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Roles in the sustainable energy field: investigating the current roles and the desired situation

From the perspective of the bottom-up initiatives



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Preface

This thesis is written to complete my master Environmental and Infrastructure Planning at the University of Groningen. We are currently in an energy transition away from fossil fuels towards more sustainable energy sources. Many different stakeholders are involved in this shift, but this research focuses just on two of them: the lower Dutch governments and the public initiatives. The traditional conditions in the energy field are changing because the energy transition is such a massive shift. Therefore, this research investigated the current role division of the lower Dutch government and the public initiatives, as well as the desired role division according to the public initiatives. Interaction between them is important, which is also emphasised in this research. I have chosen this subject first of all because of my interest in sustainable energy in general, but also because it is a very relevant and topical subject in the planning scene.

I conducted this research with pleasure and I really enjoyed to see how the interviewed institutions put a lot of effort in contributing to the energy transition. The conversations with the interviewed persons were very valuable for this research and I have learnt many new things. For this reason, I would like to thank all the interviewed persons of both the provinces Groningen and Drenthe, the municipalities Groningen and Aa en Hunze, the representative associations the GrEK and the Drentse KEI, and last but not least, the local energy initiatives Lopec and Eco Oostermoer. In addition, I would like to thank my supervisor Christian Zuidema for the inspiring conversations and his useful feedback, which really helped to improve my research.

Finally, I hope that my efforts for carrying out this research provide an useful contribution in the relationship between scientific theories and practice. If there arise any questions or remarks after reading this thesis, do not hesitate to contact me.

Jos de Groot

Groningen, augustus 2016

Abstract

Keywords: sustainability, energy, transitions, governance, bottom-up, role division, Netherlands

This research is about the current roles of the provinces, the municipalities, the local energy initiatives and their representative associations and how these current roles compare to what the bottom-up initiatives (the local energy initiatives and their representative associations) desire. Attention is paid to the participation and collaboration between the governmental parties and the bottom-up initiatives and what barriers need to be tackled in order to achieve the desired situation from the bottom-up perspective. The theoretical foundation of this research is based on two main theories: (energy) transition theories and governance theories.

It became clear that the provinces and municipalities fulfil a predominantly facilitating role, but the provinces are for example also monitoring for possible barriers. The representative associations often fulfil a connecting and supporting role, whereas the local energy initiatives mainly take care for local support. There are some identified barriers which need to be tackled in order to achieve the desired situation according to the bottom-up initiatives. A distinction is made between political barriers, support barriers, participation barriers and barriers of vague roles. It is argued that a program-based focus and more collaboration could solve the participation barriers and the barriers of vague roles, and more centralised measures could deal with the political- and support barriers.

Chapter 1: Introduction

1.1 Introduction

This chapter provides an introduction to the subject of this thesis. First, the relevance of the subject is discussed, followed by the problem definition and the objective of this research. After that, the research questions are outlined as well as the structure of the thesis.

1.2 Relevance

Energy is crucial for people and the society they live in. Energy was crucial for the societies in the past and it became even more important for our contemporary modern societies. This is also shown by Hughes (2005), who considers the supply and demand for energy as one of the main themes (together with population growth, biodiversity and policy determination) which characterizes the whole environmental history. The importance of energy is also emphasised by the conception of Monstadt (2007), who argues that energy and energy systems fulfil a key role in the performance of economies. He also emphasises that they have become increasingly important for “... *the functioning of nearly all production, services and infrastructure sectors, as well as for politics, public health and even individual social practices*” (Monstadt, 2007, p.326). This is equivalent to the perception of Verbong & Van der Vleuten (2004), who introduced the ‘vulnerability paradox’. This means that the more reliable the (energy) network is, the more our society is building further on it, and the bigger the impact will be in case of a malfunctioning. In this way, possible errors in the energy flow will disrupt the society. All these examples show that the need for energy is of vital importance for humans in order to continue our activities on a daily basis.

Meanwhile, sustainability has become a more important topic on the governance agenda all over the world, especially within the last decades. A crucial element relates to generating sustainable energy (De Boer & Zuidema, 2015). One of the main shifts is the transition away from fossil fuels towards more sustainable forms of energy (Loorbach, 2010). This so-called ‘energy-transition’ includes a fundamental shift from an energy system based on fossil fuels towards a more sustainable system (Van Kann, 2005). Efforts to reduce the global warming often lead to increasing attempts of national governments and societies to generate a bigger share of renewable- and sustainable energy. For example, all the member states within the European Union had to set themselves a legal binding goal which they want to achieve in the year 2020 (Kitzing et al., 2012). In addition, the Dutch politicians and society share the interests to create a more sustainable energy supply (Sociaal-Economische Raad, 2013). For these reasons, the Dutch national government have set itself the goal of a 14 percent share of renewable energy of the total energy consumption in 2020, and 16 percent in the year 2023 (Sociaal-Economische Raad, 2013). Moreover, the Netherlands wants to become more self-sufficient regarding their energy use and at the same time they want to be less dependent on fossil fuels (Council of the European Union, 2007). However, the sustainable energy attempt of the Dutch national government could be best summarized with the term ‘inertia’. The Netherlands is lagging behind with generating renewable energy when compared to other European countries (Eurostat, 2014a). Recent studies have shown that it is not very likely for the Netherlands to reach their goals within time (Algemene Rekenkamer, 2015). Furthermore, the ‘Planbureau voor de Leefomgeving’ (2014) argues that the current circumstances are limiting the contribution of local energy initiatives to the production of renewable- and sustainable energy.

Another reason why the Netherlands has a small share of sustainable energy relates to the so-called 'Not In My Back Yard'-effects, often indicated as 'NIMBY'. Realising wind turbines is a well-known example of this. Local citizens often value these wind turbines in a negative way (Ministerie van Infrastructuur en Milieu, 2014), and because the Netherlands is the second most densely populated country (people per square kilometre) of the European Union (Eurostat, 2014b), it is not surprising that almost every attempt to realize wind turbines meets resistance of local people. Furthermore, most of the renewables are highly visible compared with the traditional fossil fuels based energy network, and therefore they often deal with these 'NIMBY effects' (Walker, et al., 2010). In addition, it is hard to implement general top-down rules because the local context often matters. There is often a lack of sensitivity of (supra) national policies to local, regional and societal interests (De Boer & Zuidema, 2015). Another reason why the Netherlands is lacking behind relates to the budget for generating renewable and sustainable energy. Not enough money is invested to achieve the 14 percent goal of 2020. Although it seems not very likely to achieve these goals within time, as mentioned above, there is a need for 22 percent extra budget in order to come close to the 14 percent (Algemene Rekenkamer, 2015).

Despite the fact that the Netherlands as a country is lagging behind compared to other (European) countries in generating renewable- and sustainable energy, the number of public initiatives for generating their own energy is increasing. A lot of civilians are starting up their own sustainable energy cooperative. Within one decade, almost 500 initiatives related to sustainable energy have originated, which resulted in almost 100 cooperatives (van der Heijden, 2014; Planbureau voor de Leefomgeving, 2014). The existing centralized supply structure of energy is more and more supplemented by decentralised systems (Monstadt, 2007). The Dutch national government as well as Dutch municipalities are expecting a lot of these civilian initiatives for contributing to the generation of renewable- and sustainable energy. They indicate that they want to facilitate and stimulate these initiatives as much as possible (Planbureau voor de Leefomgeving, 2014). This growing number of bottom-up initiatives for generating sustainable energy is a hopeful development, especially for the Dutch (national) government. Perhaps the government can still reach their targets by 2020 if the right conditions for these bottom-up initiatives can be created.

1.3 Problem definition

National and European sustainable energy targets are highly ambitious. As mentioned in the previous paragraph, the number of public bottom-up initiatives for generating sustainable energy is rapidly increasing. The contemporary centralized energy supply system is more and more supplemented by decentralized energy supply systems. As a consequence, functions of institutional structures and state involvement are changing. This could cause a policy shift in the energy policy (Helm, 2005, in Monstadt, 2007). When the number of local initiatives increases and the initiatives themselves mature, it seems logical that there is need for some kind of coordination in order to make the process of generating more sustainable- and renewable energy on a local level as efficient as possible. In addition, the word 'transition' already implies the need for some fundamental policy changes (Van Kann, 2005).

Zuidema & De Boer (2015) argue that the 'energy transition' is a long-term and complex process, which makes it hard to get clear what these bottom-up initiatives contribute to the energy transition. They also argue that it is difficult to identify "(...) *the specific conditions required for making their contribution constructive*" (De Boer & Zuidema, 2015, p.2). As Monstadt (2007) points out, it is impossible to build further on the current policy concepts because the energy transition: "(...) *challenges authorities not only in terms of a redefinition of policy priorities and instruments but also in terms of new requirements for the reform of the (...) energy policy and planning regime*" (Monstadt, 2007, p.340). This is mainly because lots of policy fields and stakeholders are involved, and for this reason, he also argues that this could cause coordination problems. Furthermore, he emphasises that these problems should be dealt with first of all at the regional level because of their indispensable function: "(...) *conditions for socio-technological innovation cannot be planned and implemented solely by the nation state or the European Union*" (Monstadt, 2007, p.336).

This is in line with the conception of Tambach & Visser (2012), who argue that the local authorities are the tier of government which is closest to citizens. The problem is, as illustrated by TNO (2015), that most of the time the Dutch provinces and municipalities do not exactly know what their role is with regard to the energy transition and how they should respond to the growing number of bottom-up initiatives. At the same time, it seems that the action perspective of the new sustainable energy cooperatives is limited at the current circumstances (Planbureau voor de Leefomgeving, 2014). Because of the increasing amount of public initiatives for generating their own energy, the role of governmental authorities could also shift from the traditional 'command and control' towards a partner or facilitator of the process (TNO, 2015). So the question is: how should the government act and what do these bottom-up energy initiatives want?

1.4 Objectives

As stated in the previous paragraph, there is a lack of clarity about the roles of the lower Dutch governments with regard to the increasing bottom-up energy initiatives. It is also quite difficult to identify the right conditions for these local initiatives in order to increase their contribution towards a more sustainable energy provision. The main objective of this thesis is therefore to give more insight in the current roles of the provinces, municipalities, the local energy initiatives and their representative associations, as well as the desired situation according to these bottom-up energy initiatives. Participation and collaboration are important in order to achieve the desired situation according to the bottom-up energy initiatives. As Loorbach (2010, p.168) points out, "*Participation from and interaction between stakeholders is a necessary basis for developing support for policies but also to engage actors in reframing problems and solutions (...)*". For this reason, the second point relates to the ways of participation and collaboration between the provinces, municipalities, the representative associations of local energy initiatives and the local initiatives themselves. This will be considered predominantly from the perspective of the local energy initiatives and their representative associations, and how they think the interaction with the government should be organized. Attention is also paid to how the representative associations cope with the interests of their members. Insight in possible barriers is essential to achieve the desired situation according to the bottom-up energy initiatives. Therefore, the last point is about these barriers as experienced by the bottom-up initiatives. In short, the objectives of this research are about giving insight in how the government should act according to the representative associations and the local energy initiatives, how these bottom-up initiatives want to participate and collaborate with the government and what the bottom-up initiatives experience as a barrier.

1.5 Research questions

In order to reach the objective of this thesis, which is discussed in the paragraph above, the following main research questions is formulated:

“How do the current roles of the provinces, the municipalities, the local energy initiatives and their representative associations compare to what these bottom-up initiatives desire and what barriers and opportunities exist to overcome these differences?”

1. What are important conditions for an energy transition according to the literature and are they present in practice?
2. What are the current roles of the provinces, the municipalities, the representative associations and the local energy initiatives in the sustainable energy field?
3. How are they participating and collaborating with each other and how do the representative associations guarantee and serve the interests of their members?
4. What is the desired situation according to the representative associations and the local energy initiatives?
5. What barriers need to be tackled in order to achieve the desired situation from the bottom-up perspective?

1.6 Structure of the thesis

The next chapter is about the theoretical framework. It gives an overview and provides insight in the existing relevant theories about the subject of this thesis. First, attention is paid to transition theories. After that, the relation with and differences between government and governance are outlined. Chapter two concludes with translating the discussed theories into a conceptual model.

The third chapter is about the methodology and the ways data is collected. A distinction is made between primary and secondary data collection. The interviewed institutions and why they are chosen is further explained in this chapter. Finally, the possible ethical issues are considered.

Chapter four discusses the contemporary role division within the sustainable energy field. A distinction is made between the ‘government side’ and the ‘niches side’. The first one includes the provinces and municipalities, the second one is about the local energy initiatives and their representative associations. The chapter ends with discussing the current ways of participation and collaboration between them.

The desired situation from the perspective of the local energy initiatives and their representative associations is outlined in chapter five. Discussed are the desired role division and the desired ways to participate and collaborate with the government. The last paragraph of this chapter is about the identified barriers and whether or not the government is aware of them.

Chapter six mentions the concluding remarks by discussing the sub research questions. In addition, this chapter comes up with several recommendations which are drawn from the conclusions. Finally, some suggestions for further research are provided.

The last chapter includes a reflection on this research by discussing the research process, points of improvement as well as the value of the results.

Chapter 2: Theoretical framework

2.1 Introduction

This chapter provides an overview of the existing scientific theories related to two main themes: the energy transition and the corresponding governmental changes. These theories are used to create a better understanding of the existing theories and the coherent used terms, such as bottom-up, top-down, government, governance and an explanation of a local sustainable energy cooperative. More about the primary data gathering process and the importance of a literature review is discussed in chapter three. The next paragraph gives an overview of the transition theories and the energy transition. Thereafter, the relation with and differences between government and governance are outlined. This chapter concludes with a conceptual model, which is provided in paragraph 2.4.

2.2 The energy transition

As already briefly mentioned in the previous chapter, there is a shift taking place away from the fossil fuels towards more sustainable forms of energy (Loorbach, 2010). De Boer & Zuidema (2015) come up with several reasons why this shift from fossil fuels towards more sustainable forms of energy is necessary. They argue that a energy transition is needed because, first of all, the fossil fuel reserves are in a limited amount in the earth's crust. Furthermore, the combustion of fossil fuels is contributing for more than 50% to the anthropogenic greenhouse gases. Above all, the provision of energy based fossil fuels can cause geopolitical uncertainties. Mainly for these reasons, sustainability became a more important topic for governments and it still is one of the main topics on the government agendas. The most well-known definition of sustainability is described in the report of the World Commission on Environment and Development (1987). They consider sustainability as *"the development that meets the needs of the present without compromising the ability of future generations to meet their own needs"* (WCED, 1987, p.41).

Van der Brugge et al. (2005) consider a transition as a long-term process which could last easily between the 20 and 25 years. It is about structural change in the way societal systems are operating, as a result of co-evolution of cultural, ecological, technological, institutional and economical processes. This is in line with the conception of Rotmans et al. (2000) who also view a transition as a process of structural change within societal subsystems, for example changes in the energy supply. According to Van Kann (2005), this so-called 'energy-transition' relates to a fundamental shift away from an energy system which is based on fossil fuels towards more sustainable energy systems. The (failed) attempts in order to reach the goals of 2020 and 2023 illustrate that such a transition is far from easy to realise. One of the reasons for this is path dependency. *"In short, path dependency suggests that only a limited number of possible development paths are open at a specific moment. This is due to historical developments and present conditions"* (Rauws et al., 2014, p.147). People and institutions can determine things, but within certain given conditions as a result of historical developments, which will limit the possibilities to act (Byrne, 2003; Kim, 2011). The power dispersal is another reason why an energy transition is such a complex process, more about this is discussed in paragraph 2.3. Despite the high complexity of an energy transition, Loorbach (2010) emphasises the need for new modes of governance which reduce the lack of direction and coordination in order to make the energy transition successful. The next subparagraphs will discuss three frequently used theories about transitions: the multiphase concept, the multilevel perspective and transition management as discussed in inter alia Geels & Kemp (2000), Rotmans et al. (2001), Van der Brugge et al. (2005) and Loorbach (2010).

2.2.1 The multiphase concept

The multi-phase process considers a transition as a shift from one relative stable situation towards another, new stable situation. In addition, there are two equilibrium situations and in between these equilibriums there is a period of massive change (Van der Brugge et al., 2005). Often is being referred to a so-called 's-curve' with four stages, see figure 1.

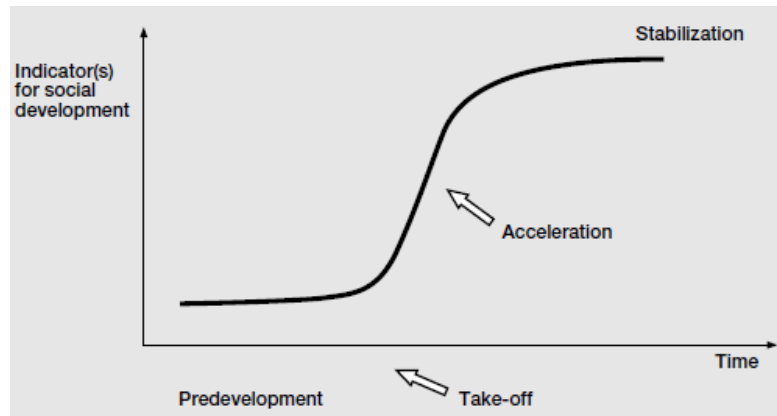


Figure 1: The 's-curve' of a transition (Rotmans et al., 2001)

A good example is the emergence of solar panels. During the predevelopment phase, there is a stable period or equilibrium while there are no visible changes occurring. However, there are definitely changes going on but they take place under the surface so they are not gaining a lot of attention. The predevelopment phase of solar panels took place when the NASA was experimenting with them for their satellites. The first equilibrium is getting a bit more unstable during the take-off phase. This phase starts when thresholds are reached and as a result, the systems are beginning to shift. In other words, it is likely that a transition will happen and the transition is actually already on his way. The take-off phase of solar panels started in the 1970's, because the demand for solar panels increased, partly because of the oil crisis. Real changes, both visible and structural, are appearing in the acceleration phase. These changes take place relatively quick because the cultural, institutional, ecological, technical and economical changes are reinforcing each other. With regard to the solar panels, the acceleration phase started around 1980 and onwards. The efficiency of solar panels increased significantly and as a consequence, the demand was also growing rapidly. When the speed of these changes is decreasing and a new stable period is reached, the stabilization phase is introduced. A new dynamic equilibrium is reached (Rotmans et al., 2001; Van der Brugge et al., 2005). It is arguable that the solar panels are in an advanced stage of the acceleration phase. Right now, solar panels can be bought in many places and they are present in almost every street. Furthermore, the production of solar energy is still increasing a lot (CBS, 2016a).

2.2.2 The multilevel perspective

Another point of view, related to the multiphase concept as discussed above, is the multilevel perspective. As Van der Brugge et al. (2005) point out, the co-evolution of different processes and developments appear at various scales. They argue that different events and developments at diverse scale levels and domains could positively reinforce each other. This multi-level perspective is also being discussed by Loorbach (2010). A distinction is being made between three levels: the micro, meso and macro level. These three levels relate to the niches, the regimes and the socio-technical landscapes (Geels & Kemp, 2000; Van der Brugge et al., 2005; Loorbach, 2010). See figure 2 below for an illustration.

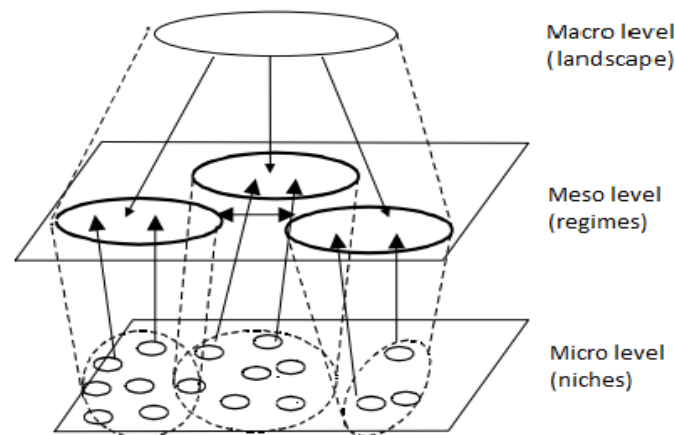


Figure 2: The multilevel perspective (Geels & Kemp, 2000)

As Loorbach (2010) points out, societal systems often experience structural change as a consequence of action taken by individuals. These so-called 'niches' are the lowest level within the multilevel perspective and could be considered as the innovative element of the (energy) transition. The niches can be regarded as the concrete micro level. Most of the innovations emerge within these niches without any connection to broader policies, while focussing on concrete projects. This also applies for the example of solar panels, where in the beginning the NASA was the only one experimenting with solar panels. The status quo changes due to these new ideas, initiatives and innovations. Examples are alternative technologies or new techniques, just like the solar panels (Van der Brugge et al., 2005). It is important for these niches that they are able to experiment so that an explorative setting could be developed which increases the innovation. Experiments are carried out because they try to scale up their initiatives and actions. It is of vital importance that these experiments fit within the broader context of the general vision which is being developed. In the ideal situation, the experiments are complementary and strengthen each other (Van der Brugge et al., 2005; Loorbach, 2010). When these bottom-up initiative are matured and are ready to scale up, they start to interact with the next level. This is the so-called regime level (Geels & Kemp, 2000; Van der Brugge et al., 2005; Loorbach, 2010), which is discussed next.

The level of the dominant regime includes steering activities that are driven by diverse interests and are linked to the existing, dominant structures. Examples of these dominant structures are regulations, rules, institutions, organizations, as well as physical systems like infrastructure and real estate. This level is comparable with the meso level, and deals with the subsystems. Activities in this level are therefore mostly about different domains instead of considering the overall developments

of the whole societal system. The regime focuses for the most part on providing stability (Geels & Kemp, 2000; Van der Brugge et al., 2005; Loorbach, 2010). Another important difference between the niche and regime level relates to the differences in social processes. At the regime level, there is a relative stable social network and the direction of the learning processes are quite clear. This does not account for the niche level, where the social networks are much more unstable. Furthermore, the learning process is way more open because there is not yet a dominant design (Geels & Kemp, 2000).

The highest level within the multilevel perspective is called the external (socio-technical) landscape and is connected with cultural, societal and abstract systems. This external landscape is compared with the macro level (Geels & Kemp, 2000; Van der Brugge et al., 2005; Loorbach, 2010). The external socio-technical landscape level does consider the overall developments of the whole societal system, in contrast with the subsystem focus of the regime level. Therefore, this level is about things like identity, values and norms. Because this level is determined by macro economy, politics, (natural) environment, culture, worldviews and even population dynamics, it responds relatively slow to changes compared to the dominant regime at the meso level and the niches at the micro level (Van der Brugge et al., 2005).

2.2.3 Transition management

Transition management is rooted in fields as multi-level governance and it is based on coordinating multi-actor processes at different levels (Rotmans et al., 2000; Van der Brugge et al., 2005). Loorbach (2010) distinguishes four governance types and activities, which are linked to the multilevel perspective as discussed above. The first type, operational governance, relates to the micro level and the niches, because it has a practical focus and it is about concrete projects. It has the shortest time scale, including a period up to five years. Examples of activities are mobilizing actors and executing projects and experiments, just like the niches in the macro level in the predevelopment phase. Second, the tactical governance type relates to the meso level and the dominant regime. The main focus is on structures, especially of institutions at the subsystem level of activities. It has a mid-term time scale between five up to fifteen years. Examples of activities are developing coalitions and drawing up a 'transition agenda', based on the sustainability vision which is developed. It contains joint objectives and instruments to realise them, action points and projects. The transition functions as a sort of compass to which can be referred during the process. The third type, strategic governance, is linked to the macro level and the external socio-technical landscape because of the cultural focus on the whole societal system. It has the longest time scale, with a period of change which could last around thirty years. In this level, it is all about strategic governance activities. An example of a strategic governance activity in the external landscape level is developing a overarching vision with strategic discussions and formulating a long-term collective goal. Because this level is highly political by nature, there exists a lot of uncertainty with regard to future developments and long-term goal setting: *"Long-term concerns and governance have no institutionalized place in regular policymaking, which is generally focused on the short and midterm because of political cycles, individual interests, and public pressure"*. However, a small point of critique on this relates to how such a weak profile of long-term sustainable energy goals could be protected. Loorbach (2010, p.169) describes the ambition of transition management as integrating these *"Long-term governance activities into the realm of policymaking (...) as a fundamental necessary element of policymaking for sustainable development"*, but does not come up with more concrete information in order to realise this ambition.

Because Loorbach (2010) considers transition management as a cyclical process, there is also a reflexive element. This is the fourth and last governance type as discussed by Loorbach (2010). Important features here are the monitoring and evaluation of the policies and the societal changes. A distinction is being made between monitoring the transition process and monitoring the transition management. The first one includes the monitoring of physical changes within the system, such as the rate of change and the occurring barriers. The second one is about monitoring the actors within the transition arena and the process itself. Loorbach (2010) emphasises the need of reflexivity to be an integrated part of governance processes instead of something which has to be done in the end. This is in line with the conception of Van Vliet (2015) who argues that monitoring should be done on a continue basis in order to keep an eye on the developments and to make adjustments possible. In this way it is possible to create a certain level of reflexivity. The transition management governance types (operational, tactical, strategic and reflexive) as discussed in this paragraph are translated by Loorbach (2010) in his transition management cycle, which are no fixed sequence of steps in reality (see figure 3).

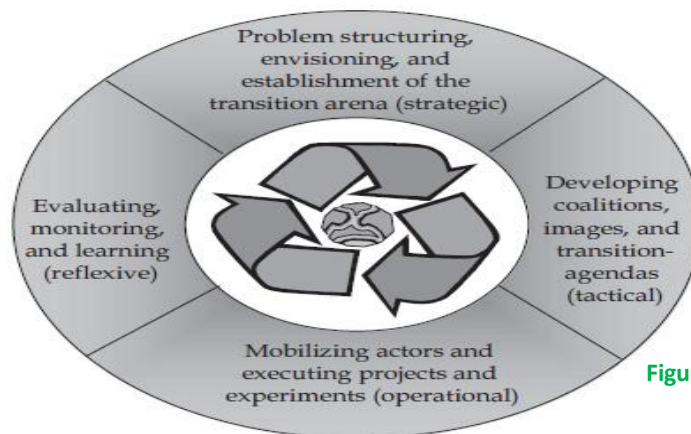


Figure 3: Transition Management Cycle (Loorbach, 2010)

2.2.4 Recapitulating the paragraph

This paragraph discussed three interconnected transition theories: the multiphase concept, the multilevel perspective and transition management. Especially the niches at the micro level and the dominant regime at the meso level (from the multilevel perspective) are relevant for this research, because it considers the roles of the niches (the bottom-up initiatives: the representative associations and the local energy initiatives) and the dominant regime (the municipalities and provinces), how these levels interact with each other and how they look at the interaction themselves. It became clear that the ability to experiment it is important for the niches. In other words, the niches should not be restricted by regulations or rules created by the dominant regime. For this reason, the reflexive governance type is important because it includes monitoring the transition process to see whether or not the niches experience certain barriers. Monitoring the barriers and solving them is therefore one of the possible roles which the government could fulfil. Loorbach (2010) also emphasises the importance of shared basic principles for long-term sustainable development, however it could be hard to set and achieve these long-term goals for sustainable energy and/or development because politics often focus at the short-term. In addition, elections and a new cabinet can also have influence on the policy priorities (Tambach & Visscher, 2012; Laes et al., 2014). This can be considered as a possible political barrier for the energy transition.

2.3 Government and governance

The term governance is used several times in the previous paragraph. Therefore, the first subparagraph outlines the shift from government to governance and the related shift from central top-down to more decentral and bottom-up. Thereafter, attention is paid to the degree of complexity as indicator for the suitable governing approach. After that, other indicators are discussed for choosing the right governing approach. Finally, the importance of participation and collaboration between the stakeholders in the sustainable energy field is emphasised.

2.3.1 From government, central and top-down to governance, decentral and bottom-up

With regard to sustainable development, a shift is occurring towards new instruments of governing (Jänicke & Jörgens, 2006; Jordan, 2008; Loorbach, 2010). Especially the last decades have shown a shift from centralized governments towards a more liberal, market-based and decentralised decision-making structure in modern European democracies. This includes that the top-down power of central governments has decreased in many European countries (Loorbach, 2010). Government, as defined by Stoker (1998), refers to the formal institutions of the (nation) state and the monopoly they have of legitimate coercive power. In addition, the main character of government is that 'the government' has the ability to make decisions and the possibilities to enforce them. This has a clear link with the term 'top-down', what Loorbach (2010, p.162) considers as "*the extent to which social change can be effected by government policies*".

A widely supported perception is that the old central government power is dispersed over different governmental levels and more stakeholders (Jänicke & Jörgens, 2006; Jordan, 2008). Stoker (1998, p.17) writes down that "*Governance refers to the development of governing styles in which boundaries between and within public and private sectors have become blurred*". This conception is shared by Loorbach (2010) because he argues that governance is characterized by diversity, heterogeneity of the society and the decreased influences of the government to create long-term change. Jordan et al. (2005) come up with several features which are often present in scientific definitions of governance. Firstly, they argue that governance often includes a multi-scalar structure which varies from the local level up to an international level. Another feature they discuss is that governance is often put on the extreme opposite of government, where governments used to be the strong and controlling state. Governance as opposite here, is considered as self-organizing network, which can function without governmental involvement, or even take over the government's tasks. Therefore, they argue that governance focuses mainly on governing forces which do not build on authority. This is similar to the conception of Stoker (1998), who emphasises that governance is about governing mechanisms which are not dependent of the authority and sanctions of a government. Governance thus refers to a new kind of governing process, which is about creating the right conditions for rules and collective action (Stoker, 1998). Alexander (2005) agrees with the elements of governance as discussed above, because he states that "*Governance addresses all the sectors and actors involved in the process of regulation, coordination and control that enable or constrain the behaviour and actions of members in a society*" (Alexander, 2005, p.218).

Now it is clear that governance relates to activities which are not sensitive for government's authority and that it relates to self-organizing networks, the connection can be made with 'bottom-up'. A well described explanation of what bottom-up includes is provided by Easterly (2008). He assumes that bottom up relates to activities which emerge spontaneously as a result of beliefs, values, social norms or traditions of individuals within a society. In the context of bottom-up

initiatives for sustainable energy, Schwendke (2012) defines bottom-up citizen initiatives as a collective of civilians who undertake action with regard to sustainable energy and/or energy saving. These initiatives organise themselves spontaneously, without central guidance, in a cooperative, community or a more looser form of collaboration.

It is important to be aware of the fact that the shift from government to governance appears to be a more relative shift in reality, in which the power of a central government decreases and the power of other stakeholders increases. The result is often a 'hybrid mixture' of both, in which the government functions at the background. Top-down measures of a central government remain important because they can ensure that cooperative solutions can be adjusted when they do not lead to the desired outcomes. For this reason, Jänicke & Jörgens (2006) argue that command and control style regulations cannot be replaced with cooperative solutions, but cooperative solutions can supplement the command and control style regulations. In addition, Jänicke & Jörgens (2006) argue that the hierarchical top-down regulation can be considered as a guarantor for the soft, dialogue-based process and that soft policy instruments are only effective if regulations from the central state are held ready as 'stick behind the door'. This is in line with Lemos & Agrawal (2006, p.308), who state that: *"Governments are the source of credible threats of regulatory action that would require costly compliance and such threats encourage the adoption of voluntary agreements on the environmental standards"*. As Zuidema (2016) argues, the central governing style with the associated coordinative type of governing can still create some important benefits, for example when a decentralised approach does not work. By doing so, the central guidance can set a robust foundation for a more decentralised method which has the possibility to make better integrated, tailor-made and communicative approaches (Zuidema, 2016).

2.3.2 Degree of complexity as indicator

One indicator for determining the governing approach is complexity. De Roo (2003) makes a distinction between the degree of complexity and the most suitable approach of governing. By doing so, he distinguishes the so-called 'technical rationale' and the 'communicative rationale'. In short, the technical rationale can deal with the more simple problems and enables central guidance by a government. Issues are considered as simple when solutions can be calculated and the outcomes are objective, with a little amount of involved stakeholders and no uncertainty with regard to future developments. De Roo (2003) and Zuidema (2016) emphasise that central guidance can be beneficial in terms of setting the conditions for policy when problems are of limited complexity. Contrary, the communicative rationale is more suitable for complex and difficult problems. This includes situations which deal with subjectivity, a lot of stakeholders and a high degree of uncertainty with regard to predicting the future. These complex problems are difficult to deal with in a central, top-down manner, because there exist lots of sectoral and fragmented interests. These kind of issues need, according to De Roo (2003), more participative interaction and an integrated approach which include all the interests in their own specific circumstances. Participation and collaboration between stakeholders at different levels is necessary and therefore a decentralised approach will be appropriate in order to come up with tailor made solutions. The degree of complexity as criteria for governing is also discussed by Jordan et al. (2005), because they notice that scientific literature often considers governance as a response to government's inability to deal with complex issues in society. The dominance of a top-down or bottom-up approach depends on the circumstances, since it depends on the degree of complexity of issues (De Roo, 2003). It is important to emphasise that not in all the complex situations decentralisation is the best solution per se. As Zuidema (2016) makes

clear, there are important constraints with regard to what can be assumed desired and realistic when talking about decentralisation. Again, it is about a hybrid mixture in which decentralisation enables *“(...) localities to develop their own course of action, but within the frames of references and stimuli provided by central policy imperatives”* (Zuidema, 2016, p.48).

2.3.3 Other indicators for the suitable governing approach

There exist also other indicators for determining the governing approach beside complexity as discussed in the previous subparagraph. Zuidema (2016) gives several examples when central guidance by the central government is very useful. The first situation, external effects, is in favour of central guidance when lower governments like municipalities are not willing to take action because the positive or negative effects of an activity at a certain location is influencing other areas. For example, when a municipality takes measures in order to reduce air pollution, the adjacent municipalities are also benefitting of it. At the same time, the municipality who took some measures and implemented stricter rules for industries, can experience the (economic) drawbacks when the surrounding municipalities do nothing. Businesses can move to municipalities who do not have strict rules with regard to air pollution. The result of this unequal distribution of advantages and disadvantages is that not a single municipality is going to implement stricter rules in order to improve the air quality. The central government can solve this by obliging the municipalities to implement a policy at the same time. The second situation when central guidance could be helpful relates to issues with a weak profile, which is another possible political barrier. Environmental issues for example are often not experienced as urgent problems because short-term costs and benefits are typically given priority over long-term costs and benefits, so there is no guarantee that lower governments will undertake action. This could be one of the reasons why lower governments are not willing to undertake action. Again, the central government can coerce them to make sure that the lower governments come up with solutions. The last situation Zuidema (2016) discusses in favour of central guidance relates to economies of scale. Lower governments often do not have the benefits of routine implementation and the required financial and knowledge resources in order to deal with complex issues as compared to larger central bureaucracies. This can be considered as support barrier for the bottom-up energy initiatives. Tambach & Visscher (2012) also mentioned that this support barrier was an issue in the past.

Lemos & Agrawal (2006) come up with some justifications for decentralisation of (environmental) governance. Firstly, bottom-up instead of top-down organised governance produces greater efficiency because of the triggered competition among local units. Secondly, they argue that it brings the decision-making process closer to the people affected by it. The last reason Lemos & Agrawal (2006) discuss is that decentralisation helps decision-makers to get access to important place- and time-specific knowledge. This is in line with Jänicke & Jörgens (2006) who argue that decentralisation strategies are appropriate when decisions can only be made based on locally available information. In contrast, decentralised governance is less appropriate in situations with broader aims. It is possible that local decisions fall short from a national standpoint (Jänicke & Jörgens, 2006). Other disadvantages and critiques are about diffuse lines: *“(...) the main rationale for new forms of governance was that state action fell short in terms of efficiency and effectiveness. On the other hand, new environmental governance tends to create diffuse lines of responsibility that end in less effectiveness. If everyone is responsible and accountable, then in the final analysis nobody is”* (Jänicke & Jörgens, 2006, p.198). This is considered as a barrier of vague roles.

2.3.4 Governance and the energy transition

All the governance theories discussed above definitely relate to the energy transition, where traditional energy supply was organised in a central top-down manner with several central grids with ramifications towards smaller units which eventually end at the households. Generating renewable- and sustainable energy, however, can be seen as a more bottom-up and decentralised situation where local citizens generate and deliver energy to the existing energy network. Or, as Monstadt (2007, p.327) describes it: *“The existing centralised supply structure is gradually being supplemented by decentralised systems of heat and power generation, network supply and storage”*. *“These co-evolving transformation processes have led to new market structures, essential changes in the framework for innovation and in the functions and structures of state involvement”*. In addition, he argues that *“The emergence of new market participants are radically changing the conditions of regional governance and energy planning”* (Monstadt, 2007, p.326). All these quotes show that the energy transition is involving more stakeholders, which could be a barrier of vague roles because it can cause a lack of clarity about who is doing what. The lower governments are challenged in terms of new requirements for the reform of energy policy and the planning regime because of the added bottom-up character of the energy transition. Local as well as regional authorities should redefine their policy priorities and instruments because the traditional institutions have become ineffective and insufficient. However, the regional level still has an important function with regard to creating the right conditions for innovation. This cannot be realised merely by the nation state or higher governmental levels like the European Union, because decentralised policies are most of the time more suited to deal with these local conditions than policies at higher levels (Monstadt, 2007).

In the shift from fossil fuels towards renewables as well as in the shift from government towards governance, there are shifts in responsibility. These shifts push responsibilities from the national government to the provinces, municipalities, private and voluntary sectors, and of course also to citizens. According to Stoker (1998), the shifts in responsibility finds institutional expression in the blurred boundaries between public and private parties, increasing numbers of voluntary groups and community-based organisations. This obviously relates to the energy transition, where the number of bottom-up initiatives for generating sustainable energy have increased drastically within the last decade. Almost 500 initiatives are established by citizens which have resulted in almost 100 cooperatives (Planbureau voor de Leefomgeving, 2014). Walker & Devine-Wright (2008) consider community sustainable energy as a local, small-scale and collective approach for generating sustainable energy. Huygen (2013) considers it as a local facility which is an initiative from citizens in order to save energy or generate energy by themselves with the option to sell it. The increased number of stakeholders caused by many bottom-up initiatives for generating sustainable energy is also recognized by Loorbach (2010). He connects governance with the energy transition by emphasizing that all societal actors have influence and that top-down planning and market forces only take a part of the societal change for their account. In addition, Loorbach (2010) comes up with two important conditions for a suitable governance approach related to the energy transition. First of all, he underscores that such a transition asks for long-term thinking; at least 25 years. Another important remark is that it is of vital importance that the ‘niches’ should have enough space for innovation in order to create alternative regimes.

2.3.5 The importance of participation and collaboration in the sustainable energy field

Because of the growing bottom-up character of the energy transition, more and more stakeholders are involved which makes the participation and collaboration between the stakeholders of vital

importance. This is also emphasised by Wolsink (2000, p.63), who argues that: *“A collaborative style in siting renewable energy (...) will probably be more effective than top-down planning”*. This conception is shared by Loorbach (2010), who also supposes that participation and interaction between stakeholders is crucial. This is in line with Lemos & Agrawal (2006), who argue that the relationship between the regime and non-state actors is fundamental in order to realize change. Therefore, the interaction between the stakeholders in the sustainable energy field is thus important to realise the energy transition, which is a massive change. For this reason, a participation barrier includes a situation with too little participation and collaboration between the regime and the niches.

Despite the fact that the number of local initiatives keeps on growing, they still do not provide a substantial contribution with regard to the share of renewable- and sustainable energy sources in the Netherlands compared to the total energy use. There are some barriers which have to be tackled, and participation and collaboration can help to solve these (Huygen, 2013; van der Heijden, 2014; Planbureau voor de Leefomgeving, 2014). A research of TNO (2015) showed that at present many parties are involved with regard to generating renewable- and sustainable energy: the local energy initiatives, their representative associations, municipalities, provinces, the national government, the energy provider, the network operator, the financiers and consulting firms. For this research, especially the first four mentioned stakeholders are relevant. This great amount of stakeholders illustrates the shift from one single government towards more involved stakeholders as discussed in the previous subparagraphs. And because of the complexity, more participative interaction between these stakeholders is needed (De Roo, 2003).

The national Dutch government has a relatively big influence at the citizen initiatives for generating sustainable energy because they create and implement the main policies and laws. As a result, the Dutch national government can determine the ‘space’ for these local initiatives. The lower Dutch governments, the provinces and municipalities, are most important because of their land positions and the possibilities for financing. They often want more influence on the local energy policy, but still experience some barriers from the national government, for example the Rijksoördinatie­regeling (TNO, 2015). TNO (2015) have drawn up an useful report in which they identify possible roles for the lower Dutch governments. Municipalities could fulfil roles like: facilitator of the initiative, initiator of local initiatives, stimulating them or providing expertise knowledge. The provinces could fulfil the same roles as the municipalities, but they could also take care for connecting stakeholders and the funding of initiatives. Local energy initiatives have a lot potential to create local support. TNO (2015) furthermore argues that the main activities of the local energy cooperatives must stay close to the citizens, but more specialist activities could be organised in a central way. This is where the representative associations of the local energy initiatives could play a role (TNO, 2015). Chapter four and five discuss the contemporary roles of the provinces and municipalities as well as the roles of the local energy initiatives and their representative associations.

Cooperation is in general often hindered by what Koppenjan & Groenewegen (2005) are calling strategic uncertainty. This includes that it is most of the time not certain if other stakeholders will participate and if so, whether an agreement can be reached or not. However, it is not very likely that this will be a barrier with regard to the participation between the lower government and the local energy initiatives. A lot of provinces and municipalities also want to become sustainable and their ambitions are often high. They often set them self targets with regard to generating renewable- and

sustainable energy because they want to contribute to the national and European energy targets (Provincie Drenthe, 2016; Provincie Groningen, 2016). Furthermore, these lower governments share the interest in becoming more self-sufficient with regard to energy. In addition, around the 40% of the Dutch municipalities had plans for generating more local and sustainable energy (VNG, 2012). Collaboration with and participation of citizens suits the current governmental attitude of leaving more tasks to citizens as well as market parties (TNO, 2015; Van Vliet, 2015). Leaving more tasks to citizens relates to a more interactive form of policymaking, which Edelenbos (2000) considers as the early involvement of citizens and other stakeholders for debating and searching for new solutions. Edelenbos et al. (2006) provide an useful tool to determine the degree of participation, which they call the ‘participation ladder’. It distinguishes several levels of participation and the associated governance styles, see table 1 below. When we make the connection with the energy transition and generating sustainable energy, it seems necessary for the niches (the local energy initiatives and their representative associations) to co-produce or co-decide the policies together with the (lower) government (Lemos & Agrawal, 2006; Loorbach, 2010).

Table 1: Degrees of participation and associated governance styles, based on Edelenbos et al. (2006)

Degree of participation:	Related governance style:
0 – no participants involved at all	Closed authoritarian government style
1 – participants are informed	Open authoritarian government style
2 – participants are consulted	Consultative governance style
3 – participants are advised	Participative governance style
4 – participants co-produce	Delegating- or collaborative governance style
5 – participants co-decide	Facilitating governance style

2.3.6 Recapitulating the paragraph

The relevance of the governance theories as discussed in this paragraph relate to complexity and decentralisation. It has been argued that the more complex a problem is, the better it could be handled decentralised. However, central guidance can offer a solution in terms of a stick behind the door (Zuidema, 2016). Lower Dutch governments are seeking their role in order to deal with the increasing amount of bottom-up energy provision (TNO, 2015). Possible roles for the municipalities and provinces as identified by TNO (2015) are: facilitating, initiating, stimulating and providing knowledge or financial resources. Another possible role for the government is indicated by Loorbach (2010), which is about monitoring and solving barriers. Interaction between the niches and the regime is important (Lemos & Agrawal, 2006; Loorbach, 2010). Too little participation and collaboration between and within the regime and the niches is considered as a participation barrier. It seems necessary for the niches that they are able to co-produce and co-decide during the policymaking in the sustainable energy field in order to achieve real interactive and collaborative policymaking (Edelenbos et al., 2006). A possible political barrier as indicated in this paragraph is a weak profile (Zuidema, 2016), which relates to the short-term political focus as mentioned by Tambach & Visscher (2012). The support barrier relates to the political barrier, because it is about the available knowledge and finances of municipalities and provinces in order to support the local energy initiatives. The barrier of vague roles is about a lack of clarity about who is doing what and diffuse lines in the sustainable energy field (Jänicke & Jörgens, 2006), caused by the growing number of stakeholders which makes it more complex (Monstadt, 2007).

2.4 Conceptual model

The left side of the model is about transition theories as outlined in paragraph 2.2. A shift occurs from fossil fuels and central, top-down energy provision towards more sustainable energy, which increases decentralised bottom-up energy provision (Monstadt, 2007). Important conditions for the bottom-up initiatives (the niches) are: room for innovation, experiments which should be complementary and strengthen each other and the need for long-term goals. When these bottom-up initiatives are maturing, they are ready to scale up and at this point, they start to interact with the regime (Geels & Kemp, 2000; Van der Brugge et al., 2006; Loorbach, 2010). The right side of the model is about the governance theories as discussed in paragraph 2.3. Important is the shift from a central government to different governmental levels with more stakeholders (Jänicke & Jörgens, 2006; Jordan, 2008). Stoker (1998) argues that governance is about creating the right conditions for rules and collective action. The regional level remains important for creating these right conditions for innovation (Monstadt, 2007). However, the central government remains useful for providing a robust foundation for more decentralised methods, therefore it will be likely that a 'hybrid mixture' emerges in practice (Zuidema, 2016).

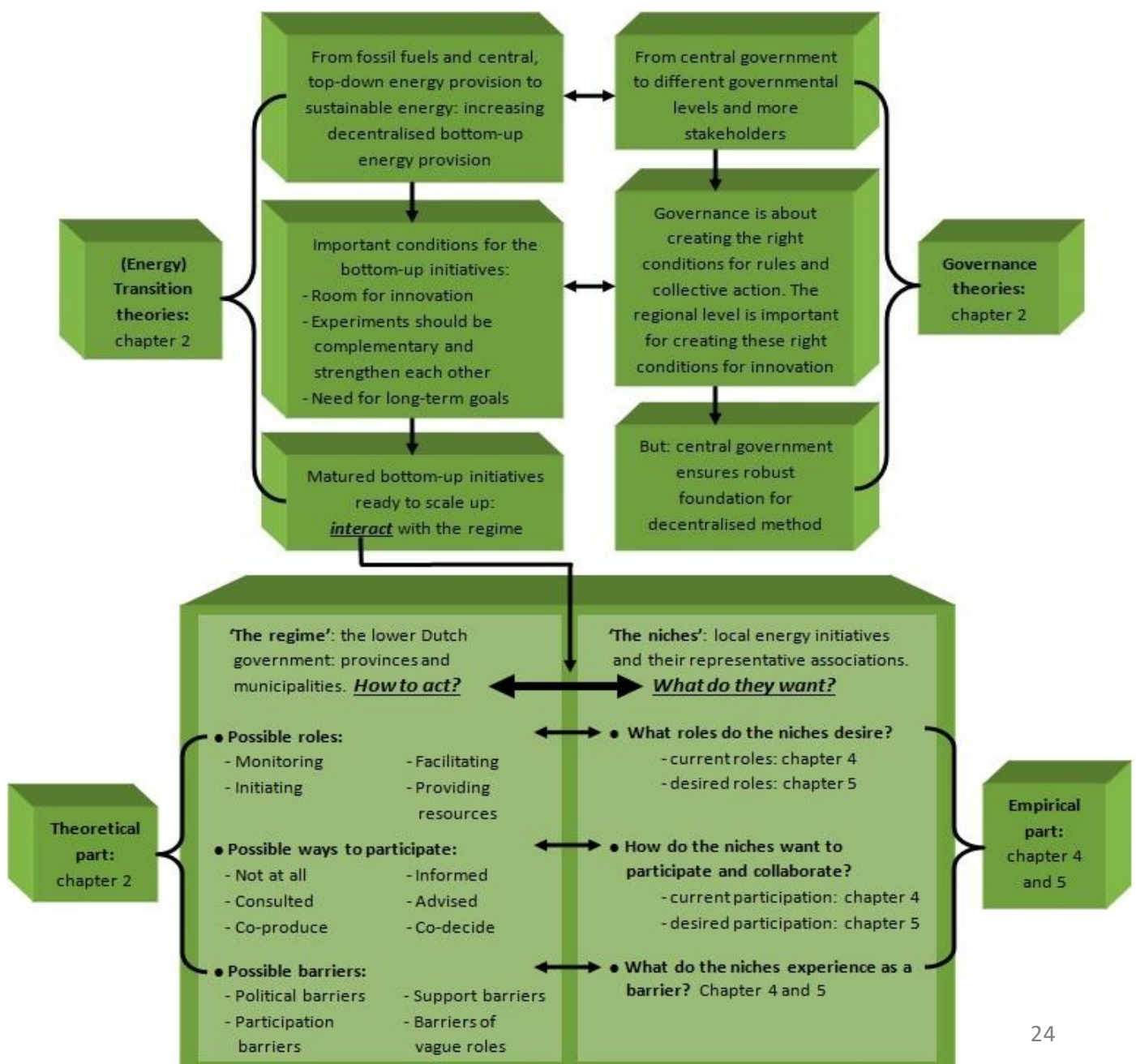


Figure 4: Conceptual model (own production)

This research is actually about how the regime (the provinces and municipalities) should act according to the niches (the local energy initiatives and their representative associations). Possible roles for the provinces and municipalities are provided by TNO (2015). For example, they could facilitate, initiate and provide resources (finances and/or knowledge) for the local energy initiatives. Loorbach (2010) adds a monitoring role, to keep an eye on possible barriers for the niches. Possible ways of participation are provided by Edelenbos et al. (2006). These are: no participation at all, or the niches are getting: informed, consulted or advised by the government. More participation and collaboration can be created when the niches and government co-produce and co-decide policy. But what roles should the regime adopt according to the niches? What do the niches experience as barriers, and how do the niches want to interact with the regime? This will be further investigated in the upcoming chapters. The possible barriers as indicated in this chapter are divided in political barriers, support barriers, participation barriers and barriers of vague roles. The political barriers are about a lack of political priority (Tambach & Visscher, 2012), legislative barriers (Loorbach, 2010) and the short-term political focus (Laes et al., 2014; Zuidema, 2016). Support barriers include the lack of governmental manpower, knowledge and finances (Tambach & Visscher, 2012; Zuidema, 2016). Participation barriers occur when there is too little participation and collaboration between and within the niches and the regime. Interaction between them is crucial (Lemos & Agrawal, 2006; Loorbach, 2010) and there is a need for a collaborative style (Wolsink, 2000). Barriers of vague roles arise because the energy field is complex and lots of institutions are involved (Monstadt, 2007), which could create diffuse lines (Jänicke & Jörgens, 2006).

Chapter 3: Data collection and methodology

3.1 Introduction

This chapter outlines the different aspects with regard to the data collection and the research methods used in this research. The aim is to outline the relationship between the research questions and the data needed in order to answer these questions. The next paragraph discusses the relation between this research and its context. Thereafter, the primary data collection and the secondary data collection are outlined. This chapter concludes with discussing the ethical aspects.

3.2 Relation between this research and the context

An important aspect of doing research relates to the objectivity of the produced results. However, full objectivity is impossible because the context is of high importance. The context is considered as the bigger framework in which things happen. It is something that cannot be objectively observed and understood. As a consequence, there is no single truth which can be calculated, it is relative (Flyvbjerg, 2001) and that is of course also the case in this research. A distinction can be made between the realist and relativist way of dealing with observations in the context of a research. The first one includes that the researchers experiences and observations are reflecting a reality which is 'out there', and has nothing to do with human experience. The research questions are considered true when they are in line with the observations 'out there'. The second, relativist conception, emphasises the importance of interpretation and communication. From this perspective, reality is seen as a human construction partly based on experiences and interpretation. In short, we can conclude that the realist approach relates to an objective oriented view, whereas the relativist approach includes a more 'agreed reality' (Zuidema, 2016).

Since this research deals with the different conceptions and perceptions of the interviewed people, it is almost impossible to acquire fully objective knowledge of these conversations. This is in line with the relativist point of view, which includes the statement that opinions do not have an absolute truth. With regard to this research, the interpretation of the people who are interviewed counts, as well as my own interpretation. This is what Flyvbjerg (2001) illustrates with 'Giddens double hermeneutics'. It is important to be aware of these context-specific answers to the asked questions when analysing the interviews by not taking the given answers for granted. Answers become more credible when several people of different institutions describe the same phenomena. Complementary between realism and relativism would be useful for this research, because it deals with different perceptions and interpretations of the people involved (Flyvbjerg, 2001; Zuidema, 2016). As Clifford et al. (2010) argue, qualitative research is more useful for exploring these subjective meanings, values and emotions by using the method of interviewing or participant observation. Because there is a certain level of subjectivity within this research, especially with regard to the interviews as mentioned earlier, a qualitative research method is chosen. Other reasons for doing qualitative research instead of quantitative research are: getting a good impression of what is going within a particular group (local energy initiatives) and to talk with the respondents about (future) policy. This leads towards an intensive research design instead of an extensive research design, since the emphasis is not on exploring large data sets and underlying causal regularity or processes (Clifford et al., 2010).

3.3 Primary data collection

As mentioned in the previous paragraph, the primary data is collected by using the method of interviewing. These interviews are of vital importance to acquire in depth knowledge of the perceptions of the regime- and niche parties as investigated in this research. Preference is given to the method of interviewing instead of using focus groups, because members of representative associations of local sustainable energy initiatives as well as members of the initiatives itself are often busy. Therefore, arranging some interviews is more likely to succeed compared to the method of focus groups, because focus group sessions can easily take several hours (Clifford et al., 2010). Furthermore, the method of interviewing is appropriate because interviewing members of local energy initiatives and their representative associations will provide insight in their perceptions about possible roles and the related barriers they experience. Another advantage of the method interviewing is the possibility to ask questions spontaneously if things are not clear. An overview of the interviewees is provided in table 2 below:

Table 2: Overview interviewees

Organisation:	Persons interviewed:	Function(s):	Date:
GrEK	3	Board member, coordinator, contributor workshops	23-05-2016
Drentse KEI	1	Board member	03-06-2016
Lopec	4	Board members, chairman, secretary	09-06-2016
Eco Oostermoer	1	Chairman	25-05-2016
Province of Groningen	1	Program leader local energy transition	14-06-2016
Province of Drenthe	1	Project leader energy	13-06-2016
Municipality of Groningen	1	Manager energy transition	15-06-2016
Municipality of Aa en Hunze	1	Policy contributor environment	23-06-2016

The two interviewed representative associations of local sustainable energy initiatives are the ‘Groninger Energie Koepel’ (GrEK) and the ‘Drentse Koepel Energie Initiatieven’ (Drentse KEI). These two representative associations are located in different provinces: Groningen and Drenthe. This strengthens the possible differences in the context, because the provinces (and their municipalities) could act a bit different with regard to the local energy initiatives. Therefore, the two provinces Groningen and Drenthe are also interviewed as well as one municipality within each province. In addition, two local sustainable energy initiatives are interviewed: one member of the GrEK and one member of the Drentse KEI. Of course, the more institutions are studied (all in their own different context), the better a general conclusion can be drawn. But studying all the representative associations, all the provinces, municipalities and local energy initiatives would take a lot of time. More extensive information about the interviewed institutions is provided in the next chapter.

The interviews used for this research were semi-structured, which means that a list consisting of 10 predetermined questions was prepared. In this way, a verbal interchange arises between the interviewer and the interviewed person in order to elicit information by asking the questions (Clifford et al., 2010). First of all, contributors of these representative associations (GrEK and Drentse KEI) were interviewed. Secondly, some members of these representative associations (the initiatives) were interviewed. These are people of ‘Lopec’ and ‘Eco Oostermoer’. Employees of the

municipalities Loppersum and Aa en Hunze and the provinces Groningen and Drenthe were also interviewed in order to collect some information about their perceptions. An overview of the interviewed institutions can be found in appendix 1. The functions of the interviewed 'niche parties' are predominantly board member or chairman. These persons know a lot about their institution because of their prominent position. The interviewed persons of the 'government parties' are somehow connected with- and working on the sustainability goals of their institution. In this way, the interviewed persons are well aware of the developments at the government side. The average length of the interviews was around 45 minutes and were recorded by audio. The main topics of the questions were about the current roles of the institutions, which roles they want to fulfil, the participation between the stakeholders (the provinces, municipalities, local energy initiatives and their representative associations) and how this could be improved. Also discussed were the conditions which they presumed necessary in order to get to the ideal role division. The Dutch questionnaires used for this research can be found in appendix 2 up to and including appendix 5. English versions of these questionnaires are provided in appendix 6 up to and including appendix 9. The differences between the questionnaires for the provinces, municipalities, local energy initiatives and their representative associations are very small. By doing so, the answers could be compared better than if the questions differed a lot.

The acquired information is analyzed in a critical way by realizing that the given answers of the interviewed persons are of course from a certain perspective. The transcripts of the interviews are analyzed by using the method of coding. Because text-based materials like transcripts contain a lot of information, but challenge the researcher with regard to interpretation and representation. For this reason, coding is an useful tool for providing an analytical structure which could help to link the empirical information of the interviews with the secondary literature. In short, coding is about evaluating and organizing data in order to get a better understanding of the meanings within a text. In this way, different categories and patterns are identified. This enables the researcher to explore possible patterns and connections (Clifford et al., 2010). Coding could be done by putting the transcripts in a sort of table and provide sections of the interview with key words. Another way to code a transcript, as used in this research, is to make use of different colours. In this way, all the parts of the conversation about for example the institutional barriers are marked with a certain colour, which gives a good overview of the different elements within the interview. The codes used in this research are derived from the subquestions and the literature, and were for example about the current roles of the stakeholders, the desired roles of the stakeholders, how the 'regime and the niches' interact and which barriers the 'niches' experience.

3.4 Secondary data collection

As emphasised by Clifford et al. (2010), reading literature is an important element of academic research. They come up with several reasons why reading literature is important when doing research. For example, reading scientific literature will inspire the researcher and probably will give some ideas. It is also important to have an idea about what other researchers have already written about the subject. In addition, reading (scientific) literature will probably broaden the perspectives of the researcher also. Last but not least, literature is useful to support the arguments made and will help to spot subjects which have not been researched yet.

The secondary data is gathered by reading scientific papers as well as some policy documents and institutional reports. The scientific papers were relevant for information about the energy transition and governance related themes. A lot of scientific information about these subjects was accessible, and in this way, the secondary data helped to answer the (theoretical) subquestions. The policy documents and reports contained a more practical link with the existence of sustainable energy communities. Since full objectivity is impossible to reach, there is always the risk of subjective information. Therefore, more reports and papers were investigated in order to take a look at the differences and similarities. The secondary data is collected by making use of SmartCat, the digital library of the University of Groningen, as well as Picarta and Google Scholar. Especially the scientific paper called 'Energy Policy' was very useful. All the relevant documents were saved in a special map. The conclusions are drawn by linking the secondary information with the empirical information.

3.5 Ethical aspects

Ethical behaviour protects the rights of individuals involved in, or affected by, a research. It is important to avoid doing harm. The public trust will be maintained when the researcher behaves ethically (Clifford et al., 2010). In this research, the part related to ethical aspects is most relevant to the primary data collection method of interviewing. All the obtained information by doing interviews is handled carefully and confidential. Before the interview started, permission was asked for the audio recording. Besides, the transcription of the interview was sent to the interviewed person afterwards, so that he or she had the possibility to change or complement the given answers. This made it also possible for the interviewed persons to take distance from the answers they gave, if they did not feel comfortable with it afterwards. It happened a few times that the interviewed persons changed some of their given answers. However, these were just small nuances and no big changes. Sometimes they restructured a sentence, because the spoken language made it less clear. For this reason, the adjustments made things even more clear which is of course beneficial for the research. Another way to take the ethical aspects into account is by putting the transcripts of the interviews not in the normal appendix, but in the confidential appendix. In this way, the conversations are not accessible to the wider public. All these measures were taken in order to guarantee the privacy of the respondents as much as possible.

Chapter 4: Contemporary role division

4.1 Introduction

This chapter investigates the current role division within the sustainable energy field, while focussing on the provinces and municipalities on the 'regime side', and the representative associations and the local energy initiatives at the 'niches side'. The next paragraph provides more information about the interviewed institutions of this research. Thereafter, the current roles of the regime and niches are outlined. In the following paragraphs, attention is being paid to the current ways of participation and collaboration as well as the existing barriers.

4.2 Context of the selected institutions

As already mentioned in chapter three, the primary data gathering of this research was done by interviewing several institutions: representative associations and the local energy initiatives on the niches side, and the provinces and municipalities on the regime side. The first representative association is called GrEK, which stands for 'Groninger Energie Koepel'. The other one is called the Drentse KEI, which stands for 'Drentse Koepel Energie Initiatieven'. These representative associations were selected first of all because they are located in different provinces and municipalities. It is obvious that the GrEK is located in the province of Groningen, while the Drentse KEI is located in the province of Drenthe. Because of these different locations, possible differences in local policy and priorities could be noticed. Second, both institutions differ in membership numbers. The GrEK consists at this time of 25 members (the potential members also included), whereas the Drentse KEI has a bit less: 12 initiatives are associated (GrEK, 2016a; Drentse KEI, 2016a; NLD, 2016). For an overview of the members of the representative associations, see appendix 10.

According to their websites, both representative associations give advice to their members (the local energy initiatives) and they make it possible for them to exchange knowledge between the different initiatives. By doing so, they try to facilitate the local energy initiatives as good as possible. In addition, the representative associations also negotiate with the lower, decentralised governments. They also established one common energy supplier, which is called 'Noordelijk Lokaal Duurzaam'. Establishing an own energy supplier makes it possible to divide the profits of the generated energy to the local communities (GrEK, 2016b, Drentse KEI, 2016b).

One local energy cooperative of each representative association was interviewed: Lopec is a member of the GrEK, whereas Eco Oostermoer is connected to the Drentse KEI. These local energy initiatives are selected because Lopec is relatively young, and Eco Oostermoer is established a longer time ago. By doing so, it becomes clear if the younger energy initiative experiences less barriers than the older one. In other words, it could indicate if the circumstances for local energy initiatives are improved, getting worse or remained the same. The choice for the municipalities, municipality Groningen and municipality Aa en Hunze, can be explained by the difference in scale. The municipality Groningen has a lot more inhabitants, respectively 200.952 (CBS, 2016b), because of the city Groningen is located within it and because of that it is more urbanised. Aa en Hunze is in terms of inhabitants much smaller, respectively 25.243 (CBS, 2016b), and has a more rural character. This could cause differences in how the municipalities interact with the local energy initiatives. For example, it is likely that the municipality of Groningen has more manpower and finances in order to deal with these local energy initiatives and these differences may be exposed.

4.3 Roles in the contemporary situation

This paragraph discusses the roles in the contemporary situation. Subparagraph 4.3.1 discusses the roles of the regime, which includes both the provinces of Groningen and Drenthe, as well as both the municipalities Groningen and Aa en Hunze. In subparagraph 4.3.2 the roles of the niches in the current situation are outlined. These are about the representative associations GrEK and the Drentse KEI, as well as the local energy initiatives Lopec and Eco Oostermoer.

4.3.1 Contemporary roles of the regime

“The government prevails and determines. They make laws and regulations.

There are laws about everything. We have to deal with that.” - Drentse KEI

“But if you look whether or not the province and municipality facilitate these kind of things, they always do. That isn’t expensive for them, right? I mean, if I give them a call today and tell them: I would like to organise a meeting in the town hall, I don’t need to pay for the coffee and the hall.” – ECO Oostermoer

The provinces: Groningen and Drenthe

The roles of the provinces according to the bottom-up initiatives are outlined first. After that, discussed is how the provinces see their current role. The GrEK as well as the Drentse KEI are unanimous about the contemporary role of the provinces: they make policy. The GrEK said that: *“Most clear is the role of the province, who has a policy role. They designed the programme local energy transition, which include some financial resources, but the most important role is making policy”*. In addition, they said that another important role of the province was about making the legislation more flexible in order to make the initiatives of citizens possible to realize. An example of this is the adjustment of the so-called ‘postal code arrangement’ (in Dutch: postcoderoosregeling). This is in line with the governmental role as identified by Loorbach (2010), who emphasises that the niches should have enough space for innovation to create ‘alternative regimes’. Monitoring possible barriers is important to prevent the political barrier of restrictive legislation. Another role of the provinces is providing subsidies. One of the interviewed local energy initiatives, Lopec, told that *“Because of the provincial grant, well I don’t want to say we exist, but it is an important part of our existence. It was definitely a boost”*.

There exist quite a lot similarities between the provinces on how they see their current role. The first thing they have in common is that they try to solve bottlenecks for the bottom-up initiatives. The province of Drenthe said for example: *“When legislation pinches or other things which are restricting the innovation, we try to solve it together”*. This is almost similar to the province Groningen: *“We keep a close eye on where the bottlenecks are”*. Another similarity is that both the provinces provide grants for the local energy initiatives, and they fulfil a predominantly facilitating role. A last similarity between the provinces is that they do not have much contact with the local energy initiatives. *“For me, the GrEK, the nature- and environmental federation and Grunneger Power are the contact points and it starts there. We actually became positioned at a distance, and we are coordinating everything”*, as the province of Groningen described it.

The municipalities: Groningen and Aa en Hunze

It is important to mention that the attitude of municipalities with regard to the local energy initiatives can differ a lot per municipality. This is also emphasised by the province of Drenthe: *“A municipality can be very positive and progressive. But it also happens that a municipality says; we don’t know what to do. They have a more wait-and-see attitude and look to the province”*. This clearly illustrates the lack of knowledge at the municipal level, a problem which is also discussed by Tambach & Visscher (2012) and Zuidema (2016) as outlined in paragraph 2.3. This research considers the lack of knowledge at lower governmental levels (together with a lack of finances) as a support barrier for the local energy initiatives. Despite these differences, the two local energy initiatives had some positive remarks about their municipalities. Eco Oostermoer mentioned that the municipality Aa en Hunze was enthusiastic about a folder they made, and they even wanted to compensate for the costs. The municipality Groningen considers their role to stay as close to the citizens as possible. An employee emphasised this several times: *“If the people want something with each other, than we have to support it. It is not up to us, as a municipality, to steer this process”*. For this reason, the municipality Groningen does not want to take over their initiative. *“(…) we have to help the people in a way that they don’t get a feeling of duty (…)”*. *“As municipality, you want the conversation with the citizens or the cooperatives (…)”*. The municipality Groningen does not feel the urgency to communicate with the GrEK: *“I don’t need to have a conversation with them, I talk with Grunneger Power or with one of the other 30 initiatives, fine by me”*. The municipality Groningen also fulfils a connecting role by stimulating the mutual learning between the initiatives: *“We organised this ‘citizens summit’, and there will be a follow-up of it each year. By doing so, you create a stage where for example the e-mail addresses are exchanged (…)”*. In addition, the municipality of Groningen said: *“(…) and if you can’t figure it out yourself, you’re allowed to call us, but we stimulate it a lot, that the people do it together”*. This mainly facilitating role was also indicated by the municipality Aa en Hunze. An employee told that the current role of the municipality was *“Especially facilitating, and stimulating”*. Another similarity between the municipalities is that they both try to stimulate mutual learning among the local initiatives. An overview of the contemporary roles of the governmental parties is given in table 2 below.

Table 3: Contemporary roles regime

Category:	Institution:	Own perception of roles:	View of others on their roles:
Regime parties	Province Groningen	- Solving bottlenecks - Financing role - Facilitating role	- Making policy - Making legislation more flexible - Providing grants
	Province Drenthe	- Solving bottlenecks - Financing role - Facilitating role	- Making policy - Providing grants - Facilitating role
	Municipality Groningen	- Financing role - Connecting role - Facilitating role	- Support role - Facilitating role
	Municipality Aa en Hunze	- Financing role - Connecting role - Facilitating role	- Making policy - Facilitating role

4.3.2 Contemporary roles of the niches

“You’ve got an initiative which starts, you want something, but you don’t know anything yet. You need information. But you cannot say: you have to go there, or you have to visit them, that is what we try to figure out.” – Province Groningen

The representative associations: GrEK and the Drentse KEI

The current roles of the representative associations are quite comprehensive. The answer of the GrEK on the question which role they fulfil with regard to the local energy (for example lobbying, legitimating, advising or being an interlocutor) was *“all of them”*. The GrEK told that their role depends on the phase in which an initiative is. The GrEK has made a ‘workplan’, in which three different roles are formulated which depend on the different phases of the local energy initiatives. *“First of all, we are there to make the initiatives enthusiastic to do something with sustainability and sustainable energy. And it depends on the needs which arise whether or not we can support these initiatives”*. *“You can call it initiating”*. *“The second phase is about guiding and shaping projects, for example calculating business cases, making appointments, deliver statutes”*. *“Important for supporting them is our financial advisor. When the initiatives are getting more concrete, we can calculate for the local energy cooperatives how much it will cost them(...)”*. *“The last phase is about professionalising, which includes training the people who work for the local energy cooperatives, so that they can fulfil their function better”*. So in the beginning, the representative associations are mainly increasing the enthusiasm. When the local energy initiatives passed the establishment-phase and head towards the executive phase, they try to collect the needed information before they receive questions. *“We try to be a step further, so that we already have some information to give an answer to the potential questions”*.

Another role which the representative associations fulfil is about mutual learning among their members. *“And even if we do not have the answer, we got fifteen cooperatives which can learn from each other”*. This is in line with their image of being *“(…) a connecting organisation(...)”*. In the ideal situation, as described by the literature, the experiments should be complementary and strengthen each other (Van der Brugge et al., 2005; Loorbach, 2010). This is also mentioned by the Drentse KEI: *“It isn’t that long ago that we realised that the representative associations could fulfil a connecting role, so we are actually the connecting element of the cooperatives and initiatives”*. Because the representative associations see themselves as a connecting factor, they make it possible for the bottom-up citizen initiatives to strengthen each other by exchanging their experiences and information. This is an important condition for the bottom-up initiatives, as argued by Van der Brugge et al. (2005) and Loorbach (2010) in paragraph 2.2.

The representative associations are also representing their members when interacting with the government. Important here is how the representative associations serve and guarantee the interests of their members. The GrEK said about this: *“In practice, it appears to be not that easy. On the other hand, despite the fact that we deal with different cooperatives, the tendency is quite clear”*. *“Most of the time it is about resources and the certainty of resources, about finances and the uncertainties of it”*. The GrEK furthermore argues that for this reason, they need the government because they cannot take care about the financing of the initiatives them self. The GrEK makes sure

that the interests of their members, the local energy initiatives, are involved when interacting with the government partly because of the internal structure: all of their board members are at the same time member of a local energy initiative. In this way, the interests of the different initiatives (their members) are included in their board. In addition, once in a while they organize a 'general membership meeting', in which all the members of the GrEK can take place. In this meeting, the members can vote about certain discussion points. By doing so, the members of the GrEK can actually decide the direction of their representative association. This is also mentioned by the Drentse KEI, who argue that every member of them is actually a co-owner of the company (referring to Noordelijk Lokaal Duurzaam). Another similarity is that the Drentse KEI also organises 'general membership meetings'. The opinion of the local energy initiatives on how the representative associations guarantee and serve their interests is further outlined in paragraph 5.2.2.

Another identified role of the representative associations relates to creating support. The GrEK said that *"A part of our job is to tell the municipalities: try to initiate projects in which the ownership is of the local citizens, so you don't get the resistance as in the big wind farm in Drenthe, because they are not of the people them self"*. They try to increase the support, which is also clearly illustrated by the Drentse KEI: *"We also visited the municipalities, because we tried to make them a customer. We have to make them clear how important we are"* and *"The Drentse KEI supports by recruiting members, by establishing cooperatives, by making the statutes and by generating money to pay for the notary"*. The Drentse KEI also mentioned that they fulfil a sort of supervisory role *"(...) to keep an eye on whether or not the boards of the cooperatives are functioning well"*.

Lopec made clear that their representative association, the GrEK, fulfils a very important role for them: *"Without the GrEK, we wouldn't be as far as we are now. Than we wouldn't have a financial foundation, no business plan, you name it. The knowhow is there, which we don't have"*. *"The knowhow appeared to be deliverable from stock because there are a lot of enthusiastic people who have the knowledge and knowhow. They were able to guide us, and that made it a lot easier for us"*. Lopec also mentions the mutual learning role of the representative association: *"We have via their network the perfect connection to examples of others who are sometimes a bit further. For example the statutes, we did not make them by ourselves, it is just an adjustment of another cooperative"*. Again, this is accordance with Van der Brugge et al. (2005) and Loorbach (2010), who argue that experiments (local energy initiatives in this case) should be complementary and strengthen each other. The representative associations are an important stakeholder for realising this condition, as the quote above indicates. Lopec underscores the importance of the contact between the representative association with the government, by stating that *"The fact that we got a grant right now is because we had and have a connection with the province via the GrEK"*.

The governmental perspectives of the representative associations are quite different. An employee of province of Drenthe said: *"What I hear from my colleagues is that the Drentse KEI is doing their job in a good way. However, it cannot be ruled out that a bit more action of them can be expected"*. The province of Groningen illustrates the importance of an institution like the representative associations: *"There was a need for an intermediate layer, which covered at least the whole province, and which all the initiatives in the smaller villages could join"*. In contrary, the municipality Groningen does not think that the representative association, the GrEK in this case, is of vital importance. *"They are of course a hollow shell. They represent a certain group"*, as stated by an employee of the municipality Groningen. The employee also did not agree with the conception that just because the

representative associations fulfill a representative role, it could make sense if they function as an interlocutor towards the government: *“No, that won’t work at all because they don’t know what is going on”*. Furthermore, he stated that: *“If you ask me, the representative associations should stay as small as possible. Or not at all. They have to stay small”*. The municipality Aa en Hunze also do not have contact with the representative association of Drenthe, the Drentse KEI. Moverover, they do not even know exactly what their role is: *“For me, it is actually not that clear what they do. I don’t see the direct connection with the initiatives at this moment. Perhaps it is there (...) but I’m not familiar with it”*.

The local energy initiatives: Lopec and Eco Oostermoer

The current roles of the local energy initiatives are less comprehensive compared to the roles of the representative associations. Between all the interviewed stakeholders there exists consensus about the main role of these local initiatives: taking care for local support. As the GrEK pointed out: *“The most important role of the cooperatives, as also regarded by the government, is to involve the people. To create support and making projects affordable. Because the more people participate, the higher the budget”*. This is in line with the conception of the Drentse KEI: *“The role of the cooperatives is especially taking care for support”*. However, the initiatives themselves also indicated another role, beside the local support: *“(…) but also to create awareness for the need of an energy transition”*, as mentioned by Lopec. Furthermore, Eco Oostermoer also engages in the liveability subject which involves not only sustainable energy, but also topics like public transport and accessibility. The municipality Groningen told that these local initiatives also deliver information to each other and they create social cohesion. An overview of the contemporary roles of the niches is provided in table 3 below.

Table 4: Contemporary roles niches

Category:	Institution:	Own perception of roles:	View of others on their roles:
Niche parties	GrEK	<ul style="list-style-type: none"> - Initiating role (making initiatives enthusiastic) - Coordinating role (guiding and shaping projects) - Supporting role (providing training) - Connecting role (mutual learning, interact with government) 	<ul style="list-style-type: none"> - Delivering knowledge - Stimulate mutual learning among members - Making contact with the government
	Drentse KEI	<ul style="list-style-type: none"> - Initiating role (promoting sustainable energy) - Supporting role (money for notary) - Controlling role (supervision boards of their members) - Connecting role (mutual learning, interact with government) 	<ul style="list-style-type: none"> - Making contact with the government - Not clear what they do, according to the municipality Aa en Hunze
	Lopec	<ul style="list-style-type: none"> - Support role (creating local support) - Raising awareness (need for energy transition) 	<ul style="list-style-type: none"> - Creating local support
	Eco Oostermoer	<ul style="list-style-type: none"> - Support role (creating local support) - Increase liveability 	<ul style="list-style-type: none"> - Creating local support

4.4 Participation and collaboration in the contemporary situation

“We have especially an interest in collaboration, which is a key objective. Good collaboration with each other, so there will be support in order to realize the transition.” – Drentse KEI

“So, as an organisation, as municipality, as province, but also as businesses and as housing association, you have to say: we have the knowledge, let’s incorporate these volunteers and unburden them where their ideas experience constraints. That happens not enough, there is still too little cohesion.” – Province Drenthe

As mentioned in paragraph 2.3.5, participation and collaboration between the stakeholders in the sustainable energy field is an important thing, especially the relationship between the regime and the niches (Lemos & Agrawal, 2006; Loorbach, 2010). Furthermore, participation and collaboration is important in order to tackle the barriers which the niches experience (Huygen, 2013; Van der Heijden, 2014; Planbureau voor de Leefomgeving, 2014). Because of the importance of participation and collaboration, a lack of it is considered as the participation barrier. Edelenbos et al. (2006) identified several ways how the regime and niches could participate, as shown in table 1 on page 23. This paragraph distinguishes the participation and collaboration between the regime parties, between the niches and between the regime and niches.

4.4.1 Participation and collaboration between the regime parties

The participation and collaboration between the provinces and municipalities is not the main focus of this research. Therefore, this subparagraph is a bit shorter than the upcoming subparagraphs. However, the way provinces and municipalities interact can be of importance for the local energy initiatives because of the provincial influences on the municipalities with regard to policy and finances. As pointed out by the municipality Aa en Hunze, they cooperated together with the province of Drenthe in order to make it financial more attractive for citizens to buy solar panels. An employee of the municipality Aa en Hunze said: *“We got the solar loan, which we have together with the province, the province of Drenthe. It includes a fifty fifty deal, they finance one half and we finance the other half”*. The province of Groningen is collaborating with the municipality Groningen in a so-called ‘flying squad’, which consists of experts of both the municipality Groningen and the province of Groningen. It is established in order to support local energy initiatives in villages or neighborhoods to become energy neutral. Another example of collaboration is that the province of Groningen supports municipalities in the field of energy saving (Provincie Groningen, 2016). These examples of collaboration between the provinces and municipalities, the solar loan and flying squad, are important to support the local energy initiatives in terms of finances and knowledge. This helps to reduce the support barrier.

4.4.2 Participation and collaboration between the niches

There are many similarities between the representative associations with regard to the participation, and collaboration with their members. This is caused by the similarities with regard to their internal structure, which is discussed in subparagraph 4.3.2. In addition, both representative associations

organise once in a while a membership meeting. During these meetings, the local energy initiatives, which are often cooperatives, can discuss about specific topics with their representative association. This illustrates how close the niches are cooperating, and because of this internal structure, each local energy initiative can actually co-decide. This is also indicated by the Drentse KEI: *“Especially the contacts with the members in the membership meeting show the democratic level, which is very high. Because in the end, every member is co-owner of the company”*. Edelenbos et al. (2006) consider making choices together, co-decide, as the highest level of participation, so it looks like there is no participation barrier between the niches. However, one of the interviewed energy initiatives would like to see some changes. This is further discussed in subparagraph 5.2.2, which outlines the desired situation according to the local energy initiatives.

4.4.3 Participation and collaboration between the regime and niches

The first interesting thing relates to the participation and collaboration between the representative associations of local energy initiatives and the provinces. As mentioned earlier, the GrEK is able to co-produce policy with the province of Groningen, while the Drentse KEI has almost no direct contact at all with the province of Drenthe. This is quite a big difference between the two representative associations and the provinces. The GrEK emphasises that: *“We are joining just a part of the provincial policy”*, but the reason for their policy participation is clear: *“The province expected that the GrEK will be one of the executing parties, so it would make sense to incorporate them already in the policy”*. This is also confirmed by the province of Groningen: *“In the previous period, the initiatives came more from the province. These days, it is actually more conversely. We tell these parties: you’ve got the knowledge, make sure things get started, and we help you”*. In addition, the province of Groningen mentioned that the interaction between the GrEK and the province is quite good: *“We have very frequent consultation between the parties with whom we collaborate. So, between Grunneger Power, the nature- and environment federation and the GrEK”*. In contrast, the Drentse KEI is not involved at all in the ‘sustainability paragraph’ of the provincial policy in Drenthe, despite the fact that the Drentse KEI wants to join the policy table of the province of Drenthe. The answer of the Drentse KEI to the question “Would you like to join the government?” was: *“Yes of course, it also should, you have to do it together. The government is part of it”*. The province of Drenthe also confirmed that the Drentse KEI is not participating with regard to the provincial sustainability policy. Their answer to the question “If the Drentse KEI is just like the GrEK able to provide input for the provincial policy” was: *“Not that I know, no”*. This illustrates the participation barrier, because there is no participation or collaboration between the Drentse KEI and the province of Drenthe at all, despite the fact that participation and collaboration between the niches and the regime is such an important element (Lemos & Agrawal, 2006; Loorbach, 2010).

More similar is the missing interaction between the representative associations with the municipalities, although the reason behind it is different. In both provinces, the representative association and the interviewed municipality do not have contact with each other. As discussed in paragraph 4.3.2, the municipality Groningen does not want to talk with the GrEK because they think it is more useful to collaborate with others, whereas the municipality Aa en Hunze does not communicate with the Drentse KEI because they do not know exactly what their role is. The municipality of Groningen said: *“Actually, in practice, we talk especially with Grunneger Power. This representative association, I’m not allowed to say so, but it is of course a terrible name, the GrEK”*. The GrEK is aware of the limited contact with the municipality Groningen, or as they indicated: *“The contact with the municipality Groningen is a bit less, partly because one of the cooperatives,*

Grunneger Power, has good contact with them". Perhaps more worrying is the unfamiliarity of the Drentse KEI at the municipality Aa en Hunze. An employee of the municipality Aa en Hunze answered the question "You are not familiar with the Drentse KEI because there is not a lot of contact with them?" was: "Yes, apparently".

It also appeared that the connection between the local energy initiatives and the provinces is missing. As Eco Oostermoer tells about the collaboration and participation with the province: "We are always the ones who seek contact. That initiative must come from our cooperative". This is in line with the experiences of Lopec: "The real contact with someone of the province, is really sporadic". A possible explanation for this is provided by the province of Drenthe: "If they don't come to us, we are not looking out for them actively. We also don't do that with regard to the cooperatives. Perhaps it is a role for us". This is another example of the participation barrier, because there is just "sporadic" contact between the local energy initiatives and the provinces.

There seems to be more interaction between the local energy initiatives their municipalities. This is illustrated by the answer of the municipality Aa en Hunze, when they were asked with whom they want to realise their ambitions and goals with regard to sustainable energy: "Mainly with the inhabitants and businesses, but in the first place the inhabitants, the private households". Lopec told that their municipality cooperated from the start. Their municipality made a hall available where they could set up a meeting. "They made the council chamber available for us from the very beginning. Meanwhile, we have used it like four times or something, there is coffee and cake, and as long as we exist we are allowed to make use of it", as indicated by Lopec. Perhaps the missing participation and collaboration between the local energy initiatives with the provinces and the missing participation and collaboration between the representative associations with the municipalities is logical, because their policy fields are not that corresponding with each other.

Chapter 5: The desired situation

5.1 Introduction

The previous chapter outlined the roles of the provinces, municipalities, the representative associations and the local energy initiatives in the contemporary situation. It also discussed the current ways of participation and collaboration between them. The next paragraph describes the desired role division and ways of participation and collaboration according to the niches. To reach this desired situation, several barriers have to be tackled. It is useful to look at these barriers as experienced by the niches also from the regime perspective, to see if they are aware of these barriers. The last paragraph provides an overview of the identified barriers which have to be solved in order to reach the desired situation according to the niches.

5.2 The desired situation according to the niches

In this paragraph, a distinction is made between the desired situation according to the representative associations and the desired situation according to the local energy initiatives. They both reflect on each other's roles, as well as their own roles and the governmental roles. The desired ways of participating and collaborating with the regime and internal (between the representative associations and the local energy initiatives) are also outlined.

5.2.1 Desired situation according to the representative associations

"The most ideal situation is: generating a turnover of millions and sustainability in the own environment. And that nobody, really nobody is burning coal" – Drentse KEI

The desired situation can be very ambitious, as indicated by the quote above. In addition, the Drentse KEI has more high aspirations: *"Well actually, we want to take over all the energy in the whole province, from anyone. So becoming the biggest"*. The GrEK, in contrast, is a bit more nuanced about their future role: *"The GrEK should exist as long as there is a need for. The GrEK is not a goal in itself. When the energy transition reached the stage of much local energy generation with lots of customers of local energy companies, it could be that the representative association isn't necessary anymore. There are, for example, also other organisations which work without a representative association of local energy initiatives"*. This does not mean, however, that the GrEK does not want to upscale. They emphasised that: *"We do want to grow further the upcoming years, because we think this is useful work"*. These quotes illustrate the wish to upscale within the upcoming years, which is in accordance with Geels & Kemp (2000), Van der Brugge et al. (2005) and Loorbach (2010) who argue that the more matured the initiatives get, they start to upscale and interact with the regime. An important element for realising their growth, relates to how others see their institution. As the GrEK argues: *"(...) a big part is about how others see us. If that could be more clear, how we work together, with whom we work together, I think that would help a lot. Than people can reach us better and they also know what we can do for them. That is often a vague story, in the beginning phase"*. This relates to the barrier of vague roles, because the energy field is complex and lots of stakeholders are involved (Monstadt, 2007) which can cause diffuse lines (Jänicke & Jörgens, 2006). It is reasonable to argue that this also applies for the Drentse KEI, because, as shown in subparagraph 4.4.3, the municipality Aa en Hunze did not even know what they actually do.

According to the representative associations, there are also improvements possible for the government and the local energy initiatives. First of all, the municipalities and provinces should facilitate and stimulate the bottom-up initiatives more. *“They never do it enough. It used to be that the public green spaces were the last department which was discussed and financed. Nowadays it is often sustainability (...)”*, as indicated by the Drentse KEI. The facilitating and stimulating roles are the most common of the list with possible roles for the government as provided by TNO (2015). The Drentse KEI also argued that every municipality should have a good sustainability plan and that they dispose of a ‘sustainability coordinator’, who helps with everything in the field of sustainability. Another thing municipalities need to do is to become a customer of ‘Noordelijk Lokaal Duurzaam’, the energy company which is established by the three representative associations of Groningen, Drenthe and Friesland. The last improvement for the government as indicated by the representative associations is about taking charge in heading all the stakeholders towards the same direction. This corresponds with Loorbach (2010) his view, that a new mode of governance is needed to reduce the lack of direction and coordination. The local energy initiatives should, according to the Drentse KEI, attract more knowledge and show more courage to start with concrete projects.

With regard to the desired participation and collaboration with the government, both representative associations indicate that they want to be a partner of them. As already mentioned in paragraph 4.4.3, the Drentse KEI said: *“...you have to do it together. The government is part of it”*. The GrEK mentioned that: *“There is a need from the province as well as the municipalities for some goals. And we would like to be a partner in order to reach those goals”*. This relates to the highest ways of participation as distinguished by Edelenbos et al. (2006), where the regime and niches can co-produce and co-decide policy. The only difference between the representative associations is that the GrEK does participate with the provincial policy, which is not (yet) the case for the Drentse KEI. An important side note is provided by the GrEK: *“(...) without becoming a sort of executing institution of the government. We want to stick with the bottom-up approach, so we have to prevent that we are pulled in too much in the provincial programs in a way how the province wants to shape it”*. For an overview of the desired situation according to the representative associations, see table 4 below.

Table 5: Desired situation according to the representative associations

Category:	Institution:	How to act:
Regime	Provinces	<ul style="list-style-type: none"> - More coordinating role: should take charge in heading stakeholders towards the same direction - Providing more resources: more finances
Regime	Municipalities	<ul style="list-style-type: none"> - More stimulating role: should be a customer of Noordelijk Lokaal Duurzaam - More coordinating role: should have an energy coordinator and a good sustainability plan
Niches	Initiatives	<ul style="list-style-type: none"> - Should have more knowledge and expertise - Should have more courage to start with concrete projects
Niches	GrEK	<ul style="list-style-type: none"> - More clearer role: their role must be clearer for others - More participation and collaboration: being a partner of the government in achieving sustainability goals, while keeping their bottom-up approach
Niches	Drentse KEI	<ul style="list-style-type: none"> - Wants to take over all energy within the whole province of Drenthe - Wants to achieve a coal-free energy system - More participation and collaboration with the government

5.2.2 Desired situation according to the local energy initiatives

The roles and ambitions of the local energy initiatives are less comprehensive, compared to the representative associations. Both the initiatives, Eco Oostermoer and Lopec, want to upscale in terms of customers. For this reason, Eco Oostermoer did not only focus on one village or region: *"(...) in order to have a good hinterland, therefore, we are presenting us first of all for the municipalities Aa en Hunze, Tynaarlo and Borger-Odoorn"*. In contrast, Lopec focuses mainly on their own village, Loppersum. However, this does not imply that they have no ambitions to upscale: *"Because in my opinion, the whole village should be a member"*.

The local energy initiatives also see some improvements for their representative associations. Lopec is actually very satisfied with the GrEK, however, they would like some more information about how sustainable the 'green energy' really is. This is mainly about the components of solar panels and windmills, and to what extent they can be recycled. Eco Oostermoer is less satisfied with their representative association, the Drentse KEI. They indicated that the Drentse KEI *"(...) should operate more from the villages"*. And whereas the representative associations mention the high democratic level which helps to guarantee and serve the interests of their members when interacting with the government, Eco Oostermoer does not fully agree. Moreover, Eco Oostermoer feels ignored by the Drentse KEI: *"(...) I asked a question almost one year ago. But we still haven't received an answer yet, that's a pity"*. In addition, Eco Oostermoer argues that the Drentse KEI should provide more marketing resources and needs to stimulate more mutual learning among their members.

The local energy initiatives also mention a number of improvements for the municipalities. An often heard aspect is about the choice of municipalities for their electricity. Both initiatives emphasise that their municipality should become a customer of sustainable energy, and they would like to see their municipality become a member of the 'Noordelijk Lokaal Duurzaam'. As Eco Oostermoer points out: *"The big disappointment was that the supplier of the municipality is not the Drentse KEI"*. This disappointment is shared by Lopec: *"There are some points for improvement, the municipality itself is one of our priorities, they also should have green energy"*. Lopec also mentioned that municipalities in general should take care for local support. They gave the example of a municipality who wanted to realise a solar field. In order to keep the production of sustainable energy close to the local citizens, the municipality should have asked the locals first if they wanted to realise the solar field. But they did not, so they were mandatory to do a procurement. As a consequence, an external commercial party took care for it and there were no benefits for the local citizens. This had a negative impact for the local support. The local energy initiatives also made clear that the municipalities need a bigger sustainability budget, as indicated by Eco Oostermoer: *"I think they can't really make appointments. There is a certain budget and a division for it, and they have to make sure that they don't have a shortage at the end of the year"*. The last bottleneck relates to the lack of knowledge at the municipalities: *"What I notice in my own municipality is that they have really no idea about how it works. They don't know what you're talking about. It surprises me that someone who is an energy officer, doesn't know something about it"*. These quotes relate to the support barriers, which include the limited financial and knowledge resources of lower governments as discussed by Tambach & Visscher (2012) and Zuidema (2016) in subparagraph 2.3.3.

There is also improvement possible for the province, as told by Lopec: *"The province establishes different things, suddenly there are twelve people in an organization of which I think: what are they going to do more than the GrEK already did? Do they work alongside each other or with each other?"*.

In other words, the province should make their role more clear for the local energy initiatives. This is a good example of the barrier of vague roles, because there is a lack of clarity about which institution is doing what.

A difference exists with regard to the desired situation of participating and collaborating with the government and with their representative association. Whereas Eco Oostermoer is quite confident with the governmental interaction, Lopec would like to have an approachable civil servant at their municipality: *“But these kind of connections, from the province or municipality to us, aren’t made. For example the ‘energy window’ of the municipality (...) they don’t even inform us, like: do you see a possible role for yourself there?”*. This shows the participation barrier, because the lowest level of participation as identified by Edelenbos et al. (2006) is getting informed, so there is actually no interaction at all. And whereas Lopec is satisfied with the participation and collaboration with the GrEK, Eco Oostermoer notices improvement points with regard to the participation and collaboration with the Drentse KEI, as mentioned above. In addition, Eco Oostermoer would like to have promotion stuff such as flyers and a presentation. An overview of the desired situation according to the local energy initiatives is provided in table 5 below.

Table 6: Desired situation according to the local energy initiatives

Desired situation according to the local energy initiatives		
Category:	Institution:	How to act:
Regime	Provinces	<ul style="list-style-type: none"> - Should adopt a more clearer role - Should involve local energy initiatives more: more participation and collaboration
Regime	Municipalities	<ul style="list-style-type: none"> - More stimulating role: should be customer of Noordelijk Lokaal Duurzaam - Providing more resources: bigger sustainability budget and more knowledge - More supporting role: should take care for local support - More participation and collaboration: should involve local energy initiatives more and should have an approachable civil servant
Niches	Representative associations	<ul style="list-style-type: none"> - Providing more resources: should provide more marketing and promotion resources - More participation and interaction: should operate more from the villages and create more mutual learning among their members
Niches	Eco Oostermoer	<ul style="list-style-type: none"> - Wants more resources: marketing, promotion and financial - Wants to attract more customers for NLD
Niches	Lopec	<ul style="list-style-type: none"> - Wants the whole village to be a member of their cooperative

5.3 Barriers as experienced by the niches and awareness of the regime

This paragraph summarises the identified barriers which are mentioned in the previous paragraphs. Attention is paid to whether or not the government is aware of these barriers and what their perception is. The identified barriers between the government and the niches are divided into the following categories:

❖ Political barriers

Important here are the attitudes of the governmental institutions, the political priorities as well as the legislation. It turned out that legislation is sometimes a barrier. The positive thing is that the

government is often aware of the fact that legislation can be restrictive and for this reason, they often fulfil a monitoring role as identified by Loorbach (2010). The province of Groningen for example continues to monitor the bottlenecks: *“Many things don’t take off because there are obstacles. These include all sorts of obstacles, we try to get a clear image of them, and look for solutions to solve it”*. The province of Drenthe also wants to be more flexible with regard to regulations: *“Can’t we make the legislation of the spatial planning a bit more flexible, so it gets easier to respond to the ideas(...)”*. It is positive that they are aware of restrictive legislation, which increases the ‘room for innovation’ as discussed by Loorbach (2010). There also appeared to be a barrier between the municipalities and provinces. As the province of Drenthe points out, the municipalities are quite autonomous. *“Of course, there are sometimes conversations, but if a councillor or council says: we don’t like that, the story ends”*. In other words, when municipalities are not taking action with regard to sustainable energy the province cannot do a lot to make sure they undertake action. This is a matter of political priority, which also has been a barrier in the past, as discussed by Tambach & Visschier (2012). This is also emphasised by the province of Groningen: *“(…) depending on the council, they all have different ambitions. Moreover, it also depends on the concerned alderman”*. The last political barrier relates to the time span of policy in general. As the municipality Aa en Hunze argues, many policy is prepared for the upcoming four years. Lots of things disappear when a political period ends due to elections. Of course, there are long-term policy plans, but as the municipality Aa en Hunze argues: *“It still doesn’t work good enough”*. This is also mentioned by Zuidema (2016), as he argues that environmental issues are not necessarily experienced as urgent problems and it is not sure if lower governments will undertake action. Therefore, it seems possible for sustainable energy to suffer from what Zuidema (2016) calls a ‘weak profile’, because it also applies for sustainable energy that it is an difficult topic for politicians with many technical aspects. In addition, Zuidema (2016, p.52) argues that *“(…) short-term costs and benefits are typically given priority over long-term costs and benefits”*, while the energy transition is a long term process which needs long-term policy (Van der Brugge et al., 2006; Loorbach, 2010).

❖ Support barriers

The support barrier relates to things like resources and the possibilities to facilitate the local initiatives. Often heard barriers relate to financial- and knowledge capacity of the municipalities in order to support the local energy initiatives. This is also recognised by the municipalities. As the municipality Aa en Hunze points out: *“When I’m ill, there is no one who can take over my tasks”*. This illustrates the limited capacity with regard to knowledge of environmental and sustainability topics. The municipality Groningen said: *“The province of Groningen has one big municipality, and twenty-three smaller. And sometimes they are really small, and they have too little knowledge”*. So, they share the ‘desired situation’ of the niches, in which the municipalities have the capacity to deal with the local initiatives. These barriers are also mentioned the literature, for example by Tambach & Visscher (2012) who discuss that a lack of manpower and a too narrow budget were restrictive in the past. Zuidema (2016) discusses ‘economies of scale’, which includes that the lower governments often do not have the required financial and knowledge resources in order to deal with complex issues as compared to larger central bureaucracies. A positive thing is that both the provinces are aware of the limited municipal resources. The province of Groningen made clear that it is a focus point, and as mentioned in paragraph 4.4.1, they established for this reason the so-called ‘flying squad’.

❖ participation barriers

The level of participation and collaboration are important elements within these barrier. A lack of participation is considered as a barrier, because both Lemos & Agrawal (2006) and Loorbach (2010) mention the importance of interaction between the regime and the niches. This corresponds with the perception of the province of Groningen: *“It is about the art of forming alliances. So you can find each other, that is an important condition in order to facilitate these kind of developments”*, and the municipality Aa en Hunze: *“Perhaps we should collaborate more, on topic”*. As already discussed, the participation and collaboration between the Drentse KEI and the province of Drenthe is in contrast with the interaction of the GrEK and the province of Groningen. However, the willingness to collaborate is also there at the province of Drenthe, because they also saw the potential to create more interaction with the Drentse KEI *“(…) they are very interesting for us to extract information from, and to create interaction with them”*. It also became clear that there was little participation between the local initiatives and the province, and also between the representative associations and the municipalities. In addition, the province of Groningen wants the GrEK to develop and professionalise further: *“That’s a wish of us, that it becomes a bit more professional”*, which is in contrast with the perception of the municipality Groningen, who want the GrEK to stay as small as possible. It is also remarkable that the Drentse KEI is not well known at the municipality Aa en Hunze. Municipality Aa en Hunze also wanted more participation between the province and the municipalities in general: *“That will work, I experienced it in the field of waste, and it will also work at other policy fields”*. Furthermore, they said that the province could adopt a more directing role, also to increase the efficiency: *“Than you get solar policy for the whole province, instead of 12 municipalities who are all ‘reinventing the wheel’, and everyone does it different”*. This is in accordance with Loorbach (2010), who also emphasises the need to reduce the lack of direction.

❖ Barriers of vague role division

The sustainable energy field is quite complex and lots of institutions are involved (Monstadt, 2007). This is also emphasised by the municipality Groningen: *“You often see starting initiatives, they want to become energy neutral. And the more they delve into it, they think: damn, that’s not easy. Because the energy field is quite complex”*. The provinces are aware of the barrier of vague roles among the involved stakeholders: *“Indeed, these are barriers of unfamiliarity, not knowing who to talk to”*, as indicated by the province of Drenthe. This is in line with the province of Groningen: *“I can imagine that is isn’t easy for a citizen who has an idea, to start somewhere. Where do they find access to information, that definitely needs improvement in order to adjust things better to each other”*. This partly relates to what Jänicke & Jörgens (2006, p.198) call ‘diffuse lines of responsibility’: *“If everyone is responsible and accountable, then in the final analysis nobody is”*. Although this is more general about ‘diffuse lines’, it also decreases the contribution of local energy initiatives while there is not enough clarity and institutions are not well adjusted to each other. The municipality Groningen also argues that it is not helpful to have many different messages or names if the niches want to attract more customers. In addition, the municipality Groningen emphasises that the focus should be on the local initiatives: *“That is happening too little, and that’s not a good thing”*. Recommendations in order to solve these barriers are provided in the next chapter.

Chapter 6: Conclusions

6.1 Introduction

This chapter will outline the conclusions of this research. Connections are made between the empirical data as shown in chapter four and five and the theories as discussed in chapter two. The next paragraph will discuss the conclusions. The recommendations and opportunities which are drawn from the conclusions are given in paragraph 6.3. Some suggestions for further research are mentioned in paragraph 6.4.

6.2 Concluding remarks

The five subquestions are answered first, followed by an answer to the main research question.

❖ **What are important conditions for the energy transition according to the literature and are they present in practice?**

The literature indicated several important conditions for realising an energy transition. Loorbach (2010) argued that long-term goals and long-term thinking (at least 25 years) are of vital importance for the energy transition. However, it became clear during the interviews that this long-term focus is not always easy to realise because politics and policy often focuses at the short-term. This was also emphasised by, for example, the municipality Aa en Hunze and the province of Groningen. Another important aspect as indicated by Loorbach (2010) relates to the possibilities of the niches to innovate. He argues that the niches should have enough space for innovation in order to create 'alternative regimes'. In practice, the regime (especially the provinces) are monitoring for bottlenecks. For example, the provinces told that they keep an eye on restrictive legislation and they try to make their policy and legislation more flexible. In this way, the provinces try to give the bottom-up initiatives (the local energy initiatives and their representative associations) enough the necessary space to innovate. The last condition provided by the literature includes that the bottom-up initiatives should be complementary and strengthen each other (Van der Brugge et al., 2005; Loorbach, 2010). The representative associations made clear that they fulfil this condition, because one of their tasks is to stimulate the mutual learning among their members. This was also acknowledged by one of the interviewed local energy initiatives.

❖ **What are the current roles of provinces, municipalities, the representative associations and the local energy initiatives in the sustainable energy field?**

The provinces predominantly fulfil a facilitating role and they both provide finances. In addition, both the provinces fulfil a policy role and a monitoring role as identified by Loorbach (2010) in order to solve the bottlenecks for the niches. The province of Groningen added that they fulfil a coordinating role. The municipalities also fulfil a predominantly facilitating and stimulating role, for example by providing start-up budgets and a 'solar loan'. These roles of facilitating, stimulating and providing resources (finances and knowledge) are also mentioned by TNO (2015). The representative associations have also several things in common. First of all, they both promote sustainable energy by making initiatives enthusiastic. They both argue that they have a connecting role to create mutual learning among their members. The GrEK has a more clear phase-based strategy for the local initiatives, which also include guiding and shaping the projects and professionalise them when they develop further. The Drentse KEI added a controlling role with regard to the boards of their members. Identified roles for the local energy initiatives are mainly taking care for local support, but also things like raising awareness and taking care for liveability.

❖ **How are these stakeholders participating and collaborating with each other and how do the representative associations guarantee and serve the interests of their members?**

Examples of participation and collaboration within the regime (the provinces and municipalities) are the 'solar loan' and the 'flying squad'. Municipality Aa en Hunze would like more participation and collaboration with the province, as well as with other municipalities. It became clear that municipalities often work together with the local initiatives instead of the representative associations. The province of Groningen is participating with the GrEK, in contrast to the province of Drenthe and the Drentse KEI. The province of Groningen and the GrEK are co-producing sustainable energy policy, which is according to Edelenbos et al. (2006) one of the highest levels of participation. The Drentse KEI and the province of Drenthe are not involving each other at all, which is according to Edelenbos et al. (2006) the lowest level of participation. However, the province of Drenthe and the Drentse KEI both see advantages when they would interact with each other. Dealing with the interests of the local energy initiatives is not the most difficult thing for the representative associations. The GrEK and the Drentse KEI both emphasised the high democratic level of their organisations, however, Eco Oostermoer did not fully agree while they feel a bit ignored as shown in subparagraph 5.2.2. The board members of the representative associations often established an own sustainable energy initiative, so they have a clear image of what is going on with their members.

❖ **What is the desired situation according to the representative associations and the local energy initiatives?**

According to the representative associations, the provinces should adopt a more coordinating role so that they take charge in heading all the stakeholders towards the same direction. In addition, the representative associations argue that the provinces never fulfil a too facilitating and stimulating role. The representative associations would like to see a more stimulating role of the municipalities, for example by becoming a customer of their energy firm Noordelijk Lokaal Duurzaam. The Drentse KEI added that the municipalities also should adopt a more coordinating role, because they argued that each municipality should have an energy coordinator as well as a good sustainability program. With regard to the local energy initiatives, the Drentse KEI would like to see more knowledge, expertise and courage in order to start with projects. The GrEK wants to keep their bottom-up approach and they want to make their role clearer for others. They also want to be more often a partner of the government in achieving sustainability goals. This also applies for the Drentse KEI, who also want to participate and collaborate with their province. This relates to co-producing and co-deciding sustainable energy policy, the higher levels of participation as distinguished by Edelenbos et al. (2006). Finally, the Drentse KEI wants to take over all the energy within the province of Drenthe.

When looking at the local energy initiatives, they would also like to see more participation and collaboration with the provinces. In addition, they argue that the provinces should also adopt a clearer role. The local initiatives agree with their representative associations that the municipalities should become a member of Noordelijk Lokaal Duurzaam. They argue that municipalities need a bigger budget for sustainability and attract more knowledge in order to reduce the so-called support barrier. The participation and collaboration with the municipalities can be improved by appointing an approachable civil servant. Eco Oostermoer wants the Drentse KEI to adopt a more connecting role in order to stimulate mutual learning among their members. In addition, they argue that the Drentse KEI should operate more from the villages. In general, the local energy initiatives would like to have more marketing and promotion resources and they want to upscale by attracting more members.

❖ **Which barriers need to be tackled in order to achieve the desired situation from the perspective of the bottom-up initiatives?**

Four different types of barriers were indicated. These relate to the political barriers, the support barriers, the participation barriers and barriers of vague roles. Examples of the political barriers are the ‘wait-and-see attitude’ of municipalities, as indicated by the province of Drenthe. This relates to the lack of political priority as mentioned by Tambach & Visscher (2012). The last political barrier, the short-term focus of politics as mentioned by Laes et al. (2014) and Zuidema (2016) is also acknowledged by the municipality Aa en Hunze. The support barrier was mainly about a lack of finances and knowledge at the municipal level, as discussed by Tambach & Visscher (2012) and Zuidema (2016). These problems were also acknowledged by the local energy initiatives Eco Oostermoer and Lopec. The participation barrier especially relates to the interaction between the interviewed local energy initiatives and the provinces. The participation barrier also exists between the representative associations and the interviewed municipalities. Finally, it appeared to be difficult for starting initiatives to make contact with the right institution when they are in need for information. This is because there are lots of institutions in the sustainable energy field, but who is doing what exactly often stays vague. This is in accordance with Monstadt (2007), who argues that the (sustainable) energy field is complex and lots of stakeholders are involved. This creates diffuse lines of roles, which corresponds to the ‘diffuse lines of responsibility’ as discussed by Jänicke & Jörgens (2006).

The main research question: “**How do the current roles of the provinces, the municipalities, the local energy initiatives and their representative associations compare to what these bottom-up initiatives desire and what barriers and opportunities exist to overcome these differences?**” is partly answered in the subquestions as discussed above. The bottom-up initiatives, the local energy initiatives and their representative associations (the niches), want the provinces to adopt a more clearer and coordinating role, provide more resources and they desire more participation and collaboration with them. Just like the provinces, the municipalities should collaborate more with the local energy initiatives and they need to attract more resources in order to adopt a more stimulating role. In addition, the municipalities should become a customer of Noordelijk Lokaal Duurzaam. According to the representative associations, the local energy initiatives should attract more knowledge, expertise and courage to start with projects. One of the local energy initiatives wants more interaction with their representative association and would like to see more resources from them. More general, the local energy initiatives want to attract more customers, which also applies for the representative associations. To bridge the gap between the current roles and the desired role division, several barriers need to be tackled. These are the political barriers, support barriers, participation barriers and the barriers of vague roles as discussed in paragraph 5.3. This entails some opportunities to solve these barriers, which are discussed in the next paragraph.

6.3 Recommendations

There are some opportunities to solve the identified barriers as discussed in the previous chapters. These opportunities are translated in some recommendations, which are also based on the conclusions as discussed in the previous paragraph.

“(…) the whole bottom-up energy transition is just one facet of realising the energy transition. The bottom-up initiatives only won’t be sufficient” – Province of Groningen

❖ **Focus on programs**

It was mentioned by several stakeholders that the focus should be more on collaboration on a certain topic instead of everyone working from their own organisation. The Drentse KEI wanted more collaboration with the province of Drenthe. Municipality Aa en Hunze wanted more collaboration with the province as well as with the other municipalities. The local energy initiatives also want to be more involved by the government. This participation barrier could be solved when there will be more collaboration within for example a provincial programme. It will probably get more clear for each stakeholder which role everyone fulfils and can fulfil, which reduces the barrier of vague roles. The efficiency can be increased as indicated by the municipality Aa en Hunze in paragraph 5.3. Moreover, it can function as a platform for concepts like the 'flying squad' of the province of Groningen, in which municipalities or local initiatives can communicate whether or not they need help from them. In addition, the opportunity exists for the representative associations and the flying squad to combine their forces as 'economies of scale' as discussed by Zuidema (2016), because of their ability of routine implementation by using their knowledge and experiences. The representative associations and municipalities could reinforce each other while they both argue that they fulfil a connecting role in terms of mutual learning among local energy initiatives. People will work together on based a topic and less as different institutions. There already are lots of institutions in the sustainable energy field (Monstadt, 2007; TNO, 2015), which contributes to the barriers of vague roles as mentioned in the previous chapter.

❖ **More collaboration between the representative associations and the provinces and also between the local energy initiatives and municipalities**

This could be realised in relation with the previous recommendation, so more interaction between these stakeholders within a program. This might sound a bit contradicting because it appeared that the participation and collaboration between the municipalities and the representative associations and the participation and collaboration between the local initiatives and the province was often missing. However, this seems logical because their (policy) fields are quite different: a local focus versus a more regional, provincial focus. For this reason, the participation between the representative associations and the provinces as well as the participation between the municipalities and the local energy initiatives should be intensified further. They could work together with certain projects which are all part of the same broader programme. It is important to mention that not every type of participation between the government and niches will be embraced, because the GrEK said that they do not want to become an executive institution of the government. The representative associations could fulfil a 'hinge function', because the municipalities are focussed at the local initiatives, which in their turn look at the representative associations, while the provinces focus at the representative associations. In this way, the representative associations could represent and involve the local initiatives more at the provincial level. This stimulates the interaction between the regime and the niches which is such an important element (Lemos & Agrawal, 2006; Loorbach, 2010).

❖ **More centralised measures**

This especially relates to the municipalities and the political- and support barriers of political priority's and the lack of municipal finances and knowledge as discussed by Tambach & Visscher (2012) and Zuidema (2016) as discussed in subparagraph 2.3.3. It could help if the central government have some hard measures which function as a 'stick behind the door' when the municipalities for example have the wait-and-see attitude as mentioned by the province of Drenthe. These 'hard measures' could only be enforced if the municipalities have enough resources, which

could be provided by a central institution or even the Dutch national government. This is in line with TNO (2015), who argue that the more specialist activities could be organised in a central way. A 'hybrid mixture' will occur: central guidance setting the robust foundation for a decentralised method (Zuidema, 2016).

6.4 Suggestions for further research

During the research, there appeared several interesting things which definitely could use further research. First of all, this research could be considered as a sort of baseline measurement. Because the energy transition is actually in the predevelopment phase, it would be interesting to do this research again within a few years. Perhaps big changes will occur even within one year from now.

Another interesting, more sociological thing relates to the influence of the building structures of villages or cities on establishing a local energy cooperative. Eco Oostermoer, located in a so-called 'ribbon development' village, told that both sides of the village identified themselves more with other villages nearby. Would it be more easy to attract more members in a more compact village?

The last suggestion for further research is about the flexibility of municipal zoning plans with regard to generating sustainable energy. How flexible are they for local energy initiatives and how often are municipalities adjusting them?

Chapter 7: Reflection

7.1 The research process

This research began with a search for relevant literature, which went quite well because the researcher was already familiar with some of the used theories. The governance- and transition theories are selected because of their relevance for this research. Especially the multilevel governance perspective provided useful insights with regard to the interaction between the government and the energy initiatives established by the citizens. More difficult was the empirical research part. Because of the method interviewing, the dependency on others and their willingness to cooperate is relatively high. In some cases it was hard to make contact with the right person and some e-mails remained unanswered. Most of the appointments for the interviews were scheduled quite soon after the first contact, but sometimes it took several weeks up to a month. One of the drawbacks of this was that the gathered data could not be processed on time, for example with the deadline of the poster presentation. However, almost all of the interviewed persons were enthusiastic about this research and liked to contribute to it. Their information and practical experiences were very important for this research.

7.2 Points of improvement

In order to come up with more generalised conclusions, it could be an improvement to add some quantitative research and formulate some hypotheses and investigate a larger number of institutions to see whether the assumptions were true or false. Doing more interviews could also help, however, this qualitative method is more time-consuming when investigating a large number of respondents. Incorporating more institutions, for example the nature- and environment federation or market parties, would also have given a broader scope. With the current knowledge, the province of Friesland and the representative association Us Kooperaasje would also have been investigated, because during the research it became clear that these could be considered as a 'best practice'. It would have been interesting to look at the conditions which make them successful, and compare these with for example the province of Drenthe and the Drentse KEI. A last point of improvement relates to the theories. This research focuses especially on the 'niches' and 'regime' level of Loorbach (2010). The 'landscape' level is not taken into account, but is of course important and it has influence at the other two levels. In addition, the local energy initiatives also can and want to change the awareness and values with regard to sustainable energy, things which relate to the landscape level.

7.3 The value of the results

Because this is a qualitative research, it is hard to say if the outcomes are right or wrong. The results are, of course, highly dependent on the context. However, a lot of similarities were identified, which makes it more plausible that these findings also apply for other representative associations and local energy initiatives. Furthermore, the transcriptions of the interviews were handed over to the interviewed persons, so they had the chance to correct things. It happened a few times that corrections were made, which made the empirical data more reliable. Another thing which helped increasing the validity was that per sort of institution at least two people were interviewed: two provinces, two municipalities, two representative associations and two local energy initiatives. Some interviews were more like group conversations which increased the input, for example at Lopec, where the questions were asked to five persons. However, in case of the governmental institutions, just one person was interviewed so the collected information was highly dependent on their point of

view. Interviewing more people of these institutions could improve the data quality of their input. Finally, the similarities between the literature and the empirical data also underscore the validity of the results as well as the relevance and correctness of the used theories.

The value of the results with regard to the theoretical and practical field is predominantly about the link between theory and practice. There already exist lots of literature about transitions and governance, but a more practical link was missing. This research added the insight in how the local energy initiatives and their representative associations (the bottom-up initiatives) and the lower Dutch governments (the provinces and municipalities) interact with each other. Especially the desired situation according to these bottom-up initiatives is something which has not (yet) been investigated a lot. This research aimed to make a contribution to the insight of this desired situation, because it is an important element in order to take the next step and expand the share of sustainable energy in the Netherlands. Moreover, research of TNO (2015) showed that the Dutch provinces and municipalities do not exactly know how they should respond to the growing number of bottom-up initiatives, which is another reason why it is so important to gain insight in the desired situation according to the bottom-up initiatives.

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Appendices:

Appendix 1: overview of the interviewed institutions



provincie Drenthe



Appendix 2: Questionnaire used for the semi-structured interviews with the local energy initiatives.

Note: these questions are drafted and asked in Dutch! For English version, see appendix 5.

Voorafgaand aan het interview:

- Nogmaals duidelijk maken wat de rechten zijn van de persoon in kwestie (inzage transcriptie met de mogelijkheid om wijzigingen aan te brengen)
- Nogmaals laten weten dat het gesprek auditief wordt opgenomen (en dat de informatie vertrouwelijk zal worden behandeld)

Vraag 1: Zou u willen omschrijven wat precies uw functie is binnen de coöperatie?

Vraag 2: Via welke methoden wekt deze coöperatie energie op? / bespaart de coöperatie energie?

Vraag 3: Hoe lang bestaat de coöperatie al?

- wat is de spreiding van de leden (straat/buurt/dorp/regio)
- aantal leden: groeit dit, wat is de verwachting
- wat zijn de ambities? Doorgroeien of juist kleinschalig blijven?
- hoe zit de interne structuur in elkaar: bestuur, leiderschap, investeringen

Vraag 4: Welke rol vervult de coöperatie? (creëren draagvlak, bewustwording, etc.)

- in hoeverre ondersteunt de koepel bij deze rol?
- belang van interactie koepel en overheid?

Vraag 5: Welke rol vervullen andere instanties zoals de energievoopel/ gemeente / provincie nu? (lobby, faciliterende, stimulerende, adviserende etc.) (vragen naar instellingen waar de desbetreffende persoon NIET werkzaam is). Dus:

- rol energievoopel nu en welke rol zou de energievoopel idealiter moeten vervullen?
- rol gemeente nu en welke rol zou de gemeente idealiter moeten vervullen?
- rol provincie nu en welke rol zou de provincie idealiter moeten vervullen?
- wellicht aan de hand van voorbeeld project

Vraag 6: Welke condities zijn er volgens u nodig om deze rollen te vervullen (afspraken, voorwaarden, wetgeving, instanties, interne structuren van voepels & coöperaties en hoe zij samenwerken)

Vraag 7: Is er genoeg ruimte om innovatief te zijn, of wordt deze ruimte beperkt door allerlei regelgeving en dergelijke?

Vraag 8: Kunt u vertellen hoe er in de huidige situatie tussen de partijen wordt gecommuniceerd en geparticipeerd? Dus: hoe is de interactie met de voepel / gemeente / provincie. Worden jullie bijvoorbeeld door de overheid geïnformeerd, geraadpleegd, geadviseerd, of mogen jullie beleid coproduceren, meebeslissen?

- wellicht aan de hand van voorbeeld project
- wat vinden jullie van de huidige gang van zaken? (wat zou u graag zien)

Vraag 9: Zijn er barrières / knelpunten wat betreft de huidige vorm van samenwerken? Zijn er barrières wat betreft de huidige rolverdeling? Zo ja, welke?

Vraag 10: Aansluitend op de vorige vraag; hoe zou er in deze situatie tussen de partijen (provincies, gemeenten, koepels en coöperaties) gecommuniceerd / geparticipeerd moeten worden om de (volgens u) ideale situatie te bereiken?

Tot slot: heeft u zelf nog op- of aanmerkingen, of dingen die volgens u nog niet ter sprake zijn gekomen maar wellicht wel relevant zijn? (Kent u nog iemand die mij ook veel zou kunnen vertellen over dit onderwerp, werkzaam bij....)

Afronden.

Appendix 3: Questionnaire used for the semi-structured interviews with the representative associations of the local energy initiatives.

Note: these questions are drafted and asked in Dutch! For English version, see appendix 6.

Voorafgaand aan het interview:

- Nogmaals duidelijk maken wat de rechten zijn van de persoon in kwestie (inzage transcriptie met de mogelijkheid om wijzigingen aan te brengen)
- Nogmaals laten weten dat het gesprek auditief wordt opgenomen(en dat de informatie vertrouwelijk zal worden behandeld)

Vraag 1: Zou u willen omschrijven wat precies uw functie is binnen de energiekeopel?

Vraag 2 : Koepel: hoe veel coöperaties zijn er bij jullie aangesloten? Wat voor soort coöperaties zijn dit? (bijvoorbeeld wind, zon, bio etc.)

Vraag 3: Hoe lang bestaat de koepel al?

- wat is de spreiding van de leden (straat/buurt/dorp/regio)
- aantal leden: groeit dit, wat is de verwachting
- wat zijn de ambities? Doorgroeien of juist kleinschalig blijven?
- hoe zit de interne structuur in elkaar: bestuur, leiderschap, investeringen

Vraag 4: Welke rol vervult de koepel momenteel ten aanzien van de lokale energiecoöperaties? (bijvoorbeeld: lobby, legitimiteit, gesprekspartner, adviseur, politiek vertegenwoordigen, wetgever)

- kunt u daar een voorbeeld van geven aan de hand van een bestaand project?
- hoe wordt de achterban betrokken en vertegenwoordigd? Geeft dit problemen bij interactie/ in zee gaan met de overheid?
- welke rol zou de koepel willen vervullen ten aanzien van haar leden en de gemeente & provincie?

Vraag 5: Welke rol vervullen andere instanties zoals de coöperatie/ gemeente / provincie nu? (lobby, faciliterende, stimulerende, adviserende etc.) (vragen naar instellingen waar de desbetreffende persoon NIET werkzaam is). Dus:

- rol coöperatie nu en welke rol zou de coöperatie idealiter moeten vervullen volgens u?
- rol gemeente nu en welke rol zou de gemeente idealiter moeten vervullen volgens u?
- rol provincie nu en welke rol zou de provincie idealiter moeten vervullen volgens u?
- wellicht aan de hand van voorbeeld project

Vraag 6: Welke condities zijn er volgens u nodig om deze rollen te vervullen (afspraken, voorwaarden, wetgeving, instanties, interne structuren van koepels & coöperaties en hoe zij samenwerken)

Vraag 7: Is er genoeg ruimte om innovatief te zijn, of wordt deze ruimte beperkt door allerlei regelgeving en dergelijke?

Vraag 8: Kunt u vertellen hoe er in de huidige situatie tussen de partijen wordt gecommuniceerd en geparticipeerd? Dus: hoe is de interactie met de coöperatie / gemeente / provincie. Worden jullie bijvoorbeeld door de overheid geïnformeerd, geraadpleegd, geadviseerd, of mogen jullie beleid coproduceren, meebeslissen?

- wellicht aan de hand van voorbeeld project
- wat vinden jullie van de huidige gang van zaken? (wat zou u graag zien)

Vraag 9: Zijn er barrières wat betreft de huidige vorm van samenwerken? Zijn er barrières wat betreft de huidige rolverdeling? Zo ja, welke?

Vraag 10: Aansluitend op de vorige vraag; hoe zou er in deze situatie tussen de partijen (provincies, gemeenten, koepels en coöperaties) gecommuniceerd / geparticipeerd moeten worden om deze ideale situatie te bereiken?

Tot slot: heeft u zelf nog op- of aanmerkingen, of dingen die volgens u nog niet ter sprake zijn gekomen maar wellicht wel relevant zijn? (Kent u nog iemand die mij ook veel zou kunnen vertellen over dit onderwerp, werkzaam bij....)

Afronden.

Appendix 4: Questionnaire used for the semi-structured interviews with the municipalities.
Note: these questions are drafted and asked in Dutch! For English version, see appendix 7.

Voorafgaand aan het interview:

- Nogmaals duidelijk maken wat de rechten zijn van de persoon in kwestie (inzage transcriptie met de mogelijkheid om wijzigingen aan te brengen)
- Nogmaals laten weten dat het gesprek auditief wordt opgenomen(en dat de informatie vertrouwelijk zal worden behandeld)

Vraag 1: Zou u willen omschrijven wat precies uw functie is binnen de gemeente?

Vraag 2 : Heeft de gemeente een goed beeld van het aantal coöperaties? Hoe worden deze ontwikkelingen gemonitord?

Vraag 3: Heeft de gemeente doelstellingen en ambities ten aanzien van het produceren van duurzame en/of hernieuwbare energie? Zo ja, welke?

- hoe deze plannen te realiseren?(welke termijn, hoe, met wie?)
- subsidies? Neemt budget toe?

Vraag 4: Welke rol vervult de gemeente momenteel ten aanzien van de lokale energiecoöperaties en de energiekepels? (bijvoorbeeld: lobby, legitimiteit, gesprekspartner, adviseur, politiek vertegenwoordigen, wetgever)

- kunt u daar een voorbeeld van geven aan de hand van een bestaand project?
- welke rol zou de gemeente willen vervullen tegenover de coöperaties en energiekepels?

Vraag 5: Kunt u iets zeggen over welke rol andere instanties zoals de coöperatie energiekepel en de provincie vervullen? (lobby, faciliterende, stimulerende, adviserende etc.) (vragen naar instellingen waar de desbetreffende persoon NIET werkzaam is). Dus:

- rol coöperaties nu en wat zou volgens u de ideale rol zijn voor hen?
- rol energiekepel nu en wat zou volgens u de ideale rol zijn voor hen?
- rol provincie nu en wat zou volgens u de ideale rol zijn voor hen?
- wellicht aan de hand van voorbeeld project

Vraag 6: Welke condities zijn er volgens u nodig om deze rollen te vervullen (afspraken, voorwaarden, wetgeving, instanties, interne structuren van koepels & coöperaties en hoe zij samenwerken)

Vraag 7: Op welke wijze probeert de gemeente ervoor te zorgen dat de bewegingsvrijheid van coöperaties en koepels niet beperkt wordt? / ruimte voor flexibiliteit qua regelgeving?

Vraag 8: Kunt u vertellen hoe er in de huidige situatie tussen de partijen wordt gecommuniceerd en geparticipeerd? Worden de coöperaties en koepels door de gemeente geïnformeerd, geraadpleegd, geadviseerd, of kunnen zij ook beleid coproduceren en meebeslissen?

- wellicht aan de hand van voorbeeld project
- wat vindt u van de huidige gang van zaken? (wat zou u graag zien)

Vraag 9: Zijn er barrières wat betreft de huidige vorm van samenwerken? Zijn er barrières wat betreft de huidige rolverdeling? Zo ja, welke?

Vraag 10: Aansluitend op de vorige vraag; hoe zou er in deze situatie tussen de partijen (provincies, gemeenten, koepels en coöperaties) gecommuniceerd / geparticipeerd moeten worden om deze ideale situatie te bereiken?

Tot slot: heeft u zelf nog op- of aanmerkingen, of dingen die volgens u nog niet ter sprake zijn gekomen maar wellicht wel relevant zijn? (Kent u nog iemand die mij ook veel zou kunnen vertellen over dit onderwerp, werkzaam bij....)

Afronden.

Appendix 5: Questionnaire used for the semi-structured interviews with the provinces.
Note: these questions are drafted and asked in Dutch! For English version, see appendix 8.

Voorafgaand aan het interview:

- Nogmaals duidelijk maken wat de rechten zijn van de persoon in kwestie (inzage transcriptie met de mogelijkheid om wijzigingen aan te brengen)
- Nogmaals laten weten dat het gesprek auditief wordt opgenomen(en dat de informatie vertrouwelijk zal worden behandeld)

Vraag 1: Zou u willen omschrijven wat precies uw functie is binnen de provincie?

Vraag 2 : Heeft de provincie een goed beeld van het aantal coöperaties? Hoe worden deze ontwikkelingen gemonitord?

Vraag 3: Heeft de provincie doelstellingen en ambities ten aanzien van het produceren van duurzame en/of hernieuwbare energie? Zo ja, welke?

- hoe deze plannen te realiseren?(welke termijn, hoe, met wie?)
- subsidies? Neemt budget toe?

Vraag 4: Welke rol vervult de provincie momenteel ten aanzien van de lokale energiecoöperaties? (bijvoorbeeld: lobby, legitimiteit, gesprekspartner, adviseur, politiek vertegenwoordigen, wetgever)

- kunt u daar een voorbeeld van geven aan de hand van een bestaand project?
- welke rol zou de provincie willen vervullen tegenover de coöperaties en energiekeopel?

Vraag 5: Kunt u iets zeggen over welke rol andere instanties zoals de coöperaties/ energiekeopel/ gemeente nu vervullen? (lobby, faciliterende, stimulerende, adviserende etc.) (vragen naar instellingen waar de desbetreffende persoon NIET werkzaam is). Dus:

- rol coöperaties nu en wat zou volgens u (de provincie) de ideale rol voor hen zijn?
- rol energiekeopels nu en wat zou volgens u de ideale rol voor hen zijn?
- rol gemeente nu en wat zou volgens u de ideale rol voor hen zijn?
- wellicht aan de hand van voorbeeld project

Vraag 6: Welke condities zijn er volgens u nodig om deze rollen te vervullen (afspraken, voorwaarden, wetgeving, instanties, interne structuren van koepels & coöperaties en hoe zij samenwerken)

Vraag 7: Op welke wijze probeert de provincie ervoor te zorgen dat de bewegingsvrijheid van coöperaties en koepels niet beperkt wordt? / ruimte voor flexibiliteit qua regelgeving?

Vraag 8: Kunt u vertellen hoe er in de huidige situatie tussen de partijen wordt gecommuniceerd en geparticipeerd? Worden de coöperaties en de energiekeopels door de provincie geïnformeerd, geraadpleegd, geadviseerd, of kunnen zij beleid coproduceren en meebeslissen?

- wellicht aan de hand van voorbeeld project
- wat vindt u van de huidige gang van zaken? (wat zou u graag zien)

Vraag 9: Zijn er barrières wat betreft de huidige vorm van samenwerken? Zijn er barrières wat betreft de huidige rolverdeling? Zo ja, welke?

Vraag 10: Aansluitend op de vorige vraag; hoe zou er in deze situatie tussen de partijen (provincies, gemeenten, koepels en coöperaties) gecommuniceerd / geparticipeerd moeten worden om deze ideale situatie te bereiken?

Tot slot: heeft u zelf nog op- of aanmerkingen, of dingen die volgens u nog niet ter sprake zijn gekomen maar wellicht wel relevant zijn? (Kent u nog iemand die mij ook veel zou kunnen vertellen over dit onderwerp, werkzaam bij....)

Afronden.

Appendix 6: Questionnaire used for the semi-structured interviews with the local energy initiatives. English version.

Before the interview starts:

- Making clear again the rights of the person (access to the transcription, with the possibility to change given answers)
- Mentioning again that the interview will be recorded by audio (and that the collected will be treated carefully)

Question 1: Could you please describe what exactly your function is at the local energy cooperative?

Question 2: In which ways does the cooperative generates energy? / In which ways does the cooperative saves energy?

Question 3: How long does the cooperative exists?

- what is the dispersion of the members? (street / neighbourhood / village / region)
- number of members: is it growing, what are the expectations?
- what are the ambitions? Growing further or staying small?
- how is the internal structure organized: administration, leadership, investments

Question 4: Which role does the cooperative fulfil? (creating support, awareness, etc.)

- to what extent does the representative association supports this role?
- what is the importance of the interaction between the representative association and the government? (municipality, province)

Question 5: Which role do the other institutions like the representative associations, the municipality and the province fulfil? (lobby, facilitating, stimulating, advising etc). So:

- role of the representative association now and which role should they fulfil in the ideal situation?
- role of the municipality now and which role should they fulfil in the ideal situation?
- role of the province now and which role should they fulfil in the ideal situation?
- perhaps by giving an example

Question 6: Which conditions are, according to you, necessary in order to fulfil these roles? (appointments, conditions, legislation, institutions, internal structures of the representative associations & cooperatives and how they work together).

Question 7: Is there enough room to be innovative, or is there for example some legislation which has a negative impact?

Question 8: Could you tell something about the collaboration between the stakeholders in the current situation? How are they communicating and participating with each other? So: how is the interaction with the representative association, the municipality and the province? For example, are you getting informed / consulted /advised by the government, or can you also decide and co-produce policy?

- perhaps by giving an example project
- what is your opinion about this current situation? (what would you like to see?)

Question 9: Are there any barriers / restrictions with regard to the current way of collaboration? Are there any barriers with regard to the current role division? If so, what kind of barriers?

Question 10: In addition, how should the collaboration and participation between the stakeholders (provinces, municipalities, representative associations and local energy initiatives) look like, in order to achieve the ideal situation? (according to you).

Finally: do you got any questions or remarks, or things which are not discussed yet but perhaps are relevant to the subject? (Do you know someone who could tell me a lot about this theme, working at...).

Completing.

Appendix 7: Questionnaire used for the semi-structured interviews with the representative associations of the local energy initiatives. English version.

Before the interview starts:

- Making clear again the rights of the person (access to the transcription, with the possibility to change given answers)
- Mentioning again that the interview will be recorded by audio (and that the collected will be treated carefully)

Question 1: Could you please describe what exactly your function is within the representative association of local energy initiatives?

Question 2: How many cooperatives does this association represent? What kind of cooperatives are this? (for example solar, wind, biomass, etc.)

Question 3: How long does the representative association exist?

- what is the dispersion of the members? (street / neighbourhood / village / region)
- number of members: is it growing, what are the expectations?
- what are the ambitions? Growing further or staying small?
- how is the internal structure organized: administration, leadership, investments

Question 4: Which role does the representative association fulfil at this moment, with regard to the local energy cooperatives? (for example: lobby, legitimating, interlocutor, advisor, representing politics, legislative)

- could you give an example of this by discussing an existing project?
- how are the members involved and represented? Does this cause any problems during the interaction with the government?
- which role would the representative association like to fulfil with regard to her members, the province and the municipality?

Question 5: Which role fulfil the other institutions like the local energy cooperatives, the province and the municipality? (lobby, facilitating, stimulating, advising, creating support). So:

- role of the local energy cooperatives now and which role they should fulfil in the ideal situation
- role of the province now and which role they should fulfil in the ideal situation
- role of the municipality now and which role they should fulfil in the ideal situation
 - perhaps by discussing an example project

Question 6: Which conditions are necessary, according to you, in order to fulfil these ideal roles? (appointments, conditions, legislation, institutions, internal structures of the representative association, the cooperatives and how they work together).

Question 7: Is there enough room for to be innovative, or is the innovation restricted as a consequence of legislation or something?

Question 8: Could you tell something about the collaboration and participation between the stakeholders in the current situation? So: how is the interaction with the local energy cooperatives, the municipality and the province? For example, are you getting informed, consulted or advised by the government, or is it possible to decide and co-produce policy?

-perhaps by discussing an example project

→ what do you think about this current situation? (what would you like to see?)

Question 9: Are there any barriers with regard to the current way of collaboration? Are there any barriers with regard to the current role division? If so, which?

Question 10: In addition, how should the stakeholders (provinces, municipalities, representative associations and the cooperatives) participate and communicate with each other in order to achieve the ideal situation?

Finally: do you got any questions or remarks, or things which are not discussed yet but perhaps are relevant to the subject? (Do you know someone who could tell me a lot about this theme, working at...).

Completing.

Main Lines:

-which roles do they fulfil?

-which roles do they want to fulfil?

-how does the province/municipality relate to the representative associations and cooperatives

-how does the representative association and cooperative relate to the municipality and province

-how do the stakeholders collaborate and how could this be improved

→ ideal situation according to the representative associations

Appendix 8: Questionnaire used for the semi-structured interviews with the municipalities. [English version.](#)

Before the interview starts:

- Making clear again the rights of the person (access to the transcription, with the possibility to change given answers)
- Mentioning again that the interview will be recorded by audio (and that the collected will be treated carefully)

Question 1: Could you please describe what exactly your function within the municipality is?

Question 2: Does the municipality have a good overview of the number of local energy initiatives / cooperatives? How is the municipality monitoring these developments?

Question 3: Does the municipality have goals and ambitions with regard to generating sustainable and renewable energy? If so, what goals / ambitions?

- how to realize these plans? (which time scale, with who?)
- grants? Is this budget increasing?

Question 4: Which role does the municipality fulfil with regard to the local energy cooperatives and their representative associations? (for example: lobby, legitimating, interlocutor, representing politics, legislative).

- could you give an example of this by discussing an existing project?
- which role would the municipality like to fulfil with regard to the cooperatives and their representative associations?

Question 5: Could you tell something about the roles which other institutions like the cooperatives, the representative associations and the province fulfil? (lobby, facilitating, stimulating, advising, creating support etc.). So:

- role of the cooperatives now and which role they should fulfil in the ideal situation
- role of the representative associations now and which role they should fulfil in the ideal situation
- role of the province now and which role they should fulfil in the ideal situation
- perhaps by discussing an example project

Question 6: Which conditions are necessary, according to you, in order to fulfil these roles in the ideal situation? (appointments, legislation, institutions, internal structures, collaboration).

Question 7: In which way does the municipality try to maximize the freedom / room for innovations of the local energy cooperatives and their representative associations? For example, flexibility with regard to legislation?

Question 8: Could you tell something about the collaboration and participation between the stakeholders in the current situation? For example, are the cooperatives and their representative associations getting informed / consulted, advised by the municipality or can they decide / co-produce policy with you?

- perhaps by discussing an example project
- what do you think about this current situation? (what would you like to see?)

Question 9: Are there any barriers with regard to the current way of collaboration? Are there any barriers with regard to the current role division? If so, which?

Question 10: In addition, how should the stakeholders (provinces, municipalities, representative associations and the cooperatives) participate and communicate with each other in order to achieve the ideal situation?

Finally: do you got any questions or remarks, or things which are not discussed yet but perhaps are relevant to the subject? (Do you know someone who could tell me a lot about this theme, working at...).

Completing.

Appendix 9: Questionnaire used for the semi-structured interviews with the provinces. English version.

Before the interview starts:

- Making clear again the rights of the person (access to the transcription, with the possibility to change given answers)
- Mentioning again that the interview will be recorded by audio (and that the collected will be treated carefully)

Question 1: Could you please describe what exactly your function within the province is?

Question 2: Does the province have a good overview of the number of local energy initiatives /cooperatives? How is the province monitoring these developments?

Question 3: Does the province have goals and/or ambitions with regard to generating sustainable and/or renewable energy? If so, what ambitions?

- how to realise these goals / ambitions? (time scale, with who?)
- grants? Is this budget increasing?

Question 4: Which role does the province fulfil with regard to the local energy cooperatives and their representative associations? (for example: lobby, legitimating, interlocutor, representing politics, legislative).

- could you give an example of this by discussing an existing project?
- which role would the municipality like to fulfil with regard to the cooperatives and their representative associations?

Question 5: Could you tell something about the roles which other institutions like the cooperatives, the representative associations and the municipality fulfil? (lobby, facilitating, stimulating, advising, creating support etc.). So:

- role of the cooperatives now and which role they should fulfil in the ideal situation
- role of the representative associations now and which role they should fulfil in the ideal situation
- role of the municipality now and which role they should fulfil in the ideal situation
- perhaps by discussing an example project

Question 6: Which conditions are necessary, according to you, in order to fulfil these roles in the ideal situation? (appointments, legislation, institutions, internal structures, collaboration).

Question 7: In which way does the province try to maximize the freedom / room for innovations of the local energy cooperatives and their representative associations? For example, flexibility with regard to legislation?

Question 8: Could you tell something about the collaboration and participation between the stakeholders in the current situation? For example, are the cooperatives and their representative associations getting informed / consulted, advised by the province or can they decide / co-produce policy with you?

- perhaps by discussing an example project
- what do you think about this current situation? (what would you like to see?)

Question 9: Are there any barriers with regard to the current way of collaboration? Are there any barriers with regard to the current role division? If so, which?

Question 10: In addition, how should the stakeholders (provinces, municipalities, representative associations and the cooperatives) participate and communicate with each other in order to achieve the ideal situation?

Finally: do you got any questions or remarks, or things which are not discussed yet but perhaps are relevant to the subject? (Do you know someone who could tell me a lot about this theme, working at...).

Completing.

Appendix 10: Overview members GrEK and Drentse KEI

