipped power stations, but only a part of the necessary investments for a potential large-scale electrification project".

Therefore, in most countries where regional or national electricity markets organized under state regulation were not established to attract companies of various sizes and characteristics, the path followed by large distributors was quite similar, at least in the case of Spain. In this country, it was common for companies like Volta, which were relatively large distributors operating in a traditional electricity system composed of companies that were not sufficiently regionally integrated, to assume a new role when they became subsidiaries of large producer-distributor companies. This new role involved standardizing and optimizing their natural markets.

Ultimately, and of no less importance, this article confirms what the literature on the Spanish electricity sector has already shown: large companies were key to the integration of the Spanish electricity system, particularly in the Levantine market. However, this work also highlights that the leading role of large electricity producers in many regions, such as the Levant, was completed late in comparison to other countries, during the early Franco regime [Fig.3].

Given this, Traditional Electric Systems (SETs) played an important, but often unrecognized and undervalued economic role in the configuration of the Spanish regional markets. They not only created the first electricity markets, providing power and light to less developed rural and urban markets, but also conditioned the actions of large companies in their construction. Among other things, the article illustrates how the direct or indirect competition of the SETs, in this case Volta, contributed to accelerating the strategy and orientation of the largest company in southern Spain, Hidrola, towards the integration of its potential electricity markets.

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