

Defending the municipal electric services against privatization: a case study of Frankfurt am Main during the Weimar period[†]

Takahito Mori
Graduate School of Economics
Hitotsubashi University
Naka 2-1, Kunitachi, Tokyo, 186-8601 Japan
Email : tmori@econ.hit-u.ac.jp

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Abstract

It has been generally assumed in the study of German urban history that the municipal electric services were brought to an end by the growth of regional power networks during the Weimar period. However, municipal electric services were not completely replaced by regional power systems. So, this paper examines, on the basis of a case study of Frankfurt am Main, how the municipal electric services were able to sustain themselves as an autonomous system against the expanding influence of regional power networks based on private capital during the Weimar period. Frankfurt tried not only to enlarge its power stations but also to utilize the waterpower and brown coal obtained nearby the city, with a view to defending its autonomy against the Rheinisch-Westfälisches Elektrizitätswerk AG. These attempts enabled Frankfurt to preserve its autonomous electric services until the second half of the 20th century, though it owed a lot to the assistance from Preussenelektra, the national electric power company of Prussia.

Keywords:

“Electric War”, “Electric Peace”, Frankfurt am Main, Preußenelektra, RWE

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Introduction

During the Weimar period, the rapid development of regional power networks accelerated the concentration of German electric services remarkably. Although electric power was supplied mainly from municipal power stations at the beginning of electric services in the latter half of the 19th century, the large-scale power enterprises managed by the Reich or Land governments as well as the private or semi-public capitals came to the fore rapidly, backed by the development of long-distance power transmission technology, the extensive scaling up of power generation after WW I, and the utilization of such low-priced energy sources as water power and brown coal. These enterprises built up a regional monopoly by taking control of municipal power stations, as typically shown in the case of Rheinisch-Westfälisches Elektrizitätswerk AG. (henceforth, abbreviated as RWE)¹. Therefore, it has been generally assumed in the traditional study of German electric services that municipal electric services were brought to an end by the growth of regional power networks during the Weimar period².

However, municipal electric services were not completely replaced by regional power systems. In 1928, 16 cities among 39 cities with 100,000 inhabitants or more depended on regional power enterprises, while the other 23 cities were still supplied with electricity mainly by their own power stations³. This was due to the municipal efforts, especially in big cities, to maintain their own electric services against regional power enterprises. Such efforts were motivated firstly by concern for municipal finance. As widely known, the Erzberger's reform in 1919/20 had deprived the municipalities of their financial autonomy, especially in tax policies, so that much importance was attached to municipal enterprises as an autonomous source of revenue, which depended only on the performance of the management. Especially, the electric services played an essential role, and its share in the total revenue of municipal enterprises grew from 23.2% in 1913 to 59.5% in 1929⁴. So, the municipalities came to have a common realization that "the municipal electric services

¹ T. Herzig, "Wirtschaftsgeschichtliche Aspekte der deutschen Elektrizitätsversorgung 1880 bis 1990", in: W. Fischer (Hg.), *Die Geschichte der Stromversorgung*, Frankfurt am Main 1992, S. 133.

² D. Schott, *Die Vernetzung der Stadt. Kommunale Energiepolitik, öffentlicher Nahverkehr und die „Produktion“ der Modernen Stadt. Darmstadt – Mannheim – Mainz 1880-1918*, Darmstadt 1999, S. 75.

³ K. Wendlandt, *Die Entwicklung der kommunalen Elektrizitätswerke und ihre Stellung zu den Expansionsbestrebungen der Großkraftwerke, Dissertation an der Uni Halle*, 1931, S. 70.

⁴ K. Tano, *The Development of the Coal and Electricity Industrie in Germany*, University of Tokyo Press 2003, pp. 208-211; M. Sekino, *A Financial History of German Municipalities*, Chuo University Press 1997, pp. 134-139.

will decide the future of the municipal autonomy,” and “it is a matter of great urgency to sustain and reinforce them.”⁵

The second motivation was the concern for the vulnerability of regional power networks. The technical accidents caused by the long-distance power transmission, such as the short circuits of power networks and the troubles of power plants or substations, often damaged the urban life seriously, since electricity had become a vital energy resource in the cities. In order to stabilize the electric power supply, the municipalities tried to build or enlarge their own power stations. As a result, not a few power stations of big cities became rather competitive with regional power enterprises⁶.

The sustainment of municipal electric services should be considered not only in the context of electric services but of environmental history. The study of environmental history has reexamined critically the traditional way of energy supply which attaches the greatest importance to the contribution toward the expansion of production and the economic growth. As to the electric services, the existing regional power networks should not be regarded as a necessary outcome of the technical development but as a historical paradigm that is based on various factors, such as the political and economic cooperation and opposition between the public and private power enterprises and the municipalities, the location of power generation and consumption, and the social and political thoughts about electric services⁷.

From the above-mentioned viewpoints, this paper examines, on the basis of a case study of Frankfurt am Main, how the municipality succeeded in defending its own electric services against the expansion of regional power networks based on private capital (e.g. RWE). To begin with, we will analyze the development and strategies of RWE and Preußische Kraftwerke „Oberweser“ AG. (i.e. the national electric power company of Prussia, and the forerunner of Preußenelektra), both of which developed the regional power networks around Frankfurt. Secondly, we will explore the socio-economic policies carried out by Frankfurt in order to maintain the autonomy of electric services, the development of electricity consumption and the financial situation of the municipality. The reason for choosing Frankfurt as an example is the fact that Frankfurt had sustained

⁵ Schriften der Interessengemeinschaft der kommunalen Elektrizitätswerke vom 1. 9. 1926. Betrifft: Bedeutung der kommunalen Elektrizitätswerke für die Elektrizitäts- und Gesamtwirtschaft Deutschlands, in: Institut für Stadtgeschichte Frankfurt am Main, Stadtwerke (SW.), Nr. 359.

⁶ Wendlandt, *a. a. O.*, S. 88.

⁷ D. Schott, “Einführung: Energie und Stadt in Europa. Von der vorindustriellen „Holznot“ bis zur Ölkriese der 1970er Jahre”, in: ders. (Hg.), *Energie und Stadt in Europa. Von der vorindustriellen „Holznot“ bis zur Ölkriese der 1970er Jahre*, Stuttgart, 1997.

its electric services until the mid-20th century, whereas the majority of municipal power stations were sold off during the Great Depression to make up for the deficit as in the case of Berlin.

1. The development of regional power networks and the outbreak of the “Electrical War”

In 1898, RWE was founded as a local power station of Essen by private capital, and in a few years, it extended its service area beyond the municipal area, building up a regional monopoly in Rheinland. In the course of this process, RWE changed itself from a private to a semi-public company in which the municipalities in its service area served as shareholders bearing 36.4% of the gross capital in 1911⁸. Although its semi-public nature was established officially, the rights of management were still grasped securely by Hugo Stinnes, the group founder⁹. RWE had enlarged the generating facilities during WW I in order to meet the rapidly growing demand in the war industry. After the war, it expanded the service area furthermore and incorporated such big cities as Cologne, Bonn, and Düsseldorf under its umbrella. RWE supplied these cities with electricity exclusively and built up a new system in which RWE distributed electricity directly to the big consumers with the annual consumption of over 500,000 kWh, and the municipal power stations distributed electricity to the other consumers. The cities under the RWE’s umbrella tried to compete with RWE for obtaining big consumers in order to increase the proceeds of electric services. But such an attempt was unsuccessful because their latitude in electric services was extremely restricted due to their dependence upon RWE’s power supply. Another attempt to exert an influence on the management of RWE in their capacity as shareholders was also futile because the interests of municipalities varied from city to city. So, it was almost impossible for the municipalities in the service area of RWE to defend the autonomy of their electric services¹⁰.

Besides expanding the service area, RWE extended its high-voltage cable with 220 kV

⁸ About the history of RWE until WWI cf. H. Pohl, *Vom Stadtwerke zum Elektrizitätsgroßunternehmen. Gründung, Aufbau und Ausbau der „Rheinisch-Westfälische Elektrizitätswerk AG“ (RWE) 1898-1918*, Stuttgart 1992.

⁹ C. J. Asriel, *Das R.W.E. Rheinisch-Westfälisches Elektrizitätswerk A.G. Ein Beitrag zur Erforschung der modernen Elektrizitätswirtschaft*, Zürich 1930, S. 15.

¹⁰ About the conflict between RWE und cities in its supply area cf. K. Tano, “Weimar ki Doitsu ni okeru Toshi Denryokugyou. Bonn, Düsseldorf Shi no Jirei wo Chushin ni. (Der kommunale Elektrizitätsbetrieb in der Weimarer Republik. Mit dem Fallstudie von Bonn und Düsseldorf) ”, in: *Wayo Joshi Daigaku Kiyou (The Journal of Wayo Women’s University)*, Vol. 39 (1999), pp. 34-43.

southwards in order to establish liaison with the waterpower stations in Baden, Bavaria, Württemberg and Switzerland for the demand of industries in Rhein-Westfalen, and it also aimed at supplying these regions, if necessary, with the electricity generated by the power stations in North Germany by the opposite route¹¹. The construction of a high-voltage cable from RWE to Bayernkraftwerk AG. in 1924/25 sparked off a political conflict between RWE and the Prussian government, and it had a big effect on the electric services in Frankfurt because Mainkraftwerk AG in Höchst am Main, a neighboring city of Frankfurt, played an important role of junction in laying a long-distance power transmission line. Before taking up this conflict, let's look back on the development of Preußische Kraftwerke „Oberweser“ AG. (henceforth, abbreviated as PKO).

PKO had its origin in the two hydropower stations constructed at Dervörden and Edeltalsperre on the Weser. The one was to supply the Mittelland canal with electricity and the other was to regulate the water level of the Weser¹². Although both power stations were ranked as “the predestinations for the electrification of the whole of Prussia”¹³, the room for their expansion was limited owing to the passive attitude of the government. On the other hand, there spread some fear in the parliament that the ongoing concentration of electric services since the depression in 1901/02 might bring about a monopoly of the electricity market by private capital, such as RWE. The majority of the members of parliament from the conservative to the left considered such a monopoly as the “return to the nasty days of unrestrained economy based on the Manchester Liberalism”, so that they demanded a strong intervention by the state¹⁴.

The critical voice of the parliament prompted the government to try to prevent the monopoly in the electricity market. For example, the Minister of Commerce and Industry made the following statement in May, 1914: “In general, the government has adopted until today the attitude of “wait and see” toward the development of power supply in the state. Such a moderate attitude may not be taken any longer, if we have finally reached the circumstances in which the integrated power supply cannot be guaranteed in the future and there is great fear for an appropriate power supply to the state. The government must strengthen its influence and make sure that electric power would reach not only the lucrative region but everyplace inclusive of the poor region. What is more important is to

¹¹ Asriel, a.a.O., S. 38f.

¹² Preußische Elektrizitäts-Aktiengesellschaft. Denkschrift anlässlich ihres 25 jährigen Bestehens 1927-1952, Hannover 1952, S. 25.

¹³ B. Stier, *Staat und Strom. Die politische Steuerung des Elektrizitätssystems in Deutschland 1890-1950*, Ubstad-Weiher 1999, S. 219.

¹⁴ Ebenda, S. 221ff.

restrain the private capital from expanding the monopoly of power supply”¹⁵.

It was just after World War I that the Prussian government put such an active policy into practice. Since the west region of Prussia was already under the control of RWE and the east region was also controlled by Elektrizitätswerk AG. belonging to the Reich, the Prussian government planned to construct the regional power networks in the remaining central region “from Bremen to the Weser”. This region was split into three areas, and in order to supply each area with electricity, the following three corporations were established in 1923: Großkraftwerk Hannover AG., Gewerkschaft Großkraftwerk Main-Weser and PKO. The three corporations were only engaged in the power generation and transmission, and the power distribution to consumers was entrusted to each municipality¹⁶. Additionally, in 1925, in order to extend its service area toward the north, the Prussian government acquired the majority of shares of Siemens-Elektrische Betriebe AG, which had supplied electricity to the north region of Germany between Ostfriesland and the Baltic Sea, and changed its name to Nordwestdeutsche Kraftwerk AG. in September, 1925¹⁷.

The active intervention by the Prussian government in the power supply became a great threat to RWE, while, before WW I, the former had already regarded the extension of the latter’s service area as a threat to the public interest of the state economy. Hence, the construction of the Prussian power networks since 1923 provoked the “Electrical War”, a serious conflict between both sides over the power supply, in which the business strategy was often disregarded. Its typical example was the purchase by RWE of the majority of shares of Braunschweigische Kohlen-Bergwerke AG. In this case, RWE intended to prevent the Prussian state from constructing a power station near the coal mine of the company. However, the coal mine lay to the east of the Prussian power networks, so that there was no meaning for RWE, whose power networks stretched in the west of the Prussian state, except disturbing the Prussian plans for electric services. Another similar example was the Prussian takeover of Braunkohlen-Industrie „Zukunft“ AG. That had no meaning for the Prussian government other than obtaining an exclave in the territory of RWE¹⁸.

The conflict flared up not only over the mining right of coal and brown coal as raw

¹⁵ Ministerial-Blatt für Handel und Gewerbe vom 26. Mai 1914, S. 4, in: Institut für Stadtgeschichte Frankfurt am Main, Magistratsakten (Mag. Akt.) T 1999, Bd. 7.

¹⁶ Preussische Elektrizitäts-Aktiengesellschaft. Preussenelektra. Entwicklung und Ziele, Berlin 1931, S. 7ff.

¹⁷ Stier, a.a.O., S. 288ff.

¹⁸ Ebenda, S. 299ff.

materials for power generation, but also over the electricity markets, among which Frankfurt was the biggest one. As mentioned above, RWE planned, in 1924/25, to establish liaison with Bayernkraftwerk AG. by way of Mainkraftwerk AG. in Höchst. By denying RWE the expropriation of the ground on the Main, the Prussian government tried to prevent RWE from connecting a high-voltage cable across the Main to the regional power networks of Bayernkraftwerk AG. Such a heavy-handed measure taken by the Prussian government was closely related to the situation of electric services in Frankfurt, whose municipality was thinking about purchasing electricity from outside in order to make up for the insufficient capacity of the municipal power station. In such a context, the Prussian government made good use of the expropriating right for crossing the Main to obtain the electricity market of Frankfurt, so that RWE could not construct a high-voltage cable across the Main until the municipality of Frankfurt made a long-term contract with PKO for power supply¹⁹. In the next section, we look back on the development of electric services in Frankfurt during the “Electrical War”.

2. The development of electric services in Frankfurt during the “Electrical War”

The municipal power station of Frankfurt was completed in 1894 and started the operation in 1895. At the beginning, its management was entrusted to the constructor, Brown, Boverie & Co, but it was transferred to direct management of the municipality in 1899²⁰. From 1900 to 1913, the electricity consumption in the city increased, as shown in *Table 1*, from 9.2 million kWh to 40.9 million kWh, whereas the capacity of the municipal power station was enlarged to 34,266 kW. The net profit of the electric services also increased by leaps and bounds from 75,000 M. in 1899 to 3,385,000 M. in 1913. As a result, it had made the largest contribution among the net profits of various municipal enterprises since 1903²¹.

The electric services kept financial significance also during the Weimar period. For example, among the total municipal revenue of 132.75 million RM for 1927, 64.43 million RM was the financial requirements consisting of tax and the net profits of

¹⁹ About the competition between RWE and the Prussian government for the electricity market in Frankfurt cf. Herzig, a. a. O., S. 135.

²⁰ T. Mori, “Frankfurt Kokusai Denkigijutsu Hakurankai to sono Kiketsu: Kindai Doitsu ni okeru Toshi Denryoku Network Keisei no Ichi Model (The International Exhibition of Electric Technology in Frankfurtam Main and its consequences : a study on the formation of the urban electric power network in the late nineteenth-century Germany)”, in: *Shakaikeizaishigaku (Socio-Economic History)*, Vol. 69, No. 5 (2003), pp. 35-37.

²¹ Bericht des Magistrates über die Verwaltung und den Stand der Gemeinde-Angelegenheiten der Stadt Frankfurt am Main (Mag. Bericht) 1913, S. 45.

municipal enterprises. The latter proportion in the financial requirements was 10.5% (6.77 million RM), in which no less than 72.3% (4.89 million RM) was covered by the net profit of electric services²².

In contrast to the promising development in the prewar period, however, the electric services during the Weimar period were placed under very unstable socio-economic conditions. Just after the end of WW I, the electric services of Frankfurt were driven into a critical situation owing to coal shortage. The power consumption was so strictly limited that the lighting in shop windows and the illumination for advertising were completely forbidden, and even the indoor lighting was restricted as far as possible²³. As shown in *Table 1*, the power consumption recorded 43.9 million kWh at the peak in 1917 and 34.9 million kWh at the bottom in 1919, and since then, it remained on such a low level until 1924. However, it began to rise again after the end of the Hyperinflation, and the municipal department of Water, Electricity and Gas foresaw the rapid growth of power consumption as shown in the following report in February, 1924,: “Although the capacity of the municipal power station had been still sufficient during WW I and just after its end, and because of the closure of many companies and the reduction in working hours, the situation has not changed much for the moment, we should now take it into account that the current depression in commerce and industry in general cannot continue and the economy will be sure to improve and go into the orbit of recovery soon”²⁴. So, the same department demanded to enlarge the capacity of the power stations whose generators had not at all been renovated since 1912. But it was impossible for the municipality to shoulder the renovation cost estimated about 2 million Goldmark, since the municipal finance had been increasingly aggravated by the Erzberger’s reform in 1919/20 as well as the Hyperinflation²⁵.

In this context, the purchase of electricity from outside was considered as a provisional measure, and the following three regional power networks were counted as alternative suppliers: Bayernwerk, PKO, and Mainkraftwerke, which had been already subordinated to RWE. However, Bayernwerk could not guarantee a stable supply of electricity in winter because of its excessive dependence on hydropower generation, so that Bayernwerk was

²² Haushalt-Plan der Stadt Frankfurt A. M. 1929, S. X X I f, X X VII., 278ff.

²³ Mag. Bericht 1918, S. 85.

²⁴ Bericht des Wasser-, Elektrizitäts- und Gas Amts vom 6. Februar 1924: Betr. Erweiterung der Leistungsfähigkeit der EW, in: Mag. Akt. T 1999, Bd. 8.

²⁵ Bericht des Wasser-, Elektrizitäts- und Gas Amts vom 6. Februar 1924: Betr. Erweiterung der Leistungsfähigkeit der EW, in: Mag. Akt. T 1999, Bd. 8; D. Rebentisch, *Ludwig Landmann. Frankfurter Oberbürgermeister der Weimarer Republik*, Wiesbaden 1975, S. 191f.

removed from the list first of all. Comparing the offers of PKO and Mainkraftwerke, the annual price of the latter electricity was about 500,000 RM. higher than that of the former, and the difference would become greater, as the amount of power supply grew larger. The more important factor than price was the fact that the power stations of both Mainkraftwerk and RWE lay in the territory under occupation by French forces. If the authorities of French occupation forces took some unpredictable action, the electric power supply from power stations on the Rhein or the Main could be cut off at any moment. Thus, the contract with Mainkraftwerk was rejected, because the long-term power supply was not to be expected owing to the geopolitical factors²⁶.

In this context, PKO was selected as power supplier by the municipality of Frankfurt and started on power supply in September 1925²⁷. According to the contract between PKO and the city, PKO was obligated to supply the electric quantity of 6,000 kW regularly, while the municipality of Frankfurt was obligated to purchase the electric quantity of at least 18 million kWh per year, independently of the real power consumption. Besides, the cost of electricity purchased from PKO was twice the cost of electricity generated at the municipal power station, but the municipality was entitled to run its own power station constantly and hold a protective zone with a radius of 15 km around the city in which PKO was prohibited from distributing electricity to consumers either directly or indirectly²⁸. Although the flexibility of the municipality in electric services was more or less weakened through this contract, Frankfurt could retain its own autonomy differently from other cities under the control of RWE.

Even after the conclusion of the contract with PKO, the municipality had to tap another source in order to meet the continuously growing demand. Moreover, the connection to the power networks of PKO revealed other problems in the municipal electric systems. The electricity supplied from PKO was a three-phase alternating current with a frequency of 50 Hz, while the power networks of the city had used a single-phase alternating current with a frequency of 45.3 Hz. since the Second Monarchical days. So, before distributing electric power to the municipal consumers, it was necessary to convert the supplied electricity from a three-phase to a single-phase alternating current at the municipal power

²⁶ Bericht des Wasser-, Elektrizitäts- und Gas Amts vom 6. Februar 1924: Betr. Erweiterung der Leistungsfähigkeit der EW, in: Mag. Akt. T 1999, Bd. 8.

²⁷ Abschnitt aus dem städtischen Anzeigebblatt vom 26. September 1925, Nr. 39., in: Mag. Akt. T 1999, Bd. 8.

²⁸ Der Vertrag zwischen der "Preußischen Kraftwerke Oberweser AG" in Cassel und der Stadt Frankfurt am Main, in: Mag. Akt. T 1999, Bd. 8; Bericht des Wasser-, Elektrizitäts- und Gas Amts vom 6. Februar 1924: Betr. Erweiterung der Leistungsfähigkeit der EW, in: Mag. Akt. T 1999, Bd. 8.

station. The conversion itself brought about a loss of 15-20% of the supplied electricity from PKO, so that it was to the great advantage of the municipality to make it possible to distribute the electricity of a three-phase alternating current directly to consumers, that is, to change the municipal power networks into a new electric system using a three-phase alternating current²⁹.

Concurrently with planning to change the electric system, the municipality also began to think about increasing the generating capacity of its own power station. In April, 1925, Ludwig Landmann, the incumbent mayor of Frankfurt, entrusted some experts with drawing up a project to renovate the generators on condition that the power supply from PKO would start up in September in the same year. At the same time, he requested them to direct special attention to the following question: which alternative was appropriate from technical and economical viewpoints, (1) to increase the generating capacity of the municipal power station in order to use it for base load, while reserving the electricity supplied from regional power networks outside the city for peak load, or (2) to depend completely on regional power networks for base load, while using the municipal power station only for peak load³⁰.

Among several projects proposed at the request of Landmann, the project of Georg Klingenberg, a member of the board of AEG, was accepted as a draft for expansion of the municipal power station. In Klingenberg's view, the municipality would be defenseless against regional power enterprises, if it gave up generating electricity on its own and entrusted power supply completely to them. In view of the technological instability of long-distance power transmission, the connection with regional power networks could be approved only on condition that the municipal power station had enough capacity to cover power shortage caused by some trouble of long-distance power transmission networks. On the contrary, if the municipal power station generated enough electricity power to meet the greater part of power demand in the city, the municipality could develop its electric services on its own and maintain the "extensive flexibility" in the policy of power charges in particular. Therefore, when renovating the municipal power station, it would be vital for the municipality to attain enough expansion to make sure of the autonomy of

²⁹ Schreiben des Frankfurter Magistrats an das Preußische Finanzministerium Berlin vom 22. Oktober 1923 Betr. Kreditgewährung zum Bau von elektrischen Anlagen (Anlage vom Bericht des des Wasser-, Elektrizitäts- und Gas Amts vom 18. Oktober 1923) in: Mag. Akt. T 1999, Bd. 8; Bericht des Wasser-, Elektrizitäts- und Gas Amts vom 23. Dezember 1924. Betr. Ersatz der ältesten Dampfmaschinen und Kessel im Elektrizitätswerk 1 und Erweiterung der Schaltanlagen. in: Mag. Akt. T 1999, Bd. 8.

³⁰ Schreiben des Oberbürgermeisters Landmann an Herrn Geheimer Baurat Prof. Dr. G. Klingenberg u. an Herrn Prof. Dr. Petersen vom 28. April 1925, Mag. Akt. T 2017, Bd. 1.

its electric services and to hold a considerable part of power generation in its own hand so as to meet the growing power demand. In the case of Frankfurt, a power plant to generate at least 60,000 kW of electricity would be necessary for pursuing autonomous and flexible electric services, unhindered by regional power enterprises. From these viewpoints, Klingenberg proposed to expand the municipal power station by installing three or four turbo-generators, each with a capacity of 20,000 kW, in exchange for outdated generators³¹.

However, before the Parliament of Frankfurt approved carrying out the Klingenberg's project in August, 1926³², RWE had begun to threaten the municipal autonomy in electric services. As mentioned above, RWE had once made a concession to PKO over the electricity market in Frankfurt, but it intended to incorporate the city into its service area again. From September 1925 to November 1926, RWE offered the municipality power supply from its networks three times. In the first offer, RWE presented the municipality with the following three points: (1) RWE would take over all equipment for electric services from the municipality, except for low-voltage distribution networks ; (2) RWE would take on power generation and transmission along with distributing electricity to big consumers; (3) the municipality would only distribute electricity to the other small consumers through its low-voltage distribution networks; (4) in compensation for these matters, RWE should transfer its shares at face value of 4,640,000 RM to the municipality. Although this offer would be estimated to ensure the municipality a profit of about 5,925,000 RM per year from the share dividend and selling electricity to small consumers, the municipality would lose its autonomy of electric services through the complete dependence on RWE for power supply. Therefore, the first offer faced a strong protest in the communal authorities³³.

In September 1926, RWE made the second and third offers to the municipality. The main points of these offers were that Frankfurt should purchase 25% of total power demand, at least 25 million kWh per year, from RWE, while the latter would be obligated to supply Frankfurt with 6,000 kW of electricity at a price between 3.4 and 3.9 Pfg. per kWh³⁴. These offers were more favorable for Frankfurt than the first one, since the

³¹ Gutachten. Betreffend Umgestaltung der städtischen Elektrizitäts-Versorgung von Frankfurt am Main. Von Geh. Baurat Prof. Dr. G. Klingenberg, August 1925, in: SW., Nr. 551.

³² Bericht über die Verhandlungen der Stadtverordneten-Versammlung der Stadt Frankfurt am Main, § 786 vom 10. August 1926, S. 31-35.

³³ Schreiben von Herrn Stadtrat Schmude an den Herrn Oberbürgermeister Landmann vom 15. Dezember 1926, in: SW., Nr. 57.

³⁴ Ebenda.; Angebot des R.W.E. an die Stadt Frankfurt a.M. vom 9. Februar 1926, in:

electricity price was set lower than that of PKO, and above all, the municipality could retain its autonomy of electric services.

However, these offers were also rejected by the municipality. The direct reason was that the Klingenberg's project had been already approved by the parliament before the third offer, but it could be inferred that the indirect but more fundamental reason was a strong aversion in the communal authorities against RWE. This point was indicated in a private letter written by Landmann in October 1926, in which he argued that the municipality had "to deter RWE as far as possible from supplying Frankfurt with electricity." In Landmann's opinion, Frankfurt had purchased electricity from PKO since the previous year in spite of such unfavorable conditions as high price, but it was wholly due to the fact that "taking account of the common interests of electric services in general, we cannot think of the domination of electricity market by private capital as a desirable situation."³⁵

In 1927, the Prussian government and RWE concluded a "demarcation treaty", through which both agreed that RWE would give up the electricity market in Frankfurt and the city should belong to the service area of Prussia thereafter. Until the conclusion of the "demarcation treaty", the Klingenberg's project was the only way for the municipality to keep its autonomy of electric services against the threat of RWE. However, as soon as it began to be carried out, the scale of the project was drastically reduced because of lack of financial resources attributable to the failure in raising a foreign loan.

Since the end of the Second Monarchical days, issuing a public bond had functioned as a general means of fund-raising for large-scale projects of municipalities. During the Weimar period, the foreign credit market became more and more important for municipal loan policies, since the domestic credit market had receded into the background because of credit shortage after WWI and the inflation in the first half of the 1920s. However, just like tax policies after the Erzberger's reform, municipal loan policies were greatly influenced by such higher governments as the Reich and the states. For the purpose of issuing a foreign loan, municipalities had to get approval from the governments of the states, and since 1925 also from the "Committee for Foreign Loan", which consisted of representatives of the Reich's Ministry of Finance and Ministry of Economic Affairs and the Reich's Bank. The "Committee for Foreign Loan" always examined municipal applications strictly, and rejected more than half of them from 1925 to 1928³⁶.

SW. Nr. 57.

³⁵ Schreiben des Herrn Oberbürgermeisters Landmann an Herrn E. Goll vom 2. Oktober 1926, in: Mag. Akt. T 2043, Bd. 1.

³⁶ Sekino, *op. cit.*, pp. 224-229.

This framework of foreign loan policies also affected financing of the Klingenberg's project. In 1927, the municipality was offered from an American bank, E.H. Rollins & Sons in Boston and New York, a municipal loan of 60.1 million RM at 6% interest with a redemption period of 25 years. That was an "offer, which was perceived as sensational throughout Germany"³⁷. The use of this loan was decided as follows: 26 million RM for the Klingenberg's project, 12 million RM for the improvement of tram networks, 15 RM for the construction of market halls³⁸. The inquiries carried out in the Reich's Ministry of Finance had raised a hope of approval at first, but owing to the tight policies of Schacht, president of the Reich's Bank, the loan was accepted only in the amount of 6.25 million RM³⁹. That resulted in the reduction of the Klingenberg's project, and finally, only two turbo-generators, each with the capacity of 16,000 kW, were newly installed⁴⁰.

3. The "Electrical Peace" and the emergence of Preußenelektra

After the Klingenberg's project was launched in Frankfurt, the relationship between the Prussian state and RWE came to a turning point. The "demarcation treaty" made an end of "Electrical War" in 1927, since both of them could not find any benefit in the conflict damaging their management. The main purpose of this "treaty" was to keep up both service areas by fixing the border which ran southwards along the Weser from the North Sea to the Main, and to decide that the service area on the east side of the border should belong to the Prussian state and that on the west side of the border to RWE. Simultaneously, the shares of the Prussian state in Braunkohlen-Industrie „Zukunft“ AG. was exchanged for those of RWE in Braunschweigische Kohlen-Bergwerke AG. The only exception was the Saargebiet, which should belong to the service area of the Prussian state as exclave, although it was located on the west side of the border⁴¹.

After the conclusion of the "treaty", known as "Electrical Peace", the Prussian state founded Preußische Elektrizitäts-AG. (Preußenelektra) in October 1927, through amalgamation of Großkraftwerk Hannover AG., Gewerkschaft Großkraftwerk Main-Weser and PKO with share capital of 80 million RM, the whole sum of which was in the hands of the Prussian state. That was "a milestone in the history of electric economy in the Prussian state", since it enabled the state to establish the institutional foundation for

³⁷ Rebentisch, *a. a. O.*, S. 196.

³⁸ Mag. Bericht 1927/28, S. 1.

³⁹ Rebentisch, *a. a. O.*, S. 196ff.

⁴⁰ Mag. Bericht 1927/28, S. 109.

⁴¹ Der deutsche Volkswirt. Zeitschrift für Politik und Wirtschaft, Nr. 31 vom 29. April 1927, S. 955f.; Stier, *a. a. O.*, S. 320ff.

carrying out centralized electric services within its service area⁴².

The strategy of Preußenelektra was, on the one hand, to fix still more borders in relation to the other regional power enterprises. From 1928 to 1930, it had concluded the “demarcation treaties” with Elektrowerke AG, Bayernwerk AG, Vereinigte Elektrizitätswerke Westfalen AG, AG. Sächsische Werke, and Thüringischen Landeselektrizitätsversorgungs-AG, “which recorded the current structure of service areas”⁴³. On the other hand, in order to rationalize the management within its service area, Pressenelektra founded several power distribution companies, such as Schleswig Holsteinische Stromversorgungs-AG for the northern part, Nordwesten die Weser-Ems Stromversorgungs-AG for the northwestern part, and Hannover-Braunschweigische Stromversorgungs-AG for the district of Hannover, through merging and closing down a lot of smaller power distribution companies (hitherto independent) that had supplied electricity with ultimate consumers, in the rural areas in particular⁴⁴.

Furthermore, in order to strengthen the relations with municipalities, Preußenelektra made it possible for them to participate in its management as shareholders. At first, the Prussian state had owned the whole block of its shares, but in July 1927, the Prussian parliament authorized the Minister of Trade to transfer some part of the Preußenelektra’s share capital, maximally 26%, to municipalities. Thus, the capital stock, 100 million RM in 1929, could be increased maximally by 35 million RM without the contribution from the Prussian state⁴⁵.

4. The development of electric services in Frankfurt after the “Electrical Peace”

After the “Electrical Peace”, the electric services in Frankfurt came to a turning point, too. Frankfurt had to develop new power sources, especially brown coal and water power, in its environs, since the expansion of the municipal power station was not enough to meet the growing power demand.

At first, the municipality planned to build a power station equipped with facilities for carbonizing brown coal at the Wölfersheim pit in the Oberhessen Province of the Hessian state. For that purpose, Frankfurt and the Hessian state founded Großkraftwerk Hessen-Frankfurt AG (henceforth, abbreviated as “Hefrag”), and they both participated in the

⁴² Preussische Elektrizitäts-Aktiengesellschaft. 1927-1952, S. 21, 26f.

⁴³ Herzig, *a. a. O.*, S. 136.

⁴⁴ Geschäftsbericht der Preussische Elektrizitäts-Aktiengesellschaft 1929, S. 8f., in: Mag. Akt. T2043, Bd. 2.

⁴⁵ Ebenda, S. 8f.; Preussische Elektrizitäts-Aktiengesellschaft, S. 57f.; Stier, *a. a. O.*, S. 336.

management, each with 50% of its capital stock⁴⁶. In “Hefrag”, which intended to utilize brown coke for power generation and the thermal energy emitted by power generation for carbonizing brown coal, two power stations were to be constructed with a capacity of 216,000 kW and 31,600 kW respectively, and the annual power output was estimated from 200 to 220 million kWh. As to the power transmission from Wölfersheim to Frankfurt with a distance of 34 km, it was planned to use the power cable of PKO which was also to be used to supply electricity to the Oberhessen Province. The total cost of the “Hefrag” project was estimated at 23.6 million RM⁴⁷.

In the “Hefrag” project, electricity was to be supplied from Wölfersheim to Frankfurt under the following conditions: (1) “Hefrag” would be obligated to supply electricity in the amount of 24 million kWh at a price of 2.75 Pfg/kWh annually; (2) the power supply should start on the first of October in 1928 at the latest; (3) the power supply from “Hefrag” should last for thirty years⁴⁸. That would enable Frankfurt to gain a new power source for base load at a price on the same level as that generated in the municipal power station.

The “Hefrag” project was carried out in April 1927, but even in 1929, the power supply to Frankfurt could not start yet, since the construction of power stations had been delayed substantially. Meanwhile, the estimated cost of the project also had to be revised upwards considerably. Furthermore, the unstable geopolitical conditions of power supply got a great deal of attention: it was planned to transmit electricity from Wölfersheim to Frankfurt through the power cable of PKO, whereas “Hefrag” was in competition with PKO for the electricity market of Oberhessen. Under these circumstances, Frankfurt concluded, in October 1929, that it was impossible to hold its shares of “Hefrag” any

⁴⁶ Mag. Bericht 1919/20 bis 1923/24, S. 70; Vortrag des Magistrates an die Stadtverordnetenversammlung. Betreffend Gründung der Braunkohlen-Schwel-Kraftwerke Hessen Frankfurt am Main AG vom 21. März 1927, S. 1f., in: Mag. Akt. T 2040; Denkschrift für den Aufsichtsrat der Frankfurter Gasgesellschaft und für die Grubenvorstandsmitglieder der Gewerkschaft Friedrich. Betreffend: Industrielle Verwendung der oberhessischen Braunkohlen und Grosskraftwerk-, „Hefrag“-Projekt mit Schwelerei in Wölfersheim von Dipl.-Ing. F. P. Tillmetz, S. 1f., in: Mag. Akt. T 2037, Bd. 1.

⁴⁷ Denkschrift für den Aufsichtsrat der Frankfurter Gasgesellschaft und für die Grubenvorstandsmitglieder der Gewerkschaft Friedrich. Betreffend: Industrielle Verwendung der oberhessischen Braunkohlen und Grosskraftwerk-, „Hefrag“-Projekt mit Schwelerei in Wölfersheim von Dipl.-Ing. F. P. Tillmetz, S. 2ff., in: Mag. Akt. T 2037, Bd. 1.

⁴⁸ Vortrag des Magistrats an die Stadtverordnetenversammlung vom 17. Oktober 1929. Betr. Abschluss von Verträgen wegen der Umkanalisierung des Untermains, der Zusammenarbeit mit der Preußenelektra und des Rücktritts mit Rechten bei der Frankfurter Gas AG., in: Mag. Akt. T 2033.

longer⁴⁹.

Although Frankfurt had tried to realize the “Hefrag” project but to no avail, it had also participated in another project, the Untermain project, which aimed to widen the ship route of the Untermain (i.e. the lower reaches of the Main) and to construct hydropower stations on the riverside. The Untermain route had been already canalized in 1880s for the direct route of big steamships from the Rhein to Frankfurt, and had contributed to the economic development of Frankfurt since then, serving as a commercial artery as well as a transportation route of raw materials,⁵⁰. Thereafter, as the scale of ships became larger, the traffic situation became worse so that the Untermain route had to be widened. So, since July 1920, the draft of the Untermain project had been discussed among various interests, the Reich government, the governments of the Prussian and Hessian states, and municipalities on the Untermain, such as Frankfurt, Mainz, Wiesbaden, etc.⁵¹ But the project was suspended from 1923 to 1926 because of the inflation, and it was continued only by two interests: namely, the Reich, which had jurisdiction over the whole inland navigation in Germany, and Frankfurt, which would gain the most profit from the project⁵².

On the one hand, the final plan of the Untermain project, which was completed by the Reich and Frankfurt in 1929, aimed to improve the traffic situation through widening the route as well as constructing two locks at Griesheim and Eddersheim, instead of five old ones. The total cost of this undertaking was estimated at 43 million RM, in which Frankfurt should bear only 2.3 million RM, while the rest was provided by the Reich⁵³. On the other hand, the project planned to build two hydropower stations with a total capacity of 8,700 kW at each newly-constructed lock. Both hydropower stations should

⁴⁹ Vortrag des Magistrats an die Stadtverordnetenversammlung vom 17. Oktober 1929. Betr. Abschluss von Verträgen wegen der Umkanalisierung des Untermains, der Zusammenarbeit mit der Preußenelektra und des Rücktritts mit Rechten bei der Frankfurter Gas AG., in: Mag. Akt. T 2033.

⁵⁰ Geschichte der Handelskammer zu Frankfurt am Main, Frankfurt am Main 1908, S. 1027.

⁵¹ Abschrift: Besprechung am 30. Juli 1920 in Wiesbaden, unter Vorsitz von Herrn Geh. Baurat Goltermann, in: Mag. Akt. T 2032, Bd. 1.

⁵² Verhandlung in Berlin, den 14. Dezember 1921, in: Mag Akt. T 2032, Bd. 1.; Schreiben des Magistrats Frankfurt a. M. an das Reichsverkehrsministerium vom 12. Mai 1926, in: Mag. Akt. T 2032, Bd. 1.

⁵³ Vortrag des Magistrats an die Stadtverordnetenversammlung vom 17. Oktober 1929. Betr. Abschluss von Verträgen wegen der Umkanalisierung des Untermains, der Zusammenarbeit mit der Preußenelektra und des Rücktritts mit Rechten bei der Frankfurter Gas AG., S. 2-9., in: Mag. Akt. T 2033.

be constructed and driven by the Reich, while Frankfurt was obligated not only to purchase the whole electricity generated at the power station of Griesheim, annually about 45 million kWh for 35 years, but also to finance the whole construction cost of both stations, estimated about 15 million RM⁵⁴. In order to carry out the project promptly, Frankfurt intended to guarantee the Reich against the risks of the project by assuming these obligations, since the Reich's Ministry of Finance had taken a negative attitude toward the project and required a proof of the profitability of the project⁵⁵.

The price of electricity supplied from Griesheim should be set between 2.5 and 3.0 Pfg/kWh, almost at the same level as the generating cost at the municipal power station. The obligation to purchase the whole electricity generated at the power station of Griesheim seemed to be an inflexible contract, though it would enable Frankfurt to gain a stable low-cost power source for base load, and it should be immediately secured to meet the rapidly growing power demand in the city. The more critical problem was that it was difficult for the municipality to raise the construction cost of both hydropower stations because of capital shortage in the German credit market. This problem, however, was solved by an offer from Preußenelektra, which would finance the total cost at a relatively low interest.

This offer reorganized the relationship between Frankfurt and Preußenelektra, since the contract concluded by both of them in October 1929 covered not only the loan but other supplementary items. The core of this contract could be summarized into the following five points:

- (1) Preußenelektra should make a loan of 15 million RM to Frankfurt only at 7% interest with a redemption period of 35 years, while the contract with the Reich obliged Frankfurt to pay back fully in two years, normally at 10 or 11 % interest⁵⁶.
- (2) Frankfurt should buy the shares of 15 million RM from Preußenelektra. That would

⁵⁴ Vortrag des Magistrats an die Stadtverordnetenversammlung vom 17. Oktober 1929. Betr. Abschluss von Verträgen wegen der Umkanalisierung des Untermain, der Zusammenarbeit mit der Preußenelektra und des Rücktritts mit Rechten bei der Frankfurter Gas AG., S. 9-12., in: Mag. Akt. T 2033.

⁵⁵ Schreiben des Oberbürgermeisters Landmann an Herrn Magistratoberbaurat Uhlferlder vom 24. Juli 1926; Schreiben des Magistrats Frankfurt a. M. an den Herrn Reichsverkehrsminister vom 2. August 1926, in: Mag. Akt. T 2032.

⁵⁶ Vortrag des Magistrats an die Stadtverordnetenversammlung vom 17. Oktober 1929. Betr. Abschluss von Verträgen wegen der Umkanalisierung des Untermain, der Zusammenarbeit mit der Preußenelektra und des Rücktritts mit Rechten bei der Frankfurter Gas AG., S. 24f., in: Mag. Akt. T 2033. S. 24f.; Auszug aus der Niederschrift über die Sitzung der Magistrat-Finanz-Kommission vom 15. Oktober 1929, S. 6., in: Mag. Akt. T 2035.

make Frankfurt the biggest shareholder with a share of 42.8% among the municipal group⁵⁷.

(3) Preußenelektra should buy Hefrag's shares of 1.5 million RM in the possession of Frankfurt at par. On the one hand, that implied the financial relief of the municipality because the Hefrag project had not offered any prospects at that time, as mentioned above. On the other hand, that made it possible for Preußenelektra to gain a service area in Oberhessen because it also took over the shares of Hefrag in the possession of the Hessian state at the same time⁵⁸.

(4) The electricity supplied from Preußenelektra to Frankfurt should be expanded from 6,000 kW to 30,000 kW by 1933 under the following conditions. Firstly, the electricity price should be reduced from twice to almost the same as the cost of power generation at the municipal power station. Secondly, the municipality could keep its "protectorate" (Schutzgebiet), in which Preußenelektra could supply consumers with electricity neither directly nor indirectly. In the case of negotiations with RWE and other companies, Preußenelektra should make sure that the municipal power station could keep the whole of Frankfurt within its service area⁵⁹. Thus, Frankfurt could retain the autonomy of electric services, as far as the contract with Preußenelektra was effective.

(5) A part of the power demand in Frankfurt should be supplied from the Saargebiet, and RWE had also agreed to assist this project by transmitting electricity through its high-voltage cable from the Saargebiet to Frankfurt. As mentioned above, the Saargebiet had belonged to the service area of Preußenelektra as an exclave, and after the "Return to the Reich" in 1935, its coal mines would come into possession of the Prussian state. In order to promote the economy in the Saargebiet, where coal mining was a key industry, it was necessary to utilize a considerable amount of "waste coal" for transforming it into electricity and transmitting such electricity to other regions, since the coal in the Saargebiet had a lower degree of purity than in other regions⁶⁰. Under these circumstances, Frankfurt had been looked on as a promising market for the coal of the Saargebiet.

⁵⁷ Vortrag des Magistrats an die Stadtverordnetenversammlung vom 17. Oktober 1929. Betr. Abschluss von Verträgen wegen der Umkanalisierung des Untermains, der Zusammenarbeit mit der Preußenelektra und des Rücktritts mit Rechten bei der Frankfurter Gas AG., S. 25f., in: Mag. Akt. T 2033.

⁵⁸ Ebenda, S. 22ff.; Preussische Elektrizitäts-Aktiengesellschaft. Entwicklung und Ziele, Berlin 1931, S. 59.

⁵⁹ Stromlieferungsvertrag zwischen Preag und Frankfurt a. M. (Anlage 3 zum Vortrag des Magistrats vom 17. Oktober 1929), in: Mag. Akt. T 2033.

⁶⁰ H. Neikes, "Die Eingliederung des Saargebietes in die deutsche Elektrizitätsversorgung", in: *Kommune und Wirtschaft (Sonderausgabe der Kölnischen Zeitung 1929)*, S. 61-63, hier S. 62.

Through reorganizing the relationship with Preußenelektra, Frankfurt succeeded not only in financing for the Unterrhein project at low interest, but in keeping power supply from outside without any loss of the autonomy of electric services. This outcome had a close relation to the strategy of Preußenelektra after the “Electrical Peace”. According to its communiqué, the agreement with Frankfurt represented “an important step toward the rational integration of the current fragmented electric economy in Germany”, since it was necessary for that purpose to make “a systematic interaction between big-scale power producers and municipal power consumers”. And reorganizing the relationship with Frankfurt, which had been one of the most important fronts for the Prussian state during the “Electrical War”, would contribute not only to strengthening the company’s fronts further, but also to carrying on “a rational integration of electric services in the Rhein-Main economic bloc”⁶¹.

The municipality of Frankfurt under Mayor Landmann had had a great interest in the integration of the Rhein-Main economic bloc since his inauguration. In 1924, the economic department of Frankfurt proposed to establish an administration union, “Rhein-Mainischer Städtekränz”, with the intention that Frankfurt, as a leading city in this region, should lead the municipalities economically and gain a position as the important junction of all over Europe⁶². In order to realize this concept, Landmann promoted the Hafraba project (i.e. the construction of an Autobahn from Hamburg to Basel via Frankfurt), and the Rhein-Main-Donau project (i.e. the construction of a seaway from the North Sea to the Black Sea), as a part of which the Unterrhein project was launched⁶³. Under the circumstances, reorganizing the relationship between Frankfurt and Preußenelektra was taken to be “a significant progress toward the economic integration of public interests in the south-west part of Germany”⁶⁴.

The Unterrhein project had been carried out successfully and the hydropower station at Griesheim was completed in November 1932. From April 1933 to March 1934, Frankfurt was supplied with electricity of 115.91 million kWh, of which 38.3% was generated at the municipal power station, 38.4% was supplied from Preußenelektra and 22.8% was supplied from Griesheim⁶⁵. Although the hydropower station at Griesheim belonged to

⁶¹ Communiqué Berlin (Berlin, den 4. Oktober 1929), in: Anlage zum Schreiben der Stadtkanzlei vom 11. Oktober 1929, in: Mag. Akt. T 2035.

⁶² Wirtschaftsdeputation Frankfurt a. M. (Hg.), *Der Rhein-Mainische Städtekränz. Mit seiner Zentrale Frankfurt am Main im Südwestdeutschen Wirtschaftsgebiet, Frankfurt am Main*, 1924.

⁶³ Rebentisch, *a. a. O.*, S. 165ff.

⁶⁴ Rhein-Mainische Volkszeitung, Nr. 233 vom 5. Oktober 1929.

⁶⁵ Mag. Bericht 1933/34, S. 48.

the Reich officially, it actually functioned as a power source possessed exclusively by Frankfurt for base load. Therefore, more than 60% of power demand in Frankfurt was considered to be covered by its own power sources.

As shown in *Table 1*, the electricity production at the municipal power station had decreased since 1930, while the amount of power supply from Preußenelektra had increased so much that the latter exceeded the former finally in 1932. It was because the municipality was forced to shut down its power station occasionally, due to the increase of power supply from Preußenelektra along the agreement and the rapid decline of power consumption owing to the Great Depression⁶⁶. In general, regional power networks and municipal power stations had competed with each other more fiercely for consumers during the Great Depression, but in the case of Frankfurt, it could be said that as described above, the change of the main power suppliers was determined less by the competition between Frankfurt and Preußenelektra than by their relationships reorganized in October 1929. Furthermore, the predominance of Preußenelektra in power supply was just a temporary phenomenon, since the completion of the power station at Griesheim changed the main electricity suppliers again. Apart from the second half of the 1940s, Frankfurt defended stoutly both the municipal power station and the power station at Griesheim as its main power suppliers until the 1960s⁶⁷.

Conclusion

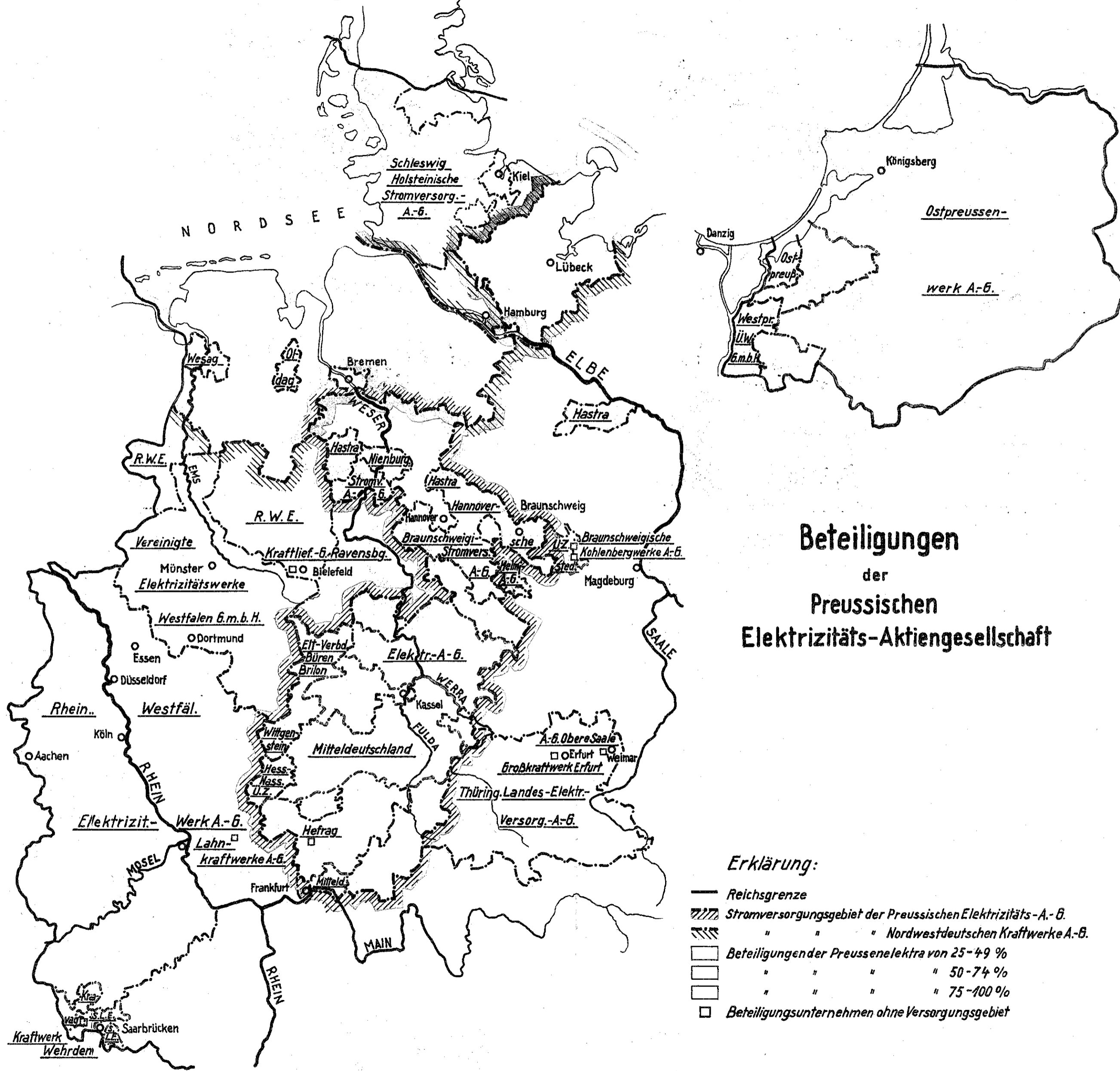
In this paper, we examined how Frankfurt was able to sustain its electric services as an autonomous system in opposition to the expanding influence of regional power networks, especially against RWE, during the Weimar period. It owed a lot to the assistance from Preußenelektra and to the economic policy of the Prussian state, but we should not overlook the significance of the municipal attempts at developing new power sources. Above all, the extension of the municipal power station had taken a great role in foiling the intention of RWE, though the newly installed generators could not achieve the expected results. Indeed, the Hefrag project and the Untermain project were not carried out by Frankfurt alone, but they created an important precondition for reorganizing the relationship with Preußenelektra. Besides, these projects were based on the deep-rooted perception that, despite the financial difficulties after the Erzberger's reform, the municipality should rebuild a stable system of power supply as far as possible, not only

⁶⁶ Geschäftsbericht des städtischen Werksamtes Frankfurt a. M. 1931 u. 1932 (Vom 1. April 1931 bis 31. März 1933), S. 11f.

⁶⁷ Stadtwerke Frankfurt am Main (Hg.), *Stadtwerke Frankfurt am Main. 100 Jahre im Dienste der Allgemeinheit*, Berlin 1969, S. 74.

to meet the rapidly growing demand in the city, but also to prevent the monopolization of the electricity market by RWE. Viewed from the perspective that the formation of the current electric systems could be understood not only as a result of technical development but also as the outcome of the political/economic conflict and cooperation between the state, private capital and municipalities, it is surely justifiable that an alternative viewpoint resulting from the case of Frankfurt, namely the sustainment of municipal electric services, would complement the conventional urban history of Germany that has so far assumed the Weimar period to be a final phase where municipal electric services were brought to an end by the growth of regional power networks.

Map. 1. Service Areas of Preußenelektra and RWE



**Beteiligungen
der
Preussischen
Elektrizitäts-Aktiengesellschaft**

Erklärung:

- Reichsgrenze
- ▨ Stromversorgungsgebiet der Preussischen Elektrizitäts-A.G.
- ▧ " " " Nordwestdeutschen Kraftwerke A.G.
- Beteiligungen der Preussenelektra von 25-49 %
- " " " " 50-74 %
- " " " " 75-100 %
- Beteiligungsunternehmen ohne Versorgungsgebiet

Table 1. The development of the municipal electric service in Frankfurt am Main (1895-1933)

| Budget Year | Business Development | | | | | Financial Development (1,000 M/RM) | | |
|-------------|-------------------------|-------------------|---------------------------------|----------------|------------------------------------|------------------------------------|-------------|------------|
| | Municipal Power Station | | Supplied Electricity (1,000kWh) | | Electricity Consumption (1,000kWh) | Income | Expenditure | Net Profit |
| | Capacity (kW) | Output (1,000kWh) | from PKO/Preußenelektra | from Griesheim | | | | |
| 1895 | 2,088 | — | — | — | n.a. | 574 | 574 | — |
| 1896 | 2,088 | 2,654 | — | — | n.a. | 609 | 609 | — |
| 1897 | 3,121 | 3,544 | — | — | n.a. | 783 | 682 | 47 |
| 1898 | 4,154 | 4,470 | — | — | n.a. | 870 | 841 | 30 |
| 1899 | 4,154 | 7,629 | — | — | n.a. | 1,346 | 1,220 | 75 |
| 1900 | 6,220 | 12,287 | — | — | 9,233 | 1,931 | 1,502 | 429 |
| 1901 | 6,220 | 15,040 | — | — | 12,905 | 2,285 | 1,519 | 767 |
| 1902 | 9,420 | 15,774 | — | — | 13,836 | 2,490 | 1,461 | 1,017 |
| 1903 | 9,420 | 16,432 | — | — | 14,739 | 2,746 | 1,527 | 1,219 |
| 1904 | 9,420 | 18,317 | — | — | 15,976 | 3,053 | 1,621 | 1,431 |
| 1905 | 11,876 | 19,967 | — | — | 16,813 | 3,225 | 1,683 | 1,562 |
| 1906 | 11,876 | 22,682 | — | — | 18,863 | 3,624 | 1,914 | 1,710 |
| 1907 | 18,354 | 27,223 | — | — | 22,744 | 3,987 | 2,318 | 1,669 |
| 1908 | 18,354 | 31,671 | — | — | 24,892 | 4,414 | 2,241 | 2,173 |
| 1909 | 21,332 | 34,038 | — | — | 27,259 | 4,918 | 2,266 | 2,652 |
| 1910 | 21,332 | 37,487 | — | — | 30,635 | 5,243 | 2,344 | 2,899 |
| 1911 | 21,332 | 40,467 | — | — | 33,119 | 5,801 | 2,533 | 3,269 |
| 1912 | 34,266 | 44,827 | — | — | 37,177 | 6,284 | 2,859 | 3,425 |
| 1913 | 34,266 | 48,402 | — | — | 40,867 | 6,617 | 3,232 | 3,385 |
| 1914 | 34,266 | 41,619 | — | — | 34,930 | n.a. | n.a. | n.a. |
| 1915 | 34,266 | 43,033 | — | — | 36,351 | n.a. | n.a. | n.a. |
| 1916 | 34,266 | 48,819 | — | — | 40,994 | n.a. | n.a. | n.a. |
| 1917 | 34,266 | 53,765 | — | — | 43,870 | n.a. | n.a. | n.a. |
| 1918 | 34,266 | 44,471 | — | — | 36,294 | n.a. | n.a. | n.a. |
| 1919 | 34,266 | 43,187 | — | — | 34,846 | n.a. | n.a. | n.a. |
| 1920 | 34,266 | 49,060 | — | — | 39,428 | n.a. | n.a. | n.a. |
| 1921 | 34,266 | 54,894 | — | — | 42,065 | n.a. | n.a. | n.a. |
| 1922 | 34,266 | 56,842 | — | — | 48,395 | n.a. | n.a. | n.a. |
| 1923 | 34,266 | 51,717 | — | — | 41,305 | n.a. | n.a. | n.a. |
| 1924 | 34,100 | 62,787 | — | — | 52,911 | 13,085 | 7,605 | 6,416 |
| 1925 | 34,100 | 65,117 | 7,822 | — | 62,431 | 14,393 | 10,531 | 5,090 |
| 1926 | 32,000 | 62,674 | 20,277 | — | 67,988 | 14,421 | 11,005 | 4,555 |
| 1927 | 61,000 | 83,433 | 19,634 | — | 88,035 | 17,431 | 13,561 | 4,893 |
| 1928 | 61,000 | 104,588 | 20,451 | — | 101,882 | 21,027 | 16,678 | 4,349 |
| 1929 | 58,300 | 108,698 | 25,955 | — | 105,713 | 21,482 | 16,969 | 4,513 |
| 1930 | 58,300 | 91,579 | 36,162 | — | 106,432 | 6,190 | 3,409 | 2,781 |
| 1931 | 58,300 | 87,015 | 32,727 | — | 98,374 | 5,814 | 3,662 | 2,152 |
| 1932 | 58,300 | 57,238 | 57,777 | — | 92,861 | — | — | — |
| 1933 | 58,300 | 44,959 | 44,505 | 26,443 | 95,048 | — | — | — |

Source) Statistisches Handbuch der Stadt Frankfurt am Main, 1. Ausg. (1907), S. 80f.; 2. Ausg. (1928), S. 133f.; Statistische Jahresübersichten der Stadt Frankfurt am Main 1927/28, S. 42f.; 1928/29, S. 32; 1929/30, S. 12; 1930/31, S. 12; 1931/32, S. 12; 1933/34, S. 15.; Geschäftsbericht der städt. Wasser-, Elektrizitäts- und Gaswerke Frankfurt am Main, 1928, S. 54; 1929, S. 28; 1931/32, S. 4; 1933, S. 3