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Lars Holstenkamp
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The Rise and Fall of Electricity Distribution Cooperatives in Germany[‡]

Lars Holstenkamp[§]
September 2015 (*version as of November 2012*)

Zusammenfassung:
Ländlichen Regionen in Deutschland wurden zu einem großen Teil, wie auch in einigen anderen Ländern weltweit, durch Elektrizitätsgenossenschaften elektrifiziert (z. B. Beiträge in Barnes, 2007). Es gibt im Wesentlichen zwei Kontexte, in denen auf die Erfahrungen mit diesen Stromversorgungsgenossenschaften rekurriert wird: erstens als Vorgänger heutiger Energiegenossenschaften und zweitens in Diskussionen über ländliche Elektrifizierung in armen Ländern. In beiden Fällen ist das Ziel so etwas wie ein „Lernen aus der Geschichte".
In Deutschland sind von ursprünglich mehr als 6.000 Elektrizitätsgenossenschaften im Deutschen Reich Mitte der 1930er Jahre heute noch 44 „alte" Elektrizitätsgenossenschaften übrig geblieben Seit 2006 ist die Zahl an Genossenschaften im Energiesektor stetig angestiegen („neue Energiegenossenschaften"). Während dieses neuere Phänomen einige Aufmerksamkeit in Wissenschaft und Politik gefunden hat, sind Arbeiten zu alten Elektrizitätsgenossenschaften selten. Daher zielt das Arbeitspapier darauf, einen Überblick über die Entwicklung des genossenschaftlichen Elektrizitätssektors in Deutschland zu geben, die Gründungskontexte und Rollen von Elektrititätsgenossenschaften in der frühen Phase der Elektrifizierung zu untersuchen sowie die Gründe für die Auflösung oder das Überleben der einzelnen Firmen zu erörtern. Insgesamt ist es das Ziel der Arbeit, einige allgemeine Erkenntnisse zur Rolle und Grenzen bzw. Herausforderungen von genossenschaftlichen Lösungen im Energiesektor zu erzielen. Der empirische Teil umfasst vier Teile: (1) allgemeine Statistiken zur Entwicklung des Sektors, (2) eine Analyse des Gründungskontextes von Elektrizitätsgenossenschaften in ausgewählten Regionen, (3) eine Untersuchung der Gründe für die Auflösung sowie (4) eine Beschreibung der Überlebensstrategien verbliebener alter Elektrizitätsgenossenschaften. Darauf folgt eine kurze Diskussion theoretischer Implikationen.
Es scheint bislang keine umfassende Beschreibung deutscher Elektrizitätsgenossenschaften in der Literatur zu geben. Vielmehr wird ein Fokus auf bestimmte Unternehmen (z. B. Leiner, 1982), Regionen (z. B. Konrad, 1936) oder kurze Passagen zu Genossenschaften in Arbeiten zur allgemeinen Entwicklung und politischen Ökonomie des deutschen Elektrizitätssektors (z. B. Zängl, 1989) gerichtet. Daher werden Informationen aus unterschiedlichen öffentlich zugänglichen Quellen zusammengeführt. Die Daten werden vor dem Hintergrund der theoretischen Überlegungen zur Bildung von Genossenschaften, insbesondere im Energiesektor (Hansmann, 1988, 1996), und zur genossenschaftlichen Evolution (Hanisch, 2006) interpretiert.
Unternehmensgeschichten von deutschen Elektrizitätsgenossenschaften zeigen den hohen öffentlichen Einfluss im Elektritzitätssektor. Die Beschreibung der Funktion im Gründungsprozess passt recht gut zur Erklärung von Hanisch (2006) zur Preisfindung und zu Budgetrestriktionen. Politischer Einfluss und die Ausübung von Marktmacht durch lokale Energiemonopolisten könne als eine wesentliche Ursachen für die Auflösung zahlreicher Elektrizitätsgenossenschaften in den 1930er Jahren und nach dem Zweiten Weltkrieg angesehen werden. Kleine Unternehmensgrößen und fehlende Größenvorteile (Economies of Scale) können als Erklärung für die letzte Welle von Auflösungen, die mit der Liberalisierung der Strommärkte 1998 begann, herangezo-

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[‡] This work is a slightly revised and annotated version of a paper presented at the Conference on Cooperative Systems 2012 "The contribution of cooperatives to the sustainable development of local economic circuit – premises, possibilities, outlook" in Bolzano, 09.11.2012; organizers: University of Innsbruck, EURICSE, Free University of Bozen, and Raiffeisen Association of South Tyrole. For more in-depth analyzes of the issues highlighted in this paper see subsequent working papers and literature cited therein.

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gen werden. Zugleich mag das Studium der Überlebensstrategien verbliebener Elektritzitätsgenossenschaften nützliche Hinweise für die weitere Entwicklung der Genossenschaftstheorie geben.

Schlüsselwörter: Genossenschaftsgeschichte, Elektrizitätsgenossenschaften, Gründungskontext, politische Unsicherheiten, ländliche Elektrifizierung

Abstract:
Rural electrification in Germany as in some other countries all over the world has been achieved to a large extent through and by electricity distribution cooperatives (e.g. contributions in Barnes, 2007). There are two main contexts where references are made to these electricity distribution cooperatives: first, as a predecessor of current energy cooperatives; second, in discussions about rural electrification in poor countries. In both cases the overall aim is some kind of "learning from history".
In Germany, there are 44 "old" electricity cooperatives which remained from a total of more than 6,000 in mid-1930s. Since 2006, there has been a steady growth in numbers of cooperatives in the energy sector ("new energy cooperatives"). While this recent phenomenon has gained some interest in the scientific community and in the political arena, work on old electricity cooperatives is scarce. Therefore, the paper aims at giving an overview of the development of the cooperative electricity sector in Germany, to explore the founding context and the role cooperatives played during early stages of development, and to discuss reasons for the dissolution or survival of the firms. The overall goal is to generate some general lessons for the role and limits or challenges of energy cooperatives. General statistics illustrating the development of the sector (1), an analysis of the founding contexts of electricity cooperatives in selected regions (2) as well as the reasons for the dissolution of these cooperatives (3), and a description of survival strategies of remaining electricity cooperatives (4) build the four parts of the empirical investigation, followed by a brief discussion of theoretical implications.
There seems to be no comprehensive description of German electricity cooperatives in the literature, but rather a focus on specific firms (e.g. Leiner, 1982), certain regions (e.g. Konrad, 1936), or a mentioning of cooperatives in works with focus on the general development and political economy of the electricity sector in Germany (e.g. Zängl, 1989). Therefore, information is collected from various sources publicly available through libraries or on the internet. Data are interpreted against the background of theories on the formation of cooperatives, especially in the energy sector (Hansmann, 1988; 1996), and the cooperative evolution (Hanisch, 2006).
Business histories of German electricity cooperatives show the high public influence exercised in the energy sector. The description of the function in the founding process fits quite well to Hanisch's (2006) explanation of price detection and public budget restraints. Political influence and market power exercised by local power generation monopolists can be seen as main reasons for the dissolution of many electricity cooperatives in the 1930s and after the Second World War. Small sizes and therefore a lack of economies of scale can be used as an explanation for the last wave of dissolutions since the liberalization of energy markets starting in 1998. At the same time, studying strategies of remaining old electricity cooperatives, especially cooperation strategies, might give some useful insights for the further development of cooperative theory.

Keywords: Cooperative History, Electricity Distribution Cooperatives, Founding Context, Political Uncertainties, Rural Electrification.

JEL-classification: JEL codes

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Inhalt

I. Introduction: Cooperative Rural Electrification – the German Case

Since the liberalization of the energy sectors world-wide and more so with the debates on climate change and energy security electricity sectors nearly everywhere have been in a process of transition. The German case, where this process is called "Energiewende" (i.e. energy transition), demonstrates that is not only a question of technological development, but rather that it comes with a couple of organizational and social challenges, e.g. acceptance of power plants. Some decision makers promote citizen participation or community ownership as a means to combat the so-called NIMBY effect (Not In My Backyard; Devine-Wright, 2011). Civic participation is realized in different forms, a prominent of which is the registered cooperative (eingetragene Genossenschaft, eG). While

There are at least three motivations for this study: First, a better understanding of historical developments in Germany may shed some light on more recent developments in the sector and on potential strengths and weaknesses of cooperatives in the energy sector. Thus, it contributes to the analysis of governance of the energy sector. Second, there is a – though still comparatively small – international literature on cooperatives in the energy sector, reviewed e.g. in Holstenkamp and García (2012). Mostly, references are made to US experiences (e.g. Barnes, 2007; Yadoo and Cruickshank, 2010), but not to Germany. Exploring the German case may therefore contribute to this international discussion around the role cooperative might play in rural electrification in the developing world – despite of all caveats against "learning from history" arguments and difficulties with comparisons across countries and times (Gumbrecht, 1997; Pierenkämper, 2007). Third, by writing and theorizing about the history of electricity (distribution) cooperatives in Germany the paper may contribute to the theory of cooperative change (Hanisch, 2006).

After a description of the general development of German electricity distribution cooperatives (EDCs), three different phases of EDCs are analyzed: founding contexts, (reasons for) dissolution, and what is called here "survival strategies", i.e. positioning within the energy sector and strategies to improve the overall economic position of the company. The paper concludes with tentative answers to the three questions implied in the motivations described above.

The paper builds on different sources, data of which are being integrated into a database of energy cooperatives in Germany:

- Articles in the journal of the German Association for Electrical, Electronic & Information Technologies (Gartz 1910, 1911, 1912; ETZ 1920a,b, 1921, 1926), the electronic commercial registry (similarly: Maron and Maron, 2012), Konrad (1936), Zängl (1989), and Hoffmann (1954) for the description of the development of the EDC sector;
- Regional and local chronicles as well as regional electricity histories for developments in specific regions (Konrad, 1936, for Bavaria; Ostfriesische Landschaft KöR, 2010, for East Frisia; Stiftung Genossenschaftliches Archiv, 2011, for the Lüneburg Heath; Kluge, 2010, for Upper Franconia/more precisely: the region around Hof; Büggeln, 1930, and Leiner, 1982, for Württemberg);
- Festschrifts and websites of respective cooperatives plus one company history (Leiner, 1982) for single EDCs.

Some of the sources have to be dealt with caution, e.g. the EDCs' websites or entries in the electronic commercial registry which are in some cases plainly wrong. Additional information will have to be included from gray literature and archives. Until now, the collection is restricted to some extent to publicly available sources at hand. Cases presented in the paper do not derive from in-depth case studies, but rather are part of an attempt to find generalizable results on the basis of a medium-n, more or less convenience sample.

II. Development of the Sector: Rise and Fall of Electricity Cooperatives in Germany

Comparing numbers of EDCs in the early 20th century with numbers of energy cooperatives in Germany today shows that despite the growth in numbers in recent years old EDCs by far exceeded current numbers, even if

you take the different geographic scope into account. In sum, there have been more than 6,000 EDCs in the German Reich around 1925-30, obviously many of them in Prussia and the Kingdom, later Free State of Saxony (Gartz, 1910; Konrad, 1936).[1]

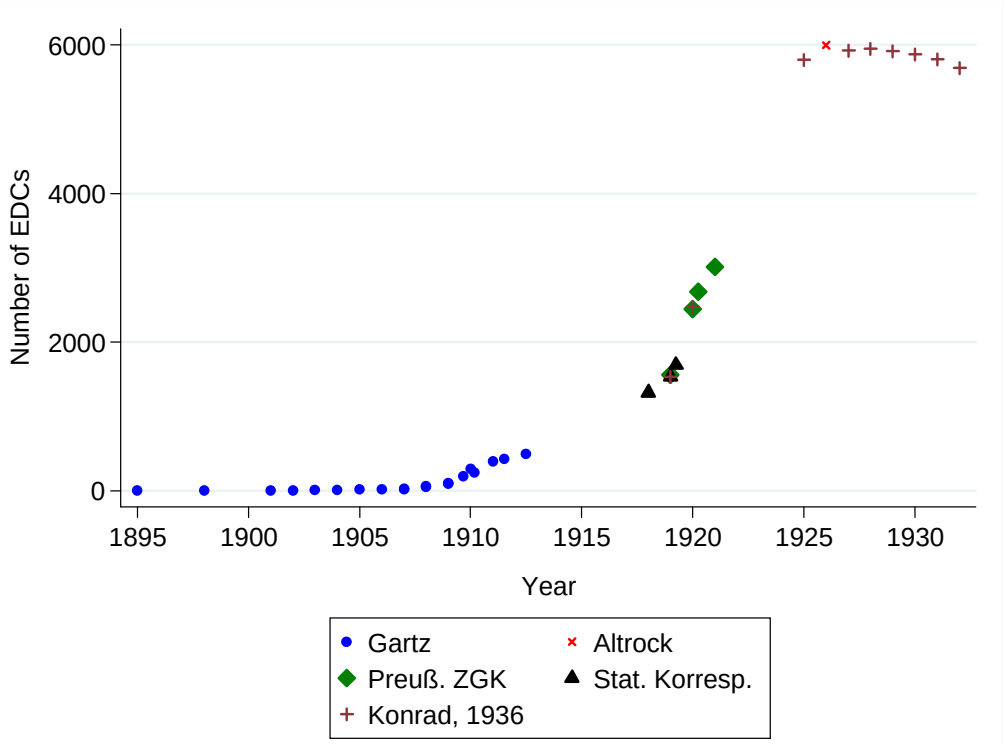

Figure 1: Numbers of Electricity Distribution Cooperatives (EDCs) in Germany until 1934

Sources: Gartz (1910, 1911, 1912); ETZ (1920a [Statistische Korrespondenz], 1920b [Preußische Zentralgenossenschaftskasse], 1921 [Preußische Zentralgenossenschaftskasse], 1926 [Altrock, 1926]); Konrad (1936).

[1] According to Ausschuß zur Untersuchung der Erzeugungs- und Absatzbedingungen der deutschen Wirtschaft (1930: 44) there were 6,131 rural electricity cooperatives at the end of 1928, out of which 5,240 were in Prussia (1,440 in Lower Silesia, 1,274 in Brandenburg, 599 in Upper Silesia, 570 in Pommerania, 351 in Hannover, 320 in Schleswig-Holstein), 260 in Bavaria (15 of these in Palatia), 308 in Mecklenburg-Schwerin, and 175 in Oldenburg. A number of 62 is stated for Saxony. These numbers do not include commercial cooperatives (Schultze-Delitzsch), which have not been many in the electricity sector, though. Given these numbers, the statement regarding the distribution made by Gartz and Konrad cannot be fully verified.
For a discussion of numbers and additional sources and data see Holstenkamp (in prep., a).

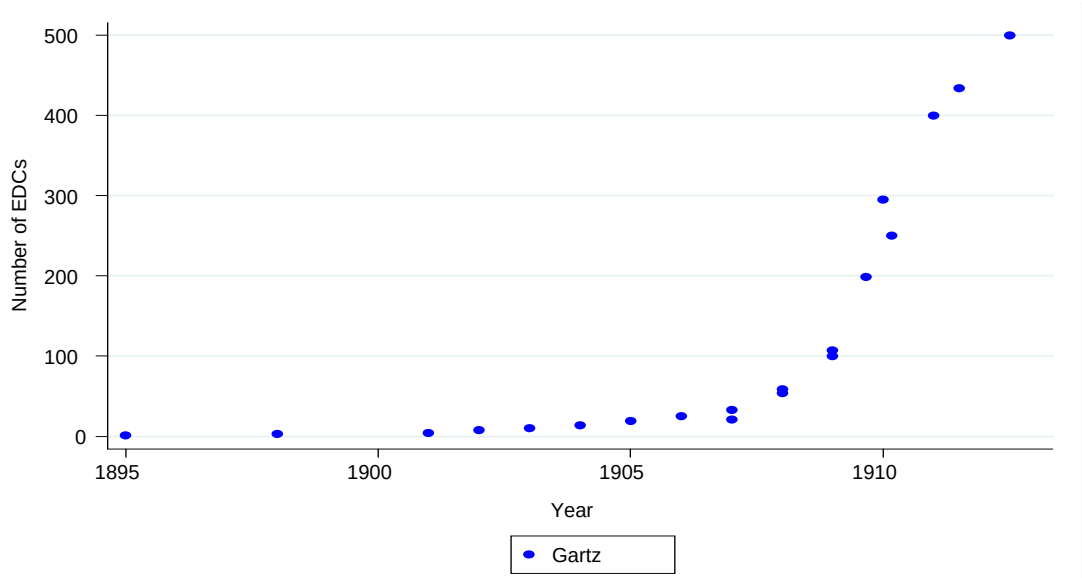

Figure 2: Numbers of Electricity Distribution Cooperatives (EDCs) in Germany until 1912

Sources: Gartz (1910, 1911, 1912).

As shown in Figures 1 and 2, the number of EDCs in the German Reich until around 1920 grew exponentially. There was a slight rise until 1928. Overall, the decade from 1925 to 1934 can be interpreted as a phase of consolidation. Moreover, the end of this decade marks the beginning of intense opposition against cooperatives in the rural electricity sector, even if there have been critical voices against the establishment of cooperatives quite early (Zängl, 1989; Marx, 1910). No data could be obtained for the period between 1934 and 1945. According to Hoffmann (1954), there were about 1,000 electricity cooperatives in the territory of the then Federal Republic of Germany (FRG) around 1936. Even if the total numbers of EDCs in Hoffmann (1954) and the other sources used are not consistent, it still gives an idea of the distribution of EDCs in (later-)FRG and non-FRG territory.

In 1935, what was called "Verbundsystem", an energy system with three different levels (municipal/local, regional, and interconnection companies) and monopolistic supply, was secured through the Law on the Energy Industry and later reconfirmed in the Act Against Restraints of Competition (GWB) of 1957. As discussed in the next but one section, political and economic pressure led to several waves of concentration, the last one with beginning of the liberalization of the electricity market in 1998. In the years after the Second World War, EDCs in the German Democratic Republic (GDR) were dissolved. Currently, only 45 old EDCs are left, out of which one is not an independent legal entity and one has recently sold the grid and seems to be in a process of dissolution.

In the following two parts, some data from different regions are presented: East Frisia, Lüneburg Heath, Saxony-Anhalt (former Prussian Province of Saxony), the region around Hof in Upper Franconia and Bavaria as a whole, and Württemberg. Moreover, results from a search in electronic commercial registry are presented. The latter only contains EDCs in the Western part of Germany which still existed at the end of the 1960s, though not all at that time existing EDCs are included (or have been found due to the dysfunctionality of the search engine). Table 1 shows that there has been and is an even geographical distribution. The high share of EDCs in Bavaria and formerly in North Rhine-Westphalia is remarkable since the province of Hanover, part of Lower Saxony now, had been a major location of EDCs before the Second World War, while Konrad (1936) reports that the Bavarian government had been reluctant to support electricity cooperatives in its territory.

Table 1: Geographical Distribution of old Electricity Distribution Cooperatives in Germany, Registry Search

Federal State	Dissolved	Still Existing	Total
Baden-Württemberg	6	4	10
Bavaria	20	32	52
Berlin	4	0	4
Hesse	1	1	2
Lower Saxony	11	3	14
North Rhine-Westphalia	39	4	43
Rhineland-Palatia	3	1	4
Total	84	45	129

Source: Electronic Commercial Registry.

III. Founding Contexts

In the following sections, three specific phases of EDCs are analyzed: 1) the founding contexts, 2) reasons for the dissolution of most of them, and 3) survival strategies of still existing EDCs, especially since the liberalization of energy markets. In the next two sections, some findings from different regions are presented and briefly discussed.

1. East Frisia[2]

Founding years of East Frisian EDCs (*see Figure 1*) show that most of them were established in the 1920s. While not much is said about the reasons for their establishment, the overview of local chronicles indicates that in most villages and towns of East Frisia an EDC existed, mainly responsible for the installation of the grid. They obtained electricity from the peat power station in Wiesmoor. There are scattered hints with regard to problems in the founding phase of EDCs: In Fiebing, Neufirrel, Firrel, and Neuemoor the attempt to establish a cooperative in 1923 failed due to the withdrawal of some households in response to the high inflation.

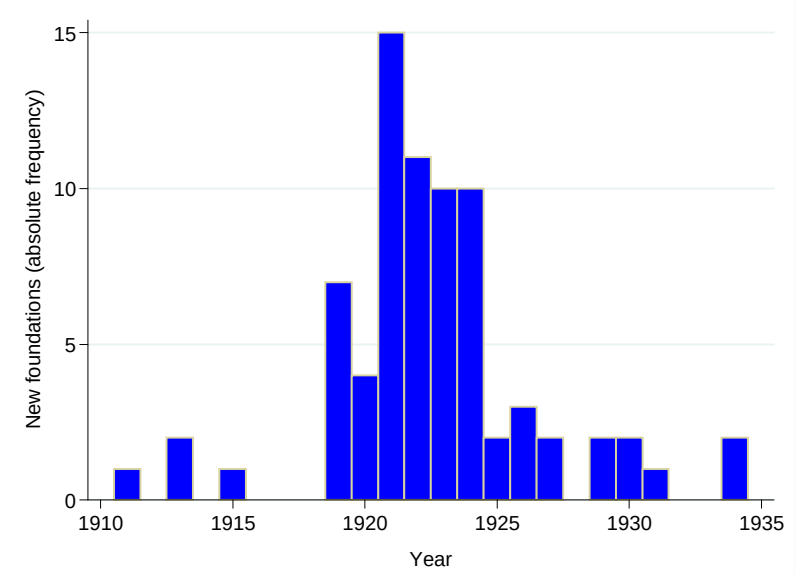

Figure 3: Founding Years of Electricity Distribution Cooperatives in East Frisia

Source: Database of German Energy Cooperatives/Historical Data.

[2] For an updated and extended analysis of developments in the Weser-Ems region, which includes East Frisia, see Holstenkamp (in prep., b).

Beyond local cooperatives, there have been associations of several EDCs – an indicator of the necessity to realize economies of scale.

2. Lüneburg Heath[3]

In the three districts of Harburg, Lüneburg, and Soltau-Fallingbostel (Heidekreis), there have been most probably only seven EDCs, all of them built up between 1908 and 1912 which indicates the relevance of role models in the process. The regional cooperative archive does not provide much information about the founding context. There is a festschrift of the EDC in Dahlenburg (Elektrizitätswerk Dahlenburg AG, 2008), though, which gives some background on the founding of the cooperative. A blacksmith who had been engaged in the repair of benzene engines initiated the establishment of the cooperative together with farmers and master craftsmen. The cooperative functioned as a vehicle to pool the capital needed. From the documentation it seems that the cooperative growth at the beginning was to a certain extent the result of the entrepreneurial spirit of the founding father. Until 1931, 50 villages had been connected to the grid and were supplied by the cooperative.

3. Province of Saxony[4]

In the Prussian Province of Saxony, eleven cooperative rural district power stations were installed in the period of 1906-1910. Together with one Thuringian EDC they were affiliated to the limited liability company Landelektrizität GmbH Halle, which developed from the electro-technical department of the state cooperative association. There was a high interest by farmers to get connected to the grid. The umbrella company was founded in response to economic difficulties and a need for counseling.
With the exception of Camburg, all Saxon EDCs have been established with the help of districts and/or municipalities by local farmers and manufacturers. Public entities mostly supported financially through the issuance of guarantees for bonds and/or loans. In Camburg, the cooperative emerged from the restructuring of a limited liability company, which had been initiated by a banker who also brought in 50 concessions. Nevertheless, the GmbH proved not be financially strong enough to cope with the growing demand and respective investment needs.

4. Bavaria, especially Hof/Upper Franconia

In Bavaria, Konrad (1936) identified 173 EDCs for his survey, most of them located in Upper Bavaria and Swabia (60 and 58, respectively), where still most of the remaining old EDCs are located (*see Section 5*). While he provides some statistics of the distribution areas and other technical characteristics of Bavarian EDCs, his work does not contain much information on the founding context of different EDCs, so that we resort to a description of EDCs in the region around Hof, Upper Franconia (Kluge, 2010). Figure 4 shows that the eleven Upper Franconian EDCs in the Hof region – Konrad (1936) counts overall 15 for the whole of Upper Franconia – were established in three different phases, the majority of them in the early founding phase of German EDCs.
Kluge (2010) reports three different reasons for the formation of the EDCs: In the case of Blumenaumühle, a private investor failed, so that the cooperative took over (pooling of capital). Nevertheless, it was not financially strong enough to also connect four other villages to the grid, so that these founded their own local EDC. Other EDcs are cases where the operator of the main grid had no interest in grid extension.

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[3] For an updated and extended analysis of electricity cooperatives in the Lüneburg region see Holstenkamp (2014).

[4] An analysis of developments in the Prussian Province of Saxony until the formation of the German Democratic Republic can be found in Müller (2008); for a description of early developments see also Voss 1924).

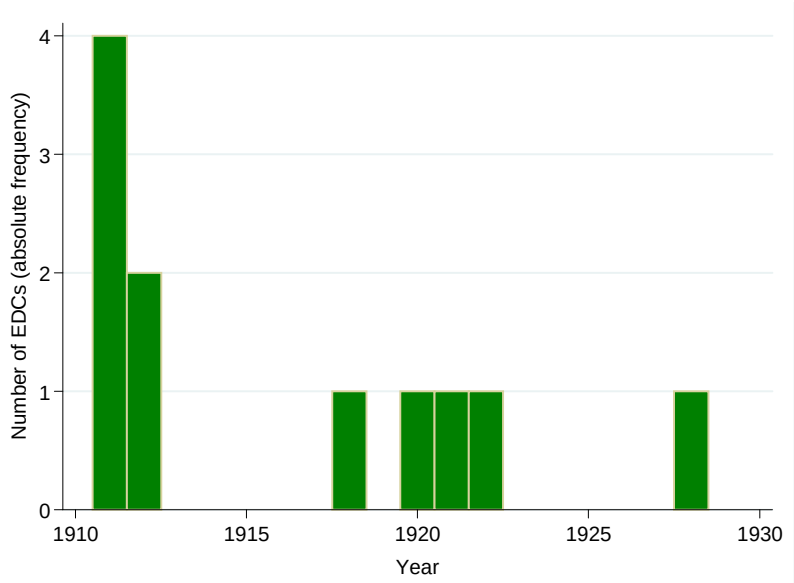


Figure 4: Founding Years of Electricity Distribution Cooperatives in the Hof region

Source: Database of German Energy Cooperatives/Historical Data.

5. Württemberg[5]

The most comprehensive description and analysis of a single old German EDC can be found in the monograph of Leiner (1982), who stresses the connection between public officers and the cooperative in the case of Herrenberg. This cooperative was a comparatively large EDC from the beginning with around 1,200 members after the inaugural meeting. Leiner (1982) gives two main reasons for the use of a cooperative instead of the local/district authorities association which became the organizational standard in Württemberg soon after the establishment of the Herrenberg cooperative: First, there might have been a problem with fund raising, since many municipalities were reluctant to directly invest into electricity grids and generation. Second, cooperatives were more flexible and less bound to administrative prescriptions, a reason nowadays given for other private company forms like limited liability companies (GmbH).

EDCs in Württemberg have all been founded in the early phase, here 1905-1912. The cooperative form did not prevail over the local/district authorities association. Besides, Büggeln (1930) reports the story of an attempt to install a cooperative which failed because of the resistance of big farmers who at the end established a private utility.

IV. Dissolution

An analysis of the reasons for the dissolution of most EDCs in Germany may also shed some light on the working of energy cooperatives in general, even though specific context-bound and historical factors have to be taken into account. Since in the Province of Saxony EDCs were suspended after the Second World War, we will focus on the other regions mentioned in the previous section.

[5] For an updated account of electricity cooperatives in Württemberg see Stier and Holstenkamp (forthc.).

1. East Frisia

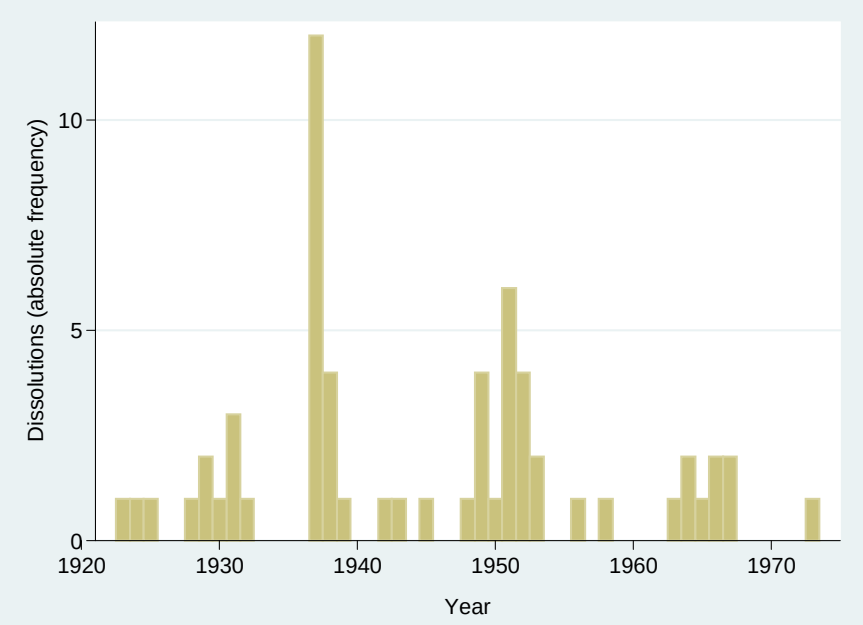


Figure 5: Years of Dissolution of Electricity Distribution Cooperatives in East Frisia

Source: Database of German Energy Cooperatives/Historical Data.

The histogram in Figure 5 illustrates that there have been several phases when EDCs in East Frisia were dissolved. Para. 2 of the Law on the Dissolution and Deletion of Corporations and Cooperatives of 9 October 1934 (LöschG) is given as a reason for suspensions around 1937 in many instances, i.e. ex-officio liquidation because of impecuniosity. Besides political despotism or severe pressure, a growing competition by larger power stations and financial difficulties due to small sizes can be listed as causes. Nearly all EDCs have become part of the regional utility EWE AG or its predecessors. Abandoning in the 1950s to 1970s is most likely also a consequence of the consolidation through economic, potentially also political, pressure.

2. Lüneburg Heath

In the Lüneburg Heath region, four out of seven EDCs were liquidated few years after their installation: Hanstedt-Nindorf and Radbruch after one year, Fallingbostel after two, and Marxen after three years. The latter cooperative was unviable because of too low generation capacities. In the other three cases, there seems to have been no real business operations. In the Hittfeld case, assets were sold in 1949 after 40 years of operation because of the investments needed to switch from direct current to alternating current.
Elektrizitätswerk Dahlenburg eG has been reorganized as stock company Elektrizitätswerk Dahlenburg AG (now: Energieversorgung Dahlenburg-Bleckede AG; Elektrizitätswerk Dahlenburg AG, 2008) in 1988. Reasons for the reorganization were management failures and also capital requirements. In Dahlenburg, stocks are still widely held, so that some of the characteristics of a cooperative have been preserved.

3. Bavaria, especially Hof/Upper Franconia

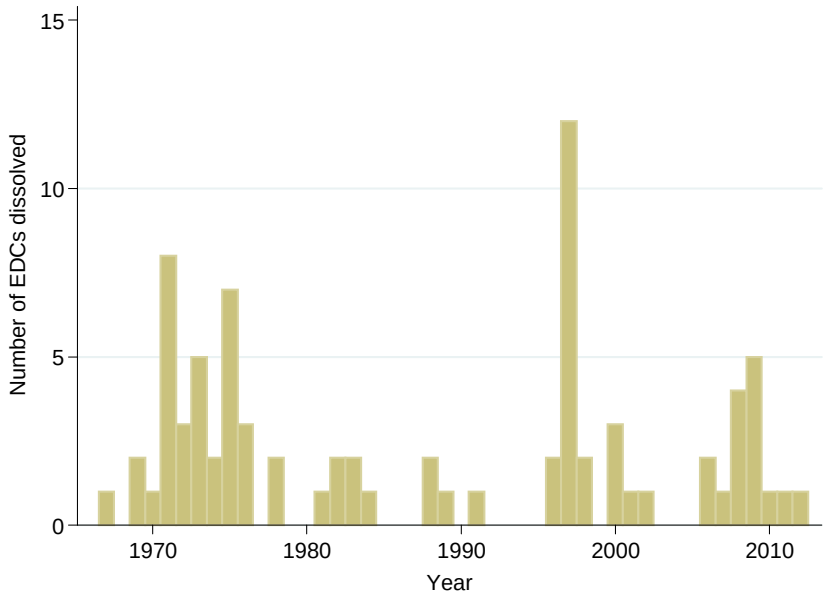
Kluge (2010) reports as a main reason for the dissolution of EDCs in the Hof region the dependence on external supply. Since EDCs had only marginal own generation capacities, if at all, they depended on goodwill by their supplier with regard to the determination of prices, since it was not possible to obtain electricity somewhere else. This seems to have been the lever for the regional grid operator to force a takeover.
In one case, an EDC was merged with the Blumenaumühle cooperative. Two EDCs were liquidated ex-officio. Both instances are most probably cases of insufficient company size and resulting economic difficulties.

4. Württemberg

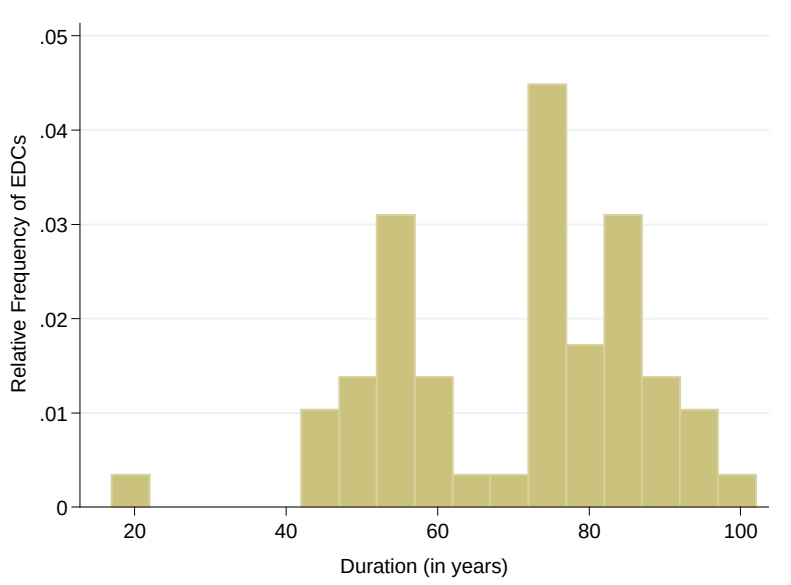
In the Herrenberg case, political pressure played the essential role (Leiner, 1982). The decision by one of the larger municipalities supplied by the cooperative not to prolong the concession made the cooperative to give up and sell its assets to Energieversorgung Schwaben (EVS), the state interconnection utility. Another example of a reorganization as a stock company like in the Dahlenburg case is Elektrizitätswerk für die Heidenheimer und Ulmer Alb, merged with another cooperative in 1920 and reorganized as Mittelschwäbische Überlandzentrale AG in 1923 (Büggeln, 1930). The main reason for restructuring seems to have been capital requirements in times of grid extension and problems to raise the needed capital in times of high inflation in the early 1920s.

5. The Electronic Registry Sample

A look at the sample from the electronic commercial registry (*see Figure 6*) shows that there have been three main phases when EDCs were dissolved since the end of the 1960s: in the first half of the 1970s, with the liberalization of electricity markets in Germany, i.e. prior to 1998 and directly thereafter, and from 2005 on. Many of the EDCs dissolved had been operating for more than 70 years (median: 74.5 years).
Since there has been not much literature on energy cooperatives after the Second World War until recently, not much can be said about the earlier cases in addition to what has been mentioned in the paragraphs on developments in the different regions. A closer look at the geographical distribution of dissolutions in phase 2 and 3 is instructive, though (*see Table 2*): Most of the cases are located in North Rhine-Westphalia. In contrast to the remaining Bavarian old EDCs, the cooperatives here could obviously not establish a niche to survive, but fell prey to the growing competition. Increasing administrative burdens due to regulation are most probably the main cause for dissolutions since 2005.



(a) Numbers of EDCs Dissolved



(b) Duration of Existence

Figure 6: Years of Dissolution of Electricity Distribution Cooperatives in the Electronic Registry Sample

Source: Database of German Energy Cooperatives/Historical Data.

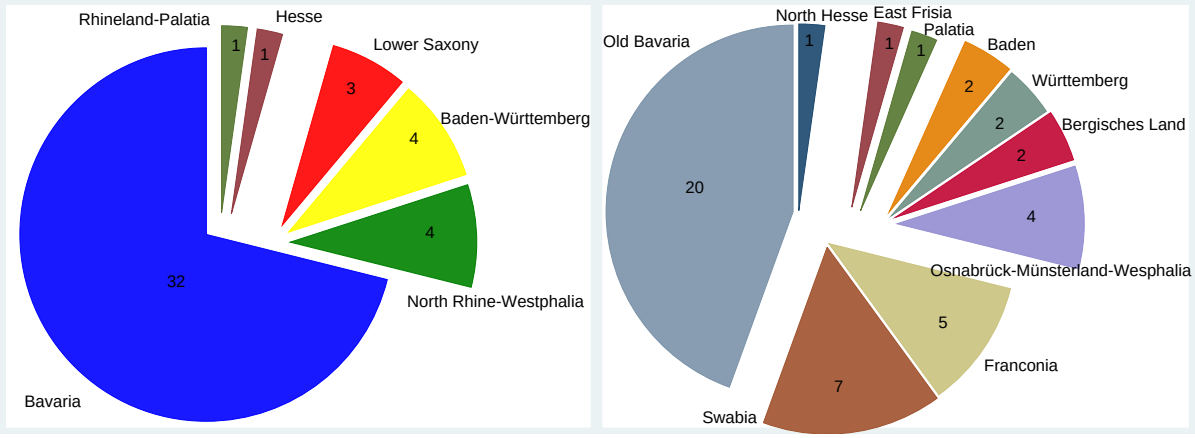
Table 2: Geographical Distribution of Electricity Distribution Cooperatives in Germany Dissolved Since Liberalization, Registry Search

	Years of Dissolution		
Federal State	**1996-2002**	**Since 2006**	**Total**
Baden-Württemberg	1	1	2
Bavaria	1	1	2
Lower Saxony	3	0	3
North Rhine-Westphalia	16	13	29
Total	**21**	**15**	**36**

Source: Electronic Commercial Registry.

V. Survival Strategies of Existing Old Electricity Distribution Cooperatives

In the database of current energy cooperatives in Germany 45 remaining "old electricity cooperatives" have been identified (specified as around 50 in: Maron and Maron, 2012, p. 145). Most – two thirds – of these cooperatives, listed in Table 3 (*see annex*), are located in Bavaria. There is still a small number of electricity cooperatives left in North Rhine-Westphalia (4), Baden-Württemberg (4), and Lower Saxony (3). Looking at the sub-state regional level, there is an even more unbalanced distribution: Most Bavarian old electricity cooperatives are located in what is called "Old Bavaria". Excluding regions where there are only one or two EDCs left, there seem to be mainly four regional "niches" where these cooperatives survived.



a) Federal States *b) (Sub-State Level) Regions*

Figure 7: Geographical Distribution of Remaining Old German Electricity Cooperatives

Source: Database of German Energy Cooperatives/Historical Data.

As indicated in the table, data on strategies employed by the respective cooperative are available for 26 cooperatives. In other cases, not much more than the data required from regulatory prescriptions can be found in publicly available sources. It is highly likely, though, that strategies similar to those of other small or micro firms are followed. Overall, "survival strategies" may be divided into six groups: (1) expansion [6], (2) diversification & cooperation [6], (3) merger & cooperation [2], (4) divestiture/power generation only [4], (5) concentration on core business [5], (6) no operation/administration only [3]. Grouping strategies 1 and 2 into active and the others but no. 4 into passive strategies, while strategy 4 seems to be active in one case and rather passive in the other three cases, gives an even distribution between the two types. Passive strategies include lowering of costs through contracting-out, divestiture, and concentration on core business. In some cases a local or regional brand was (re)invented (e.g. AllgäuStrom). Overall, there seem to be market niches in certain geographies where some, even if few, EDCs can survive as long as they are politically backed with regard to concessions. Cases such as Bierenbachtal, however, demonstrate that there is a risk of gradual erosion of the financial basis due to high administrative burdens as a consequence of regulation and the German feed-in tariff system. Active strategies include acquisition of (shares of) other utilities, acquisition of grids or diversification, especially into generation (mainly renewable energies). In most cases, especially the more prominent ones, this process is accompanied by the establishment of affiliates, a holding structure, and/or SPVs as indicated above. Overall, strategies seem to be similar to those of municipal utilities. Support structures and cooperation in order to realize economies of scale seem to play an essential role. Taking into consideration that some of the EDCs in the passive group are in financial distress or have already abandoned their main business, it might be concluded that a majority of old German EDCs is currently becoming more IOU- or public utility-like, most probably a case of partial isomorphism (DiMaggio and Powell, 1983).

The development of holding structures as in the case of Alb-Elektrizitätswerk Geislingen-Steige, to some extent also the TEN eG (*see Table 3 in the annex*), represent steps in a similar direction as the reorganization processes in the Dahlenburg (Lüneburg Heath) or Heidenheim (Württemberg) cases. They may constitute examples of what has been called "New Generation Cooperatives" (NGCs) in the US agricultural sector (Downing et al., 2005; Cook and Iliopoulos, 1999; Harris et al., 1996), with financial and organizational structures becoming more similar to those of Investor-Owned Utilities (IOUs).

6 Implications for Cooperative Theory

In accordance with Hansmann's (1988, 1996) ownership theory of enterprise, most old German energy cooperatives were founded in rural areas and were grid operators or distribution cooperatives only. In many in-

stances they were installed because of a lack of interest on the side of private investors (e.g. in East Frisia or the Hof region) and helped to address the demand uncertainty challenge, i.e. to detect right prices, as described by Hanisch (2006), in addition to the creation of acceptance for the new technology as opposed to natural gas (Zängl, 1989). Public budget restraints, on the other hand, are most probably only part of the answer to why municipalities did not directly engage, at least in earlier phases. The Herrenberg case shows that organizational characteristics of the cooperative, in this case lower administrative restrictions compared with local/district authorities associations, and regional organizational role models seem to have played an evenly important role. Moreover, municipalities and districts did engage in financing the projects via guarantees for bonds issued by the EDCs or direct loans at subsidized rates (see e.g. the Province of Saxony cases). Thus, the public-private nexus, especially in the founding contexts, needs some closer investigation.

Political influence and market power exercised by local power generation monopolists can be seen as main reasons for the dissolution of many electricity cooperatives in the 1930s and after the Second World War. Small sizes and therefore a lack of economies and the increasing administrative burdens due to regulation can be used as an explanation for the last two waves of dissolutions since the liberalization of energy markets starting in 1998. Different strategies to realize economies of scale (mergers and acquisitions, geographical expansion, cooperation) can be observed at the present. A small number of EDCs divested the grid with one remaining energy cooperative concentrating on power generation. While some EDCs have established themselves in niche positions with local or regional brands, others tend to become more IOU-like in a process similar to NGCs in the US agricultural sector. Three issues arise in this context which need further exploration: First, a typology of energy cooperatives, old and new, could help to give a more nuanced picture of the institutional landscape. Second, essential characteristics of energy cooperatives could be identified – if they do exist – compared with public utilities and IOUs. Third, this might lead to an answer to the question which role cooperatives may play in the energy sector in medium to long run.

Annex

Table 3: Survival Strategies of Existing Old German Electricity Cooperatives

Name of Cooperative	Federal State	Region	Strategies [Size]
Alb-Elektrizitätswerk Geislingen-Steige	Baden-Württemberg	Württemberg	expansion, diversification, acquisitions, holding structure, own generation
Teutoburger Energie Netzwerk (TEN)	Lower Saxony	Osnabrücker Land	merger (2000) after cooperation (since 1989), cooperation (Trianel), expansion, diversification, SPVs (wind, PV)
KBG Kraftstrom-Bezugsgenossenschaft Homberg	Hesse	North Hesse	cooperation (SUN, EEG mbH, GkK), expansion, diversification (natural gas, 2012)
Unterfränkische Überlandzentrale, Lülsfeld	Bavaria	Franconia	cooperation (Energieallianz Bayern), acquisitions, own generation
Weißachtal-Kraftwerke	Bavaria	Swabia	cooperation (AllgäuStrom), acquisition, expansion
Elektrizitätsgenossenschaft Hasbergen	Lower Saxony	Osnabrücker Land	expansion (grid, 1997), diversification (wind, cogeneration)
Energiegenossenschaft für Wittmund	Lower Saxony	East Frisia	cooperation (Norddeutsche Allianz), diversification (affiliates, minority positions, windpower)
Elektrizitätsgenossenschaft Vogling & Angrenzer	Bavaria	Upper Bavaria	diversification (affiliate, electricity services, 2004)
Elektrizitäts-Genossenschaft Rettenberg	Bavaria	Swabia	cooperation (AllgäuStrom), diversification (local electricity services)
Elektrizitätsgenossenschaft Schlachters	Bavaria	Swabia	Diversification, cooperation (for capital intensive businesses; Stadtwerke Lindau)
Elektrizitätsgenossenschaft Wolkersdorf und Umgebung	Bavaria	Upper Bavaria	cooperation (EGEVU), diversification (affiliate, 1999)
Elektrizitätswerk Hindelang	Bavaria	Swabia	cooperation (AllgäuStrom, joint ventures for power generation and distribution)
Elektrizitäts-Genossenschaft Tacherting-Feichten	Bavaria	Upper Bavaria	merger (1989), cooperation (Energieallianz Bayern, EEG mbH)
Stromversorgung Seebruck	Bavaria	Upper Bavaria	merger (1957), cooperation (Energieallianz Bayern) very small (BST: 2.7m €, 134 members, 3 part-time employees)
Elektrizitäts-Genossenschaft Alzgruppe	Bavaria	Upper Bavaria	divestiture (grid, 1990), PGC only
Elektrizitätswerk Schleching	Bavaria	Upper Bavaria	divestiture (grid, 1970), PGC only
Genossenschaftliches Elektrizitätswerk Asch-Leeder	Bavaria	Upper Bavaria	divestiture (grid, 1965), PGC only
Elektrizitätsgesellschaft Levern	North Rhine-Westphalia	East Westphalia-Lippe	divestiture (grid, 2012), distribution only(?)
EGH Elektrizitäts-Genossenschaft Hauingen	Baden-Württemberg	Baden	core competencies, contracting-out

Name of Cooperative	Federal State	Region	Strategies [Size]
Energie-Genossenschaft Mittelberg	Bavaria	Swabia	cooperation (AllgäuStrom, AllgäuNetz GmbH & Co. KG), contracting-out very small (BST: 0.4m €, 75 members)
EVOK Energie-Versorgung Oy-Kressen	Bavaria	Swabia	cooperation (AllgäuStrom, AllgäuNetz GmbH & Co. KG), contracting-out
Strombezugsgenossenschaft Saig	Baden-Württemberg	Baden	contracting-out (grid maintenance) very small (BST: 0.6m €, 74 members)
Getreidemühle Zwiefalten	Baden-Württemberg	Württemberg	financial restructuring: divestiture (flour mill), contracting-out, tariff increase
Elektrizitätsgenossenschaft Dirmstein	Rhineland-Palatia	Palatia	whole management outsourced (Stadtwerke Frankenthal)
Stromversorgung Greding	Bavaria	Franconia	[part of a cooperative bank/no separate legal entity]
Bröltaler Elektrizitätsgenossenschaft	North Rhine-Westphalia	Bergisches Land	not much information available very small (BST: 1.2m €, 223 members, 1 full-time, 5 part-time employees)
Elektra-Genossenschaft Effeltrich	Bavaria	Franconia	not much information available very small (BST: 1.2m €, 198 members, 2 part-time employees) local cooperation
Elektra-Genossenschaft Pinzberg	Bavaria	Franconia	no information available very small (BST: 0.7m €, 95 members)
Elektrizitätsgenossenschaft Engelsberg	Bavaria	Upper Bavaria	not much information available small (BST: 3.2m €, 195 members, 2part-time employees)
Elektrizitätsgenossenschaft Karlstein	Bavaria	Upper Bavaria	no information available very small (BST: 1.46m €, 47 members)
Elektrizitätsgenossenschaft Nordhalben und Umgebung	Bavaria	Franconia	no information available very small (BST: 1.26m €, but 235 members, 2 part-time employees)
Elektrizitätsgenossenschaft Oesterweg	North Rhine-Westphalia	East Westphalia-Lippe	not much information available very small (BST: 0.5m €, 2/3 current assets, 34 members)
Elektrizitätsgenossenschaft Ohlstadt	Bavaria	Upper Bavaria	not very much information available cooperation (Energieallianz Bayern) very small (BST: 2.1m €, 123 members, 3 employees)
Elektrizitäts-Genossenschaft Röthenbach	Bavaria	Swabia	not much information available; cooperation with supplier (VKW)(?)
Elektrizitätsgenossenschaft Samerberg und Umgebung	Bavaria	Upper Bavaria	no information available very small (BST: 0.63m €, but 207 members, 5 part-time employees)

Name of Cooperative	Federal State	Region	Strategies [Size]
Elektrizitäts-Genossenschaft Schonstett	Bavaria	Upper Bavaria	no information available very small (BST: 1.96m €, 196 members, 4 employees)
Elektrizitätsgenossenschaft Unterneukirchen	Bavaria	Upper Bavaria	no information available very small (BST: 1.4m €, 164 members)
Elektrizitäts- und Wasserversorgungsgenossenschaft Vagen	Bavaria	Upper Bavaria	no information available very small (BST: 1.1m €, 51 members)
Elektrizitätsvereinigung Böbing eG (EVB)	Bavaria	Upper Bavaria	no information available very small (BST: 1.2m €, 399 members, 1 part-time employee)
Elektrizitäts-Versorgungs-Genossenschaft Perlesreut	Bavaria	Lower Bavaria	not much information available very small (BST: 2.3m €, 142 members, 8 employees)
Elektrizitätswerk Oberwössen	Bavaria	Upper Bavaria	cooperation (EGEVU) not much information available very small (BST: 0.6m €, 85 members)
Stromgenossenschaft Hauzenberg	Bavaria	Lower Bavaria	no information available very small (BST: 0.3m €, 33 members)
Stromversorgung Inzell	Bavaria	Upper Bavaria	cooperation (Energieallianz Bayern) very small (BST: 4.1m €, 207 members)
Stromversorgung Schierling	Bavaria	Upper Palatia	regional expansion in distribution small (BST: 6.5m €, 58 members, 5 employees)

BST: balance-sheet total, PGC: power generation cooperative, SPV: special purpose vehicle

Sources: Cooperatives' websites, balance sheets, local press

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