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Institutional Conditions of Community Wind Success

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Abstract

The purpose of this paper is to investigate the effect of institutional framework conditions on the success of community wind initiatives in Germany's most populous and energy intensive federal state North Rhine-Westphalia. The approach is oriented towards the research of Oteman, Wiering and Helderma (2014) who focus on the institutional context of the Netherlands, Germany and Denmark and reveal supportive and hindering structures for community energy. This study takes on the challenge to provide a more detailed research approach of a region and community wind projects to gain greater insight into prevailing dynamics and relationships between involved institutional conditions. Using qualitative data from a series of five semi-structured expert interviews, the effect of institutional framework conditions of the renewable energy subsystem, conceptualized according to the policy arrangement dimensions rules of the game, resources, actors and discourses, on the success and development of community wind in NRW, is examined. The results of the analysis show that mainly formal rules in the form of the Renewable Energy Act amendment 2016 influence the success of community wind development. In conclusion, the thesis argues that institutional conditions of the German renewable energy system can both constrain or enable community wind development. Unfavorable formal rules and complex planning processes diminish the success of community wind while support actors and local networks try to establish the position of collective citizen ownership in a decentralized energy transition.

Keywords: Community wind; Community initiatives; Renewable energy; Policy arrangement approach; Institutional framework conditions; Decentralization

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List of Abbreviations

BImSchG	Federal Emission Control Act
BWE	Federal Association for Wind Energy
EEG	Renewable Energy Act
FiT	Feed-in tariffs
GmbH & Co. KG.	Limited partnership
LEE NRW	State Association for Renewable Energies NRW
MKULNV	Ministry for climate and environment protection
MW	Megawatt
NRW	North Rhine-Westphalia
PAA	Policy Arrangement Approach
RE	Renewable Energy
RET	Renewable Energy Technology
TWH	Terawatt Hours

1 Introduction

In Germany, the electricity generation from renewable energies (RE) in the year 2015 amounted to 194 terawatt hours (TWh), which is 30% of the total gross power consumption (BMW, 2016). Among renewable energies, wind power takes up the largest share of 29,4 %. At this, the predominant technology in Germany is onshore wind power with an installed capacity of 41.651 MW at the end of 2015 (BWE, 2016). Community wind projects play a crucial role in expanding this type of renewable energy. Around 50% of installed onshore plant capacity has been realized with the participation of interested citizens (Trend: research, 2013).

The shift from conventional energy sources to renewable energy in the form of non-fossil sources such as solar, hydropower, wind, geothermal and biogas is one of the most urgent and biggest issues of European countries and accordingly on top of the agenda for many EU governments. While most member states still are heavily dependent on fossil fuels, they have committed themselves to accomplish the EU climate and energy targets (European Commission, 2016). The European Union has set a goal for a 20 percent share of renewables in the gross final consumption of energy by 2020. On this Directive, each member state has national targets depending on the potential for renewables. In this context, Germany is considered the country of the “Energiewende” (energy transition) and had been rightfully so due to remarkable progress in the promotion of renewables in the past years. In Germany, guaranteed feed-in tariffs¹ supported the emergence of community ownership, thereby increasing the public acceptance for renewables (Yildiz, Rommel et al., 2015).

Due to the historically prevailing model of a centralized energy infrastructure with hardly any citizen involvement in energy production, most European states and markets are affected by the infrastructural and economic dependency on a few large fossil energy systems (Bauwens, Gotchev et al., 2016). However, a growing number of scholars, policy makers and citizens promote the shift towards a more decentralized structure (ibid.). In fact, citizens organize themselves within community structures and take the initiative to move their energy production towards an innovative and more sustainable model (Bauwens, Gotchev et al., 2016). According to the literature, local ownership causes increased identification with a community’s energy policy and enables citizens to participate in the energy supply and climate protection (Bauwens, Gotchev et al., 2016; Toke 2005; Walker, Devine-Wright 2008).

¹ Financial support system creating a priority market for renewable generated electricity by guaranteed access to the grid with a long term fixed price per kWh (BMW, 2016).

In this context, locally owned energy systems in the form of community energy have been a significant part of the energy transition in Germany and many other European countries. Despite the high variety among community-based renewable energy (RE) initiatives, they share a common ground which is characterized by a local base, non-commercial strategy, comparably small size and their reliance on the engagement of actively participating people with limited resources and power (Oteman et al., 2014). It is due to the last aspect that research on community RE initiatives usually puts too much emphasis on the significance of agency characteristics such as leadership, while at the same time omitting contextual and structural variables (ibid.). The factors responsible for their ambiguous position within the renewable energy policy system are not extensively reflected in academic literature (Yildiz, Rommel et al., 2015). In fact, literature regarding community energy is a relatively new area of research with the majority of the studies published in the last five years. Also, the focus on technological developments too often disregards the embedment in organizational configurations and the changes they may require. Hence, the development and success of innovative models of renewable energy production in the form of community energy is ingrained in institutional contexts.

1.1 Research Objective

The primary objective of this research is to provide an empirical illustration in what ways institutional framework conditions, especially concerning legislative amendments, influence the success of community wind on a national scale. In this broader frame, Germany's most populous and most energy intensive state² North Rhine-Westphalia serves as a case for a regional case study on community wind. Breuker and Wolsink (2007) used NRW as a case within an international comparison to explain diverging achievements in wind power implementation. The idea is to understand national and regional trends, and examine local impacts to analyze the status of community wind based on real-life observations. The influencing character of current institutional conditions is derived from an analysis of different institutional dimensions. The results are expected to provide a foundation for further research on the status of community wind in Germany.

In Germany, the concept of community wind is situated in a crucial phase. On the one hand citizen-led projects offer great potential for a decentralized transformation of carbon based energy supply into a truly sustainable emission-free system but on the contrary, the concept faces changing framework conditions which are expected to influence their opportunities for development (Schick et al., 2016). As a result of the observation of these shifts in the renewable energy sector, it is the aim of this paper to explore how formal rules, as well as other institutional factors, influence the success of community wind in North Rhine-Westphalia.

² NRW accounts for 34% of gross electricity consumption in Germany (Trend: research, 2013).

1.2 Research Question

The following primary research question and two sub-questions have been developed to investigate the influence of institutional conditions on community wind success:

“In what ways do institutional conditions of the community wind energy sector influence the success of community wind in North Rhine-Westphalia?”

1. *“What are the relevant institutional conditions in NRW?”*
2. *“How do the institutional conditions influence community wind and each other?”*

Relevant institutional conditions are oriented towards the dimensions of the policy arrangement approach, in particular, the formal *rules of the game*, *actors*, *resources* and *discourse* (Arts and van Tatenhove, 2005). To assess in what ways current institutional conditions affect the success of community wind, the structural context of local projects will be examined concerning the four dimensions. Academic literature on institutional conditions of community energy success mostly deals with broad concepts of policy instruments, actor constellations and financial structures on a national level which allows comparisons across countries (Bauwens, Gothev et al., 2016; Oteman et al., 2014; Breukers and Wolsink, 2008). However, this study focuses on a narrowed setting to investigate the current framework conditions of community wind including different actors and their evaluation of the dominant institutional characteristics. Moreover, this study takes account of interactions between institutional dimensions.

The second chapter of this paper introduces the concepts of community RE initiatives and community wind (Chapter 2.1 and Chapter 2.2) as well as the current status of wind energy in North Rhine-Westphalia (2.3). Besides, the theory around institutional framework conditions and the conceptualization of the policy arrangement dimensions are presented in Chapter 2.4 and Chapter 2.5. Following the theoretical framework section, Chapter 3 outlines the research design and methodology around the expert interviews. Chapter 4 presents the descriptive findings on the institutional framework conditions. Subsequently, the results from the expert interviews are presented and analyzed with regard to the research main research question (Chapter 5.1- Chapter 5.4). Chapter 5.5 includes the interaction analysis of the institutional dimensions. Finally, a conclusion summarizes the results from the analysis and answers both sub-questions as well as the primary research question (Chapter 6). Recommendations for further research are also enclosed in Chapter 6.

2 Theoretical Framework

The theoretical part firstly introduces the general concept of community RE initiatives and community wind in particular. The following section presents a short overview of the wind energy sector in North Rhine-Westphalia and a literature review on institutional framework conditions. The last subsection of this chapter includes an introduction to the policy arrangement dimensions and their application and conceptualization in this paper.

2.1 Community energy initiatives

The concept of community energy has a long tradition in Germany. In the early 20th century, a significant share of electricity provision in rural areas was provided by local cooperatives (Flieger and Klemisch, 2008). However, the centralization of power systems diminished the role of local ownership and reduced the number of energy providers to a limited amount. After the 1970s, the consequences of the first global oil crises, along with the first innovative progress of renewable energy technologies (RET), led to a renewed revival of the community energy concept (ibid.). The active engagement of community energy stakeholders supported the development of RETs, initially in the field of wind energy but shortly after also in the area of solar, hydro and biogas. This engagement pushed the new power sources from a niche technology to a serious alternative to fossil and nuclear energy (Yildiz, Rommel et al., 2015).

Community projects for renewable energy are non-governmental organizations originated within local communities and promoted by dedicated citizens. Additionally, they are highly decentralized and depend on a pro-environmental attitude within their structural context. Toke, Breukers and Wolsink (2008) compared the institutional frameworks of European countries concerning wind power deployment and found that community wind parks are of particular importance in Germany. Not only do they account for the majority of installed wind power capacity but the authors also suggest that they significantly improve the political and societal perception of wind energy (ibid.).

The newly developing phenomenon of community energy projects and cooperatives has to be considered apart from other organizations such as non-profit organizations or investor-oriented companies that strive for profit-maximization (Yildizi, Rommel et al., 2015). Community energy projects are a participatory business model that demands citizens to hold at least 50% of share certificates. Additionally, investors have to originate from the region where the project is located, and added values must be redistributed locally. According to the definition of Walker and Devine-Wright (2007), community energy projects can be delimited from other sustainability initiatives by considering who is affected by the project and who is actively participating in it.

Community energy projects are an essential building block of the energy transition movement towards renewable energy and fulfill the following functions: the production, supply, and distribution of renewables. Beyond that they provide support services to members and other organizations, e.g. advice and good practices to reduce overall energy consumption (Walker and Devine-Wright, 2007). Energy cooperatives operate in a bottom-up approach based on the proactive involvement of citizens and multiple stakeholders (local authorities, local economic players, etc.). Yildiz, Rommel et al., (2015) define collective citizen ownership as social and economic organizations as the fundamental purpose does not lie in generating revenue but following other objectives like the economic, social, and cultural advancements of its members and of the community in which the project is embedded (ibid.).

Academic literature on renewable energy projects and communities emphasizes macro- and mesolevel institutional conditions that exert influence on the development and success of community energy projects (Oteman et al., 2014). As a consequence of policies targeting at transformation processes in the energy sector, the environment of community energy is subject to continuous change and can be seen as unstable or shifting (Fuchs and Hinderer, 2014). In this context, the policy arrangement dimensions (Chapter 2.5) are a suitable concept to analyze the effect of institutional factors on community energy initiatives (Arts and Tatenhove, 2005; Leroy and Arts, 2006; Oteman et al., 2014; van der Zouwen, 2006).

2.2 Community wind in Germany

Community energy projects encompass a broad range of different renewable energy sources and sometimes comprise a mix of renewables. Community wind is a subcategory of community energy but up until the Renewable Energy Act Amendment 2016, there has not existed a legally binding definition for community wind which could differentiate concept from commercial profit-maximizing wind projects. In this paper, a relatively narrow definition of community wind according to the World Wind Energy Association (WWEA) is used. A combination of at least two of three conditions constitutes a community wind project (WWEA, 2011).

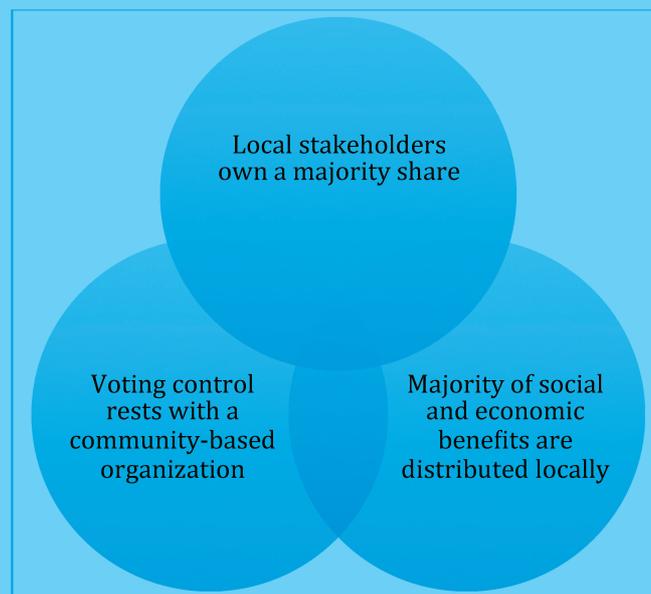


Figure 1. Main elements of community wind project. (WWEA, 2011)

In detail the elements can be described as follows:

- *Local stakeholders own the majority or all of the project:*
A single local individual or a group of local stakeholders whether they are farmers, cooperatives, independent energy producers, municipalities or schools, etc. hold the majority share of the project.
- *Local investors or stakeholders have voting control:*
The community-based organization made up of local investors or stakeholders has the decision-making power in project decisions.
- *The majority of social and economic benefits are distributed locally:*
The majority of all social and economic benefits are returned to the local community (copied from WWEA, 2011)

In 2012, around 50% of installed plant power in Germany was realized by community wind initiatives (Trend: research, 2013). However, approximately 25% are attributed to a broader definition of community wind which includes minority ownership and supra-regional participation. Thus it does not correspond with the definition used in this paper.

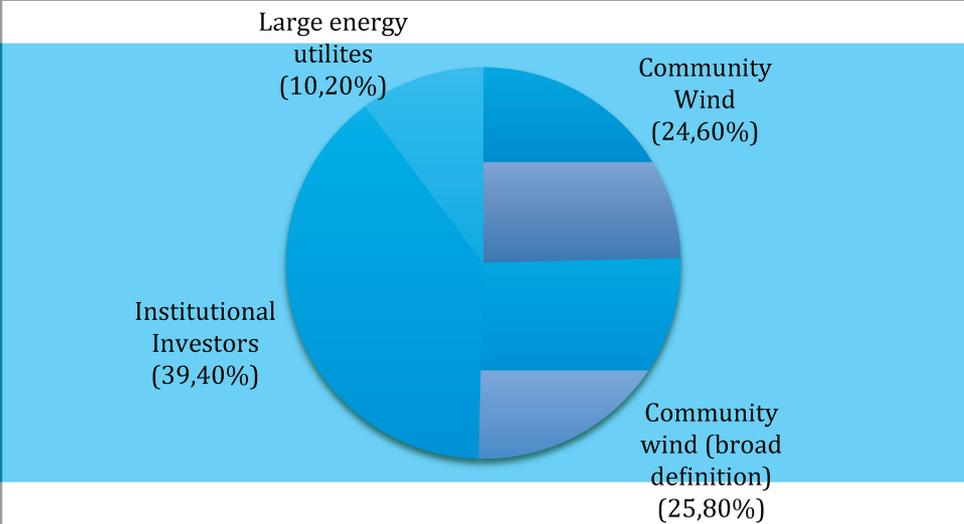


Figure 2. Shareholders of installed onshore plant power in Germany. (Trend: research/Leuphana, 2013)

Community wind projects in the narrow sense play quite a significant role in Germany based on the installed plant capacity and the production of electricity from renewable energies. It is assumed that community wind initiatives would play a major role in the future in the context of the energy transition due to their current importance and establishment. However, this development is dependent on various framework conditions such as the expansion of wind power (Alle et al., 2015).

The most common legal entity for German community wind parks is a limited partnership (GmbH & Co. KG). Next to limited partnerships, citizens also organize themselves within wind energy cooperatives. Differences between the two company structures exist regarding administrative efforts, co-determination and shareholder liability (Alle et al., 2015). The GmbH & Co.KG. constitutes an organizational form where several investors raises equity capital. The general managers of community wind projects manage the GmbH & Co.KG, while citizens or other investors are financially involved as limited partners (ibid.). Due to increased professionalization and commercialization, some adaptations of this model become increasingly important. Between 2012 and 2014 community wind actors realized approximately 15-16 percent of the installed onshore wind capacity and 16-20 percent of this capacity was then operated as community wind (Schick et al., 2016). The difference between realization and operation is a result of larger project planning companies who develop wind parks at their risk and subsequently sell the project to community wind stakeholders from the region (ibid.).

2.3 Wind energy sector in North Rhine-Westphalia

North Rhine-Westphalia is Germany's most populous state with 17.5 million inhabitants and regarding surface area the fourth largest federal state (34.083 square meters). Agriculture uses nearly 52%, and forests cover around 25% of the available surface area. Renewable energies and especially wind power are substantial elements of the state's declared goal to achieve a fossil fuel reduction of 25% until 2020 and 80% until 2050, compared to the conditions of 1990 (MKULNV, 2016).

In 2013, the state government of NRW introduced a Climate Protection Law, which aims for the expansion of wind energy to increase the electricity supply from wind power up to 15% until the year 2020. Currently, wind power constitutes for 4% of the overall electricity production in NRW, which represents 5.9 TWh (Terawatt hours). Studies regarding the potential for onshore wind energy in NRW concluded that the federal state can generate as much as 71 TWh from wind power (LANUV, 2012). The table shows that NRW currently ranks second after Schleswig-Holstein regarding the gross capacity increase of installed onshore wind power (421.65 MW in the year 2015).

Table 1. Gross wind energy capacity increase in the year 2015 in Germany, Status: 31.12.2015

Rank	Federal state	Gross capacity increase -Installed power (MW)	Gross capacity increase – Number of wind turbines	Share of gross capacity increase
1	Schleswig-Holstein	888.35	307	23.8%
2	North Rhine-Westphalia	421.65	167	11.3%
3	Lower Saxony	413.30	152	11.1%
	Total (all 16 federal states)	3,730.95	1,368	100%

(Lüers (2016) Deutsche WindGuard GmbH: Status of the wind energy capacity increase onshore in Germany)

With 3037 windmills and 4080 MW in overall installed electricity production capacity (December 2015), NRW has the fifth highest wind energy capacity among the other German federal states (BWE, 2016). The history of the wind energy expansion in NRW started with a booming phase between the years 2000 and 2002 and the subsequent stagnation between 2005 and 2010. At the time, the coalition government of CDU (conservatives) and FDP (liberals) came out in opposition against wind energy and enforced this policy through regulatory measures e.g. a prohibition for wind power plants in woodlands. Currently, the coalition government of SPD (social democrats) and the Green Party (environmentalists) constitute the federal state government since 2010 and are in the process of eradicating previously established restrictions wind energy deployment (Schick et al., 2016).

Currently, there are no official statistics on the number of community wind parks in North Rhine-Westphalia. The activities of energy cooperatives are monitored by the regional cooperative association (RWGV), but in the case of community wind projects organized as limited partnerships, the lack of statistics leads to the diverging data on the number of projects.

On behalf of the state government, the NRW energy agency 'Energieagentur.NRW' developed a database for community wind projects in NRW. Midyear 2016, it counted 41 projects attributed to wind energy, 22 of them with a portfolio including other forms of renewable energy technologies such as solar or hydropower (Energieagentur.NRW, 2016). The data is based on voluntary registration by project implementers, but currently, the numbers represent the most sophisticated approach to creating an overview of community wind projects in NRW.

2.4 Institutional framework conditions for community wind success

Oteman et al. (2014) refer to the characteristics of the environment of renewable energy initiatives and claim that structural factors are just as important as agency-based factors in studying the causes of the success or failure of community energy projects. Kaphengst and Velten (2014) conducted an empirical case study on three different energy cooperatives in Northern-Bavaria (Germany) with a particular focus on agency-based factors. Eventually, they were able to reveal conditions that are essential for the support of renewable energies in rural areas by e.g. drawing on the concept of 'trust' among members of energy cooperatives. Structure-based explanations about the occurrence and opportunities for community energy, on the other hand, look at the institutional framework in which community energy projects and energy cooperatives are ingrained. The institutional framework for community energy includes local structures as well as the whole policy subsystem of the RE sector and characteristics on a federal level like e.g. formal legislation (Oteman et al., 2014).

Schreuer and Weismeier-Sammer (2010) conducted a literature review on institutional framework conditions for community wind and found that there are academic research and reports on this perspective. Many authors refer to feed-in regulation and standardized rules as factors that were identified as conducive to or at least changing the development and success of community wind projects in leading renewable energy countries like Denmark, Sweden and Germany (Breukers and Wolsink, 2007; Olesen et al., 2002). Additionally, Oteman et al. (2014) and Bauwens, Gotchev et al. (2016) consider support mechanisms for renewables a crucial element when it comes to regulatory measures with an impact on community wind. Organizations like community energy initiatives are constrained by limited resources because they are dependent on the equity contribution of participating citizens and external venture capital (Bauwens, Gotchev et al., 2016). Due to the fact, that community

wind projects usually have a small portfolio with merely one wind park, they are also unable to distribute risks regarding unsuccessful projects. At this, support mechanisms like feed-in regulations ought to be significant factors in risk reduction and impacting the development of community wind projects (ibid.). A stable and supportive policy environment is necessary to encourage communities to invest in wind energy deployment. An environment that facilitates community-owned projects can significantly boost the emergence of wind farms. Since the EU member states are responsible for implementation of EU climate protection directives themselves, local community wind projects are not directly affected by legal framework conditions on the European level but much rather on the federal and state level (Alle et al., 2015). Therefore, according to theoretical considerations, the *federal policy* as well as *state policy* represent institutional conditions which affect community wind success.

Breukers and Wolsink (2007) focus on a cross-country comparison between the Netherlands, England, and North Rhine-Westphalia, concerning the energy, environmental and planning domain. In their analysis of the various planning areas, they consider policies that support practices of locally based project planning as an essential factor for the development of grass-root local initiatives. Breukers and Wolsink (2007) conclude that NRW promotes a bottom-up project planning approach while the other countries tend to have more top-down structures. Another study by Toke, Breukers, and Wolsink (2008) includes planning systems as an institutional condition for wind power development. The study underlines the participation of different government levels in the planning process and argues for more joint approaches in wind energy planning. Based on these theoretical discussions, the condition *planning processes* is assumed to have an influence on community wind success.

Oteman et al. (2014) identify access to advice and support as relevant framework conditions for community wind success. Well-developed network structures and contact between project implementers and support actors constitutes a possibility to foster community wind success. Hence, the literature points to a possible effect of *support actors* and *community energy networks* on community wind success.

Alle et al. (2015) refer to *renewable energy expansion targets* on a European, federal and state level concerning their effect on the emergence of community wind initiatives. As mentioned before, local community wind projects are for the most part influenced by federal as well as state framework conditions. Oteman et al. (2014) also refer to socio-cultural and socio-political characteristics that affect the occurrence and success of community energy initiatives. Among others aspects, they underline problem perception on the governmental level, regarding the high or low understanding of the community wind situation, as determining factor. The institutional framework condition *political visibility* is derived from this theoretical standpoint.

2.5 Policy arrangement dimensions

This chapter focuses on the underlying theoretical framework which is applied to integrate the above identified institutional framework conditions into an analyzable model and facilitate a thorough analysis of the research topic.

The Policy Arrangement Approach (PAA) is an instrument used to describe and characterize policy arrangements. Among others, Tatenhove et al. (2000) show the usefulness of this approach for the study of institutional contexts in environmental governance. In their publication '*Political modernization and the Environment: the renewal of environmental policy arrangements*' Tatenhove et al. (2000) state that the theoretical model allows for an analysis of structural and political processes on the one hand and the interplay between regularly policy-making processes on the other. Duncan Liefferink (2006) emphasizes the usefulness of the PAA in his publication '*Institutional Dynamics in Environmental Governance*' and identifies its analytical power. At this, the PAA allows for a definition of relevant policy issues, participating actors and formal and informal rules of the game governing their actions (Liefferink, 2006). Applied to this research, the policy arrangement approach is used to organize current institutional conditions in the RE policy domain of North Rhine-Westphalia according to four dimensions and enable a structured analysis of their assumed effect on community wind.

The PAA analyzes an institutional subsystem regarding four dimensions: the relevant *rules of the game*, involved *actors*, allocation of *resources* and dominant *discourses* (Arts and Tatenhove, 2005). The PAA includes the dimension rules of the game and encompasses both formal and informal rules as well as further regulations. Second, it takes account of actor constellations in the policy subsystem and their interactions and networks. Thirdly, the allocation of resources strengthens or weakens the position of a player and can include financial resources, expertise or a strong network or legal status (Arts and Tatenhove, 2005). The fourth dimension is different from the former three because it does not directly refer to the structure of the subsystem. The analysis of discourses of a policy subsystem includes dominant ideas and problem understanding.

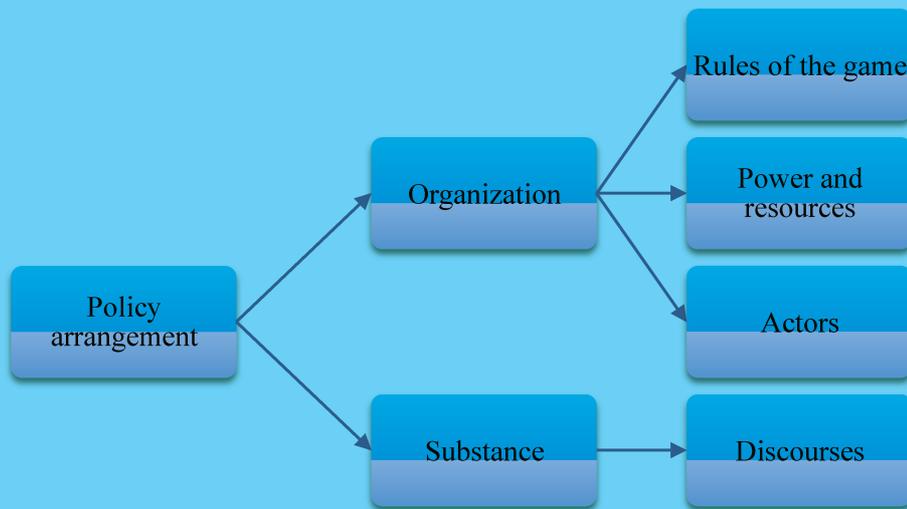


Figure 2. Operationalization scheme of the concept ‘policy arrangement’. (Arts and Tatenhove, 2005)

In this study, the four arrangement dimensions provide an overview of institutional framework conditions of the RE policy subsystem and illustrate the current position of community wind in the subsystem. Here, Arts and Tatenhove (2005) provide the overarching theoretical background by defining a policy arrangement as a policy domain that is shaped by organization and substance in a particular time-space context. By implication, an arrangement does neither exist without organization in the form of departments, instruments, procedures, a division of tasks and competencies, etc. nor without substance regarding principles, objectives, measures, etc. (Arts and Tatenhove, 2005).

Furthermore, a policy domain or field is temporary because prevailing arrangements are exposed to pressures of change, either by processes of political modernization or by policy innovations on a practical level, induced for example by new regulations or amendments to existing laws (Arts and Tatenhove, 2005). Additionally, spatial boundaries shape policy arrangements. However, Arts and Tatenhove (2005) emphasize that such limits can go beyond traditional ones such as the nation state because policy arrangements may develop at different levels (local, regional, national and transnational) of policy-making.

Moreover, the policy arrangement theory suggests that the dimensions of a policy subsystem not only have an influence on actors in the system or on the output but also are interrelated and interact with each other. Arts et al. (2006) specify this concept in *Political Modernisation and Policy Arrangements* (2006) by pointing out that “the four dimensions of a policy arrangement are inextricably interwoven.” (p.99). Furthermore “any change on one of the dimensions induces change in other dimensions.” (p.99). The authors illustrate this concept by a tetrahedron in which the four corners represent the four dimensions.

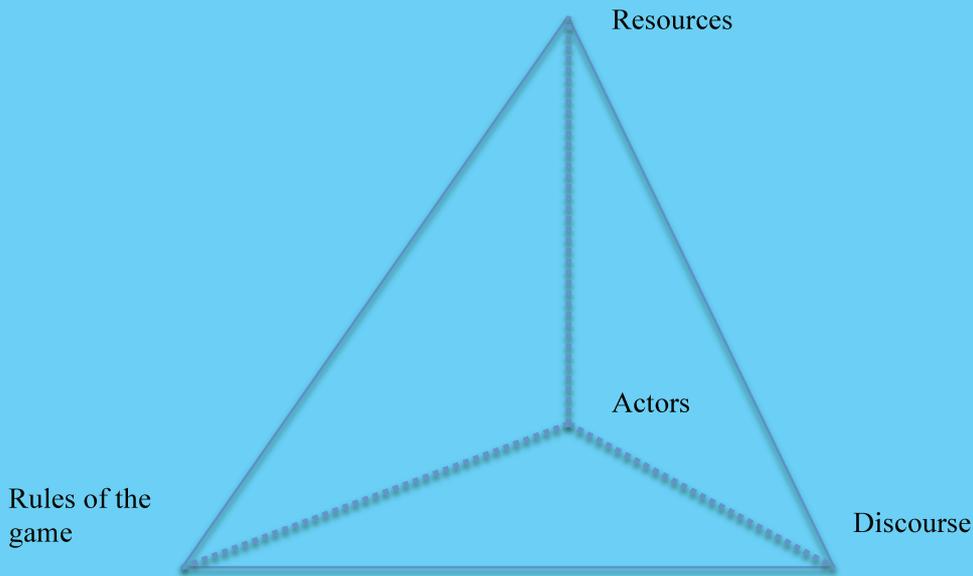


Figure 3. The tetrahedron as symbol for the connections between the dimensions of an arrangement. (Arts and Tatenhove, 2005)

The theoretical framework of a policy arrangement, as given by Arts and Tatenhove (2005), serves as the foundation for the primary interest in this research which is about the influence of institutional framework conditions on community wind success. For the first time in academic literature, Oteman et al. (2014) made a connection between the two theoretical concepts in case of diverging success of community energy across countries. The authors use the concept of institutional space which is defined as the degree of autonomy of one actor e.g. a community wind initiative, to decide freely about a project regarding its planning and its goals and strategies (Oteman et al., 2014). With this, the degree of autonomy is not only determined by the absence of constraints, in the form of prohibiting rules and regulations but also by conducive conditions such as subsidy schemes or a public and political sense of urgency for renewable energy or decentralized power supply (ibid.). Institutional framework conditions eventually make up the institutional space for community wind, but this study does not apply the concept of institutional space because of its complexity.



Figure 4. Theoretical relationship between institutional framework conditions and community wind success.

Accordingly, the four dimensions of the wind energy policy domain are used to structure the above identified institutional framework conditions for community wind success to analyze the effect of each dimension on community wind initiatives and the interaction effects among the dimensions

themselves. Thus, this study not only describes the current institutional context of community wind projects but also identifies differences between the dimensions according to their degree of facilitating present and future community wind developments. The entrance point of the PAA analysis in this research is the dimension *rules of the game* since the literature, and real-life observations concerning legislative changes point to its contemporary significance. *Rules of the game* are emphasized in the conceptual model to illustrate their assumed significance compared to the other dimensions. The operationalization of the variables is presented in Chapter 3.5.



Figure 5. Conceptual Model – Institutional framework conditions of community wind.

3 Research methodology

The following section describes the methodological approach to gain an understanding of the effect of laws and regulations, various support actors and network structures, different aspects of planning processes and renewable energy expansion targets and political visibility on the success of community wind. The study uses a qualitative approach, namely semi-structured expert interviews which were conducted after an analysis of academic literature and reports on current developments in the overall RE policy system and in particular in the community wind system. The results of the descriptive analysis, which answers the first sub-question of this research, are presented in Chapter 4.

The institutional conditions in North Rhine-Westphalia are the variables derived from the theoretical considerations and represent the units of analysis. Those are presented in chapter 3.5. Relevant data is obtained from the units of observation which encompass actors involved in the community wind system. The study has an inductive approach which entails the observation of a pattern between variables and subsequent conclusions. Ultimately, the researcher can draw conclusions from open-ended data with the intention of illustrating themes from the data (Bogner et al., 2009).

Among others, Yin (2013) demonstrates that a case study is the appropriate research strategy for the study of phenomena in their real-life context, especially when the boundaries between phenomenon and context are not clearly evident. Since this study focuses on the interrelatedness between the success of community wind and institutional conditions in the context of political, legal, economic and socio-cultural factors, the use of a case study approach is regarded as a suitable strategy. Furthermore, the analysis of factors that influence the success of community wind energy requires an exhaustive investigation of the phenomena in a real-life context which implies the intertwined character of relevant factors. The interrelatedness of variables and the fact that the particular relations between these variables cannot be precisely known beforehand contribute to the choice of the case study strategy (van der Zouwen, 2006; Yin, 2013). Lastly, the fact that community RE initiatives operate on a regional or local/municipal level determines the data collection method in a way that only a qualitative approach provides the instruments for an extensive study of the institutional framework in which the community initiatives are embedded. Complex relationships are difficult to capture in a questionnaire with limited answering options. Instead, an interview allows for detailed statements.

3.1 Expert Interviews

The expert interview is a method of empirical social research that generates qualitative data. It provides the researcher with exclusive expert knowledge which is difficult to collect with a different

method (Bogner et al., 2009). The expert opinions were obtained through semi-structured interviews and conducted via the telephone. This particular form of an interview cannot be evaluated quantitatively and has to follow a guideline (ibid.). A less structured interview enables a flexible conversation and allows the interviewer to pursue individual goals with his questions but also to explore the range of experience of the interviewee (Bogner e al., 2009). In the present case, the data collection instrument encompasses aspects from the systematic expert interview as well as from the explorative interview (ibid.). Even though the interview guide is structured in topic areas according to the four applied dimensions, it is aimed at an open-ended conversation to enable the expert to address further aspects he³ considers to be relevant. As a consequence of the semi-structured character of the interview, the composition of the guideline is an essential part of the research process

3.2 Design of the interview guide

The questions that resulted from conclusions drawn from the theoretical part of the study as well as from the descriptive analysis of the institutional conditions provided the basis for the development of the interview guide. Information from informal conversations with a community wind actor supported the decision on several thematic focuses.⁴ The questions were posed in a neutral and open-ended way to prevent the suggestion of possible answers (Bogner et al., 2009). The issues were then assigned to corresponding topic areas and differentiated between superordinate and subordinate questions. The superordinate items introduced the topic area and allowed a detailed answer by the interviewee. If the course of conversation made it possible, all subordinate questions were asked as well.

The interview guide is divided into six parts, consisting of an introduction, “Topic area 1: Rules of the game”, “Topic area 2: Actors”, “Topic area 3: Resources”, “Topic area 4: Discourse” and final questions. Depending on the course of the interview the questions slightly deviated from the interview guide to focus the collection of data on certain aspects which were considered especially important by the experts. Furthermore, questions were rephrased in case the interviewees did not fully understand the issue the first time. The majority of questions from the interview guide facilitate the assessment of facts by the experts. Some questions directly concern the particular community wind park of the interviewee and others aim at the general situation in North Rhine-Westphalia. At the beginning of the conversation, two initial questions addressed the professional background of the respondent as well as the key characteristics of his or her community wind park. The detailed interview guideline is enclosed in Appendix A and B.

⁴ Neither this particular community wind actor nor any associated actors were interviewed in order to prevent research bias.

3.3 Selection and description of the experts

The selection of interview partners is based on non-probability sampling and includes one actor from supra-regional associations, one actor from a governmental agency, one agent from a consulting company and two general managers from community wind parks. For the interviews on the institutional conditions of community wind in NRW several experts were contacted personally or via e-mail of which five agreed to participate in the study. Relevant interviewees were selected based on the assumption that people from support and intermediary organizations have a good overview of the wind energy sector as a whole. Additionally, interviews were conducted with experts in community wind who have been active in the field for many years and currently are situated in the development phase of a community wind park. This selection ensures that the experts are well aware of current shifts and trends concerning institutional conditions. Experts are defined as general managers with at least five years of experience. While the general manager has in-depth knowledge about the conditions for his particular case, the interview with an expert from an umbrella organization or political institution will account for more general data on the policy subsystem of community wind initiatives. The following table provides an overview of the interviewees.

Table 2. *Description of the interviewees*

No.	Date	Duration (min.)	Job	Institution/Activity	Dimension
1	23.05.16	39	General manager	Federal Association Wind Energy, State Association Renewable Energies; General manager of project planning business	Actors / Rules
2	25.05.15	17	Employee	Governmental agency	Actors
3	30.05.16	30	Employee	Project consultancy	Resources
4	03.06.16	32	General manager	Community wind park	Community wind
5	05.06.16	31	General manager	Community wind park	Community wind

The first interview partner is the CEO of a community wind project developer in NRW and member several organizations associated with renewable energies and wind power such as the Federal Association Wind Energy (BWE) and State Association for Renewable Energies NRW (LEE NRW). He is the CEO of a community wind park since 1998 and a highly requested expert in consulting regional and supra-regional community wind projects. The second expert works at the Energieagentur.NRW in the area of community energy since 2013. The Energieagentur.NRW runs on behalf of the NRW government and serves as a platform with extensive competencies in the (renewable) energy sector. The expert was selected due to his involvement in the development of network structures for community wind actors in NRW. The third interview partner works for a project consulting company which is specialized in community wind parks. The interviewee had been selected because he is an expert in the area of planning processes. The project consulting company provides advisory services for community wind projects throughout the whole planning phase without taking any decision-making competencies. The fourth interview partner is the general manager of a community wind park who is active in the renewable energy and wind sector since 2011. The community wind park was established in 2012 and is located in the northwest of NRW. The fifth interviewee is the general manager of a community wind project as well and active in the renewable energy sector since 2008.

3.4 Data collection and data evaluation

The interviews had a duration of approximately 30 minutes. One expert was aware of the interview guideline before the interview had been conducted since he asked to receive it in advance (Interview 1). Depending on the answers of the interviewee, the interview guide and the type of questioning were adjusted to the course of conversation. Beyond that, respondents were given the opportunity to address issues which had not been talked about during within the interview frame. All conversations were taped using a digital recording advice, transcribed and evaluated. In the course of the transcription, the way of speaking and colloquial expressions of the interviewees were adapted to written language. Subsequently, the experts answers were assigned to the four policy dimensions and the respective institutional framework conditions. In most cases, the structure of the interview guideline corresponded with these topic areas. The summarizing of answers usually is accompanied by a loss of information. This study makes use of direct quotations to balance between data aggregation and authenticity in the presentation of results. During the evaluation of the interview transcripts, individual passages have been assigned labels taking the form (n:k), where 'n' denotes the number of an interview, and 'k' signifies the number of the statement from that interview (Schreuer, 2012).

3.5 Operationalization

In order to accurately answer the research questions, this study makes use of several variables, namely *Rules of the game* (X_1), *Resources* (X_2), *Actors* (X_3) and *Discourse* (X_4). Thereby, the goal of this research is to explore the effect of institutional framework conditions of the renewable energy sector on community wind success (Y). Table 3 provides an overview of the operationalization of the variables.

Dependent Variable (Y): Community wind success

The dependent variable community wind success ought to be affected by the below mentioned independent variables. In this research model, community wind success will be assessed by goal achievement for individual community wind projects and the overall position of citizen-led wind energy projects in North Rhine-Westphalia as perceived by involved actors. All five interviewees were asked about the general situation of community wind in NRW, and the two general managers could give more insight on specific goal achievement.

Independent Variable X_1 : Rules of the game

The *rules of the game* of the renewable energy sector are expected to determine the position and success of community wind projects. The dimension *rules of the game* cannot be limited to a single spatial level. Even though this study focuses on North Rhine-Westphalia, national policies determine the framework conditions for lower governmental levels. Community wind initiatives operate at the local level under framework conditions that are shaped locally, regionally (NRW), nationally and even by EU legislations. Therefore, the approach in this research adopts a multi-level analysis that encompasses these vertical dynamics and focuses on relevant *federal* as well as *state policies*. EU legislation is not evaluated within the scope of this research because the EU Climate protection guidelines are not directly related to the position of community wind in NRW, as member states are responsible for their implementation. Therefore, determining legal framework conditions are to be found on the federal and state level in Germany. Accordingly, the Renewable Energy Act Amendment 2016 and its most important key points, as well as the NRW Wind Energy Decree, are used to assess the effect of the variable *rules of the game* on community wind success.

Independent variable X_2 : Resources

In this study, the policy arrangement dimension *resources* refers to *planning processes* of community wind parks. This dimension affects small-scale renewable energy initiatives and shapes their institutional space for emergence and success. The literature on planning processes points to approval procedures, resource allocation, alternative business models and degree of professionalization to evaluate the effect of planning processes on community wind success (Breukers and Wolsink, 2007; Oteman et al., 2014; Schick et al., 2016).

Independent variable X₃: Actors

The success of community wind parks in North Rhine-Westphalia is shaped by a lot of different actors. To analyze the effect of actors on community wind success, this study looks at *support actors* and *networks* for community wind with specific goals and power to engage in the policy system. In contrast to other network analyses, individual persons are not considered within this research. Several commercial and non-commercial organizations exist in NRW that provide support for community wind projects. Some of these organizations emerged with the goal to support community energy while in some other cases already existing organizations in the renewable energy sector created specific programs for community wind projects. This study looks at wind energy associations, project consultancies, and project planning companies in NRW to determine their relevance and in what ways they influence the success of community wind.

Independent variable X₄: Discourse

Finally, the policy discourse on a federal and state level is expected to influence the position and success of community wind. In order to measure the effect, the interviewees are asked about their evaluation of the impact of *renewable energy expansion targets* and *political visibility*. The renewable energy expansion targets are assessed through federal and state targets. In addition, the political visibility of community wind will be examined on the federal and state level.

Table 3 presents the operationalization scheme in which the institutional conditions are sorted according to the respective policy arrangement dimensions. Moreover, the table shows the aspects that are considered for each institutional condition to evaluate its effect on community wind success.

Table 3. Operationalization scheme

Community wind success (Y)	Goal achievement of community wind parks	General status of community wind in NRW		
Rules of the game (X₁)				
<i>Federal policy</i>	Renewable Energy Act Amendment 2016 draft-bill			
<i>State policy</i>	NRW Wind Energy Decree 2015	Guideline Wind Energy in Forests 2012	Guideline Species and Habitat Protection in Wind Energy Planning 2013	
Actors (X₂)				
<i>Support Actors</i>	Wind energy associations	Project consultancies	Project planning companies	
<i>Network</i>	Formalized network structures	Regional networks between general managers		
Resources (X₃)				
<i>Planning processes</i>	Approval procedures	Independent planning processes	Alternative business models	Degree of Professionalization
Discourse (X₄)				
<i>Renewable energy expansion targets</i>	Federal RE expansion targets	NRW renewable energy expansion targets		
<i>Political visibility</i>	Political visibility on a federal level	Political visibility on a state level		

4 Institutional conditions in North Rhine-Westphalia

The following chapter analyzes and answers the first sub-question: *What are the institutional conditions in NRW?* Firstly, relevant federal and state laws, regulations and guidelines are examined. Subsequently, significant steps during the planning process of community wind projects are depicted. Thirdly, different support actors and network structures relating to the position of community wind in NRW are presented. The last section deals with federal and NRW wind expansion targets as well as political visibility of community wind at both government levels.

4.1 Rules of the game

4.1.1 Federal Policy

Germany has created a successful and mature feed-in tariff system for the last two decades which refers to the guaranteed sale of renewable energy at a fixed remuneration. Feed-in regulations provide investors with above-market prices. Thus they create long-term security and represent a significant framework condition for the development of community energy (Gartman et al., 2014). In 1990, the German Bundestag implemented the electricity feed-in law (Stromeinspeisungsgesetz) which set the foundation for a successful market introduction of renewable energies. The law obligated energy providers to feed electricity from solar, water, and wind power as well as from geothermal energy and biogas plants into the grid at legally defined prices (BEE.e.V., 2016). Due to this regulation, citizen-owned wind farms were able to operate economically for the first time.

In the year 2000, the Renewable Energy Act (EEG) and the corresponding introduction of a guaranteed feed-in tariff (FIT) were conditions for the growing number of community wind energy projects (Toke, 2005; Yildiz et al., 2015). The EEG intended to enhance the expansion of renewable energies in Germany by providing payments to operators of renewable energy plants that export green electricity to the grid.⁵ For community wind initiatives, the fixed feed-in tariffs for 20 years led to a decrease in financial risks because of increased calculability and predictability of financial returns on investment (Schick et al., 2016). Operators of community wind plants often are confronted with high upfront investments, but the prospect of long-term guaranteed returns supports the development of small-scale projects.

Since the year 2000, some major amendments transformed the Renewable Sources Energy Act (EEG 2004, EEG, 2009, EEG 2012, EEG 2014). In particular, the EEG 2014 introduced significant

⁵ The grid refers to an interconnected network for delivering electricity from suppliers to consumers (BMW, 2016).

amendments to legal framework conditions in Germany concerning support mechanisms for renewable energies. Against the background of higher market shares of electricity from renewables and the question of their long-term integration into the energy system, the federal government enacted auctioning processes⁶ as a replacement for fixed feed-in tariffs. The rationale behind it was that the expansion of renewable energies requires management and coordination with the grid expansion (BMW_i, 2016). Beyond that, competitive determination of remuneration was meant to improve planning security for other actors in the electricity sector and also aligns with the approach of the EU commission to promote a financial support scheme of renewable energies closer to market dynamics (ibid.). The auctioning processes ought to encompass more than 80% of total electricity production from renewable energy plants (ibid.).

In 2015, the auctioning scheme was introduced in the form of pilot projects for photovoltaic plants. The most recent Renewable Energy Act amendment 2016, which shall come into force on January 1st 2017, plans to implement the auctioning scheme for all green technologies, including onshore wind energy. Even though the ‘old’ EEG 2014 still represents the current legislative basis, it is not part of this research because at the time of writing the EEG 2016 draft bill has already been approved in a cabinet decision⁷ and is supposed to be adopted by the Bundestag in the summer of 2016. Therefore, the EEG 2014 only affects community wind initiatives in so far at the moment that they receive the fixed feed-in tariff remuneration if the wind park is ready to operate by the end of the year. The contents and consequences of various aspects of the EEG amendment 2016 transform the institutional conditions for community wind and therefore will be analyzed in this study.

In the guidelines for state aid for environmental protection and energy 2014-2020, the European Commission constituted that the financial support of renewable energies has to be determined within competitive auctioning schemes (UEBLL, 2014-2020, number 127). However, the guidelines include recommendations for exemptions of wind parks with an installed capacity of 6 MW or less or 6 wind turbines. According to the European Commission, such small-scale wind power plants are supposed to receive fixed remuneration without going through the competitive auctioning process (ibid.). However, the EEG amendment 2016 does not include this so-called “de-minimis”-regulation.

From 2017 on, prospective operators of wind energy plants are supposed to participate in a competitive bidding process to determine the amount of remuneration and consequently whether the project will be realized. Even though there are certain exclusions, this regulation affects conventional wind power plants as well as the majority of new community wind initiatives (BMW_i 2016).

⁶ Also referred to as ‘bidding processes’: Objective, transparent, non-discriminating and competitive process to determine the amount of financial support (EEG 2014).

⁷ The draft-bill had been approved in a cabinet decision on June 8th 2016 (BMW_i, 2016)

The EEG 2016 reform and the introduction of competitive auctioning for all renewable energies pursue three main goals (BMWi, 2016):

Improved predictability: The expansion target of renewable energies determined by the Bundestag and federal council in 2014 ought to be steered to synchronize it with the grid expansion and providing planning certainty for all actors involved.

More competition: Auctioning processes are meant to promote competition between RE projects in order to keep the costs of the remuneration system low. Renewable electricity shall only be remunerated as much as an economically operation of the installations requires.

High variety: Competitive auctioning shall guarantee the actor variety among the plant operators and provide for fair chances among all participants (BMWi, 2016)

The following aspects of the EEG 2016 draft bill affect the position and activities of community wind energy in North Rhine-Westphalia necessarily or in particular.

Table 4. *The Renewable Energy Act amendment 2016 draft-bill* (BMWi, 2016)

Amendments	Content
Binding expansion quantity of onshore wind energy	Growth of installed capacity up to 2900 MW (gross) per year (§ 4 EEG 2016) with a minimum tendering quantity of 2000 MW (gross) per year.
Expansion trajectory of onshore wind energy	Yearly recalculation of the expansion increase of onshore wind power, measured by total RE expansion targets minus expansion of other RE technologies (§4 EEG 2016).
Special bidding conditions for local community energy projects to ensure actor diversity	De-minimis limit of 1 MW ought to exclude small actors from the auctioning scheme. Community wind projects can submit a bid for up to six onshore wind energy plants with an installed capacity not greater than 18 MW before they have the approval under the Federal Emission Control Act (BImSchG) (§36g EEG 2016). Condition: a) The project must include at least ten private individuals who possess the majority of voting rights. b) Project implementers may only plan one project per year c) Maximum project capacity of six plants with a maximum installed capacity of 18 MW.
Cost efficiency through one-tier reference revenue model ⁸	Bids from wind park planners become comparable independent from real weather conditions to ensure a large-scale distribution of wind turbines. Remunerations are lower in yield-rich and higher in yield-low regions (§36g EEG 2016).
One-time decrease of 5% of remuneration	The defined expansion quantity of wind energy had been exceeded in the last two years. Therefore the EEG 2016 is supposed to adjust the extension with a one-time decrease of 5% of remuneration as of June 1 st , 2017.

⁸ The one-tier reference revenue model allows to differentiate the amount of EEG remuneration of a wind power plant according to its location and yield. The intention is to balance imbalances that might arise between projects from yield-rich and yield-low regions in competitive bidding procedures (EEG, 2014).

4.1.2 State policy

The government coalition of the Social Democrats and the Green Party in NRW aims to expand wind power as an important pillar of the energy transition and supports municipalities and approval authorities with their tasks (IWR, 2016). Therefore, the NRW Wind Energy Decree was recently updated in November 2015. It is the only official document by the federal state of North Rhine-Westphalia that defines the term ‘community wind’. With this, community wind parks are defined as wind parks that facilitate a financial and operational participation of local citizens (Wind Energy Decree, 2015).

The decree does not propose a precise definition or standards for the concept but offers recommendations for municipalities, project planners, citizens and investors on how to realize a community wind project while taking the existing legal situation into account. Legal framework conditions include references concerning plant designations, repowering regulations and regulatory measures like height restrictions (Wind Energy Decree, 2015). Subordinate authorities are committed to the decree which also includes a stronger role for municipalities concerning planning autonomy. According to the NRW Minister for Environment Johannes Rimmel (Green Party) the Wind Energy decree “reflects the complexity of the energy transition as well as the need for the (NRW) government to support municipalities and competent authorities with regard to the wind energy development.” (IWR, 2016). The NRW Minister for Labor Michael Groschek (Social Democrats) adds: “I expect that the decree supports the municipalities with planning the concentration zones and overall contributes to legal certainty.” (ibid.).

Besides the Wind Energy Decree, two more regulatory framework conditions were identified on the state level as reference points for community wind developers and municipalities. These regulatory requirements deal with nature protection. Firstly, the ‘Guideline Wind Energy in Forests 2012’ deals with wind power plant development in forests and indicates possible barriers and solutions. Next to considerations about forests, community wind developers also have to adhere to the guideline of ‘Species and Habitat Protection in Wind Energy Planning’. The investigation of conversation guidelines and permissions usually is associated with high costs.

4.2 Resources

4.2.1 The planning process of community wind projects

Community wind projects have to adhere to the same planning procedure as any other wind farm. The successful development of a community wind park requires an early, continuous and intensive involvement of citizens. Project implementers have to follow a schedule to realize their project. This program contains many different, consecutive steps. During this process, the allocation of resources and power in the subsystem plays a major role. The planning and financing phase of a wind park usually determine whether a project will be developed successfully. Therefore, the two phases are especially significant for community wind projects.

The first stage of realizing a community wind park includes many examinations and calculations such as a verification and analysis of the location, planning of the grid connection and profitability calculations (Hentschel, 2012). Ultimately, the wind park has to pass the approval procedure under the Federal Emission Control Act (BImSchG) to move on to the second phase (Financing). Within the first step, the impact of regulations and authorities strongly influences the planning process. Already the very first applications involve laws and legal basis on four administrative levels.

Federal Level	Federation (Bund) Federal Spatial Planning Act (<i>Bundesraumordnungsgesetz</i>)
State Level	States (Länder) State Development Plan (<i>Landesentwicklungsplan</i>)
Regional Level	Districts (Bezirke) Regional Development Plan (<i>Gebietsentwicklungsplan</i>)
Local Level	Municipalities (Gemeinden) Preparatory land-use plan (<i>Flächennutzungsplan</i>) Binding local land-use plan (<i>Bebauungsplan</i>)

Figure 6. Wind Park planning processes at different levels of government. (Hentschel, 2012)

In the beginning, an initial assessment of the potential wind park location is conducted. To verify the legal feasibility of the project, the planned area has to be disclosed as suitable wind power area or priority area in the regional plan (NRW) or local land use plan (municipality). Delays, caused by

amendments or realignment of spatial planning regulations or land-use plans are not unusual and can impede ongoing or new wind park projects (BMW, 2016). After the destined location has been verified and determined to be corresponding to the regional plan of the state it has to withstand an analysis. The analysis does not only include the planning of wind power plant positions but more importantly the examination and consideration of environmental issues. In particular, these encompass species and bird protection, landscape protection but also tests on noise emissions, shadowing and wind turbulences (Hentschel, 2012).

The results of the preliminary examinations provide the basis for the following profitability calculations. At this, several parameters such as investment costs, operating costs, financing parameters and prospective revenues, provide information for the profitability of the community wind project. Based on this profitability calculation, the project leaders make a decision on the best project alternative with the highest equity repayment (Hentschel, 2012). After a location and project choice have been agreed on, the community wind actors prepare for the approval procedure under the Federal Emission Control Act (BImSchG). The complexity of planning processes led to increased professionalization of community wind projects. Independent project planning requires significant resources, so the increasing complexity of the project development phase is accompanied by the emergence of service providers and project planning companies in North Rhine-Westphalia. Concerning different business models, a community wind park in the legal form of a limited partnership has a different cost structure compared to wind parks which are planned and realized by external project planning companies.

4.3 Actors

Many different actors shape the RE policy subsystem in North Rhine-Westphalia. Within a policy domain, actors can either facilitate the prevailing policy discourse or challenge the ‘state of the art’ (Arts & Van Tatenhove, 2004).

4.3.1 Support actors in the area of community energy

Several commercial and non-commercial organizations in North Rhine-Westphalia provide support services for community wind projects. Some of these organizations emerged with the goal to promote decentralized community energy in general (LEE NRW, BWE) while in other cases already existing organizations in the renewable energy sector (such as the Energieagentur.NRW) created specific programs for community wind projects.

Table 5. *Support organizations for community wind in North Rhine-Westphalia*

Name of the organization	Type of service
Landesverband Erneuerbare Energien NRW e.V. (LEE NRW) (State Association renewable energies NRW)	Political representation of interests, advisory, information, networks, technology, technology specific work groups
WestfalenWind GmbH (Private project planning company)	Project planning
BBWind Projektberatungsgesellschaft mbH (Project Consultancy)	Consultation during all project development stages of community wind parks, mediation, dialogue
Energieagentur.NRW (Energy Agency NRW)	Networking, consultation, information
Bundesverband Windenergie (BWE) (Federal Association for Wind Power) Regional representation in NRW	Political representation, exchange, public relations work

(Energieagentur.NRW, 2016)

The central task of the State Association Renewable Energies NRW (LEE NRW) is the organization and coordination of information exchange between the different renewable energy sectors in North Rhine-Westphalia. Furthermore, the LEE NRW provides the state government and administration with expertise concerning renewable energies. For this, the association maintains regular contact with the state government of NRW, the state parliament, district governments and municipalities (LEE NRW, 2016).

The WestfalenWind GmbH is a private project planning company that utilizes regional available agricultural areas for the production of renewable electricity using wind energy plants. With this, the corporation generates revenue for itself as well as for investors. Citizens who live nearby the constructed wind parks ought to benefit from the activity of the company. WestfalenWind offers interested citizens the possibility to contribute financially to wind energy projects through investments (WestfalenWind, 2016).

The BBWind Project Consultancy was established in 2012 in the form of a merger of two environmental associations. The organization mainly provides advisory services for community wind actors and assists the process of developing and operating a wind park. Wind energy implementers from community wind parks with more than ten years of experience from the development of more than 70 wind energy plants constitute the organizational structure. The BBWind Project Consultancy aims to contribute to a greatest possible regional participation in the energy transition. With this, BBWind advises project implementers and provides specialist support (BBWind, 2016).

The Federal Association for Wind Power (BWE) is not directly a support organization in North Rhine-Westphalia but represents the interests of the wind industry for Germany as a whole. The BWE also promotes the development of citizen-led ownership models because such models are accompanied by increasing social acceptance of wind energy. In contrast to other support actors such as BBWind or NLF Bürgerwind, the BWE also helps commercial project planners as it represents the entire wind industry (Schreuer and Weismeier-Sammer, 2010).

The Energieagentur.NRW is a governmental agency that works on behalf of the state government of North Rhine-Westphalia. It offers a broad range of services from energy research and technical development to energy consulting and professional development. The organization's aim is to facilitate the development of innovative energy technologies in North Rhine-Westphalia. As a neutral organization, the Energieagentur.NRW is not a subordinate authority of the federal state.

4.3.2 Networks

Support actors like the Energieagentur.NRW set up events and create online tools to bring actors of local community wind projects together and create a safe space for networking and exchange. In early 2016, the energy agency started to organize meetings with community power actors from all over North Rhine-Westphalia (Energieagentur.NRW, 2016). So far, there has not been an existing network structure in particular intended for community wind actors. In the view of increasing success as well as the rising complexity of the citizen ownership model, the agency launched the network to provide a platform for the exchange of knowledge and expertise (Schick et al., 2016).

Local interpersonal connections between adjacent community wind actors account for the majority of networking structures. In North Rhine-Westphalia, certain regions usually show a high density of community wind parks as a result of environmentally conscious municipalities. The accumulation of expertise and experience in a small area leads mutual assistance and cooperation.

4.4 Discourses

4.4.1 Renewable energy expansion targets

The coalition agreement from December 2013 comprises the federal targets for renewable energies. In the future, federal law regulates the yearly increase of installed capacity. In the course of the EEG 2016 amendment, Germany determined the share of renewables in the overall electricity production to be at most 45% by 2025 and 60% by 2035. The long-term goals were set after the reactor catastrophe in Fukushima in 2011 to speed up the energy transition and enable an independency from nuclear power. The Renewable Energy Act 2016 is supposed to contribute to the achievement of the ambitious expansion goals (BMW, 2016).

North Rhine-Westphalia also has renewable targets implemented in the NRW Wind Energy Decree after which the share of renewables ought to increase up to 30% of the overall electricity supply until the year 2025. Concerning wind energy, the decree contemplates a 15% share of wind power in the NRW energy mix until 2020. In the year 2013, wind contributed 4% to the NRW electricity supply.

4.4.2 Political visibility

The current state government of NRW has a wind-friendly attitude and understands that community wind contributes to the social acceptance of the energy transition. Best-practice examples like the district of Steinfurt in the northwest of NRW increase the political visibility and provide for political commitment of the government. The district of Steinfurt declared the goal to become energy self-sufficient by the year 2050 and focuses its support on locally based energy initiatives (Energieraum2050, 2016). In addition, the NRW Wind Energy Decree 2015 defines community wind and acknowledges its special status (Wind Energy Decree, 2015).

Moreover, community RE initiatives are part of the political discourse on the federal level as seen in the official definition of community wind in the Renewable Energy Act amendment 2016. Beyond that, the federal government highlights the significance of actor diversity and promotes a special arrangement for community energy initiatives (§36g EEG, 2016).

5 Results of the Expert Interviews

The presentation of results from the semi-structured expert interviews is sorted in accordance to thematic focuses. Firstly, various aspects of the dimension *rules of the game* will be addressed concerning their influence on the success of community wind in NRW. Subsequently, the expert opinions on *resources*, *actors* and *discourses* in the community wind system are discussed. In a later step, it will be analyzed to what extent interactions between the dimensions exist. The interaction effect of the dimensions is analyzed in chapter 5.5. Thereby, this chapter analyzes the second sub-question: *How do the institutional conditions influence community wind success and each other?*

The following table depicts the number of statements given by each interviewee concerning the different dimensions and respective variables. The table shows the apparent differences between each dimension regarding the extent and depth of the particular responses. Both the legal and economic framework conditions provide for the highest response rate of interviewees.

Table 6. *Number of interview statements sorted according to dimensions and variables*

No. Interviewee	Rules of the game		Resources	Actors		Discourse	Total	
	Federal policy	State policy	Planning processes	Support Actors	Networks	Renewable energy expansion targets	Political visibility	
1	10	4	17	4	4	2	1	42
2	5	3	3	4	6	1	1	23
3	15	2	6	7	2	2	2	36
4	10	4	12	2	3	1	1	33
5	10	5	8	2	1	2	2	30
Total	50	18	46	19	16	8	7	164

5.1 Rules of the game

The following section comprises the expert evaluations on relevant *federal policy* as well as *state policy* concerning the influence on community wind success in NRW. In total, the effect of the dimension *rules of the game* is derived from 68 statements of five expert interviews. The clear majority of statements are assigned to federal policy instead of state policy which indicates varying significance.

5.1.1 Federal policy

Firstly, several interviewees pointed out that federal policy in the form of the Renewable Energy Act (EEG) is the overall decisive instrument in determining the legal framework conditions for community wind in NRW (2:4; 3:6; 2:6; 5:6).

“The EEG (Renewable Energy Act) amendment has a significant influence on community wind projects because currently, it is unclear if they still receive an EEG-remuneration. This situation also complicates profitability calculations because they have become scenario analyses.” (3:6)

The fact that the EEG currently is in the legislative process of a new amendment is another reason for its significant impact on the current state of the art of corporate citizen ownership models. According to expert opinions, the fixed feed-in tariff is an instrument which offers investment security as long as 20 years or in other words throughout an entire project duration. The EEG guaranteed prices above market level for producers of renewable energy and enabled access to the electricity grid. Therefore, community wind managers considered a project as successfully planned and ready to operate after all necessary approvals were received. (4:12; 5:8) The recent decision of the federal cabinet to pass the EEG amendment 2016 entails consequences for the position of small actors in the onshore wind energy sector. The aspects of the EEG 2016 that were mentioned the most by the interviewees correspond to those elements identified in the theoretical part of this research.

Firstly, a change in the expansion quantity of wind energy in Germany compared to the EEG 2014 affects the situation of community ownership models in a negative way (3:8; 4:3; 5:6). In the years 2017, 2018 and 2019 the expansion amount of onshore wind energy shall be limited to 2800 MW (gross)⁹ per year which will be allocated through the auctioning scheme. Since many wind turbines in North and Central German federal states need to be modernized utilizing repowering, the tendering capacity of 2800 MW (gross) in the next years could lead to nearly zero newly installed capacity (3:8). Repowering means that new plant components replace already existing wind turbines without building

⁹ 2800 MW gross expansion means only includes the installation of new plants but also the repowering of already operating turbines.

new plants. A gross amount of expansion capacity distinguishes itself from a net quantity because gross expansion also includes repowering.

Concerning the expansion trajectory, experts agree that the dependency on the expansion of other renewables leads to an inconstant calculation basis for future investments in onshore wind energy. This aspect is important for all wind parks but in particular vital for community projects. Large-scale project planners or external investors can diversify risk by being involved in many different projects, but local ownership usually is characterized by one single project. Hence, small actors are not able to distribute financial losses across various projects. (4:6; 4:31)

“They only were six people with a single project. Project planners or big energy providers like E.On, Vattenfall, etc. have 30 or 40 projects and can cross-subsidize in the case on or two projects end. This is a big problem for community wind because there is no remuneration and the people on-site usually have a 100% total failure.” (4:21)

One interviewee points out that the dependency on the expansion of other renewable energies could lead to an increase in capacity of no more than 500 MW per year in Germany which scales down to 11 to 13 wind turbines per month (3:8). With this, a problem for community wind in NRW emerges since the region is known for a moderate wind yield and could not compete with North German federal states for a significantly small number of wind turbine installations. Experts consider the regional balance of wind power extension an urgent issue because the remuneration rates for low or moderate-yield wind regions with stable distribution networks like in NRW prevent economically viable projects (ibid.).

Another aspect deals with the special bidding conditions for local community energy projects. The experts have mixed opinions on the exemption regulation for community wind in the EEG 2016 amendment concerning the upcoming auctions. Two experts view the exception as ‘too narrow’ since it cannot sufficiently protect small-scale citizen initiatives from competing with private portfolio companies or large energy providers.

“The community wind actors I spoke with think that the exemption does not help to moderate the law. The question is to what extent community wind projects can participate in the market and how the actor variety can be ensured with such a law.” (2:12; 2:13).

However, several interviewees consider the regulation as a chance for community wind parks to gain predictable framework conditions and legal certainty. In this context, respondents refer to the new and first-time official definition of ‘community wind’ in the amendment (EEG 2016 §36g). At the same time, two experts question the declared definition of community energy concerning the fact that

project implementers are allowed only to participate in one project per year. They state that the side effects of any successful networking are close business ties and even overlaps between two different projects due to a dual involvement of general managers (4:53; 3:12). Therefore, the condition of only being involved in one project planning per year is regarded as hardly realizable. Community wind actors usually maintain strong networks among each other and often work in many different projects.

“We have members working with (wind park X), me personally with (wind park Y). The idea to be allowed to bid at only one bidding round just is not possible because we are so broadly aligned.” (4:55)

Concerning the one-tier reference revenue model, one expert points out that community wind actors face high uncertainty since remuneration would be connected to the prospective yield of a wind park. Project implementers conduct examinations and submit the resulting reference return in the form of a bid in the auctioning process. If the generated yield in the operational phase deviates from the formerly calculated one, they have to pay back the differences. Thus, the reference yield model impedes the financing of the community wind park because community wind actors do not have legal certainty regarding the prospective remuneration (4:4).

Beyond that, community wind actors consider the planned general one-time decrease of 5% of remuneration for already approved wind parks as a major intervention in the existence of small-scale projects. Two interviewees pointed out that a decrease by the turn of the year could threaten the existence of community wind parks. The cabinet decision on June 8th, 2016 on the Renewable Energy Act amendment determined the date for the decrease for June 1st, 2017. It is not clear whether this later date constitutes a more favorable framework condition since the cabinet decision had not been made at the time of the interviews. However, it can be assumed that the one-time decrease has a strong adverse effect on community wind since general managers of wind parks highlighted this aspect repeatedly.

“In case one calculates 8% return for a community wind park today, and the feed-in remuneration is shortened by 5%, then we would be at 3%, and nobody would take an economic risk on a project with a 3% rate of return. If this happens we see great danger in not finding investors because obviously participating people also have profitability concerns.” (5:10)

Additionally, project implementers are in a rush concerning their wind project development because they aim for permission under the “old” EEG 2014 until the end of 2015 to receive the guaranteed feed-in tariff and not take part in the auctions (4:2; 4:33; 5:9).

“I hope that my community wind park does not have to deal with the EEG 2016 but can still benefit from the EEG 2014 remuneration. (...) If the decrease is implemented we will have to end the project, and the invested money is lost” (4:6)

The results show that federal policy in the form of the Renewable Energy Act amendment 2016 has a lot of influence on the development and success of community wind in North Rhine-Westphalia. In the case of individual goal achievement of community wind parks, both general managers agree that an introduction of the amendment in its current version could mean the termination of the respective project (4:6; 5:9).

5.1.2 State policy

Concerning legal and planning related framework conditions most experts agree on the general importance of the NRW Wind Energy Decree although its influence on community wind success in NRW is described as less decisive compared to the Renewable Energy Act amendment. (1:4, 2:7, 4:10, 5:17)

A recurring scheme in the expert opinions deals with long-term planning security which means community wind actors need stable framework conditions and in particular legal certainty to develop and operate a project successfully. One interviewee claims that around 10% to 20% of originally planned projects are not successfully developed because of restrictions in the Wind Energy Decree but adds that this does not necessarily represent a hindering institutional condition because the policy is predictable due to its binding character on approval authorities (5:18).

“The Wind Energy Decree is binding on the authorities. Therefore we could abide by it from the very beginning, and there were no things that came out of the blue.” (5:19)

From the perspective of planning processes, the Decree functions as a guideline for subordinate authorities to decide whether a project can be approved or not. One interviewee positively highlights an aspect related to decreasing barriers for community wind applicants. Since the latest amendment of the Decree, the construction of wind turbines in forest areas is legally allowed in case there are no near open spaces for evasion (NRW Wind Energy Decree, 2015).

The experts underline that the influence of the Wind Energy Decree, as well as both other guidelines (NRW Wind in Forests guideline & Species Protection guideline), can only be measured in relation to the overall development of wind energy since none of these policies expressly provides incentives for community wind. However, state policy is different among federal states and the most wind power intensive regions in Northern Germany are affected by favorable their respective state guidelines and laws.

“Mecklenburg-Western Pomerania has participation laws for community wind, and such state policies do have a major influence. It (participation laws) is an instrument which does not exist in NRW as far as I know.” (2:8)

5.2 Resources

The next section analyzes the effect of the *resource* dimension of the renewable energy system in the form of community wind planning processes. In total, the effect is derived from 46 statements.

5.2.1 Planning processes

Planning processes comprise the collection of necessary documents and permits required for the installation of wind turbines as well as the accumulation of vast amounts of investment capital. Interviewees point out that the approval requirements are especially hard to meet for community ownership models. Project developers with a small portfolio stress their dependency on advice and expertise which results in significant resource costs for an independent project development. As already mentioned in the previous part, community wind actors often operate on the basis of voluntary work, so the degree of professionalization usually is not corresponding to the external demands from examination and approval authorities.

“We are working on a voluntary basis since 2012 with our money to save upfront planning costs (...).” (4:26)

The interviewees critically reflect on the rising complexity of planning processes and consider increasing demands from approval authorities, high bureaucracy efforts and lengthy decision-making processes as reasons for this development (4:20, 5:24). The investment costs during the initial planning phase under the Federal Emission Control Act (BImSchG) already accumulate to a substantial amount because of costly examinations, preliminary investigations and approval fees. Despite these efforts, the realization of the project is not yet ensured at this development stage. In some cases, project implementers bear the costs at their risk. The auctioning scheme could abolish external funding in general because auctions increase the risk of not being successful so community wind managers may find it difficult to acquire venture capital for necessary early development stages. Another option is the direct inclusion of citizens as shareholders and providers of risk capital.

High bureaucracy efforts, among other things, are a result of a large number of participating authorities in the planning phase. Next to approval authorities, also the municipalities, administrative district, district government, and regional politics are involved in the planning phase of a community wind project (4:23). Two general managers identify existing barriers in planning and approval procedures because many different administrators and auditors accompany the variety of concerned authorities (4:14; 4:15). The high number of contact points complicates the approval process because project implementers have to discuss their concerns on various administrative levels instead of one centralized authority.

The experts unanimously agree that even though an independent development of community wind projects had been possible in the past, it will be increasingly difficult to get initiatives through the development phase without professional support and oversight (1:42, 3:25, 4:18, 5:27).

“People who think they know how it is done because they did it in the past are wrong. You have to consider nature conservation, species protection and everything around it. The approval procedure got a lot more extensive.” (1:42)

“If we develop the next project or expand our project for the future we already have experience from our last planning phase so we would be able to do more than five years ago. However, we would not dare to do it without using advisory services like NLF Bürgerwind.” (5:27)

Moreover, the upcoming auctioning scheme impedes small-scale projects, characterized by a low degree of professionalization, because only projects of experienced wind actors are expected to possess the resources and know-how to persist in a market with large commercial players.

Concerning future business models for community wind parks, the interviewees repeatedly refer to project planning companies. General managers of community wind parks consider the risk for collective citizen ownership as too high for the future. In this case, only external project planners can prevail since they can plan and develop several projects and take into account that only a few become successful. For community wind actors, the termination of a project usually puts any effort to an end as their invested money is gone without the possibility of compensation (4:19; 4:20).

5.3 Actors

The following section takes account of the third policy arrangement dimension *actors* and analyzes the relationship using *support actors* and *networks* as institutional conditions. The influence of this dimension on community wind success is examined using 34 statements from the expert interviews.

5.3.1 Support Actors

Support actors play an increasingly important role in the NRW system of community wind. The majority of interviewees emphasized the role of wind energy associations like the Federal Association for Wind Power (BWE) and the NRW State Association for Wind Power (LEE NRW) as well as project consultancies such as BBWind Project Consultancy (1:34).

“The Federal Association Wind Energy (BWE) which also has a regional representation in NRW, plays a prominent role in the wind energy sector. The BWE serves as a representation of political interests on the federal level.” (2:16)

A distinct form of support for community wind which is subject to a lot of discussions consists of providing established project plans that can be acquired by a community wind corporation. The WestfalenWind GmbH was founded by experienced wind energy actors and develops wind park projects at their risk and sells the complete plan or project. Since the company bears the risk of development, they receive a fixed remuneration from the buyers. The related expert points out that community wind parks still receive a decent return in the long-term (1:22). External project planners make sure that legal or financial barriers during the initial development phase do not prevent small-scale initiatives from operating a wind park.

While this concept can be regarded as an opportunity for citizen ownership, community project leaders and other actors see certain shortcomings in focusing on external project planners (4:44, 5:32). The basis of their concern reflects on the different value chains and the lack of collective citizen decision-making. During the development phase, small-scale projects usually try to keep their costs low utilizing voluntary work effort because they make calculations over a period of 25 years and expect profitability and revenue in the long-term (4:47).

“We, from rural areas and community projects calculate in the long-term. At our model, everything in the front (planning phase) is based on voluntary work; since 2012 our wallets finance us. An external project planner cannot do that. They have to make profits upfront whereas we earn money in the long-term.” (4:46; 4:47)

In contrast, the value chain of project planners provides for profit before operating the wind park. Support organizations like the BBWind Project Consultancy dissociate themselves from this business model because they only advise community wind projects without being involved in decision-making structures.

“We fundamentally differ from this kind of project planning. With our concept, the citizens on-site decide on turbines, experts, etc. from the very beginning. (...) BBWind only assists the project using advisory from the first planning to the spinning wind turbine. We receive a project fee for the consultancy, but we are not involved with risk costs and the decision-making process.” (3:4; 3:5)

Despite specific arguments against external project planning the interviewees agree on their necessity in times where the basis for calculations is not certainly given due to shifting legal framework conditions and complex planning processes (3:27, 4:42, 5:28).

5.3.2 Networks

One interviewee emphasizes the difference between lobbying efforts of regional and national associations and local networking. While the former plays a role in the discourse dimension, local networking is seen as an important instrument to bring community wind actors together. (2:17; 4:14; 5:22)

“Regional networking meetings where actors can meet each other personally and might agree on a closer cooperation are very important.” (2:19)

Networks for community energy in Germany were developed parallel to legal framework conditions (2:21; 2:22). In times where these conditions were experienced as stable or predictable, small-scale initiatives did not feel the need to get in touch or cooperate with organizations or other communities (ibid.). However, legal framework conditions continuously became more and more challenging in the last years. The increasing pressure from external influences resulted in a greater willingness to cooperate (ibid.).

“We see a nationwide trend and desire to connect (...). State associations have been founded in several federal states, especially for energy cooperatives.” (2:21)

The discussions around the EEG 2016 and the expected difficulties for all renewable energy technologies result in increased efforts to facilitate community energy with decentralized structures. Local networking is seen as an instrument actually to engage with other project leaders and practitioners in the area of community energy. In January 2016, the Energieagentur.NRW organized the opening event for the network ‘Platform for Community Energy and Energy Cooperatives’. Even

though there have been possibilities to exchange information and expertise before, the changing legal conditions urged community energy actors to organize themselves under the guidance of an umbrella organization. Especially small-scale projects rely heavily on exchange and know-how (2:19). However, the interviewees highlighted the significance of local networking among general managers over formalized network structures because they want to decide on their business partners. Some actors even are concerned about disclosing their business model in networks as they fear increasing competition (1:18).

The results on the *actor* dimension show that support actors like associations and project consultancies exert significant influence on community wind success. Associations provide political representation for small actors while project consultancies facilitate the fundamental idea of community wind as they offer advisory throughout the whole planning process without intervening in decision-making processes. The Experts agree that nowadays a successful community wind park project cannot be developed without the help of support actors.

Network structures are described as an important element of community wind success but the focus is rather on local connections between general managers. With this, local actors exchange crucial expertise and knowledge based on long-standing contacts to adjacent wind parks. Formalized networks under the supervision of governmental agencies have yet to prove their impact on community wind success but can already be regarded a necessary response to shifting legal framework conditions.

5.4 Discourse

The last section regarding the four arrangement dimensions considers the influence of *renewable energy expansion targets* and *political visibility* on successful community wind development.

5.4.1 Renewable energy expansion targets

The renewable energy expansion targets of the federal government or state government only have a minor direct influence on the position of community wind in NRW.

“The goals set out the scope of action for politics and society which means that we are 100% bound to it. (...) We are dependent on the political decision with everything we do and this can fuel courage like in the year 2012 but can as well pull the rug under one’s feet like in 2014 and now 2016.” (5:31)

An interviewee emphasizes that the actual dynamic of the expansion is determined by the technical progress, thus by federal policy in the form of the Renewable Energy Act (1:31). According to the experts, the declared goal of the state government to increase the share of wind energy up to 15% until 2020 is an important political message. However, involved actors perceive a discrepancy between declared renewable energy goals and supporting policies or regulations. Therefore, renewable energy expansion targets usually are considered hardly more than ‘lip services’. The targets have to be implemented in NRW spatial planning regulations and land-use plans to have an actual impact on individual community wind developments. Therefore, the effect of formulated policy goals on community wind success can only be evaluated with regard to following laws or regulations (1:31; 4:32).

5.4.2 Political visibility

The interviewees differentiate between different government levels when it comes to political visibility. On a municipal as well as state level, experts consider the political visibility of community wind as mostly given. However, the interviewees point out that they feel the idea of community wind is not being acknowledged enough on the federal level which they see as a result of minor political representation (3:33; 4:48; 5:32). The idea of a ‘legal special status’ for community wind parks is mentioned several times in connection with the place for community wind at the federal level and accordingly within the federal legislation. Involved actors are uncertain whether citizen-led wind farms have to continue to compete against external investors and private portfolio companies or if the idea of community wind is separated with the help of an own legal framework (5:33, 5:51). The BBWind Project Consultancy supports small actors in their efforts to increase political visibility for community wind.

“At the moment we try to address local members of the Bundestag with individual projects which already have contacts to show how bad the situation is and how much money already has been invested by community wind actors.” (3:34)

Additionally, the expert is pessimistic on the outlook for a reconsideration of the cabinet approved amendment-bill as the low level of political visibility hampers differentiation between community wind and bigger commercial actors on a federal level. The low level of political commitment to more favorable conditions for onshore wind energy is criticized as a result of the federal government trying to support conventional energy utilities that missed to invest in renewable energies (3:36).

5.5 Interaction of the dimensions

As already pointed out in the theory chapter of this thesis, Arts et al. (2006) suggest that a change in one dimension of a policy arrangement can result from changes of any of the other dimensions. Alterations in the *rules of the game* can e.g. lead to innovation in a policy arrangement. Similarly, the appearance of new *actors* induces change; for instance, by “adding or mobilizing external or internal means of exercising power or resources (money, knowledge, skills) (...)” (Arts et al., 2006, p.100). The study of the influence of institutional framework conditions on community wind success includes many examples of the suggested interrelatedness of the four arrangement dimensions. The following assumptions on the interaction between the dimensions are confirmed by the literature review and the semi-structured interviews with community wind experts. The statements of the interviewees presented as reference explicitly refer to two interrelated dimensions. The interactions are sorted according to the dimensions, starting with the most emphasized.

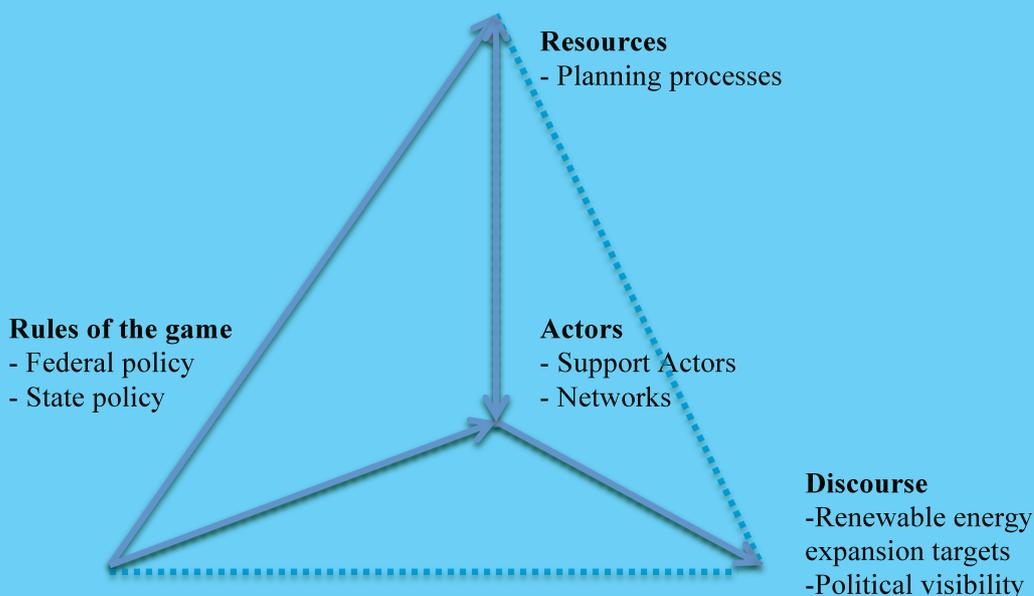


Figure 7. The tetrahedron as symbol for the connections between the dimensions of an arrangement. (Adapted from Arts and Tatenhove, 2005)

Resources / Actors

The relationship between *resources* and *actors* is most apparent in the impact of new or established support actors on planning processes of community wind projects. Both interviewees, from the project consultancy organization and project planning company, indicate that new forms of support and offers for community wind actors counteract increasingly complex bureaucracy requirements and overall challenging project planning conditions (1:8; 1:22; 1:25; 3:2; 3:4). More specifically, the supporting actor BBWind conducts profitability calculations and attends visits to banks, etc. because independent planning processes are not feasible anymore. Furthermore, high upfront investment costs during the

initial planning phase in the form of fees and costs for examinations and approval documents induced the rising significance of external project planning companies.

Rules / Resources

According to the experts, the auctioning scheme of the Renewable Energy Act amendment 2016 entails rising complexity of planning processes of community wind parks. First-time developers who independently plan their wind park are considered to have significant difficulties in successfully being awarded the contract in auctions. Furthermore, auctions put time pressure on community wind developers as they receive a fine if the wind park is not built in time (3:26).

Rules / Actors

The dimension *rules of the game* and in particular the *federal policy* level in the form of the Renewable Energy Act amendment induces a change in networking structures among community wind actors. The introduction of new remuneration models which expose small-scale actors to competitive market conditions is accompanied by emerging formalized networks (2:22; 3:30). Furthermore, it is suggested that the upcoming auction scheme will increase the willingness to cooperate with project planning companies because communities with a small portfolio cannot bear the requirements of project planning and risk of failure but have to collaborate with actors who can take some of the risk (2:14).

Actors / Discourse

A high degree of professionalization among network structures has an impact on the political visibility of community wind on a state and federal level. Most importantly, networks ensure a detailed listing of citizen-led wind initiatives and create a platform for these projects. Such a platform does more easily become the focus of attention on higher political levels than regional or private networking structures. Network structures for community energy cannot be separated from the political discourses on a national as well as on a state level. In general, such networks establish higher political visibility and increase the potential for Community Wind to be considered an alternative to centralized energy supply. Formalized network structures in the form of e.g. the Energieagentur.NRW do not have the means to influence the policy discourse on community energy on a national level, but they also contribute to higher political visibility. The BWE is actively involved in political advocacy and represents interests of community energy on a national level.

6 Conclusion

The aim of this research was to provide insight on how institutional framework conditions of the renewable energy subsystem influence the success of community wind projects in North Rhine-Westphalia. In European countries, community wind parks are ingrained in different institutional contexts and their development and success is dependent on the characteristics of the institutional system. Previous academic research usually presented Germany as a leading example of a strong decentralized renewable energy structure, but current processes and projections for the future show a different picture. In order to properly investigate the ambiguous effect of institutional conditions on decentralized community wind initiatives this study utilized preceding theories on community wind development and academic research and identified central factors relevant to the institutional position of community wind projects.

A set of sub-questions was included to examine the research problem. The first sub-question, which had been answered in Chapter 4, investigated the relevant institutional conditions in North Rhine-Westphalia, sorted by the policy arrangement dimensions. Sub-question number two examined how the institutional conditions influence community wind success and each other.

Regarding the first dimension, *rules of the game*, it has been found that *federal policy* in the form of the Renewable Energy Act amendment 2016 poses an imminent barrier to greater citizen participation in the provision of renewable wind energy. The amendment intends to establish renewable energies in the competitive German energy market with the help of an auctioning scheme and shortened remunerations. However, community wind experts agree that collective citizen ownership still requires a special legal status in the amendment to remain a prospering actor in the energy sector and contribute to the high degree of actor diversity. An auctioning scheme puts small-scale wind projects at a competitive disadvantage and therefore decreases the institutional space for bottom-up deployment of community wind projects. Oteman et al. (2014) pointed out that German rules are mostly enabling because of fixed feed-in tariffs. The shift to competitive bidding processes could change an enabling institutional condition into a disabling factor since auctions increase uncertainties regarding the conditions of remuneration. The dominant position of the government in the Germany renewable energy system demonstrates that governmental steering through financial support is essential for community initiatives.

Focusing on the second dimension, *resources* and the corresponding institutional condition *planning processes*, the analysis of the interview statements brought an extensive range of barriers as well as applicable solutions to light. The majority of these obstacles occur during the initial planning phase or development stage of community wind projects because the degree of professionalization does not

comply with large investment costs and extensive requirements of approval and examination authorities. Moreover, planning processes include a high number of authorities on various political levels which causes delays regarding the coordination of the approval procedure. Furthermore, project leaders with small portfolios of one or two projects are not able to diversify risk or compensate the loss of a project due to high upfront costs or great demands from examination authorities. As a result, community wind implementers estimate that the market share of commercial and external wind park developers will increase at the expense of regional value creation.

Concerning the effect of *actors* and in particular *support actors* it can be concluded that the provision of services from RE organizations in NRW positively influences community wind success. Even though entirely independent project planning is hardly achievable nowadays, wind energy associations and especially community wind consultancies like BBWind provide significant support while not intervening in basic democratic decision-making structures of community wind projects. In particular, in the initial development stages of community wind parks, project consultancies assist in the process of acquiring necessary venture capital from investors by conducting profitability calculations. Furthermore, community wind actors originally planned projects independently from external project planning companies but they are aware of unfavorable shifts in the legal framework and have to consider alternative development types for the future. Contrary to theoretical assumptions, the results illustrate that formalized networks among community wind actors are not seen as a substantial condition when trying to assess the success of community wind in North Rhine-Westphalia. Instead, local network structures among general managers which are established through personal contacts, are seen as a valuable resource of knowledge and expertise. At this, in certain municipalities with a higher density of community wind actors, quasi-formalized network structures are established which serve as best practice examples.

The influence of the *discourse* dimension on community wind success with respect to *renewable energy expansion targets* on the federal and state level was not confirmed in this study. Renewable energy goals indicate a direction for future actions but are not decisive conditions for community wind success within themselves. A wind-energy-friendly state government can create more favorable conditions through the implementation of RE goals in formal regulations like the Wind Energy Decree. Regarding *political visibility*, the results show that community wind is an issue difficult to prepare for a policy framework to get a hearing on the federal level. For the first time, the Renewable Energy Act amendment 2016 includes an official definition of community wind. However the opinions regarding the interpretation of community wind are divided and either label the definition as insufficient or the first step in the right direction. In a mutual effort, community wind implementers and support actors try to increase the political visibility to secure a distinctive legal status for citizen-led wind parks.

The findings of the interaction analysis suggest that the Renewable Energy Act amendment 2016 and hence the dimension *rules of the game* exerts a strong influence on the allocation of *resources* as well as on the occurrence of *actors* in the renewable energy sector. Changing legal framework conditions cause innovative modes of project planning and the emergence of new actors within the subsystem of community wind. Thereby, a shift towards aggravated conditions for community wind deployment as a result of an auctioning scheme leads to increased efforts of *support actors* to counteract occurring barriers. Similarly, project implementers revise planning processes and consider new forms of wind energy development in form of cooperation with external project planners. Furthermore, existing networks or support actors provide political visibility and can influence prevailing discourses. With this, formalized network structures have the potential to become an important contributor to the political visibility of community wind.

Relating to the initial main research question “*In what ways do institutional conditions of the community wind energy sector influence the success of community wind in North Rhine-Westphalia?*” this study found that institutional conditions affect community wind success in the form of four institutional dimensions with varying strength. As presumed by findings in the literature, the dimension *rules of the game* has the strongest effect on the success and development of community wind in NRW. New Renewable Energy Act amendments determine whether a technology is hampered or going to occupy a core function in the energy supply. However, the precise content of formal *rules* is considered less significant than their stability and predictability and how they are in line with the needs of small-scale actors. In the past, guaranteed feed-in tariffs provided for a stable position of community wind in the renewable energy sector, but upcoming legislative changes abolish this instrument. As a result, the success of individual community wind parks is threatened since the remuneration amount cannot be predicted. In order to preserve the successful decentralized energy transition in North Rhine-Westphalia and Germany, community wind still requires a special legal status in the upcoming amendment which shows consideration towards the need for stability and predictability. A combination of the top-down implementation of supporting legal frameworks and bottom-up ambitions for local renewable energy production is required to create a favorable environment for community initiatives in North Rhine-Westphalia. The following paragraph elaborates on the study’s limitations to be able to give recommendations for future research.

This study sketched the policy arrangement of the renewable energy sector in North Rhine-Westphalia and the position of community wind therein. The lack of data regarding the number and activities of renewable energy initiatives constrains comprehensive studies on the dynamics between institutional conditions and community wind success. As a result, an explorative approach including five expert interviews aimed to give insights into the institutional context of community wind projects in North

Rhine-Westphalia. Further research activities on community wind in Germany should focus on long-term case studies of regions, municipalities or individual projects to analyze the effect of the Renewable Energy Act 2016. Moreover, an extensive analysis of different business models for community wind deployment could further establish the role of collective citizen ownership in the energy sector.

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Appendix A

Interview introduction

Dear Sir or Madam,

I would like to thank you for taking the time to participate in this interview and therefore allow me to conduct my research. My name is Niklas Althaus, and I am a 3rd-year undergraduate student. I study Public Governance across Borders, which is an interdisciplinary cooperation program between the University of Twente and the WWU Münster. The program comprises contents from politics, economics, law and sociology with an emphasis on public administration.

Currently, I am writing my bachelor thesis on community wind in Germany by the case of the German state North Rhine-Westphalia. My research desire stems from the observation that community wind projects are a successful concept in Germany and NRW, but their position and activities strongly are dependent on institutional framework conditions. As a result, I analyze in what ways institutional conditions influence the success of community wind in NRW. A particular focus lies on the current developments around the new Renewable Energy Act.

The results of this interview are going to be anonymized so that I only refer to you as an actor from a specific group without revealing your identity. Additionally, the findings of this study only serve an academic purpose and will not be given to third parties.

Do you agree if I tape the interview? It would improve the course of conversation and help me to analyze your answers carefully.

Appendix B

Interview guideline

<p>Introductory questions</p>	<ol style="list-style-type: none"> 1. Could you describe your current work and add how long you have been active in this field? 2. In which development stage is your community wind park situated? (Only asked to general managers of community wind parks)
<p>Topic area I Rules of the game: Legal framework conditions for community wind</p>	<ol style="list-style-type: none"> 3. Government policy: How do you evaluate the Renewable Energy Act amendment 2016 concerning (your) community wind projects (Competitive bidding processes, capacity increase, actor diversity, expansion trajectory, one-tier reference revenue model) 4. State policy: How do you evaluate the Wind Energy Decree NRW concerning (your) community wind projects?
<p>Topic area II Actors: Support actors and networks</p>	<ol style="list-style-type: none"> 5. How do you assess the provision of consultancy and support for (your) community wind projects in NRW? 6. How do you evaluate the role of network structures (e.g. Plattform Bürgerenergie und Energiegenossenschaften) in the community wind system?
<p>Topic area III Resources: Planning processes</p>	<ol style="list-style-type: none"> 7. In what ways did planning processes of community wind projects develop over the years? 8. Is an independent project planning possible under current conditions? 9. Which business models of community wind will prevail in the future? (private investor portfolio companies, independent project planning)
<p>Topic area IV Discourse: Renewable energy expansion targets and political visibility</p>	<ol style="list-style-type: none"> 10. How do you evaluate renewable energy expansion targets of the federal or state government concerning the position of community wind? 11. How do you assess the political visibility of community wind on a state and federal level?
<p>Final questions</p>	<ol style="list-style-type: none"> 12. Which goals are you pursuing with your community wind project? (Only asked to general managers of community wind parks) 13. Are you able to achieve your goals under the current conditions? (Only directed to general managers of community wind parks) 14. Would you like to address a point that has not been mentioned yet?