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Between Political Steering and Societal Self-Organization: The Emergence of Renewable Energy Cooperatives in Germany

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Table of Contents

Declaration of Academic Integrity i

List of Abbreviations ii

1. Introduction 1

1.1 Current State of Research in the Social Sciences 3

2. Theoretical Approach 4

2.1 Actor-Centred Institutionalism 4

2.1.1 Institutions 5

2.1.2 Actors 6

2.1.3 Actor Constellations & Modes of Interaction 7

2.2 Definition & Typology: Renewable Energy Cooperative 7

2.2.1 The Cooperative Business Model 7

2.2.2 …in the Energy Sector 8

2.2.3 Citizen Energy 9

3. Methodological Approach 10

4. Status Quo of RECoops in Germany 12

4.1 Growth Dynamic 12

4.2 Membership Structure and Performance 13

4.3 Spatial Distribution and Cooperative Networks 13

5. Institutional Setting of the Energiewende 14

5.1 Socio-Cultural Context 15

5.1.1 Preliminary Conclusions 17

5.2 Political-Legal Context 18

5.2.1 EU Level 18

5.2.2 National Level 19

Energy Policy Under the Red-Green Coalition (1998-2005) 19

Relevant Energy Policies Under Angela Merkel 20

5.2.3 Municipal Level 21

5.2.4 Preliminary Conclusions 23

6. Energiewende at the Local Level: Horizontal Interplay Between RECoops and Municipalities 24

6.1 Increasing Network Activities at the Local Level 24

6.2 On the Identification of Action Orientations 25

6.3 Interests and Preferences of Renewable Energy Cooperatives 25

6.3.1 Preliminary conclusions 28

6.4 Action Orientations in Municipal Energy Policy 28

6.4.1 Preliminary Conclusions 31

6.5 Cooperative Interactions Between RECoops and Municipal Actors 32

7. Summary and Concluding Remarks 36

Bibliography 40

Appendices 47

App. A: Spatial Distribution of Energy Cooperatives in Germany 47

App. B: Spatial Distribution Among the Bundesländer at the End of 2013 48

App. C: The Logic of Mobilization of Local Initiatives 49

Declaration of Academic Integrity

I hereby confirm that the present bachelor thesis is solely my own work and that if any text passages or diagrams from books, papers, the Web or other sources have been copied or in any other way used, all references – including those found in electronic media – have been acknowledged and fully cited.

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Lena Topel, June 24th, 2016

List of Abbreviations

ACI	Actor-centred institutionalism
AEE	Agentur für Erneuerbare Energien (Agency for Renewable Energies)
BMWi	Bundesministerium für Wirtschaft und Energie (Federal Ministry for Economic Affairs and Energy)
BBEn	Bündnis Bürgerenergie e.V. (registered association named "Citizen Energy Alliance")
CDU/CSU	Christlich-Demokratische Union (Christian Democractic Union)/ Christlich-Soziale Union (Christian Social Union)
DGRV	Deutscher Genossenschafts- und Raiffeisenverband e.V. (German apex association for cooperatives)
eG	Eingetragene Genossenschaft (registered cooperative)
EnWG	Energiewirtschaftsgesetz (Energy Industry Act)
EEG	Erneuerbare Energien Gesetz (Renewable Energy Act)
EU	European Union
GenG	Genossenschaftsgesetz (Cooperatives Act)
GmbH	Gesellschaft mit beschränkter Haftung (German equivalent of a Limited Liability Company)
GmbH & Co. KG	GmbH & Compagnie Kommanditgesellschaft (German limited commercial partnership)
NSM	New Steering Model
PV	Photovoltaic(s)
PCP	Public Citizen Partnership
RE	Renewable Energy
RECoop(s)	Renewable Energy Cooperative(s)
SMEs	Small and Medium Sized Enterprises
SPD	Sozialdemokratische Partei Deutschland (German Social Democratic Party)
Big 4	The four incumbent energy providers in Germany: e.ON, RWE, EnBW and Vattenfall Europe
UK	United Kingdom

1. Introduction

Among European countries, one topic dominates the debate around climate and energy policy: The transition to a low-carbon economy. As considerable efforts and progress have been made over the past two decades, the question today is not anymore *if* this transition is going to take place but *how* it will and should be implemented from here on out. While approaches to tackle such a large-scale project naturally differ from country, it is clearly understood that the transformation of the energy system is not merely a technological and economic issue but that its success depends to a large degree on societal and institutional factors as well. In Germany, much of the debate about the social challenges posed by its so-called "Energiewende" revolves around topics such as social innovation, actor landscapes, or citizen and third sector participation.

Ever since the introduction of the famous Renewable Energy Act (EEG), the German energy sector—thus far controlled by an established power industry that holds sway over a 'fully fledged', large-scale system and enjoys politically secured privileges (Mautz et al., 2008, p. 13)—has indeed undergone substantial changes, not just with regards to its energy mix but also in terms of the involvement of newly emerged actors and organizational forms. As is the case in numerous countries throughout the EU, the local level and local communities in particular have moved into the spotlight in recent years. On the one hand, the municipal governments play an increasingly important role in terms of the practical implementation of at times abstract higher-tier climate and energy goals. They are faced with extraordinary challenges as they have to navigate the demanding task of making decisive contributions toward the development of a sustainable energy system, all the while trying to balance their already strained budgets. On the other hand, we can observe a growing involvement of civil society actors in the energy sector. While the incumbent energy providers have been reluctant to adapt to the changing circumstances, private citizens have proven an immense interest in actively contributing to the energy transition themselves. Not least due to the distributed nature of renewable resources as well as the economic incentives provided by feed-in tariffs and other subsidies, this is especially true for energy production: In 2012, "*Bürgerenergie*" (citizen energy) made up 47% of all installed renewable energy (RE) capacity in Germany (trend:research & Leuphana Universität Lüneburg, 2013). Just a few years prior, renewable energy cooperatives (RECoops), frequently characterised as "citizens cooperatives", had started to become increasingly relevant actors. Their number had quadrupled over the course of the previous three years (2008-2011) and continued to grow quickly to over 900 nationwide (AEE, 2014a) until the dynamic development was abruptly thwarted in the light of amended political regulations in 2014.

Even though energy cooperatives remain a rather small actor in terms of their technological impact, they bear great significance for the societal transformation process that accompanies the Energiewende (Müller et al., 2015, p. 96). Consequently, their development has garnered a lot of attention in the public debate as well as in the social sciences. Media and scientific publications alike typically describe the phenomenon as a grassroots movement and emphasize the initiatives' citizen-led, bottom-up organization. As a result, however, research on the formation of RECoops often selectively focuses on these aspects of active citizenry and has "a tendency to overstress the importance of agency characteristics […], while neglecting the importance of contextual and structural factors" (Oteman et al., 2013, p. 2) at the meso- and macro-level. Especially the impact of local public leadership remains "an often forgotten factor in the grassroots innovations literature" (Hoppe et al, 2015, p. 1918), despite the knowledge that municipalities (and the public utilities) are not only turning into key actors in energy governance but also frequently work hand in hand with the local energy cooperatives.

Using the theoretical framework of actor-centred institutionalism (ACI) – an approach developed to study political steering and societal self-organization – the following thesis intends to analyse and understand the emergence of RECoops from a more comprehensive, systemic perspective. By means of a country case study, it seeks to answer the following central research question:

In how far was the rather sudden formation of hundreds of renewable energy cooperatives in Germany influenced by institutional change and political steering, and what has been the role of the municipalities in their emergence?

A more nuanced understanding of these conditions, circumstances, and the links between them is not only helpful for improving RE governance at different political and administrative levels but is also critical in light of the recent stagnation of the cooperative development in the energy sector. Faced with uncertainties from changing framework regulations, RECoops currently find themselves at a crossroad, and moving forward successfully will require them to adapt their business models and develop new solutions. Lessons from Denmark, where changed conditions also threatened the traditional model of citizen-owned wind power cooperatives, show that municipal involvement could be a sizeable factor in overcoming such obstacles (Gotchev, 2015). Before we can efficiently debate the transferability of these lessons to the German case, however, we need to first understand the current state of cooperative-municipal cooperation as well as the institutional context in which these actors are embedded. With a principal focus on RECoops and their nationwide emergence, the paper at hand seeks to contribute to this understanding.

Following a quick overview of the current state of research on RECoops and community-based energy in the social sciences, the remainder of this paper is divided into six larger sections. Section 2 comprises the theoretical framework. It lays out the most important aspects of ACI and defines the terms "RECoop" as well as "citizen energy". Section 3 explains the adopted methodological approach. An overview of the status quo of RECoops in terms of growth dynamic, membership structure, performance and spatial distribution in section 4 then prefaces the two-fold analysis. Section 5, the first part of said analysis, focuses on the institutional setting of the German energy transition and its role in facilitating the emergence of local energy initiatives. It takes a closer look at the relevant socio-cultural context, political-legal framework conditions at the EU and national level, the relevance of political steering modes, and the institutionally confined municipal scope of action regarding energy policy. In an effort to better understand the horizontal interplay between municipal actors and RECoops, the second part of the analysis then takes the actor-centred component of ACI into account in section 6. It firstly identifies and compares commonly held, institutionally shaped action orientations among these two groups, before using the hereby obtained information to examine the occurrence and nature of collaboration and cooperative interactions between them. For a better overview, preliminary conclusions are drawn after each larger section of the analysis. Finally, the last part of the thesis summarizes the most important results, draws causal connections between them, and gives recommendations for future research.

1.1 Current State of Research in the Social Sciences

The rise of local energy initiatives such as RECoops all over Europe is reflected in a growing body of research that examines a variety of issues and angles. Besides the connection between community ownership and public acceptance of RE technology (e.g. Warren & McFayden, 2010; Wunderlich, 2012), it is especially the analysis of conditions which enable or hinder their development that has drawn a lot of attention. Literature has tended to investigate either the institutional (particularly the regulatory) framework conditions in countries like the Denmark, the Netherlands, the UK and Germany (e.g. Toke et al., 2008; Nolden, 2013; Oteman et al., 2014) or processes and interactions at the micro-level. Regarding the latter, the civil society aspect of community-based initiatives has been a clear focus of many studies. "A wealth of literature" (Arentsen & Bellekom, 2014, pp. 2 f.), for example, explores the dynamics of group formation and identifies commonly occurring motives and drivers among citizens for the establishment of grassroots initiatives within their local communities (e.g. Bomberg & McEwen, 2012; Boon, 2012; Wüste & Schmuck, 2012). These motives typically fall into four different categories based on the respective underlying environmental, economic or social rationale as well as a dissatisfaction with government effectiveness (Arentsen & Bellekom,

2014, pp. 2 f.). However, what is generally missing from scientific literature, and where this paper picks up, is a perspective that takes both the micro-level drivers and the larger structural and contextual setting into consideration and shows the connections between them.

In parallel to the debate about local energy initiatives and civil society participation, the social sciences are also paying growing attention to municipalities as potential "key actors in German renewable energy governance" (Schönberger, 2013) and investigate topics such as the current trend towards the remunicipalisation of energy services and local public utilities (e.g. Wegmann, 2011; Huber A. et al., 2013; Berlo & Wagner, 2013). However, the debates about community energy and municipal energy policy have so far remained separated, and the scientific community has paid surprisingly little attention to the extent and nature of relations between RECoops and municipal actors. While it is relatively well known that collaboration and cooperative partnerships exist in numerous places, coverage of this topic goes barely beyond the descriptive level of individual cases (e.g. AEE & DGRV, 2013; Breunig, 2011), while scientific analyses appear to be generally missing from literature. An exception is a comparative case study conducted by Hoppe et al. (2015) about local government support for local energy initiatives, the results of which confirm that this is a topic worth looking into further. Additionally, Hall et al. (2015, pp. 24f.) point to the nuanced difference between "civil" and "civic" society and propose the introduction of the concept of "a 'civic' energy sector, which would include municipal, citizen, community and co-operative ownership structures […] based on an understanding that these institutions' drivers and motivations differ from state or private interests." The thesis at hand seeks to contribute to this understanding by analysing and comparing the interests and preferences of both cooperative and municipal actors while also taking into account the larger institutional context in which they are embedded.

2. Theoretical Approach

2.1 Actor-Centred Institutionalism

ACI constitutes a general analytical framework for interaction-oriented policy research that was developed by Renate Mayntz and Fritz W. Scharpf as a means to study political steering and societal self-organization in sectors that are 'close to the state' (Mayntz & Scharpf, 1995). Geared towards research that seeks to identify the causal processes behind social developments and events, the approach provides guidelines and lays out the tools that could be used for the search of explanations (Scharpf, 1997; Mayntz, 2009, p. 83f.). The authors followed the rationale that the analysis of structures without reference to actors remains just as insufficient as the analysis of actor behaviour without reference to structures (Mayntz & Scharpf,

1995, p. 46). Consequently, they combined elements of both actor-centred and institution-centred approaches in one integrated framework, thus allowing for a dual perspective.

The central assumption underlying ACI is

> *"that social phenomena are to be explained as the outcome of interactions among intentional actors [...] but that these interactions are structured, and the outcomes shaped, by the characteristics of the institutional settings within which they occur."* (Scharpf, 1997, p. 1)

As depicted in Figure 1.1, four analytical categories make up the focal point of the approach —namely the institutional setting, actors, actor constellations, and interactions. The basic ideas behind these categories will be outlined in the following.

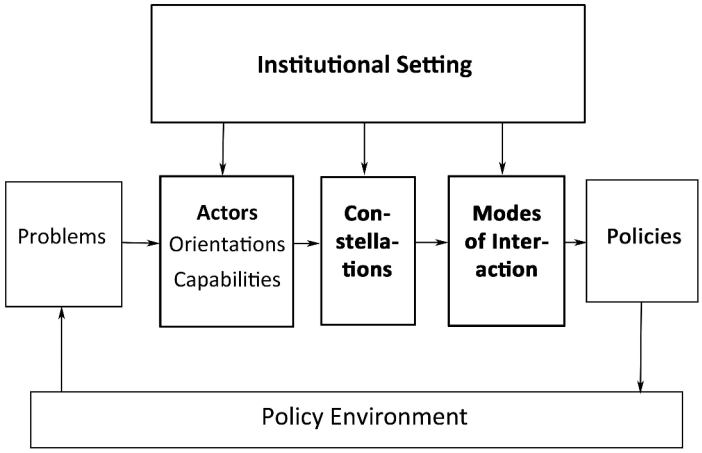

Illustration 2.1: Categories of Actor-Centred Institutionalism. (Scharpf, 1997, p. 44)

2.1.1 Institutions

The term "institution", while widespread in the social sciences, is not defined unanimously. Scharpf prefers to exclude social entities, such as corporate actors or organizations, from the meaning; he restricts the concept "to systems of rules that structure the courses of actions that a set of actors may choose" (Scharpf, 1997, p. 38). This definition includes both formal legal rules as well as sanctioned social norms. Together, they build the institutional setting and exert "the most important influences […] on actors and interactions" (ibid., p. 39), as they will reduce the range of potential behaviour and define how the actors involved will evaluate chosen courses of actions and their outcomes (ibid.). It is through these institutional constraints that actions are comprehensible and, to a certain degree, predictable to other actors— an important prerequisite for fruitful social interaction (Nölting, 2004).

In order to perform their essential function, it is a precondition that institutional rules, be they formal or informal, overt or implicit, are commonly known in the social environment that they structure. As a result, they are reasonably accessible for researchers as well, to whom they prove to be useful sources of information that have high explanatory value (Scharpf, 1997).

Intentional or strategic actor behaviour can be analysed through this institutional lens. At the same time, it is argued that institutions can never have a fully determinative effect. While they form the context that constitutes actors, shapes their perceptions and preferences, and influences their behaviour, actors retain considerable scope for strategic and tactical choices and may in turn even alter the institutions that constrain them. Institutions are hence both independent as well as dependent variables (Scharpf, 1997).

2.1.2 Actors

Within the given institutional setting and within a given external situation, we find intentional actors who—"most interested in achieving specific outcomes" (Scharpf, 1997, p. 36)—drive policy processes through interaction among each other. 'Actor' in this regard does not only refer to public office holders, such as representatives in governmental, parliamentary or municipal institutions, but to all citizens in their capacity as political actors in the state as well as in organizations representing societal interests (Benz, 2001, p. 74).

In the ACI framework, actors are endowed with, and characterized by, certain capabilities and specific cognitive and normative orientations (i.e. perceptions and preferences). The former include "all action resources that allow an actor to influence an outcome in certain respects and to a certain degree" (Scharpf, 1997, p. 43), such as personal properties, physical resources, rights of participation or of veto, and so forth (ibid.). Cognitive orientations, or perceptions, refer to the actors' interpretation of directly observable facts as well as their hypotheses about the unobservable. As it is expected that "the specific combinations of knowledge and ignorance tend to be shared among actors in institutionalized interactions" (ibid., p. 62), perceptions are generally assumed to be empirically correct and as accessible to researchers as they are to the actors. In contrast, the concept of normative orientations, or preferences, is more complex. To make it more tangible, Scharpf disaggregates it into simpler components and argues that at least two dimensions determine actor preferences: basic self-interest on the one hand and norms on the other hand (ibid., p. 63ff.; Scharpf, 2000).

While ACI generally follows the doctrine of methodological individualism that "only individuals are capable of purposive action" (Scharpf, 1997, p. 60), the epistemic interest of policy research is often directed at action above the individual level. Provided that "the individuals involved intend to create a joint product or achieve a common purpose" (ibid., p. 54), it can be empirically feasible to treat the aggregate of these individuals as a composite actor. Scharpf (ibid.) distinguishes between two types of composite actors: 'Corporate actors' that typically are top-down organizations under the control of a hierarchical leadership representing the owners or beneficiaries, and 'collective actors' that "are dependent on and guided by

the preferences of their members" (ibid., p. 56). He further differentiates between four types of collective actors (Coalitions, Clubs, Movements, and Associations) along two dimensions (Control over Action Resources; Reference of Action Orientations).

2.1.3 Actor Constellations & Modes of Interaction

Given the presence of a plurality of intentional actors, each endowed with their own specific capabilities and orientations regarding the policy outcomes that could be achieved, it is unlikely that any one actor will be able to determine these outcomes unilaterally; instead, the solutions to a policy problem are produced and the course of the policy process is driven by the interdependent choices of the actors involved in policy interactions (Scharpf, 1997). ACI resorts to the game-theoretic concept of 'actor constellations' to describe and analyse the characteristics of a given set of actors and, depending on the degree to which their aspirations are compatible or incompatible with one another, the level of potential conflict among them (ibid., p.72ff.). Deviating from traditional game theory, ACI "assumes that in principle any given constellation could be played out in a variety of *modes of interaction*" (ibid., p. 45), namely not only through unilateral action, but also through negotiations, majority vote, or hierarchical direction. These modes are again shaped by institutional rules regulating their use; and their specific characteristics are affected by the larger structural setting – anarchic fields, networks, associations, or organizations – in which they are employed (Scharpf, 1997).

2.2 Definition & Typology: Renewable Energy Cooperative

2.2.1 The Cooperative Business Model…

The cooperative is a business model that exists worldwide and can be found in a broad range of sectors, with national laws differing greatly from country to country. In Germany, a registered cooperative (*eingetragene Genossenschaft*, eG) is considered a separate legal form whose rights are extensively regulated by the Cooperatives Act (*Genossenschaftsgesetz*, hereafter: GenG). According to § 1 (1) GenG cooperatives are *societies composed of an indeterminate number of members, with the purpose of promoting their members' commercial activities or their social and cultural interests*[1] *by means of a commonly owned enterprise*.

Depending on the respective statute, both natural and legal persons can purchase one or more shares to become a member. Regardless of the amount of shares each member holds, basic decisions are made democratically in general assemblies, in principle on the basis of a one member, one vote system (§ 43 GenG). A management board represents the cooperative both in

1 The notion of the promotion of social and cultural interests was added in the 2006 amendment of the GenG, giving extended scope of action to cooperatives and allowing them to explicitly focus not only on economic goals but also on e.g. climate protection.

and out of court but is directly accountable to its members (§§ 24, 34 GenG). The cooperative model unambiguously fits all characteristics of an association, which Scharpf (1997, p. 56) defines as a bottom-up organization with a collective purpose, a voting system, collectively held action resources, and a leadership structure in which the leaders act as 'agents' who are accountable to the members (i.e. the 'principals') and their preferences.

Cooperatives are distinct from other business models in that they traditionally follow specific principles and values that go beyond a sole focus on economic benefits. Alongside the formal legal rules laid out in the GenG, these principles are part of the primary institutional constraints that influence a cooperative's behaviour and render its courses of action more predictable to both its members and third parties. They include, but are not limited to, self-help, self-responsibility, self-administration (i.e. via internal democracy), open membership, equity, and equality (Mändle & Mändle, 2012; Wülker, 1995). In terms of their organization, all cooperatives have in common that their members are owners and clients at the same time (the so called identity principle); they are also typically known to follow the subsidiarity principle, and many are confined to a specific region (ibid.).

2.2.2 …in the Energy Sector

As per § 6 No. 2 GenG, a cooperative's statute must contain the purpose of the enterprise. Following Holstenkamp's classification (2012, p. 10), an *energy* cooperative could then be defined as a registered cooperative whose statute determines an operation along the value chain in the energy sector as the primary purpose, bearing significance both economically and for the promotion of the members. Energy cooperatives per se are not a new phenomenon in Germany but have existed for more than 100 years and were traditionally tasked with the energy production and grid operation in remote areas that were not serviced by larger energy companies (Yildiz, 2014, p. 680).[2] In contrast, today's new generation of RECoops is driven by qualitative, rather than quantitative, considerations and focuses exclusively on sustainable energy provision from renewable sources.

The field of RECoops is quite heterogeneous, which complicates an unambiguous typology. Different approaches to a systematization categorize RECoops either based on the type of energy carrier used, such as PV, wind energy, bio energy, etc. (Holstenkamp & Müller, 2013; Volz, 2012), or according to their field of activity (Theurl, 2008; Flieger, 2011). Based on Flieger's typology, which differentiates RECoops by their activities along the value chain, Klemisch (2014, p. 157) offers a distinction in which he divides RECoops into four different sub-types and roughly describes their main business field, including the technology in use:

2 Today, about 50 of the former 6000 of these traditional electricity cooperatives still exist (Holstenkamp & Müller, 2013).

- *Energy production cooperatives* produce and distribute secondary energy from four primary energy carriers, namely water, wind, solar, and/or bio mass energy. They may also operate and feed energy into their own grid.
- *Energy consumption cooperatives* are mainly concerned with the joint purchase and sale of energy from renewable sources. They, too, often operate their own grid through which they distribute the purchased energy to their members or other end consumers in the region.
- *Energy production-consumption cooperatives* encompass the complete value chain from production over trade and transport to the consumption. Known examples of such an approach are cooperatively organized bioenergy villages.
- *Energy services cooperatives* support and complement the aforementioned RECoops through a variety of services and activities, e.g. consultation, capital procurement, maintenance, etc.

While these classifications are helpful, they "lack […] an empirical grounding and are not well-integrated into any theoretical framework" (Yildiz, et al., 2014, p. 4). For pragmatic reasons and lack of alternative since a "theoretically-informed typology of energy cooperatives in the German context and beyond […] is generally missing from the literature" (ibid.), this paper will nonetheless resort to Klemisch's distinction. To reduce complexity and avoid invalid generalizations, cooperatively organized bioenergy villages as well as energy services cooperatives shall not be at the centre of attention in the following, as they are too distinct from the majority of RECoops to include them efficiently in this analysis.

2.2.3 Citizen Energy

Citizen investments in renewables have been of vital importance in the current phase of the Energiewende. Consequently, the term '*Bürgerenergie*' has gained widespread but often vague use. Because the vast majority of their members are private individuals, RECoops are frequently named in the same breath and classified as citizen energy organizations without further clarification on what the term encompasses. Efforts to increase conceptual precision of its meaning have spawned a definition according to which projects classify as citizen energy in a narrow sense if they fulfil the following characteristics: Private persons and/or individual agricultural enterprises or legal entities (other than big corporations) – stemming from or residing in the same region – individually or collectively invest in energy plants with their own capital, over which the citizens involved have controlling and voting rights sufficient enough (i.e. at least 50%) to be able to steer the projects (trend:research, Leuphana Universität Lüneburg, 2013, pp. 35ff.). The term can also be defined in a wider sense, especially in regards to a lower share of voting rights and in cases of supra-regionality. It can further be dis-

tinguished between plants owned by a single individual and projects in which several individuals collectively own one or more plants, which are referred to as citizen energy societies (ibid.)

While the large majority of energy production cooperatives constitute citizen energy societies, not all RECoops fulfil the criteria of citizen energy in the narrow or even wider sense (trend:research, Leuphana Universität Lüneburg, 2013, p. 59ff.; Holstenkamp & Müller, 2015, p. 9). The above definition is restricted to cooperatives that invest in energy plants, a requirement which is not always met by consumption and especially service cooperatives. Furthermore, not all RECoops fulfil the regionality principle, the requirement that citizens hold 50% of the voting share[3], or even the actor group criterion[4]. Some caution is therefore necessary when using the term 'citizen energy' in the context of RECoops.

3. Methodological Approach

Along with a variety of other institutionalist approaches, ACI was developed with the intention to turn away from theoretical models—which were perceived as focusing too little on empiricism—in favour of a deep-rooted interest to understand and reconstruct social (including political and economic) developments and events (Mayntz, 2009, p. 83). The goal is to explain a given macro-social phenomenon "by identifying the processes through which it is generated" (Mayntz, 2003), a method which Mayntz refers to as "causal reconstruction" (ibid.). Aiming at concretion and adequate complexity instead of abstraction and maximum simplification of the explanation, it emphasizes the pertinence of the distinct ontological features of multi-causality, process, historicity, and structural intricacy that generally characterise these macro-social phenomena (Mayntz, 2009, p. 84ff.). Mayntz decidedly distances the proposed method from correlational or multivariate analysis in quantitative research:

> *„Causal reconstruction does not look for statistical relationships among variables […It] may lead to a (more or less complex) historical narrative, but in its theoretically more ambitious version, causal reconstruction aims at generalizations —generalizations involving processes, not correlations" (ibid.).*

Following this line of argument, a qualitative, exploratory approach is the most appropriate method for this thesis.

The theoretical framework of ACI is particularly useful for, and thus most commonly applied to, individual case studies that seek to understand a specific policy outcome, such as the

3 This can be the case when RECoops hold shares in e.g. local utilities and do not have the majority of the voting rights in joint projects. Examples: BEG Wolfhagen, Bürgerenergie Jena eG (BEG Wolfhagen, n.a.; BürgerEnergie Jena eG , n.a.).

4 There are e.g. (multi-level) inter-municipal RECoops whose members are mainly municipalities and municipal utilities while private individuals are only represented through the membership of a separate citizens cooperative. Examples: NEW eG, KERL eG (NEW, n.a.; Landesratsamt Regensburg, n.a.).

reaching or non-reaching of a policy decision or an agreement on a contested issue. These kinds of studies will typically place a strong focus on actors' strategic behaviour and interaction dynamics, and therefore choose cases that are characterised by a certain level of conflict. The approach taken in this paper will be different in a number of ways.

Since the examined phenomenon is one that occurs nationwide and is part of a larger grassroots movement, the research will be conducted by means of a country case study instead of individual meso-level case studies. German RECoops, while connected by their shared vision, business model and some networking activity, are separate associations that do not interact with each other on a daily basis or concert their day-to-day strategies at the local level. Likewise, many municipalities throughout the country face similar energy related challenges as their counterparts, but generally each follow their own agendas and actions plans (though close intermunicipal partnerships occasionally exist). Emphasizing the ontological feature of multi-causality, this paper therefore takes a rather broad approach by focusing on the circumstances and characteristics of (and causal interrelations between) institutional and structural conditions, political steering, commonly held action orientations among RECoops and municipal actors, as well as the general nature of the relationships between these groups. While examples for meso-level collaboration will be given to illustrate the argument's line of reasoning, the dynamics of interactions in specific individual cases or the way in which the general action orientations translate into strategic behaviour in particular situations of conflict will not be addressed.

Despite this rather unusual application, ACI provides an effective approach to reconstruct the social and political circumstances and developments that enabled the emergence of RECoops. Since ACI is not a theory but a theoretical framework that addresses the general connection between various factors and variables, the selective use of its basic explanatory approaches is, in principle, unproblematic. Its tools and analytical categories can be used to "[organize] our prior (scientific and pre-scientific) knowledge" (Scharpf, 1997, p. 29) in a way that allows to approach the issue from new angles and directs attention to factors of high explanatory potential. For the following country case study, information was gathered, documented and restructured based on the review of scientific literature and qualitative data analysis. Relevant data was derived from various sources, which included legal documents, case studies and other research papers, newspaper articles, as well as the quantitative and qualitative results from existing surveys among citizens, energy cooperatives[5] and municipalities.

5 Valuable and quite comprehensive information on RECoops could especially be derived from the annually conducted surveys by the DGRV, a German association for cooperatives. The surveys include only those energy cooperatives that are united under the umbrella of the DGRV and have not been established before 2006, meaning that the focus lies exactly on those new, rather small and regionally confined RECoops that this paper is interested in. At a confidence level of 95%, the surveys yielded results with a margin of error of

4. Status Quo of RECoops in Germany

4.1 Growth Dynamic

The idea to organize certain tasks in the energy supply system on a cooperative basis has a long tradition that can be traced back to the end of the 19th century, but lost ground from the end of the 1930s onwards (Holstenkamp & Müller, 2013). Triggered by the turn towards sustainable energy and the possibilities associated with the decentralised nature of RE technology, we have seen a renaissance of this idea in recent years, specifically from the second half of the last decade onwards. The resurgence of energy cooperatives was so abrupt that the phenomenon was widely referred to as a 'boom' in media reports.

As can be seen in Illustration 4.1, the year 2007—when the total number of energy cooperatives exceeded 100—marks a turning point. Between 2008 and 2011 the total number quadrupled, with one new RECoops being founded every three days on average until 2014 (AEE, 2014a). The growth dynamic of RECoops was in fact stronger than any other cooperative sector. In 2011, energy cooperatives made up roughly 63% of all newly established cooperatives in Germany (Volz, 2012) and about 8.8% of the total stock of registered cooperatives (Holstenkamp & Müller, 2013).

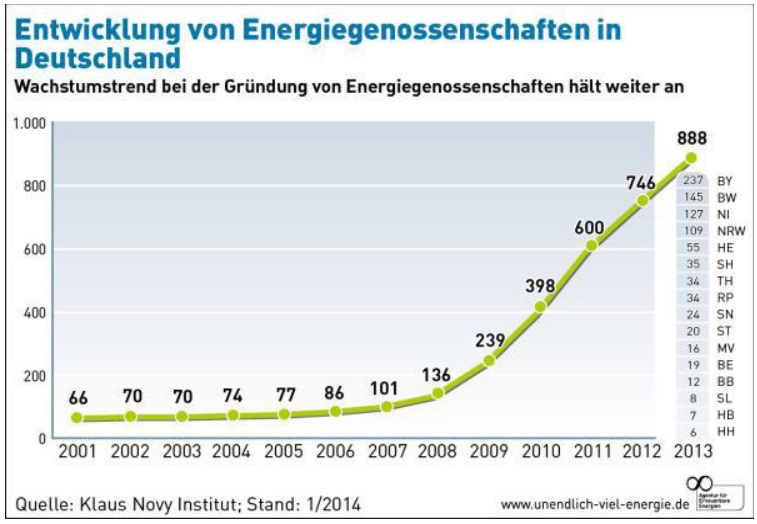

Illustration 4.1: Development of RECoops in Germany (AEE, 2014a)

In 2014, a significant slump in the growth rate by more than 60% was recorded, as only 54 new RECoops were founded (DGRV, 2015, p. 3). On top of this sudden stagnation, 33% (compared to 8% only two years prior) of already established RECoops reported that they were going to refrain from new investments for the time being (DGRV, 2014, p. 13; DGRV, 2015, p. 10). These recent developments are widely attributed to uncertainty resulting from the most recent amendment of the EEG that will be further discussed in subsection 5.2.2.[6]

±5.52 (2013), ±5.58 (2014) and ±4.25 (2015) percentage points, respectively.

6 Other hindering factors, which cannot be elaborated on within the scope of this thesis, concern the capital market regulation, funding structures especially for large projects, a lack of full-time employees and active volunteers in the long-term, as well as market saturation in certain regions (Müller et al., 2015, p. 99f)

4.2 Membership Structure and Performance

The 2015 DGRV survey among its energy cooperatives gives valuable and quite comprehensive information on the internal structure and organization, performance, and development of RECoops. The 772 RECoops that were established under the umbrella association since 2006 unite about 130.000 members, 92% of which are private citizens. Farmers, churches, businesses and (cooperative) banks as well as municipalities and municipal entities account for the remaining parties. Together, members have placed about €470m at the disposal of the RECoops, who in turn have invested roughly €1,67 bn in RE. RECoops generally require a low minimum share that allows individuals to participate even with a small monetary amount: In one out of four RECoops, new members can join for a contribution of €100 or less, and 76% require a minimum contribution of only €500 or less. Having been found to be the legal form that is the least likely to become insolvent (SozialInvestieren, 2013), the cooperative model can moreover be attractive even to a rather risk-averse public.

The vast majority of RECoops can be classified as production cooperatives, many of whom generate energy from more than one RE technology. According to figures provided by Yildiz et al. (2014, p. 5), close to 78% of energy cooperatives use photovoltaics (PV), followed by biomass (31.5%) and wind (~12%). In 2015, the then 772 RECoops under the umbrella of the DGRV produced roughly 933 million kWh electricity, supplying about 230.000 average households—in light of an estimated total of 161 billion kWh from renewables and 743 billion kWh gross power production an infinitesimal share (~0.58% and ~0.13% respectively) but nevertheless far more than their combined membership needs (DGRV, 2015; BMWi, 2015). While investments in solar and wind power are as of recently expected to decrease significantly, increases could be recorded in the operation of local heat grids. 120 of these grids have been established since 2006, over 70 of them since 2011 alone. In 2013, around 16.000 households were connected to cooperatively operated heat grids (DGRV, 2013, p. 14).

4.3 Spatial Distribution and Cooperative Networks

As is already indicated in Illustration 4.1, the spatial distribution of RECoops over the territory of the Federal Republic is fairly uneven. Clear front-runners among the states, both in absolute numbers and adjusted for population figures, are Bavaria and Baden-Wurttemberg, while Saxony, Berlin, Brandenburg and Hamburg lag quite far behind (see App. A, B for visualisation and detailed numbers). Stark differences are further not only observable among but also within the states (Maron & Maron, 2012, p. 115ff.): RECoops can be found predominantly in municipalities with 10.000 or less inhabitants, and their number decreases as size and population density of municipalities increase, leading Maron & Maron to the conclusion

that ‘up to date, the formation of RECoops is a matter of civil self-organization in small towns’ (ibid., p. 118)[7].

Reaching beyond the borders of these towns, RECoops have started in the last few years to pool their interests by joining forces with those nearby. In Rhineland-Palatine, Thuringia, Bavaria, Hesse, North Rhine-Westphalia and Lower Saxony, networks have been established at the regional and state level which aim at facilitating the exchange of experiences and best practices, giving greater publicity to the cooperative idea, and promoting the formation of new RECoops (Energiewende Jetzt, n.a.). In some places (eg. in Lower Saxony and Bavaria), the formation of RECoops is additionally supported with various foundation concepts, or ‘blue-prints’, that have had considerable bandwagon effects in the surrounding areas due to their comprehensibility and transferability to new ventures (Klemisch, 2014, p. 160).[8] Furthermore, the interests of RECoops are now also represented at the federal and European level. Backed by the DGRV and the regional cooperative associations, a national agency for RE-Coops (*Bundesgeschäftsstelle Energiegenossenschaften*) was put in place in Berlin in late 2013 with the goal to establish a central point of contact between RECoops and federal politics and to provide the cooperatives with a voice in the federal debate about the energy transition (DGRV, n.a.). The agency also joined REScoop, the European association of RECoops in Brussels, as a full member.

5. Institutional Setting of the Energiewende

Community initiatives can be enabled or constrained by a complex variety of interconnected institutional factors. The following two subsections will aim attention at the nature and importance of the socio-cultural context as well as the political-legal context for the development of social innovation in the form of RECoops. Socio-cultural attributes under consideration include for example the role of citizens and communities in terms of the energy debate, the public perception of RE, attitudes towards experimentation, community ownership and citizen participation, and so forth. As regards the political-legal framework, the analysis will focus on the most influential regulations at the EU and the federal level as well as on the action scope of the municipalities, while highlighting underlying political steering patterns and processes of institutional change that have taken place.

7 Original quote: “Die Gründung von Energiegenossenschaften ist bisher Sache der bürgerschaftlichen Selbstorganization in Kleinstädten.”

8 Noteworthy in this regard is also a similar project by the energy provider EnBW, one of Germany's 'Big 4', which offers advisory services and start-up grants for RECoops in Baden-Wurttemberg (Janzig, 2010; Klemisch, 2014, p. 160).

5.1 Socio-Cultural Context

Research examining the development and diffusion of RE in Germany often "emphasizes the tremendous importance of political regulation as the driving force in the field" (Mautz, 2007, p. 116). In the endeavour to understand and explain the phenomenon of RECoops, however, the focus on regulatory measures and political steering alone cannot be exhaustive, as the "seeds of this 'people power' revolution […] lie deep in the soil of German society" (Buchan, 2012, p. 10).

Buchan's statement becomes clearer when we look at the origins of the Energiewende[9] and the important role that local initiatives have played from the very beginning. At the societal level, "the early process of innovation and diffusion of renewable energies was—in Germany—to a high degree connected to the rise of the new social movements in the 1970s, especially the ecological and the alternative movement" (Mautz, 2007, p. 115). Debates about safety and ecological concerns regarding nuclear power, as well as about environmental damages and the dependence on oil imports ushered a change of awareness that laid the foundation for structural changes in energy policy (SRU, 2011, p. 193). In this context, a process that was later described as a 'participatory revolution' (Kaase, 1982) led to the emergence of non-institutionalised forms of participation in addition to the conventional forms of political influence. The change of participation patterns resulted in a steady increase of protests, petitions, citizen initiatives and the like over the course of the next decades (Schmidt & Wilhelm, 2011). From the start, activists also engaged in local energy projects. The advancement of RE, which is often seen as a kind of 'antithesis' to nuclear energy (Rößl, et al., 2012, p. 12), became the focal point of their endeavour.

According to Fuchs (2014), the development of such local initiatives can be divided into three phases. Often initiated by dedicated citizens or scientists with a background in the anti-nuclear movement, first experiments with RE technologies took place in a decentralised manner at the local level. These grassroots groups were driven by a strong ecological belief and gave only marginal consideration to economic reasoning. After a policy framework for RE was established from 1998 onwards, the field saw a dynamic growth and professionalisation, which led to the emergence of an economic logic alongside the environmental one (cf. Appendix C). The third and current phase was ushered in around 2009, when the focal point of the discussion turned towards the architecture of the energy supply system as a whole.

9 Often attributed to the government's decision in the aftermath of the Fukushima disaster in 2011 to phase out nuclear power and promote the shift towards RE, the term 'Energiewende' was in fact coined by environmental think tanks in the 1980s, when scientists questioned—for the first time—the prevailing view that economic growth was inevitably tied to increased energy consumption, and started looking for alternatives to oil and uranium (Moss, Becker, & Naumann, 2014; Institute for Applied Ecology, n.a.).

This current debate is concerned with potential conflicts arising from the integration of renewables into the given system in terms of both technical and societal challenges. The latter arise due to competing socio-technical paradigms that have characterized the relationship between the RE sector and the traditional energy industry from the beginning: "Today and ever since, supporters and actors directly involved in the field of renewable energies try to enforce a radical paradigm shift" (Mautz, 2007, p. 115). They are pushing for three fundamental principles, namely technical and economic decentralization of the energy production, pluralisation of relevant actor groups, and environmental protection within the energy sector (ibid.). In their most extreme form, they position themselves diametrically to the supporters of the traditional industry who want to maintain the status quo and the hitherto dominant paradigm "of a centralised generation and distribution of electricity within an interlocking technical system" (ibid., p.114).

The increasing significance of this new paradigm is not only indicated by the progressing diffusion of RE technologies, but is also reflected in the public opinion. While the aforementioned professionalisation and differentiation of actors in the field of RE brought about that "the former clear-cut profile of the new socio-technical paradigm meanwhile has become more or less diffuse" (Mautz, 2007, p. 127), its original three principles enjoy strong and growing support among German citizens. In a 2014 representative survey on the acceptance of RE, commissioned by the AEE, 92% of the participants rated the development of alternative energy as important (22%) or very important (70%). Besides climate protection, which 71% associate with RE, respondents also see advantages in regards to decentralisation and actor pluralisation: About half the population associates RE with the opportunity for citizens to directly participate in the Energiewende (54%) as well as with an increased competition for the incumbent energy companies (51%), who generally suffer from a negative image and mistrust among the public[10]. The AEE survey also shows that respondents are likely to rate any kind of energy plant more positively if they have had previous experience in their own neighbourhood, meaning that a higher degree of technological decentralisation is positively correlated with local acceptance of said technology (AEE, 2014b).

The notion of local acceptance is particularly important considering that a positive public perception of RE in principle does not necessarily mean that citizens, once personally confronted with specific projects at the local level, will accept the actual implementation. Local protests indeed exist to a certain extent and cannot be disregarded.[11] While there is no one explanation

10 The corporate energy groups are perceived as one of the top three reasons to hold back the process of the Energiewende (BDEW, 2013, p. 24f.), and 80% of German citizens expressed a desire to be independent from the Big 4 in the future (Stiebel Eltron, 2014).

11 In existing international literature, the phenomenon is often referred to as the "NIMBY (Not In My Backyard) effect", which imputes egoistic motives and free rider behaviour to protesters involved. In recent

for such opposition, research clearly indicates that local ownership and citizen participation are key factors to increasing local acceptance of RE projects, as they improve both their perceived procedural and distributive justice (Wunderlich, 2012, p. 14). Within the population, a desire to be more involved in decisions regarding energy generation and supply is strong: 42% and 48% of citizens eligible to vote believe that participation in this matter is 'important' or 'very important', respectively (infratest dimap, 2012). According to another study, 68% would like to generate as much heat and electricity as possible for their own household, and one in two citizens expressed an interest in taking a share in a private energy project such as a citizen wind or solar park (Stiebel Eltron, 2014).

Cooperatives—due to their inherent principles and values often seen as a nexus between civil responsibility, participation, and economic activity—have evidently been a particularly popular choice of legal form for said projects. This popularity is partly rooted in the fact that Germany has a long cooperative tradition and a population that is well familiar with this business model; it is estimated that one in three Germans with full legal capacity hold a membership in a cooperative (Maron & Maron, 2012, p. 70). The importance of cooperative culture in the expansion of RECoops can be seen in the uneven spatial distribution among the Länder (see subsection 4.2). States with a below average total stock of cooperatives generally have shown a less dynamic development than those with a stronger tradition (ibid., p. 99). The growth trend in fact started earliest in Bavaria and Lower Saxony, where an above average number of historical electricity cooperatives still operate today and seem to have spawned clusters of RECoops in their close proximity (Maron & Maron, 2012, p. 97ff.).

5.1.1 Preliminary Conclusions

German energy policy has long been "part of a lively and open public debate" (Oteman et al, 2014, p. 10). In light of the above findings, it becomes clear that the development and current composition of the German RE sector has been substantially impacted by a decades-long evolution of informal institutions that led citizens to drive change and eventually become directly involved in the market. As was shown, the socio-cultural setting of the Energiewende is characterised by a high sensitivity to environmental issues and a remarkably positive perception of RE among the public, mistrust in the incumbent energy providers and their perceived inertia, a long tradition of local energy activism, and a desire for more citizen participation. In combination with the country's long standing cooperative tradition, these attributes have provided an overall highly favourable environment for locally owned and/or citizen-led RE

years, the acronym has become highly contentious among academics, as the term is "poorly defined" (van der Horst, 2007, p. 2706) and lacks explanatory value for the rather complex phenomenon. Studies and surveys (particularly on wind energy) have shown that motives for opposition at the local level can vary significantly and are often the result of project-specific concerns rather than a rejectionist attitude towards any undertaking in the own neighbourhood in general (Wolsink, 2000; Wunderlich, 2012).

projects, particularly in the form of RECoops. The analysis of eminent socio-cultural institutions surrounding the Energiewende furthermore allows for the hypothesis that the action orientations of RECoops are likely aligned with the principles of the socio-technical paradigm, which have not only been commonly pushed by actors directly involved in the field of RE, but are also largely supported by private citizens (and thus by RECoops' largest member group).

5.2 Political-Legal Context

As important as it is to understand the socio-cultural context in which Germany's citizen energy initiatives in general and RECoops in particular are embedded and from which they emerged, their rise over the past decade ultimately took off (and was then abruptly thwarted) by the implementation of new political and legal regulations. Due to the limited scope of this paper, the following subsections will outline only the most influential aspects of the political-legal framework at the EU, national and municipal level.[12]

5.2.1 EU Level

While the EU has gradually gained influence on energy policy over the past decade, it has traditionally been a nationally dominated field. In hardly any other area have the member states been so reluctant to give up their sovereignty, as a result of which "European energy policy led a shadowy existence for decades" (SRU, 2011, p. 158). Regardless of their limited direct authority, however, the EU exerted considerable influence on its members' energy sectors by introducing provisions concerning the internal energy market. Of lasting impact was notably the adoption of the Directives 96/92/EC and 98/30/EC (later amended by two consecutive legislative packages in 2003 and 2009), which aimed at the liberalisation of the electricity and gas markets in all EU member states. In Germany, they were implemented through several revisions of the Energy Industry Act (EnWG) starting in 1998. Up until then, the national market—characterised by centralised technical structures, regional monopolies and high market concentration—was virtually completely foreclosed to competition.

In the context of this thesis, the results of the liberalisation are significant in a few ways: For one, the provisions "have been major hindering framework conditions" (Schönberger, 2013, p. 28) for municipal energy policy. The abolition of the territorial monopolies affected many municipal energy utilities and put tension on often already strained municipal budgets, as the consequent competition with private energy suppliers resulted in considerably lower profits (ibid.). Because a large number of public utilities were sold shortly thereafter, and due to a

12 The analysis refrains from elaborating on the role of the German Länder. Existing research indicates that the (uneven) diffusion of RECoops has not been significantly affected by resource and funding structures at this level, which, while naturally diverse, are distributed relatively evenly (Staab, 2011, p. 111f.; Klemisch, 2014, p. 159).

wave of mergers that established the oligopolistic structure we can see today, the liberalisation actually led to further economic concentration of the energy market and to rising instead of falling prices (Mautz et al., 2008; Heddenhausen, 2007). At the same time, however, the process also lowered entry barriers for new actors and facilitated their market penetration—especially in the still rather uncontested RE segment—as the revised EnWG obliged grid operators to grant third party access unless deemed impossible or unreasonable (§ 6 EnWG). Moreover, it appears that the mobilization of new (particularly societal) actors was sped up by dissatisfaction with the large energy corporations that came into power as a result of the liberalisation (cf. subsection 5.1).

5.2.2 National Level

Energy Policy Under the Red-Green Coalition (1998-2005)

At the national level, the end of the long-term reign of the Christian Democrats and the subsequent change of government to a coalition of Social Democrats (SPD) and the Green Party in autumn 1998 marked a turning point in terms of federal energy policy, which up until then had given only marginal consideration to the production of energy from renewable sources. The new coalition agreement showed a strong emphasis on RE and focussed on a variety of tasks aimed at their promotion, including, among others, the restructuring of the energy supply system and its legal framework as well as the creation of fair market opportunities and simultaneous removal of obstacles for renewables (SPD & Bündnis 90/Die Grünen, 1998, p. 15f). In the following legislative period, the government introduced a broad policy mix based on feed-in tariffs, investment subsidies and tax exemptions, and decided to phase out nuclear power (Bechberger & Reiche, 2004).

It is well known that the key measure of this policy mix was the EEG, which succeeded the Electricity Feed-In Law (*StrEG*) in 2000 and constituted "without any doubt" (Bechberger & Reiche, 2004, p. 20) the most important regulatory instrument for the promotion of electricity from renewable sources. The EEG introduced fixed, regressive feed-in tariffs with rates that were differentiated depending on the type of technology and the size of the plant. Along with a priority purchase guarantee for 20 years for electricity generated from any RE plant, this measure served as a subsidy for operational costs, provided long-term planning and investment security for plant operators, and increased the willingness of banks to lend (SRU, 2011; Bechberger & Reiche, 2004).[13]

The success of this new policy mix and the EEG specifically is most often attributed to the economic incentives provided therein. However, Mautz, Byzio & Rosenbaum (2008, p. 88f)

13 The Act was amended several times. The amendments made in 2004 and 2009 are less relevant to this thesis, whereas the amendments in 2012 and 2014 will be briefly discussed below.

point out that its importance resided not only in the quantitative promotion of renewable electricity production. Rather, it meant the final step in the establishment of a new mode of political steering that was profoundly distinct from the traditional style of energy policy making. Instead of command-and-control regulations (i.e. directly binding measures that prescribe and enforce specific behaviour), the focus shifted towards a more indirect steering of the contextual conditions in order to allow for 'innovative potential' to unfold outside of the dominant networks between governmental and economic actors (ibid.). The new 'regulatory pattern of co-ordination and context steering' shows more orientation towards civil society than a pattern of bureaucratic control. Given the presence of stable, cooperative actor constellations, this approach ideally results in sustainable solutions for policy problems through the mobilization of participatory contributions from relevant actor groups (Huber J. , 2001, p. 376f.).[14]

In the case of the RE segment, the new policy mix created a protected niche that led to a growing number and professionalisation of a heterogeneous group of actors (Mautz et al., 2008). In conjunction with the now liberalised electricity market, what took place was a 'social opening' to a variety of new electricity producers, reaching hitherto uninvolved segments of the population (ibid., p. 93ff.) and inducing their self-organization. Alongside conventional electricity consumers and producers, this diverse group of so-called prosumers now operate at a new level of action that has formed below the collective levels of action of cities, villages, and regions (Gailing et al., 2013, p. 22). Especially solar energy posed a viable option for the new group of prosumers, as it was thus far "the easiest alternative for local investments in renewable energies" (DGRV, 2012, p. 11). Project planning and realization are significantly less complex and capital demand a lot lower than it is the case with wind power or local heat plants (DGRV, 2012, p. 11; Volz, 2012, p. 522). This explains why PV was, until recently, the preferred choice of a large majority of RECoops, whose degree of professionalisation generally remains rather low.

Relevant Energy Policies Under Angela Merkel

Since 2005, the CDU/CSU-led coalition governments under chancellor Angela Merkel have overall maintained the policy course to promote RE, although stronger emphasis was now placed on the economic impact and the industrial and political challenges associated with the transition of the energy system (SRU, 2011, p. 194). This focus shift was reflected in the 2010 Energy Concept, which clearly prioritised the rapid expansion of commercial offshore wind-

14 Similar processes of political modernization that promoted "a further de-hierarchization of the relations between public and private actors" (Wolf, 2008, p. 227) and led to (horizontal) cooperative modes of governance could be observed in many policy fields and at all political levels, domestically as well as internationally (Mayntz, 2008; Wolf, 2008).

farming and announced plans to make the EEG and the further expansion of RE more market-oriented (BMU & BMWi, 2010).

Especially PV technology became a target for regulatory adjustments, as it accounted at that time for 40% of the EEG's differential costs but contributed only 9% of the energy that falls under its provisions (ibid., p. 8). Consequently, the 2012 EEG amendment, which included the so-called *PV-Novelle,* made incisive cuts to subsidies for solar power. The 2014 amendment further affected RECoops negatively, e.g. by introducing obligatory direct marketing for larger plants (§§34, 37 EEG 2014)[15], by cancelling the green electricity privilege (previously §39 III EEG 2012)[16], and, perhaps most precariously for RECoops, by introducing a tendering procedure to determine the amount of funding dedicated to RE. This procedure, which has been employed for ground-mounted PV installations since February 2015 and will be extended to other sources of RE by 2017 at the latest (BMWi, 2015), heavily favours bigger, financially strong providers over citizen-led projects because it awards contracts for new plants to the lowest bidder in each case. The details on these plans, which will be implemented in a new 2016 EEG amendment, are currently being drafted and have been addressed in a benchmark paper that does acknowledge the effects of the planned regulations on smaller citizens initiatives to an extent (BMWi, 2016).

Though the current government has declared the goal to preserve the plurality of actors, it remains open whether that means the protection of the old 'landscape' or the promotion of new actors as well (Müller et al., 2015, p. 96). Supporters of a bottom-up, citizen-inclusive energy transition, including the National Office of Energy Cooperatives, their regional networks and the BBEn, criticise the new political framework conditions for favouring the big energy providers despite their lagging efforts to invest in RE, and warned that those small actors who had so far been the driving force of the energy transition could be significantly thwarted. However, their policy recommendations and positions as well as their heavy opposition to some of the newly introduced regulations were mostly disregarded during the policy formulation process of the 2014 EEG amendment (DGRV, 2014b; DGRV, 2014c; Hauser et al., 2014; BBEN & Greenpeace Energy, 2014; BBEn, 2014).

5.2.3 Municipal Level

While the main targets in terms of energy and climate policy are set at the international, supranational and federal level, the actual implementation of the Energiewende takes place in

15 Even though the majority of RECoops did have plans to market their energy directly in the future, only 10% were doing so in 2013 (DGRV, 2013).

16 The perpetuation of the green energy privilige had been perceived as one of the most important framework conditions by RECoop members in early 2014 (Bundesgeschäftsstelle Energiegenossenschaften, 2014; DGRV, 2014)

the Länder and municipalities, who have overall been showing strong political commitment in terms of energy policy and the promotion of RE. In order to examine the role of local governments in the emergence of RECoops, it is important to know the institutional framework that shapes their scope of action for local energy policy.

A municipality constitutes the smallest spatial entity and the lowest level within the German political-administrative system. The term includes municipalities without city status ("Gemeinden") as well as district cities, independent cities, and districts (Bogumil & Holtkamp, 2013, p. 8). As subdivisions of the Länder, municipalities are subject to their supervisory and directive powers. However, Article 28 (2) of the Basic Law guarantees the municipalities "the right to regulate all local affairs on their own responsibility, within the limits prescribed by the law." This right of self-government grants the municipalities an important local autonomy that extends to the bases of financial matters and gives them considerable room for manoeuvre[17].

Applied to environmental policy, the existing institutional arrangement turns the municipalities into actors of sizeable importance in terms of the practical implementation of climate and energy targets. Depending on the concrete jurisdictions, they can promote sustainable development and push for investments in RE through the use of a wide array of instruments—from target-setting to concrete individual measures that influence energy consumption behaviour of both the administration itself and private actors (Schönberger, 2013, p. 15ff). As planning and approval authorities with a land-use mandate, local authorities can for example stipulate the use of RE when allocating building land, authorize RE projects or grid expansions, specify criteria and guidelines for renewable energy supply via zoning and development plans as well as building codes, and work closely with project planners during the relevant planning permission and authorization procedures (AEE, n.a.; Schönberger, 2013; Kemfert & Horne, 2013, p. 4). Besides these regulative measures, municipalities can also provide general information and support through public relations and educational work, energy consulting services, financial incentive programs and by backing investments in RE (Schönberger, 2013, p. 26). By means of the establishment of municipal energy utilities, they are furthermore generally authorized to carry out economic activities along the energy value chain, but are subjected to restrictions as per the provisions of the respective Municipal Code (ibid., p. 23).

Additionally, it is important to mention a series of reforms of the Municipal Codes that sought to implement the so-called New Steering Model (NSM). The reform efforts were initiated in

17 The concrete framework of the municipal tasks, powers and structures is regulated in the constitutions of the respective states as well as in the Municipal Code that they issue (Bogumil & Holtkamp, 2013, pp. 16, 30ff.).

the early '90s with the intention to modernize municipal politics and its internal administration. In this context, all federal states introduced the direct election of the executive mayors[18], who were thereby singled out as important local leaders and strengthened in their accountability and position of power within the administration and vis-à-vis other local representatives (Wollmann, 2007). Contrary to Schönberger's (2013, p. 30) assessment that "the direct election of mayors and the New Steering Model had obviously no significant impact on municipal renewable energy politics", a majority of Germany's so-called "Energy Municipalities" have specifically highlighted the important role of actively involved mayors, who in their opinion provide a much stronger impetus for the local energy transition than the expansion targets of the Federal Government, for example (AEE, 2014c). The introduction of the direct election of mayors was furthermore accompanied by the implementation of local referenda, public petitions and new cooperative offers for participation, which substantially expanded the scope of opportunities for citizens to take part in political processes—municipal politics is currently seeing an institutionally spurred 'renaissance' of citizen participation as well as discovering civic commitment (Bogumil & Holtkamp, 2013, p. 78ff.). While the initial NSM reforms highlighted the relationship between the municipality and the citizen as one between a service provider and a customer, the more recent "debate on the civic community, in contrast, is primarily concerned with the citizen as co-producer and cooperator" (Reichard, 2002).

5.2.4 Preliminary Conclusions

The emergence of RECoops was facilitated by numerous processes and regulatory changes. Important prerequisites were the EU-mandated liberalisation of the domestic electricity and gas markets as well as a successful, innovative policy mix at the federal level. The latter was based on a new, less hierarchical political steering mode and resulted in a 'social opening' of the energy production sector by reaching previously uninvolved segments of the German population and mobilizing their participatory contributions. Energy cooperatives are only one example of a new group of prosumers that typically operate locally. At the local level, municipalities are highly relevant actors for the implementation of the energy transition, which they can influence and shape in accordance with their constitutionally guaranteed right to self-regulate. The NSM and other modernization efforts over the past two decades have strengthened the roles of both the mayors and the citizens, whose active participation and commitment are important components of municipal politics today. The direction of federal energy policy in the past four years, however, has had adverse effects on the development of citizen-led initiatives, whose future potential and viability now remain to be seen.

18 The municipal decision making system is a dualistic one, headed by the municipal council and the municipal administration as the two central organs. Most commonly, the latter is organized monocratically, making the mayor the sole head of the administration.

6. Energiewende at the Local Level: Horizontal Interplay Between RECoops and Municipalities

6.1 Increasing Network Activities at the Local Level

It was discussed above that the new energy policy mix owes its success to a large degree to a process of political modernization, in the course of which the dominant regulatory pattern shifted from bureaucratic control to coordination and context steering. The subsequent diversification and pluralisation of players in the field of RE shows that the new steering mode succeeded in mobilizing participatory contributions from relevant actor groups, which in turn suggests the presence of stable, cooperative actor constellations (Huber J., 2001, p. 376f.). While traditional hierarchic structures still dominate the centralised system that is controlled by the incumbent energy corporations, horizontal (market) coordination and network-like relationship patterns have indeed gained importance in parallel (Mautz & Rosenbaum, 2012, p. 92). As regards the local, i.e. the operating level of most RECoops, Schönberger's analysis (2013, p. 29) of "municipalities as key actors in German renewable energy governance" reveals that network activities can increasingly be observed both between and within municipalities.

The network concept has seen many definitions and a large range of approaches to its analysis in policy-related literature. Irrespective of the considerable variations, a policy network in its lowest common denominator definition is understood as

> *"a set of relatively stable relationships which are of non-hierarchical and interdependent nature linking a variety of actors, who share common interests with regard to a policy and who exchange resources to pursue these shared interests acknowledging that co-operation is the best way to achieve common goals."* (Börzel, 1997, p. 1)

The occurrence of precisely such structures at the local level has been especially significant for RECoops, who frequently constitute a nodal point for encounters between various local market players and policy actors. Within the cooperative structure itself and/or in the form of "regional networks" as defined by Scharpf (1997, p. 136), collaboration takes place with and among cooperative banks, local energy utilities, construction and craft businesses, non-governmental organizations, and public officials and authorities, who jointly contribute to the economic vitality of their regions.

The epistemic interest of this paper does not lie in the topological characteristics of these networks but in better understanding the herein embedded dyadic relationships between RECoops and municipal actors. More specifically, the goal is to identify the most prevalent situational, institutional and normative reasons for both sides to engage in such cooperation, and to assess the impact of municipal involvement on the emergence of RECoops. For this pur-

pose, it is necessary to first determine dominant, institutionally influenced action orientations of the two actor groups before elaborating on different forms of horizontal interplay between them.

Since municipalities and municipal entities are at times members of local energy cooperatives themselves, it is not always possible to draw a clear line between the two sides. For the sake of simplicity, the following part of the analysis will nevertheless treat them as separate actors. Seeing as municipalities constitute less than 3% of the combined membership base of RE-Coops, as opposed to the 92% that are made up by private individuals (AEE, 2014a), the respective actor preferences can be expected to be determined by relatively distinct motives. Despite the overlap between the two actor groups, a simplified representation should therefore not affect the internal validity of the results too much.

6.2 On the Identification of Action Orientations

Because actor orientations are based on subjectivities which cannot be directly observed, their identification poses a methodological challenge (Scharpf, 1997, p. 60). The disaggregation of the notion of normative orientations into less complex components simplifies the obtainment of "institutionally determined or empirically observable indicators" (ibid.). Scharpf (1997, p. 63ff.; 2000) argues that at least two dimensions determine actor preferences: basic self-interest on the one hand and norms, or normative role orientations, on the other hand.

Analogous to Adam Smith's definition of self-interest as an individual's needs for physical well-being and social recognition, the component of organizational self-interest refers to "the conditions of organizational survival, autonomy and growth" (Scharpf, 1997, p. 64). In other words, interests can be equated with those preferences that determine an actor's strategic choices to secure the (competitive) position, the degree of organizational autonomy, and the resources that are necessary for system maintenance (Scharpf, 2000). Interests are expected to be relatively "uniform and constant - which allows fairly general and reliable predictions of organizational responses to institutional incentives" (ibid.). Normative convictions, on the other hand, refer to the purposes to be achieved by particular actions; they hence determine the strategic choices made to attain the actor's organizational mission(s) and are strongly influenced by the respective institutional setting (Scharpf, 1997, p. 64f.; 2000). Put simply, interests aim at the securing of *gains* while norms are oriented towards the attainment of *goals*.

6.3 Interests and Preferences of Renewable Energy Cooperatives

In regards to their organizational self-interest, RECoops stand out from conventional enterprises in the energy sector in that they follow a different operational logic. Due to their corporate structure, cooperatives depend on the loyalty and the personal commitment of their

voluntary members, who are both the owners of the organization and the recipients of its services. Like any enterprise that seeks to survive in the market, they must generate sufficient revenue to cover expenses and ensure economic viability. Reactions to financial and economic incentives are therefore not surprising. Unlike other business forms, however, cooperatives focus not primarily on maximizing the firm's financial profits or its market value but are—per law—first and foremost concerned with the promotion of their members' needs, which can but need not be of economic nature (§ 1 (1) GenG). It can therefore be expected that RECoops' 'survival interests' are defined in a different, less commercial sense than those of the profit-oriented, top-down organizational actors in the market. The results of a 2010 survey among n=122 production RECoops (mostly PV and/or local heat) seem to confirm this hypothesis, as respondents named a variety of both economic and non-economic parameters to measure or define the success of their cooperative (Volz, 2012, p. 520f.).[19]

Perhaps of greater interest for this analysis is the identification of normative convictions, or goals, that are prevalent among the group of RECoops. The network 'Energiewende Jetzt' ('*Energy transition now'*), which supports the formation and advancement of RECoops nationwide, articulate their vision of a renewable energy supply that complies with democratic, social and ecological values in the slogan: '*Energy in the hand of the citizens—100%. Decentralised. Renewable.*'. In a press statement, the association elaborated their goals as follows:

> '*The consumers of energy, citizens, shape the climate friendly future of energy in their region. […] They complement top-down climate policy through active civic commitment at the local level. The result is more climate protection through civic responsibility and more economic efficiency through cooperative action*' (Energiewende Jetzt, 2011)

This slogan and statement clearly show the influence of the socio-cultural context in which RECoops emerged. As hypothesized in subsection 5.1, the vision includes all three fundamental principles of the socio-technical paradigm—technical and economic decentralisation, pluralisation of actors (in this case coupled with a call for democratisation), and climate protection in the energy sector.

Published research, surveys and case studies show that RECoops generally share a strong consensus on these objectives, which constitute the focal points of what can be called the 'socio-ecological transition model' of the Energiewende (Mautz & Rosenbaum, 2012). In more differentiated terms, RECoops seek to make an active contribution to climate protection by promoting RE and avoiding CO_2 emissions, and are trying to implement an alternative to the leading providers by taking the energy supply into their own hands. At the same time, they

19 Organizational self-preservation for example appears to be associated with monetary gains (dividend payouts, annual surplus) but also with the physical energy output and the ability to supply their members with inexpensive heat or electricity. Growth is defined in terms of membership figures as well as the number and realization of new plants and projects rather than in financial terms.

aim at enabling environmentally-friendly investments, creating added value in the region, and strengthening the sense of community (Kaehlert, 2011, p. 28; Volz, 2011, p. 296; DGRV, 2012, p. 14; Klemisch, 2014, p. 155). The motives behind the mobilization of RECoops are therefore conform with those that a large body of scientific literature has identified as common micro-level drivers for the establishment of different types of local energy initiatives (Arentsen & Bellekom, 2014).

Additionally, the choice of a cooperative as the legal form itself entails numerous institutionalised norms that are expected to be followed (see subsection 2.2.1). Some of these basic cooperative principles and rules are well compatible with the here listed energy-specific objectives and are regarded positively among members (Volz, 2011, p. 297; DGRV, 2012, p. 15). The call for a decentralisation of the energy system, for example, is congruent with the fact that cooperatives, in accordance with the 'regionality principle', typically operate locally and often limit membership to persons from a specific region. Furthermore, attributes such as the democratic decision-making structure, the open membership approach, the solidarity principle, and the possibility to offer shares for a relatively small amount of money are in line with the objective of embedding the production and distribution of energy as broadly as possible in the society.

As can be seen, RECoops are driven by three underlying rationales—a social, an ecological, and an economic one—which, incidentally, also represent the established dimensions of sustainability (Degenhart & Holstenkamp, 2011; Klemisch, 2014). Although survey results vary among different clusters of RECoops, ecological motives are overall rated as the most important ones between the three (Volz, 2011, p. 295f.). Interestingly, social objectives and community-oriented economic goals (such as enhancing the region's visibility and creating regional added value) are on average prioritised over self-serving economic ones like dividend payouts or low-cost energy supply, which rank much lower in the target hierarchy (Volz, 2011, p. 295f.; DGRV, 2012, p. 14).[20] While RECoops react positively to financial incentives and use opportunities to generate a certain amount of revenue, it can be concluded that they are not primarily profit-oriented or driven by commercial interests but rather put their ecological and social goals above the individual members' personal financial gains. In cases of conflict, however, system maintenance (i.e. organizational survival) takes precedence over goal attainment (Scharpf, 2000), which explains why the 2014 EEG amendment resulted

20 Since data on the motives of RECoops is mainly collected by means of surveys, the possibility of a certain response bias cannot be disregarded. It is likely that expectations of individual financial gains and personal welfare considerations in reality have a stronger influence on the members' motivation than admitted. However, at an average of around 4%, the level of dividend payouts in RECoops is located at the lower end , and research has shown that (often more profitable) citizen-financed wind energy projects in the legal form of a limited partnership or a GmbH & Co. KG demonstrate a comparatively stronger commercial orientation (Enzensberger et al., 2003; Schreuer & Weismeier-Sammler, 2010; DGRV, 2014).

in a significant slump in both the number of start-ups and the investment plans of established electricity production (especially PV) cooperatives. Evidently and unsurprisingly, deteriorated conditions and uncertainty in regards to economic viability have a strong impact on strategic choices even when economic reasoning does not constitute the primary motive for action.

6.3.1 Preliminary conclusions

Despite the heterogeneity that characterises their field, RECoops overall share a consensus in regards to their basic normative orientations, which have been heavily influenced by the socio-cultural context in which the cooperatives emerged. In the pursuit of a community-oriented, 'socio-ecological' energy transition, their preferences are very clearly aligned with the fundamental principles of the new socio-technical paradigm. Partly due to the particular operational logic that is entailed by the cooperative business model, RECoops have to be differentiated from other supporters of this paradigm. They neither give as little consideration to economic benefits and professionalisation as the grassroots groups that were involved in the early RE innovation process, nor are they as commercialised and profit-oriented as other new players (mostly top-down organized SMEs) in the market. A kind of hybrid, they can be positioned in between the environmental and the economic logic of the mobilization of local initiatives that were briefly discussed in subsection 5.1 (Fuchs 2014; App. B).

6.4 Action Orientations in Municipal Energy Policy

The analysis of action orientations among the German municipalities is comparatively more difficult than it is the case with RECoops, who despite their heterogeneity clearly identify as part of a common group or even a movement, and share not only similar characteristics but largely the same interests and preferences as well. Municipalities, however, are much more diverse, as they come in a wide range of sizes and are governed by parties and coalitions on both sides of the political spectrum. Since their respective size and population density greatly influence the set of challenges that municipalities are faced with, the following analysis cannot effectively include both large urban cities and small rural villages. The focus will therefore lie on smaller towns, which is where the vast majority of RECoops can be found. This limitation should facilitate the identification of commonly action held orientations.

In regards to the Energiewende, small towns can use the political-administrative space of municipal policy either proactively or in a more defensive, passive way (Gailing et al., 2013, p. 28). Existing research shows that the former is widely the case, as German municipalities overall demonstrate a strong interest in supporting the Energiewende and are often perceived as pivotal drivers of the transition process. While this interest manifests itself in many diverse

ways, two trends in particular stand out that are exemplary of municipal action orientations regarding energy policy:

Firstly, local climate and energy action plans have seen a rise in popularity in recent years and have been adopted by many municipalities (Schönberger, 2013). The self-imposed target of 100% energy provision from renewable sources in the mid- to long-term is becoming an ever more frequent occurrence. An increasing number of so-called 'Energy Municipalities' (AEE, 2014c) and '100-RE-regions' (IdE, 2016) act as pioneers of a regional energy transition as they enable the development and testing of innovative RE technologies, create new forms of organization and cooperation, and thus expand their scope of action. They have built up broad regional actor networks and have done extensive spadework in terms of planning and concept development (ibid.).

Secondly, the growing need for decentralized solutions (specifically in terms of energy production) moves municipalities and local utilities into the spotlight (Deutsche Bank, 2013, p. 5). The Energiewende is a significant driver behind the debate about remunicipalisations in the energy sector[21], which concerns the buyback of both energy grids and local utilities and has been dominating municipal thinking and actions in many places (Deutsche Bank, 2013, p. 36). After the results of nearly two decades of privatisations had often fallen behind expectations, numerous municipalities took advantage of a rare opportunity: Since grid concessions are legally limited to a maximum term of 20 years (§46 II (1) EnWG), an extraordinarily large amount thereof expired, over a rather short period of time in most recent years. Though often heavily fought by the previous concessionaires, and despite legal uncertainties and asymmetrical information to the disadvantage of the municipalities, about 200 concessions have been acquired by municipal companies since 2005 (Berlo & Wagner, 2013; VKU, 2013). In the same context, "local public utilities (Stadtwerke) regain importance for energy generation and the operation of distribution grids" (Huber A. et al., 2013, p. 274). Municipalities increasingly buy back shares in existing local energy companies or establish new ones. More than 120 new utilities have been founded since 2005, the majority of which are limited liability companies that are fully or predominantly in public hands—often in the form of an inter-municipal partnership (VKU, 2013; Berlo & Wagner, 2013a). Most of these new formations took place in Baden-Württemberg, North-Rhine Westphalia, Lower Saxony and Bavaria (ibid.), which are incidentally also the four states with the largest absolute numbers of RE-

21 In common parlance, "remunicipalisation" connotes the return of previously privatised public services into local public ownership and managerial control. Within the energy sector, five types can be distinguished: The integration of a new grid into municipal grid structures, the integration of a new public energy utility into already existing utilities, the new formation of a municipal energy utility, the new formation of a municipal grid operator through the acquisition of a grid concession, and the increase of municipal shares in a public-private company (Becker et al., 2012, p. 26f.).

Coops. As is the case with the cooperatives, this development of new utilities is primarily a matter of smaller towns with less than 25.000 inhabitants (ibid., p. 9f.).

Drivers behind such energy-related municipal action are, in part, the ecological objectives of public interest that pertain to climate protection and are typically associated with the German Energiewende (Gailing et al. 2013, p. 29). However, the importance of these objectives is often considered as implicit or is cited more as an 'eye-catcher' (ibid.). Other action orientations have a higher explanatory value for the trends towards regionalisation and remunicipalisation of energy related services:

For one, local public authorities appear more and more interested in strengthening the strategic position of the municipal economy and in increasing their own influence and autonomy[22] in the energy sector (Libbe et al., 2011; Buchan, 2012, p. 12; Gailing et al., 2013, p. 29 f.). The new group of public utilities support what can be called a 'municipal economic transition model' (*kommunalwirtschaftliches Umbaumodell*) of the Energiewende (Mautz & Rosenbaum, 2012, p. 88f.). They are particularly interested in reducing dependence from private providers and grid operators by expanding their own captive energy production and by promoting the expansion of decentralized power feed-in through third parties operating within their own grid territory—such as RECoops (ibid.).[23]

Financial and economic considerations are another powerful driver behind the municipalities' growing interest in controlling the local distribution grids as well as the energy generation through their own utilities. Electricity and heat provision are economically lucrative business fields, and the Energiewende, the distributed nature of RE as well as the trend towards less centralised supply structures facilitate the option for municipalities to execute these tasks themselves (Bogumil & Holtkamp, 2013, p. 100). While grid operation is not without (at times substantial) financial and economic risk, it can also provide opportunities to generate additional revenue (Schirg, 2013). As grid operators, municipalities would for example directly obtain considerable revenues from the network charges and a guaranteed return on equity for investments (Bundesnetzagentur & Bundeskartellamt, 2014, pp. 167, 274).

Moreover, added value from grid operation and energy generation can be kept within the municipality's territory, thus further maximizing its profits. Local authorities increasingly recog-

22 From a managerial point of view, this objective is ambivalent since even a municipality that achieves autonomy in terms of figures (in the sense that its energy yields can cover its own population's requirements) remains integrated in and, due to daily fluctuations of in- and outputs, dependent on the existing, superordinate net infrastructures (Gailing et al., 2013, p. 30)

23 In reality, the influence that comes with the buyback of a grid is quite limited in terms of controlling the energy mix and prices (cf. §§ 6, 7, 54 EnWG), but within the framework of the Incentive Regulation Ordinance (Anreizregulierungsverordnung, ARegV), grid operators can make important and much needed investments in the grid infrastructure, e.g. to improve the integration of RE.

nize the promising potential of RE in this regard, and the creation of local added value and its associated employment effects have become major arguments in the discussions about local energy action plans, 100% RE targets and the return of services in the energy sector into public hands (RLI, 2013; Gailing & Röhring, 2015). At the municipal level, direct and indirect added value effects due to employee incomes, business revenues and taxes associated with the expansion of renewables amounted to €11.1 bn and €6 bn respectively in 2012—and the numbers continue to grow (Aretz et al., 2013). Especially in light of the often precarious financial position of municipalities, the Energiewende is associated with the hope for a new economic development model for small towns and rural areas (Gailing et al., 2013, p. 29).

As can be seen, energy-related municipal decisions can be attributed to the dimension of self-interest more so than normative preferences. However, the latter then come into play in terms of the implementation of these decisions, and appear to be influenced by objectives of public interest: Besides the aforementioned ecological and resource considerations, the welfare of the local community is also an underlying concern (Bogumil & Holtkamp, 2013, p. 99f.; Gailing et al., 2013, p. 29f.). In line with the institutionally strengthened role of citizens and the 'renaissance' of citizen participation (see subsection 5.2.3) as well as due to debates about the improvement of public acceptance, municipalities have shown political willingness to directly and indirectly involve citizens in local energy matters as well (Baker Tilly Roelfs AG, 2013, p. 29). Many of the newly established public utilities, for example, are characterized by community- and citizen-oriented services—due to the proximity and visibility to their customers, their envisaged transition model requires a certain degree of social integration (Mautz & Rosenbaum, 2012, p. 88f.). Although public utilities are profit-oriented businesses, local decision-makers hope to adjust prices to a 'citizen-friendly' level once the energy production returns into the 'municipal family' (Scholle, 2010, p. 100).

6.4.1 Preliminary Conclusions

As was laid out in the first part of the analysis, municipalities dispose of the right to regulate all local affairs on their own responsibility. It appears that this right is currently gaining in importance for municipal energy policy. What can be observed is a trend towards regionalisation and decentralisation, which is indicated for example by the growing number of (100%-)RE-regions and Energy Municipalities as well as by increasingly frequent efforts to remunicipalise services in the energy sector (Hirschl, 2012). Local climate and energy action plans are on the rise and local public authorities overall demonstrate a strong political will to advance the energy transition. These efforts are predominantly driven by a strong strategic interest in gaining influence and municipal autonomy as well as in revenue growth; however, the guarantee of quality standards and citizen-friendly pricing, employment effects as well as ecological and

resource considerations are also relevant arguments. In line with the supported 'municipal economic transition model', both local authorities and the associated municipal utilities have expressed preferences for the further expansion of RE in a decentralised system as well as for more active orientation towards citizens, partly to improve public acceptance of local energy projects and policies, and partly because institutional change and political reforms raised expectations of increased participation and gave citizens more direct influence on local politics (see subsections 5.1, 5.2.3) .

6.5 Cooperative Interactions Between RECoops and Municipal Actors

When comparing the results of subsections 6.3 and 6.4, it becomes evident that there is a great compatibility between the action orientations of RECoops and those of a considerable group of (generally small) municipalities and public utilities that have been actively supporting the progress of the Energiewende at the local level through a variety of activities. Both actor groups are strongly connected to the local spatial context in which their actions are embedded. Their motives may not always be the same—it appears that RECoops are primarily driven by normative orientations, such as ecological and social welfare considerations, whereas municipal actors place a stronger importance on conditions of strategic self—but their preferences in regards to energy policy turn out to be highly convergent and institutionally linked: The overall objective of the promotion of a 'local Energiewende' with the extensive development of production capacities from renewable sources in mind, these actors strive for more independence from the incumbent energy providers and are interested in creating revenue and added value effects for their municipal (and/or cooperative) community.

Because their capabilities are often mutually beneficial as well, positive coordination among them can lead to significant welfare gains for all involved parties if the opportunities are recognized—which numbers show they often are. In fact, only 13% and 2% of RECoops, respectively, stated that the municipality did not play any role in their work or expressed a critical stance towards it (DGRV, 2014a, p. 15)[24]. In three out of four cases, they are actively promoted by the respective local government (ibid.). Likewise, the cooperation between RECoops and local energy utilities also enjoys popularity. About one third of the cooperatives already have such a partnership in place, while another 42% have previously stated their interest in future collaboration (DGRV, 2013, p. 20).

In comparison to policy processes at the federal level, where RECoops struggle to make their voice heard, the local level evidently provides a much better scope for these initiatives to be

24 The DGRV's 2014 survey was sent out to all 718 RECoops established under its roof and yielded 216 completed questionnaires from respondents (~30% return rate). At a confidence level of 95%, the results have a margin of error of ±5.58.

integrated in the political-administrative system and to shape politics to a greater extent. Due to the close spatial proximity, there are numerous areas of contact between municipality and citizens, better circumstances for influence and intervention, and the possibility to shape the quality of relations (Bogumil & Holtkamp, 2013, p. 8). These factors are complemented by the extension of participation opportunities over the past decades, so that both the structural and institutional conditions have laid positive foundations for the occurrence of cooperation and collaboration between local public authorities and RECoops as well as between RECoops and local utilities. In due consideration of actor behaviour, these 'partnerships' can then be elucidated as dyadic relationships in the form of semi-permanent structures within which individual interactions are embedded and whose continuation is voluntary for either side (though exit may be costly). According to Scharpf (1997, p. 137), "[these types of] relationships arise and are maintained because of the benefits they provide in comparison to 'single-shot' interactions". A look at the different forms of collaboration that are currently in place gives insight on these benefits:

Municipalities not only authorize the cooperatives' RE projects, but also regularly support RECoops for example by placing public roofs and land space at their disposal (for lease or for free) or by publicly advertising for their cause. Furthermore, citizen participation in form of cooperatives has been part of the debates about the remunicipalisation of energy grids in a number of cities and towns. Such cooperation indeed came into fruition in Sprendlingen-Gensingen, for instance, where an association of municipalities in Rhineland-Palatine succeeded in buying back the local energy grids and placed them under the control of the newly founded utilities *Rheinhessen-Energie GmbH* (RHE), which is jointly owned by municipal actors and cooperatives.[25] A similar example can be found in Titisee-Neustadt, where the city, the cooperative *Netzkauf EWS eG* and the citizens cooperative *Vita-Bürger-Energie eG* joined forces to buy back the local power grid and operate it together under the umbrella of the newly founded utility company *evtn GmbH* (evtn GmbH, n.a.).

Grid operation is not the only opportunity for collaboration between RECoops and local utilities. The latter can become partners in building and financing plants and provide RECoops with their expertise and know-how in the matter (Netzwerk Energiewende Jetzt, n.a.). RECoops may also arrange special rates for their members or even become a shareholder in the utilities, thus increasing their own revenues and gaining influence in the company's energy policy and other business segments as well (Baker Tilly Roelfs AG, 2013). Examples of exist-

25 With a stake of 51%, the *Verbandsgemeindewerke Sprendlingen-Gensingen AöR*, a municipal union established under public law, are the majority shareholder, followed by the RECoop *Bürgergenossenschaft Rheinhessen eG* (23,9%), the municipally owned *Stadtwerke Mainz* (12,55%) and the well-known cooperative *Netzkauf EWS eG* from Schönau (12,55%) (RHE, 2015).

ing partnerships can be found, among others, in Wolfhagen, where a citizens cooperative acquired a share of 25% in the municipal utilities *Stadtwerke Wolfhagen GmbH* (BEG Wolfhagen, n.a.), in Jena, where the cooperative *BürgerEnergie Jena eG* holds 2% in the mostly municipally owned local utilities (BürgerEnergie Jena eG, n.a.), or in Solingen, where the *BürgerEnergie Solingen eG* and the wholly public *Stadtwerke Solingen GmbH* recently signed a cooperation agreement in order to jointly increase the share of renewables in the city's energy mix (BürgerEnergie Solingen eG, n.a.). While the ratio of privately versus publicly owned utilities among all nationwide existent collaborations with RECoops is not quantifiable at this time due to a lack of systematically collected and documented data, it appears that the majority of the involved utilities are wholly or mainly in the hands of local public authorities.

In turn, RECoops offer valuable assets for municipal actors as well. Detached from local party politics, they enable broad participation for citizens, promote public acceptance for local energy projects and the transition as a whole, support the local utilities and improve their customer loyalty. A survey among Germany's Energy Municipalities, where energy cooperatives are often an important local partner, shows that these assets are recognized by the municipal leaders (AEE, 2014c, p. 1f). While benefits such as citizen participation are often confined to the circle of the cooperatives' members rather than the local community as a whole, this "member value" can lead to "public value" because the cooperatives, as collective actors, contribute not only to the motivation of one group of people but also to the conservation of resources as well as the protection of the climate (Alber, 2014, p. 125). Furthermore, RECoops are both a source of funding for investments in RE projects and can complete operative tasks, which reduces the municipalities' need to outsource these to their own agents (Karner et al., 2010, p. 87). In light of the municipalities' often tight financial situation, such cost-saving effects are a considerable advantage.

Many of the here outlined forms of collaboration between municipal actors and RECoops can be characterized as Public Citizen Partnerships (PCP) models, i.e. organizational forms in which municipality and citizens jointly fulfil services of public interest (Karner et al., 2010, p. 87). The development trajectory of such models depends on who initiates and who controls the project (the municipality, the citizens or both) and strongly determines their sustainability and later importance for the community (ibid., p. 90). Besides PCPs that are formed for instance within a GmbH through the joint ownership of local utilities (see above), the RECoop itself often times constitutes the chosen organizational form of such partnerships.

At the present time, very little research has been conducted to study the factual involvement of public figures and governmental actors in cooperatively organized energy projects. As has

been made clear throughout this analysis, literature on community energy typically sees the formation of RECoops as a matter of civil self-organization in small towns (Maron & Maron, 2012, p. 115; cf. subsection 4.3) and characterizes them as a non-commercial, bottom-up movement of citizens—"a 'people power revolution", to repeat Buchan (2012, p. 10) again. A closer look, however, reveals that this self-organization is often not only complemented but actually instigated by direct, top-down involvement of local authorities: In 59% of RECoops, the respective municipality is a member itself and/or represented in the boards, and an astonishing 50% of the cooperatives were even initiated by local government officials (DGRV, 2014a, p. 15).

The importance of local public leadership was highlighted in more detail in a comparative case study between two "RECoop frontrunners" in Germany (*Klimakommune Saerbeck*) and the Netherlands (*Lochem*), which revealed that both were not only "to a large extent initiated by public officials" (Hoppe et al., 2015, p. 1918) but that their eventual success was spurred substantially by the "strategic, community serving, responsive, reflexive leadership and the proper management of expectations, local networks and processes by [these] officials" (ibid., p. 1925). In the case of Saerbeck, the mayor in particular was actively involved and maintained influence in decision-making processes (ibid.). Similarly, case studies of non-energy related, but cooperatively organized PCPs in the social sphere in Germany and Austria demonstrated the crucial importance of the relationship between municipalities (in particular their mayors) and citizens for the formation and operation of the respective cooperative (Karner et al., 2010).

The implications of these results are not to negate the pivotal and impelling role of active citizens in the emergence, development and performance of RECoops. The success of a cooperative PCP even in top-down initiated projects has been shown to depend to a significant degree on an even balance between the control of the municipality and the influence of the citizens (Karner et al., 2010, p. 95).[26] Furthermore, the external validity of studies of individual and often very distinct cases such as the ones mentioned above is almost always limited, which is why results and lessons drawn from them cannot readily be translated into generalizations for other cases. Nonetheless, the evidence from these few studies raises important questions regarding the exact nature and dynamics of decision making processes both in terms of the establishment of RECoops and their day-to-day operation. In light of the above cited, additionally available nationwide survey results that also clearly indicate regular and common involvement of municipalities not only as outside supporters but as influential members,

26 Ideally, the role of the municipality would be limited to investments and supervisory functions while the citizens perform managerial and operative tasks (Karner et al., 2010, p. 86).

board representatives and as top-down (co-)initiators, the notion of the typical RECoop as a solely bottom-up association ought to be reinvestigated. It is apparent that local authorities and public officials have played, and in all probability continue to play, a momentous role in the unfolding of the RECoop phenomenon—a role that should garner more attention in future research.

7. Summary and Concluding Remarks

At the beginning of this paper stood a two-fold research question that sought to better understand the causal (macro- and meso-level) processes behind the rather sudden formation of several hundred RECoops in Germany during the second half of the last decade. The findings have shown that micro-level motives and/or economic incentives, though they are undeniably important drivers and as such rightfully and frequently addressed in scientific literature, cannot provide an exhaustive explanation of the phenomenon by themselves. Rather, the abrupt emergence of cooperatively organized RE projects was the outcome of complex, interwoven processes that included (non-hierarchical) political steering at the national and the local level on the one hand and institutionally spurred, cooperative interactions among civil society and public actors within municipalities on the other hand. The above analysis elaborated on a few of those processes and drew causal connections between them.

Given the wealth of literature that identifies institutional drivers and barriers for local energy initiatives, the results of the first part of the analysis were mostly unsurprising, although it is certainly noteworthy how the different relevant factors interlocked. The socio-cultural context that pertains to the German energy transition is highly favourable for locally-owned and/or citizen-led RE projects and as such laid the groundwork for social innovation in the field of renewables. Coupled with a history of energy activism, a long standing cooperative tradition as well as a general desire for more citizen participation among the German public, its characteristic insitutions led citizens to mobilize and become directly involved in the energy market, particularly within the framework of RECoops. Their social capital was activated by an innovative energy policy mix—the EEG at its core—whose success was not only rooted in the financial incentives it provided (as it is often depicted), but to a large extent in the fact that it had forgone hierarchic command-and-control regulations and instead introduced a new regulatory pattern of coordination and context steering. In conjunction with the prior EU-mandated liberalisation of the electricity and gas markets, this new approach to political steering succeeded in mobilizing participatory contributions from a growing variety of new electricity producers by creating a protected niche for the RE segment. The result was a 'social opening'

that reached hitherto uninvolved parts of the population, attracted a diverse new group of so-called prosumers and induced their self-organization within this market segment.

The success of this new steering mode was and is in part dependent on the presence of stable, cooperative actor constellations. At the local level, it is often the municipalities and their respresentatives that make major contributions to the establishment of such structures. As was laid out in this paper, it is evident that local governments have been a crucial force in promoting RECoops, both in terms of their initial formation and their subsequent work. They not only provide external support but are actively involved as cooperative members and/or board representatives in almost 60% of the cases, and even (co-)initiatiated a remarkable 50% of RECoops under the roof of the DGRV. Seeing as the municipalities' role in this regard has been given very little attention by scholars so far, these findings were quite surprising, and the question arises to what degree the emergence and maintenance of RECoops can indeed be attributed to pure bottom-up influences. The presence of top-down elements in such a large number of these cooperatives suggests that the presumed civil self-organization of their nationwide formations was in many cases at least guided, if not to a certain extent controlled by the respective local governments and/or their representatives.

Unfortunately, an elaborate investigation of municipal influence in, or control of, the day-to-day operations of RECoops would have gone beyond the scope of this thesis. What could be identified, however, are a number of underlying developments and action orientations that explain the nationwide occurrence of close horizontal interplay between RECoops and municipal actors, and reveal why the latter have shown such a vested interest the former.

On a structural dimension, the local level provides numerous areas of contact and a relatively broad scope for citizens to be integrated in the political-administrative system, as both actor groups are embedded within and connected to the same spatial context. On the political-institutional dimension, these conditions are complemented by various processes of political modernization that have taken place at the local level: Municipal politics in general are increasingly expected to expand citizen participation and promote civic commitment, while horizontal coordination and network-like relationship patterns are of growing importance in terms of municipal RE governance in particular. Furthermore, the introduction of direct elections strengthened the role of the mayors, who have been shown to be important initiators of local energy transition processes in many of the now proactive municipalities. Both the structural and institutional conditions, including a new approach to political steering, have hence contributed to a favourable foundation for the establishment of energy-related PCP projects and other forms of joint cooperation.

At the actor-centred dimension, the identification and comparison of behavioural orientations revealed a high degree of compatibility and institutional links, which facilitated the establishment and maintenance of cooperative, dyadic relationships within the broader network of local actors in the field of RE. Municipalities and a growing number of associated local public utilities, who envision a municipal economic transition model, encounter RECoops, who are associated with the pursuit of a socio-ecological transition model of the Energiewende. While the citizen-dominated cooperatives are primarily driven by normative orientations deriving e.g. from ecological and social welfare concerns, municipal actor behaviour appears to be influenced to a larger degree by strategic self-interest in autonomy as well as in financial and economic growth. However, both actor groups' preferences in regards to the desired energy policy output turn out to be highly convergent regardless of the motives that underlie their strategies. Since the involved actors are each also characterised by distinct, mutually valuable capabilities, they are faced with a rare win-win situation, or constellation "of pure coordination, in which all actors can maximize their own pay-off by agreeing on concerted strategies" (Scharpf, 1997, p. 73).

What bearing do these findings have? As was remarked at the very beginning and later in this paper, RECoops and similar smaller scale energy initiatives currently find themselves at a crossroad. The knowledge that municipalities are not only partners but key stakeholders in a majority of RECoops is relevant from several viewpoints. For one, it means that those municipalities are also affected by the sudden stagnation of the previously highly dynamic cooperative development. Seeing as energy cooperatives are often considered to be *the* symbol for a people-oriented energy transition, their demise is not only concerning from a business perspective but could threaten the acceptance of the Energiewende at the local level and consequently at a larger scale (Müller et al., 2015, p. 98). At this point, the future position and success of RECoops is largely dependent on their ability to react more robustly to changes of the institutional environment (ibid., p. 100), and it appears as though the degree of municipal assistance could be a decisive factor in many cases. The findings of this paper furthermore point to the fragmented state of the overall governance of the energy transition and highlights the need for better coordination across all levels. Instead of a cohesive, integrated approach, we can see policy decisions at the Federal Government level that diverge from or even hinder activities advanced by municipal governments, while the latter in turn often focus narrowly on local or regional solutions without necessarily paying adequate regard to the "big picture", i.e. an optimised transformation of the entire German energy system. A first step towards improvement could be to broaden the definition of community energy to a 'civic' energy sector that includes municipalities as proposed by Hall et al. (2015), who note that by recognising

this sector, “policy makers can design regulation and strategy based on an understanding that these institutions’ drivers and motivations differ from state or private interests” (ibid., pp. 24f).

To date, generalizations about key conditions for successful local energy governance involving RECoops or similar initiatives within such a ‘civic’ energy sector are only possible to a very limited extent as the data is sparse and the few available case studies in this rather heterogeneous field have only limited external validity. In order to determine those conditions that produce the most favourable outcomes for all involved parties, more individual case studies are needed that take a closer look at the dynamics between local government agents and private actors within RECoops. A better understanding thereof is desirable in order to determine best practices, identify growth opportunities or potential new business fields, and formulate specific policy recommendations and guidelines for project planners, specifically for local governments that are interested or already engaged in a cooperatively organized collaboration with citizens and local businesses. Research on community energy should furthermore keep in mind the potential conflicts that arise from differing interests and steering approaches at the various administrative levels, and focus on finding solutions that facilitate a more coordinated transformation process and a smarter, more (cost-)effective integration of decentralised initiatives into the overall system.

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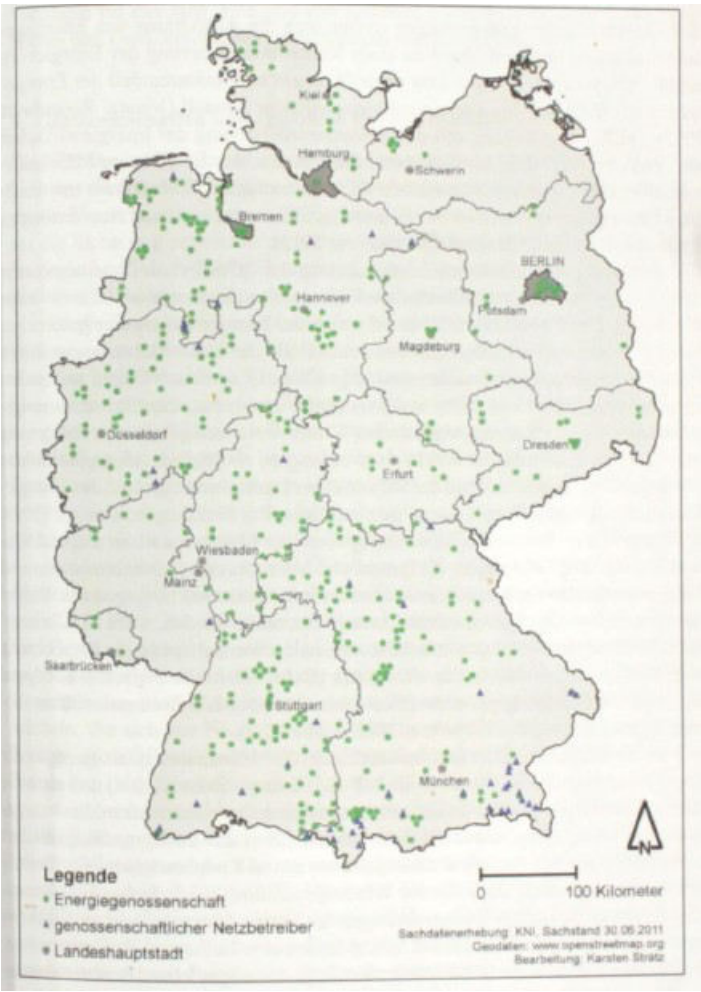
Appendices

App. A: Spatial Distribution of Energy Cooperatives in Germany



Source: Klemisch, 2014, p.161 based on Maron & Maron, 2012.

App. B: Spatial Distribution Among the Bundesländer at the End of 2013

	Total number, 2013	New Energy Coops in 2013	Increase in % compared to 2012	Population in million, 2013	Energy Coops/million inhabitants
Bavaria	237	41	20.92	12.6	18.81
Lower Saxony	127	11	9.48	7.79	16.30
Thuringia	34	14	70.00	2.16	15.74
Baden-Württemb.	145	20	16.00	10.63	13.64
Schleswig-Holstein	35	4	12.90	2.82	12.41
Bremen	7	1	16.67	0.66	10.61
Mecklenburg-Vorp.	16	3	23.08	1.6	10.00
Hesse	55	7	14.58	6.05	9.09
Saxony-Anhalt	20	3	17.65	2.24	8.93
Rhineland-Palatine	34	7	25.93	3.99	8.52
Saarland	8	3	60.00	0.99	8.08
North Rhine-Westph.	109	15	15.96	17.57	6.20
Saxony	24	3	14.29	4.05	5.93
Berlin	19	7	58.33	3.42	5.56
Brandenburg	12	2	20.00	2.45	4.90
Hamburg	6	1	20.00	1.75	3.43
FRG	888	142	19.03	80.77	10.99

Source: Own presentation and calculations based on data from AEE 2014a (RECoops); Statistisches Bundesamt (population and area)

App. C: The Logic of Mobilization of Local Initiatives

	ökologische Logik	ökonomische Logik
Framing	erneuerbare Energien als Alternative zur Atomenergie	erneuerbare Energien als Möglichkeit zur (Re)vitalisierung lokaler wirtschaftlicher Aktivitäten
Bezug zu anderen gesellschaftlichen Bereichen	Konflikt mit etablierter Politik und Industrie	Kooperation mit etablierter Politik, kalkulierter Konflikt mit Energieversorgern
dominantes organisatorisches Prinzip	Gemeinnützigkeit	Unternehmen
Mobilisierung	Freiwilligkeit, engagierte Bürger(innen) und Wissenschaftler(innen)	professionalisierte Organisation
Verhalten gegenüber Mitgliedern	Gemeinschaftsorientierung	Dienstleistungsorientierung
Definition von Erfolg	neue dezentrale Architekturen der Stromgewinnung	Profit, wirtschaftliche Machbarkeit

Source: Fuchs, 2014, p. 136. Own translation below.

	Ecological Logic	Economic Logic
Framing	RE as an alternative to nuclear energy	RE as an opportunity to revitalise local economic activities
Relation to Other Social spheres	Conflict with the political and industrial establishment	Cooperation with the political establishment, calculated conflict with energy providers
Dominant Organizational Principle	Public Benefit/Common Public Interest	Enterprise
Mobilization	Voluntary, active commitment from citizens and scientists	Professionalised organization
Behaviour Towards Other Members	Community-oriented	Service-oriented
Definition of Success	New decentralised structures of power generation	Profit, economic power