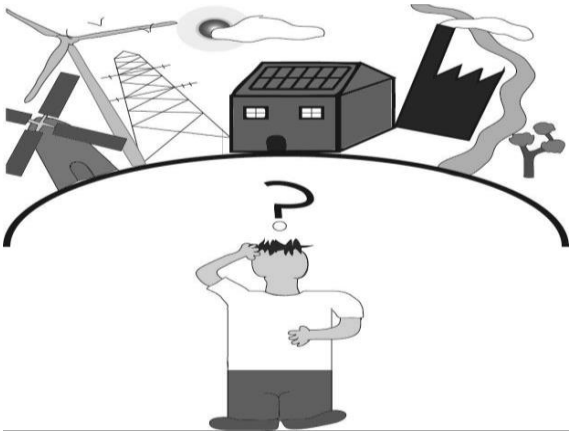
How to support bottom-up energy transitions?

A strategic niche management analysis of intermediary organizations facilitating community energy development in the Netherlands



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Abstract

Intermediary organizations, organizations creating new development opportunities by connecting niche innovations, have been regarded to perform a key role in community energy development. It is claimed that they contribute to a more sustainable energy system and help to fulfil national policy objectives such as climate change mitigation and energy security. While there are at the moment almost 500 community energy projects in the Netherlands, it remains unclear how intermediaries support these initiatives. In this study we aim to identify the roles of intermediaries in community energy development. In addition, this study provides an overview on the institutional infrastructure and intermediary roles community energy projects find lacking. The methods used in this study include interviewing (7) key intermediaries, conducting a questionnaire with (99) community energy initiatives and desk research. The results show that most intermediary organizations support community energy development via networking, while others guide community energy initiatives by framing and coordinating community action. However, community energy initiatives find little support from these organizations through specific guides and expert advice tailored to an initiatives specific local context. I recommend improving intermediary support in the community energy sector by strengthening the operating capacity of community energy initiatives and providing more support on project realization. The latter can be done by organizing courses on finance, marketing and legislation.

Key words: intermediary actors, community energy, sustainable transitions, renewable energy, strategic niche management, multi-level perspective (MLP), The Netherlands

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Table of contents

List of Figures

List of tables

Abbreviations and acronyms

- **AoD** Arenas of Development
- **B** Buurkracht
- **CEI** Community energy initiative
- **D** DE UNIE
- **E** e-Decentraal
- **G** Greenchoice
- **H** Hieropgewekt
- **KWh** kilowatt hour
- **Ltd.** private limited company
- **MPL** Multi-level Perspective
- **N** Nudge
- **OECD** Organisation for Economic Co-operation and Development
- **P** Pura vida
- **SDE** Subsidy Renewable energy production
- **SER** Social-Economic Counsel
- **SNM** Strategic Niche Management
- **V** VEC-NB
- **VNG** Association of Dutch Municiplaties

Chapter 1: Introduction

1.1 Problem statement

If the dependency on fossil fuels does not drastically decrease in the coming years, climate change and energy insecurity will have a stronger influence on our way of living. These two factors will result in economic crises, loss of human life, ecosystem degradation, extreme weather events and political instability (Semenov et al., 2007; Murphy & Hall, 2011; Heun & de Wit, 2012). These risks make the transition towards cleaner and more renewable energy sources a top priority for governments and societies throughout the world (Laes et al., 2014). Unfortunately, many countries, including the Netherlands, find it difficult to achieve their goals in renewable energy production (Eurostat, 2014; Hekkenberg & Verdonk, 2014). As an illustration, the Dutch government lowered their renewable energy production goal from 16% to the European minimum directive of 14% (SER, 2013; De Volkskrant, 2014). Verdonk & Wetzels (2012) even argue that by the year 2020 only 7 to 10% of the Dutch energy production will actually come from renewable sources.

A current development in the energy sector is the sharp increase in community energy initiatives (VNG, 2013; Oteman et al., 2014; Hieropgewekt, 2014). Community energy initiatives encompass a wide range of projects, such as jointly purchasing a wind turbine, house insulation on a neighbourhood level or a program to change energy behaviour (Seyfang et al., 2014). Energy initiatives are suggested as a tool for achieving the transition to a low carbon energy system, because they reduce fossil fuel energy demand and stimulate renewable energy production on a local level (Seyfang et al., 2013). In this way initiatives contribute to national policy objectives, such as reducing greenhouse gas emissions, energy security and increasing the share of renewable energy production (Rogers et al., 2008; Walker et al., 2010; Bomberg & McEwen, 2012).

In general, a community energy initiative can be defined as a local initiative producing renewable energy or reducing energy use (Pepermans et al., 2005). These projects typically have much local involvement and social interaction, but there can also be minimum local involvement and a focus on producing energy for the grid (Walker & Devine-Wright, 2008). Therefore, the term community energy has a rather broad application and includes a large variety of different projects which all classify as community energy. Examples of community energy initiatives are cooperatively producing solar energy, installing energy efficient lighting or jointly purchasing a biogas energy installation. The most common motivations to start such an initiative are sustainability, self-sufficiency, social interaction and to a lesser extent the payback on investment (Bomberg & McEwen, 2012). Finally, community energy initiatives have various organizational structures of which co-operatives were the most common in the Netherlands (Ministry of economic affairs, 2013).

However, the development and success of community energy initiatives depends on the institutional system in a country (Oteman et al., 2014). Within this institutional system, intermediary actors are seen as key players in the development of community energy initiatives (van Lente et al., 2003; Geels & Deuten, 2006; Stewart & Hyysalo, 2008; Kivimaa, 2014). For intermediary organizations connect specific and often isolated niche innovations (community initiatives) allowing the identification of common

problems (Howells, 2006). Through this process, intermediary actors help to generate a shared institutional infrastructure, contributing to the development of community energy initiatives (niches) (Geels & Deuten, 2006).

Such an institutional infrastructure for community energy initiatives also exists in the Netherlands, and is organized by organizations such as Hieropgewekt and e-Decentraal. They provide a communication platform and other kinds of support to local initiatives. However, the precise roles and effectiveness of intermediary organizations in community energy development remain unclear. Main questions are: what support is actually being provided by intermediary organizations and how does this support contribute to a bottom-up energy transition? In order to answer these questions, I used two methods: a questionnaire and semi-structured interviews. The questionnaire was conducted among community energy initiatives to gather data on the roles of intermediary organizations. In addition, initiatives were asked what support was lacking for community energy initiatives. Interviews were conducted with representatives of intermediary organizations in the Netherlands, to investigate what support was offered. Additionally, I attended two national community energy events and performed a literature study to acquire complementary information.

1.2 Framework and outline

The theoretical framework used in this research was based on the Strategic Niche Management (SNM) theory and the Multi-level Perspective (MLP). SNM is a framework on the roles of intermediary organizations in niche development (Geels & Deuten, 2006). This framework functioned as a guideline in this study and helped to identify the roles of intermediary organizations. The MLP framework explains technological (energy) transitions by using different theoretical concepts: the niche, regime and landscape (Rip & Kemp, 1998). This framework helps to understand what effect community energy initiatives could have on the energy system at large and what factors influence a transition to a more renewable energy system. However, these theories have been based on technological niches, while community energy initiatives differ from technological niches in various ways. For instance, community energy initiatives have strong local and social values while niche innovations focus more on growth and profit (Hargreaves et al., 2013). According to Hargreaves et al (2013), the differences between niche innovations and community energy initiatives make the use of SNM and MLP in the context of community energy somewhat problematic. Accordingly a theoretical gap, between these theories and the situation (roles) in the community energy sector was anticipated.

In the next chapter, the literature related to community energy and technological transitions has been reviewed. Thereafter, the research design and the materials used to understand the roles of intermediary organizations are presented. This includes the selection of the target groups and the concerns about the validity of this research. Next, two empirical chapters (A grass root perspective on intermediaries and intermediary support in the Netherlands) present the findings from the questionnaire and interviews. These chapters are based on the framework of intermediary roles according to Geels & Deuten, 2006. In the final sections the findings of the research are discussed and concluded. This section also includes recommendations, policy implications and advice for future research.

1.3 Research objectives

First of all, this research aims to provide a clearer understanding on the roles intermediary organizations in community energy development. In addition, we contribute to the theoretical framework on intermediary roles, explain how initiatives contribute to a bottom up energy transition in the Netherlands and provide an overview on the support community energy initiatives find lacking. In conclusion, the ambition of this study is to aid intermediary organizations in providing the right kind of support and suggest improvements to subsidiary policies. As a result, this report assists development in the community energy sector; contributing to goals in climate change mitigation and to reach renewable energy production targets.

1.4 Research questions

To address the issues mentioned in the problem description, this study used the following research questions:

1. Main research question:

How do intermediary organizations contribute to a bottom-up community energy transition in the Netherlands?

2. Sub-questions:

How do intermediary organizations provide networking, aggregation and guiding services to community energy initiatives?

What support is according to community energy initiatives lacking in community energy development?

1.5 Literature review

In this literature review we focus on the Multi-level Perspective on transitions, and how community energy and intermediary organizations fits within the MLP framework. Next, we discuss the concept of a technological transition and some of the critiques on the MLP framework. Thereafter, Strategic Niche Management and the role of intermediary organizations are explained. In the final sections, the characteristics of community energy are reviewed and compared to those of niche innovations.

1.5.1 Transitions

Socio-technical transitions are fundamental system changes, bringing about major technological as well as societal change in especially the transport, energy, agriculture, water, fishery and tourism sectors (Safarzyńska et al., 2012). In these sectors various elements interact: "(individuals, firms, other organizations and collective actors) and there are institutions (societal norms, regulations, standards of good practice)" (p.956) (Markard et al., 2012). Together these elements provide specific services to society (Markard et al., 2012). A transition changes the fundamental institutional structures, as well as the perceptions of consumers on a specific service or technology. A historical example of such a transition was the change from carriages to automobiles (Geels, 2005; Markard et al., 2012). Because horse driven carriages made way for automobiles as the main way of transportation, automobiles became the dominant regime technology and a socially accepted way of transportation. When comparing this to the energy sector, the dominant regime technologies (carriages) could be viewed as carbon-intensive and centralized energy systems (Naus et al., 2014).

In this context, community energy initiatives are innovations that challenge the dominant carbon-intensive system. Community energy initiatives could in the right conditions replace these dominant regime energy technologies. Still, there are many factors influencing a transition and to understand such a complex technological regime the MLP framework can be of great help.

1.5.2 The multi-level perspective

The multi-level perspective is a framework for understanding sustainability transitions. It provides an overview on the complexity of changes in socio-technical systems, and is useful for understanding how socio-technical transition occur in complex systems comprised out of many interactive elements (Rip & Kemp, 1998; Kemp et al., 2001; Geels & Schot, 2007; Geels, 2010). Raven et al., (2010), highlight the following advantages of the MLP framework: (1) MLP connects the multi-level environment of transitions, providing insights in problems and solutions on different levels and how these levels are connected; (2) levels used in MLP are analytical concepts, this allows a transition practitioner to interpret the world from his perspective; and (3) MLP contributes to understanding the occurrence of transitions, as transitions are caused by complex interactions on multiple levels. The MLP framework has three analytical: niche innovations (micro-level), sociotechnical regime (meso-level) and landscape (macro-level) (See Figure 1).

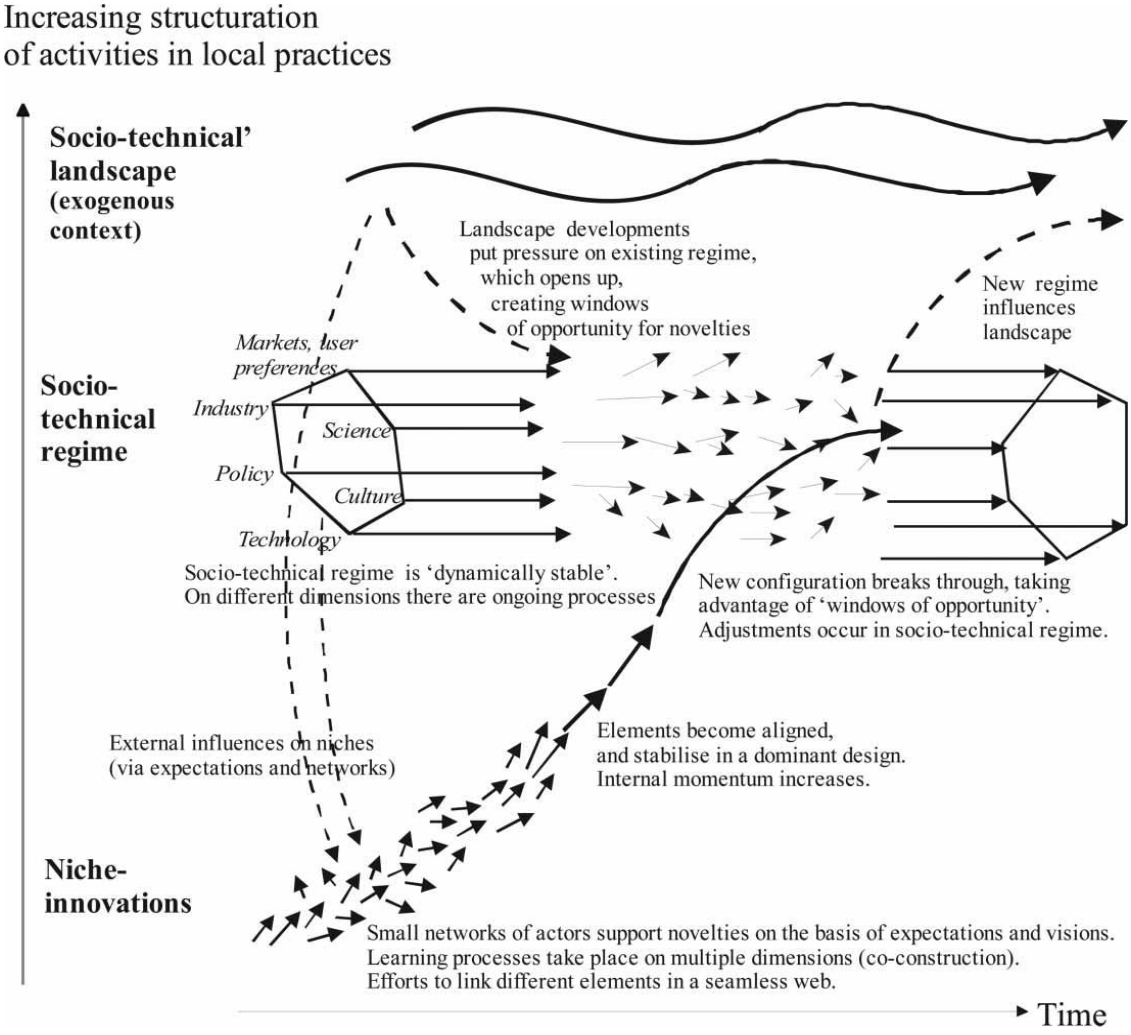

Figure 1: The Multi-level perspective (Copied from: Geels, 2004)

The niche is the micro level in the MLP framework and is described as follows: (1) a location shielded from the regime, to avoid the regime's selective pressure, (2) the smallest (micro level) in technical and social change, (3) a new set of rules and institutions for trying out innovative practices, (4) a social/cultural practice that differs from the current regime, (5) an environment for new innovations (Raven et al., 2010). In a way community energy initiatives can be considered as niches, for they operate on a local scale and use innovative technologies to produce energy.

The sociotechnical regime comprises the broader community of social groups and their dominant culture, structure and practices in society (Geels & Schot, 2007; Nykvist & Whitmarsh, 2008). In the energy sector, the regime consists of centralized energy production using fossil fuels. Raven et al., (2010), defines the regime as follows:

> *(1) A coherent set of rules and institutions that enables and constrains the choices and behaviour of regime actors (including firms, users, policy actors, scientists, etc.), (2) the dominant socio-technical system or the 'establishment' that represent power, is resistant to fundamental change and has a long history of existence, (3) a constellation of structures, culture and practices that is dominant in the way social needs are fulfilled, (4) the selection environment for innovations (P.61).*

Landscape is the largest (macro-level) analytical concept in MLP. Landscape is a metaphor for a slowly changing environment including the material environment and deeply rooted cultural beliefs (Geels, 2004). The landscape is the main force behind changing the regime. Such as environmental pressure or political and international developments (Raven et al., 2010). Climate change and resource scarcity can be seen as the driving landscape pressures behind the sharp increase in community energy initiatives.

Within this framework, transition are a change from one sociotechnical regime to another (Geels & Schot 2007). It is argued by Geels (2005) that a change from a sociotechnical regime arises through interacting processes within and between these levels. Yet, socio-technical transitions do not occur easily, "because existing energy, transport, housing and agro-food systems are stabilized by lock-in mechanisms that relate to sunk investments, behavioural patterns, vested interests, infrastructure, favourable subsidies and regulations" (Geels, 2010, p.495). A deviation within a current regime can occur by landscape chances, like increased environmental awareness to use sustainable energy (Genus and Coles, 2008).

Community energy can be analysed by using the MLP framework the following way. Due to economic and environmental pressures (landscape level) new ways for producing energy are encouraged. This leads to new technological innovations (niche level) of producing energy as well as new social and structural practices that arise with these innovations. As the innovations and social practices become more aligned and stabilized (Geels, 2004), the niche innovations challenge the current regime. When the technological niche innovations are able to become part of the dominant culture and challenge technologies in the regime, a transition in the energy sector can occur.

The MLP framework is used to show how this research fits with theory on transitions. Moreover, transitions are complex and shaped by many influences on society. Here the MLP framework contributes to understanding the difficult multi-level interactions that constitute a transition. MLP shows how intermediaries can be important for transitions by contributing to alignment and stabilization of niche innovations. Helping initiatives challenge regime technologies (See Figure 3). The different roles of intermediaries, aggregation, networking and guiding, are further discussed in the conceptual framework (p.11).

1.5.3 Critiques on the MLP framework

Although the MLP framework helps to understand how community energy initiatives and intermediary organizations contribute to an energy transition. The framework was criticised as it would not clearly describe the connection between the landscape, regime and niche level (Jørgensen, 2012). Actually the regime (actors and technologies) often help to initiate niche innovations. Thus, this research could find stronger links between the different theoretical levels than the MLP framework suggests.

Several papers have critiqued the MLP transition framework and had two main points critique. (1) There is an emphasis on technological artefacts causing little attention to be paid on context specific social and political relations (Lawhon & Murphy, 2011). (2) "based on the observation actors are engaged at several levels in transition processes and are not working in isolation" (Jørgensen, 2012). Transition literature has focused on specific technological artefacts such as photovoltaics and biofuels to explain transition. Nevertheless, this approach leaves readers with several questions as to why, how and through which agencies these changes arose (Lawhon & Murphy, 2011). "Who introduced fertilizer? Who professionalized waste management? Did this social system have to result from this technological innovation (Lawhon & Murphy, 2011)?" Although the MLP framework aims to include processes beyond technical artefacts by including landscape pressures, there is insufficient research connecting landscape changes to specific technological artefacts (Lawhon & Murphy, 2011).

According to Jørgensen (2012) the levels in the MLP framework (niche, regime and landscape) do not clearly define the role of actors. It is argued that actors can never operate on just one level, but engage, transform and intervent at all levels. So distinguishing between levels is not always possible and actors that shape and change elements at all levels, challenge the foundational logic of the landscape level.

Both arguments (1,2) provide evidence why the landscape level in the MLP framework can be considered illogical. Jørgensen (2012) thus argues for a alternative framework the Arenas of Development (AoD) framework (Jørgensen & Sørensen, 2002). This framework is according to Jørgensen (2012) better suited to evaluate governance structures and the situated political ingament of actors.

However, Jørgensen (2012) also argued that the MLP framework can "help social actors to understand socio-technical constituencies and provide tools to identify potential change resulting from innovations". Because community energy can be compared to niche innovations (p.5), the MLP framework suits this study best.. Moreover, the MLP framework has been viewed as a key and core research strand in sustainability transition studies, making it a well researched and known concept (Markard et al., 2012). Finally, SNM, another core theory in sustainable transitions, is based on the MLP framework (Loorbach & Van Raak, 2006).

1.5.4 Strategic Niche Management

Strategic niche management deals with the management of niches, in order to challenge dominant regime technologies (Kemp et al 1998). The key concept stems from the observation that most inventions cannot compete with established (regime) technologies the day they are first recognized (Schot & Geels, 2008). Consequently, novel innovations require support to be able to replace dominant technologies in the regime. Kemp et al (1998); propose the following definition:

Strategic niche management is the creation, development and controlled phase-out of protected spaces for the development and use of promising technologies by means of experimentation, with the aim of (1) learning about desirability of the new technology and (2) enhancing the further development and the rate of application of the new technology. (p.186)

The main research question in SNM was: "how and under what circumstances is the successful emergence of a technological niche possible?" (Schot & Geels, 2008). According to Schot & Geels, (2008), three internal process in a niche influence successful development: (1) A sound articulation of a vision, because they provide a direction in learning and developing; (2) The building of a social network, as this is important for interaction between the niche innovations and resources, such as money, people and expertise; and (3) Learning all kinds of processes related to regulations, policy, management and technological aspects. SNM focused next to the development of technological niches on other factors that determined the success and failure of niche innovations. And, one of these factors that determined development of niche innovations are intermediary organizations (Geels & Deuten, 2006)

Because intermediary organizations provide SNM services to community energy initiatives (niches). It is argued that intermediaries "create protected spaces" offering an institutional infrastructure to community energy initiatives (Geels & Deuten, 2006). Intermediaries create this institutional infrastructure by offering a community platform at which shared rules and practices form and evolve (Geels & Raven, 2006; Raven et al.,2010; Hargreaves et al., 2013). This kind of intermediary support is considered "key" in the development of community energy initiatives (Hargreaves et al., 2013). Strategic niche management on the other hand is based on technological niches, while community energy initiatives differ from technological niches in some fundamental ways (Shove & Walker, 2007). Accordingly, the roles of intermediary organizations in developing community energy initiatives can differ from those in niche innovations (Hargreaves et al., 2013).

1.5.5 Community energy history

Until recently, community energy was not relevant for national energy policy (Walker, 1997). In the early 2000's the first intermediary support for community renewable energy in the UK emerged, as a response to more and more community energy initiatives (Walker et al., 2010). Still, the role of energy communities remained small, limited to expressing their beliefs on an energy agenda or as a local consultant advising energy projects designed by others (Devine-Wright, 2005; Warren et al., 2005; Rogers et al., 2008). This changed when energy and emission reduction policies began to enhance the possibilities for communities. The different support programs delivered by governments and their agencies (intermediary actors) aim to assist communities by "Networking, specialist skills, information and funding, reflecting the stated policy objective of encouraging community energy" (Park, 2012).

Renewable energy was introduced in the Netherlands in the 1980's and was supported by national policy (Agterbosch & Copernicus Institute, 2006). Local community energy initiatives emerged a decade later, being seen very rarely in the 1990's, but the number of community energy initiatives increased in the 2000's. Large community energy initiatives from these periods are Ecopower (Belgium) starting in 1991 and Texel Energie starting in 2007 (Bosman et al., 2013). After 2010, the number of community energy initiatives has increased rapidly in the Netherlands up to almost 500 initiatives (Hieropgewekt, 2014).

1.5.6 Defining community energy

It is relatively difficult to define community energy, as there is no consensus on the term (Hoffman & High-Pippert, 2010). Walker & Devine-Wright 2008 discuss three different types (ABC) of community energy (See Figure 2). Firstly, type (A) initiatives focus on the organizational process to involve local people as much as possible in the planning, setting up and possible running of the community energy initiative. Secondly, type (B) initiatives are less concerned about local participation and how benefits are distributed. These initiatives focus more on how the local economy benefits from the initiative. These benefits could be providing jobs, contributing to local energy production or providing educational possibilities (B). Finally, type (C) allows many different forms and projects to have the community label, as long as it would lead to something productive and useful. These projects have minimal local involvement and focus more on producing energy for the grid. However, all these initiatives and combinations of these types can be defined as community energy.

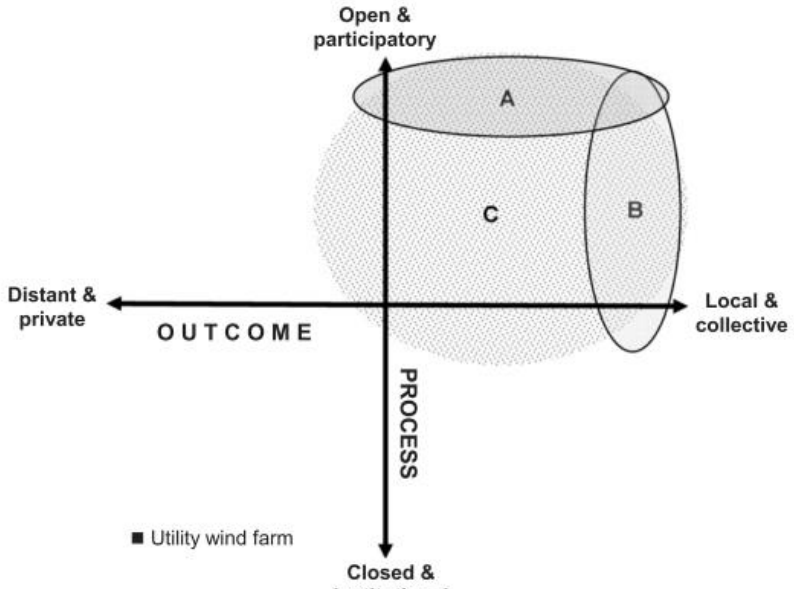

Figure 2: Understanding community energy in relation of process and outcome dimensions - copied from: (Walker & Devine-Wright, 2008)

According to Pepermans et al. (2005), community energy is decentralised energy production that is connected to the grid or the "customer side" of the meter. Next to energy production, reducing energy use in a neighbourhood can be regarded as a community energy initiative as well (Seyfang et al., 2013). Community energy production is derived from renewable sources, such as solar, wind, geothermal, hydro and biomass. While energy reduction is done by the insulation of a building or installing more energy efficient lighting. Communities often have the following characteristics: communally owned property, management is done by participants and new organizational structures (co-operatives) (Ministry of economic affairs, 2013). Reasons for investing in community energy differ from more revenue-oriented conventional and large-scale renewable energy production projects. As environmental concerns, feeling self-sufficient, stimulate local economy, a community feeling, energy security and to a lesser extent payback time on the investment are the main reasons to invest in a community energy project (Bomberg & McEwen, 2012)[1].

Examples of community energy initiatives are: a campaign to switch to energy efficient lighting, jointly insolating houses in a neighbourhood, a cooperative to produce local wind and solar energy, installing a wind turbine by and for the neighbourhood or a community jointly switching to biomass boilers (Bomberg & McEwen, 201; Seyfang et al., 2013). There are many and various social forums where interaction about community energy can occur. Such as forums from local authorities, neighbourhood residents or non-governmental organizations (Hoffman et al., 2013).

1.5.7 Community energy compared to technological niches

Because niche innovations and community energy initiatives have several fundamental differences, the roles of intermediary organizations or the support required to help community energy initiatives vary as well. Nevertheless, the theory on strategic niche management and intermediary organizations is based on technological niches. While community energy has a more complex socio-technical structure and therefore are distinctly different form niche innovations (Shove & Walker, 2007; Genus & Coles, 2008). Hargreaves et al.,(2013) investigated the differences between community energy and market based innovations, concluding:

> *Their driving force is social and/or environmental need, rather than rent seeking; their context is civil society rather than the market economy; they display diverse organizational forms including* co-operatives*, voluntary organizations and community initiatives, rather than firms; their resource base is voluntary input, grant funding, mutual exchange, and reciprocal relations rather than business loans and commercial income; they are grounded in local and collective values, based on notions of solidarity, rather than efficiency and profit-seeking; and their niche protection consists of being a space for alternative – i.e. green, sustainability-oriented – values to be expressed, as opposed to shielding from market forces (p. 4).*

According to Seyfang 2009, the benefits for participants in community energy are often the shared practice of deep green values, rather than economic or material reasons (Table 1).

[1] *Interview director E-decentraal Siward Zomer at the Hieropgewekt energy pit, September 2014.*

Table 1: Differences Community energy and market innovations based on Hargreaves et al., (2013)

Market innovations	⟷	Community Energy
Monetary drive		Social and/or environmental drive
Market economy		Civil society context
Firms		Many organizational forms
Business loans and commercial income		Voluntary resource input (grand's, mutual exchange)
Efficiency and profit		Social and local values
Create protective environment against market forces		Niche protection: sustainability oriented

1.6 Theoretical framework

The main framework used in this thesis was based on the roles of intermediary organizations as defined by Geels & Deuten (2006). These roles functioned as a guideline for the design of the questions in both the questionnaire and interviews. This framework was used, because it describes the roles of intermediary actors and the associated activities of these roles. Furthermore, Hargreaves et al., (2013), used the same framework to define intermediary roles of the community energy sector in the UK. Hence, using the same framework would allow for comparison and more importantly the paper provides a hint on how intermediary roles could differ from those at technological niches.

SNM and intermediary actors

Intermediary actors are broadly defined by Hargreaves et al. (2013) as: "Organizations or individuals engaging in work that involves connecting local projects with one another, with the wider world and, through this, helping to generate a shared institutional infrastructure and to support the development of the niche in question". Using this definition, Hargreaves et al., (2013) used three sub-categories defined by Geels & Deuten (2006): (1) aggregation, (2) Networking, (3) Guiding.

Firstly, intermediaries facilitate aggregation; this is the process of generalizing local knowledge. This makes knowledge less tied to a specific context and transforms it in a more general and abstracted knowledge form, allowing this generalized knowledge to travel between local practices. Aggregation involves the creation, maintenance and distribution of knowledge (Geels & Deuten, 2006). In the case of community energy, intermediaries could create knowledge on how to set up an initiative, adjusting information to changes in energy policy or making information available for community energy initiatives.

Secondly, intermediaries network: they bring together different local initiatives, inducing interaction between actors. This allows knowledge sharing and enables collective action on similar problems

encountered by several initiatives. Examples where information sharing can occur are conferences, seminars, workshops, proceedings and online forums (Geels & Deuten, 2006).

Thirdly, intermediaries use the acquired knowledge of all projects to 'reverse' coordinate and frame subsequent action in local projects. This activity transforms the acquired knowledge in guidelines for local practices. Reversing has been defined as: "Collective knowledge on repertoires at the global level become guiding for local-level activities (Geels & Deuten, 2006)". This entails intermediaries helping to define: best working practices, come up with guidelines, set rules and offer courses and training.

These definitions will be used to identify what intermediary actors are currently influencing Dutch community energy initiatives. Firstly, the broad definition of intermediaries will identify whether an organization is an intermediary actor. Secondly, the sub-categories help to look at what support is offered by each intermediary actor. Besides identification, this method can also give insights in other ways intermediaries support niche development or the support intermediaries do not offer. For the data collection a framework based on the definitions is used (see Table 2).

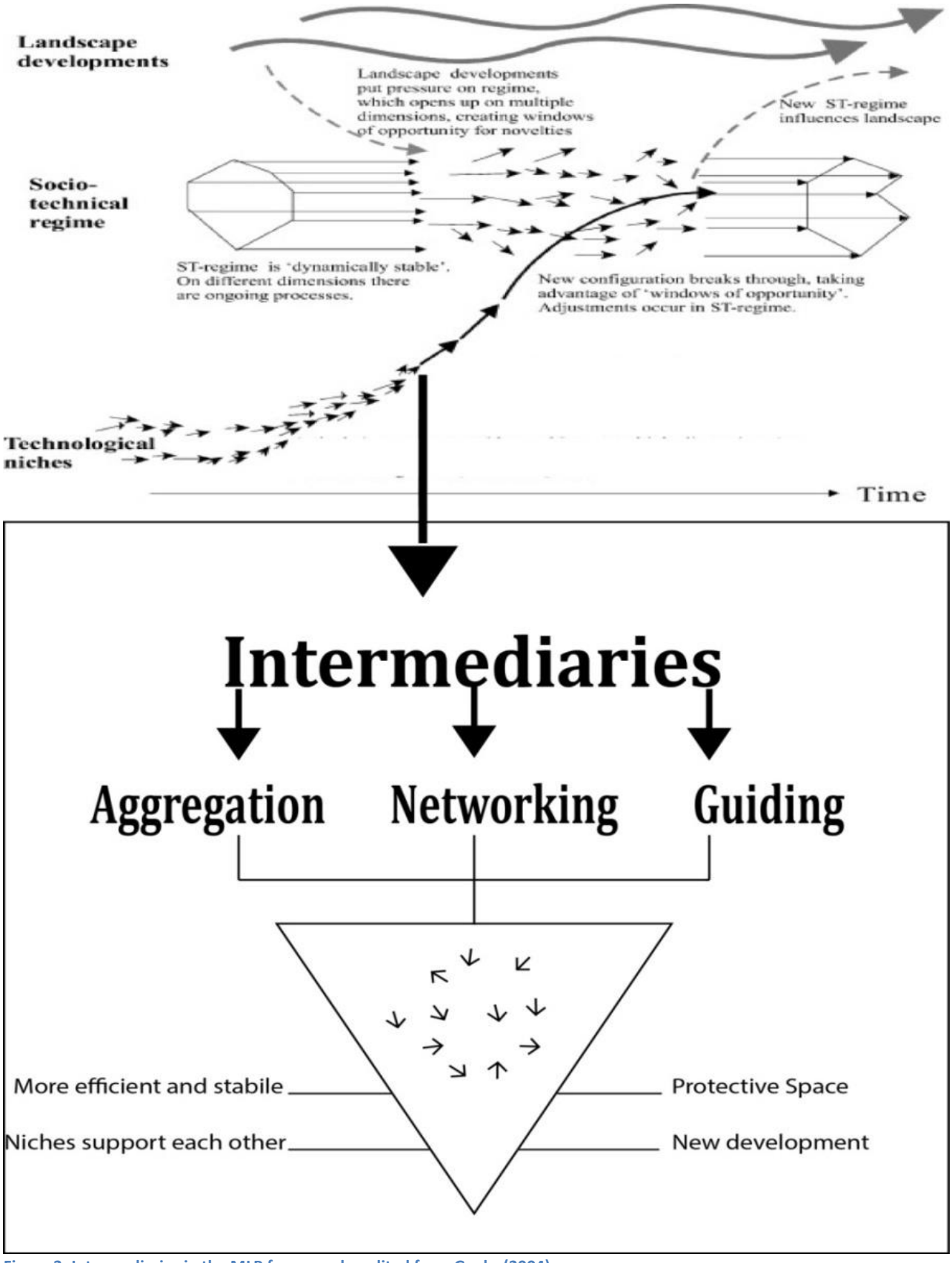

Figure 3: Intermediaries in the MLP framework - edited from Geels. (2004)

Chapter 2: Materials and Methods

2.1 Research design

To understand how intermediary organizations support bottom up energy transitions, both community energy initiatives and intermediary organizations have been approached. As we focused in this study on social interactions, we used specialized social methods that allowed us to investigate a development in society and understand how the targeted society functions (Bryman, 2012). I used both a quantitative and a qualitative approach to provide an overview of all community energy initiatives and go into more detail on certain aspects of the support that they received or lacked. As the number of targeted community initiatives was large, we used a quantitative online questionnaire to get representable results in an efficient way (Walliman, 2006; Wright, 2006), and contacted them to go into more detail on certain answers.

Because the number of intermediary organizations was much smaller, we used a qualitative approach by conducting semi-structured interviews. This approach allows interviewees to provide additional information (Trochim, 2014). Furthermore, the methods allows one to see whether a question was correctly interpreted (Opdenakker, 2006).

By using two methods on different target groups, it was possible to compare data from initiatives with intermediary actors. Nightingale (2009) argues that using multiple methods (complementary triangulation) helps to create a more complete picture of the phenomena studied. For two methods provide not necessarily the same results, but the data can make sense in relation to each other, helping to create a completer picture on the situation (Nightingale, 2009). According to Bryman (2012), using mixed methods such as a questionnaire and interviews has other complementary advantages. For instance, the questionnaire on community energy initiatives can show the variation in different opinions, while interviews can provide insights on why certain opinions on community energy support exists.

2.2 Target group

Community energy initiatives were selected by using the database on initiatives from the intermediary organization Hieropgewekt. Energy initiatives in the Netherlands can voluntarily register in this database (Hieropgewekt, 2014), which includes a wide variety of different energy initiatives. Although these initiatives have different organizational structures and projects, all classify as community energy initiatives based on their focus (e.g. reducing energy usage, producing local renewable energy or jointly purchasing house insulation) (Walker & Devine-Wright, 2008).

The intermediary organizations were selected using desk research and by attending community energy events (Hieropgewekt event in November 2014 & Hieropgewekt energy pit October 2014). The following definition was used to define an intermediary organization: “Organizations or individuals engaging in work that involves connecting local projects with one another, with the wider world and, through this, helping to generate a shared institutional infrastructure and to support the development of the niche in question” (Hargreaves et al., 2013). After identifying an intermediary organization, the theoretical

framework made a further classification of the intermediary role: networking, aggregation and guiding. Thereafter, a distinction between intermediaries operating on a regional or national level was made. Finally, representatives of the intermediary organizations were contacted by email for participating in the research. The interviewees all occupied a management position in the intermediary organization at the time of the interview.

2.3 Measures

The questionnaires were divided into four sections: networking, aggregation, guiding and missing support. The first three sections are based on the intermediary roles as identified by Geels & Deuten (2006) and are discussed in section 1.6 (theoretical framework). Every section was introduced with a short paragraph explaining the purpose and goals of the research. Thereafter, (1-5) statements were shown where the participants could indicate if they agreed or disagreed with the statement. These statements covered the general opinion on the support available for energy initiatives. Several statements were more specific and related to the intermediary roles described in paragraph … (Hargreaves et al., 2013). The questionnaire can be found in Annex B.

Other sections in the questionnaire asked general information such as the initiatives year of establishment or legal form. These questions used an open or multiple-choice format (Figure 4). Besides general information, open questions were used to ask what support the participants found missing for energy initiatives. The open format allowed participants to elaborate on what support was missing. Finally, the last section gave initiatives the opportunity to provide additional information


5. **Wat is de rechtsvorm van uw initiatief?**
Markeer slechts één ovaal.

- Coöperatie
- BV
- Maatschap
- NV
- Vereniging
- Anders: .....

Figure 4: Example question questionnaire

The interviews with intermediary organizations had a similar structure as the questionnaire: general information, networking, aggregation, guiding and missing support (Annex C). The questions had an open format, allowing the interviewee to elaborate on the answers and provide additional information. Besides the questions and statements, the interviewees were asked to make an illustration of the community energy institutional infrastructure. These illustrations are used to create an overview of the institutional infrastructure (see Annex D).

2.4 Sample Design

Energy initiatives in the Hieropgewekt database were contacted via email that explained the research and provided a link to the questionnaire. Initiatives required ± 20 minutes to fill in the questionnaire and two weeks after initiatives received the email a reminder was send. In total 280 initiatives were contacted of which 99 participated in the research.

To determine the minimum sample size the following formula was used:

$$a = \frac{Nz^{2pq}}{E^{2(N-1)}+z^{2}*0.25)}$$ (Isreal, 1992).

In this formula is *a* is the required sample size, *N* the population size, *E* the margin of error, *z* the confidence level and *E* the accuracy interval. *N* was set at 500, presuming the Netherlands had approximately 500 community energy initiatives (Hieropgewekt, 2014). The required sample size had a 95% confidence level and the accuracy interval was 10%. The required sample size (*n*) using these values was 81. So 99 questionnaires are representative for the total amount of community energy initiatives. The 99 initiatives that filled in the questionnaire represented initiatives from all provinces in the Netherlands.

To go into detail on certain answers that were given on statements, we contacted several initiatives via email. We asked why an initiative disagreed or agreed with a statement on intermediary support. Explanations were used to underpin the opinions and answers of initiatives, and to get a better understanding of the motivation of the initiatives.

In total 7 intermediary organizations participated in the research, of which 6 operated on a national level and 1 on a regional level (See Table 2). Interviews were conducted from the beginning of December 2014 until the end of February 2015. The interviews were usually 30-60 minutes and were performed at the location of the intermediary organization. During the interview a recorder was used to record the answers given and analyse the results in the office. Only the interview with VEC-NB has been conducted via phone, all others were conducted during a meeting with the representatives.

Table 2: Approached intermediary organizations

National Intermediaries	**Interviewee**
Buurkracht	Djoera Eerland
e-Decentraal	Siward Zomer
Pura Vida | renewable energy	Ron de Bruijn
DE UNIE	Brendan de Graaf
Greenchoice	Jeroen Vanson
Nudge	Tieneke Breemhaar
Regional intermediaries	**Interviewee**
VEC-Noord-Brabant	Jan Snelders

2.5 Data analysis

Results from the questionnaire were analysed in Excel. Firstly, the opinions on statements were analysed by creating graphs provide an overview of the different opinions. E-mails on why initiatives had certain opinions were used to underpin the opinions of community energy initiatives. Secondly, answers on open questions are analysed by grouping and coding the answers. Coding in this case was done by reading answers until certain themes became apparent (Griffee, 2004). These themes were based on the kind of support that was described missing (See Table 4). Finally, multiple-choice questions were analysed by creating various graphs. Answers that differed from the standard options (check boxes) are put in the "other" category.

Interviews were analysed by reading and grouping the various answers. Recordings were transcribed using the 7 principles of Mergenthaler & Stinson (1992). The most important principles were: (1) writing down the text as similar as possible, (2) Keep the same structure as in the interview and (3) make an exact reproduction without summarizing. After transcribing the interview, answers were grouped to make a general overview. Illustrations about the supportive structure of intermediaries (made by intermediary organizations annex D) were used to create an overview of the supportive structure (see Figure 22). The additional information provided in the interviews was used to explain opinions and formulate an advice on the functioning of intermediaries.

2.6 Validity and reliability

It is questionable whether qualitative semi-structured interviews are a valid and reliable research method. Joppe (2015), describes reliability as the extent to which results provide an accurate representation of the studied population and if the research can be reproduced using the same methodology. Because there are many factors that can influence the respondents' answers and opinions, changes in the characteristics of the respondents directly influence the research outcome (Golafshani, 2003). Furthermore, Joppe (2015), defines validity in social research as follows:

"Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are. In other words, does the research instrument allow you to hit "the bull's eye" of your research object? Researchers generally determine validity by asking a series of questions, and will often look for the answers in the research of others"

According to Golafshani (2003), the validity is strongly related to the researchers' skills and question design. In this research, interviewees did not have questions about the research objective. Before an interview took place, information explaining the research objective was sent to the interviewee, to create a clear understanding of the research topic and its goals. Additionally, intermediary organizations were asked whether the right intermediary organizations were approached and if the approached intermediary actors made a well-balanced representation of the sector.

In the questionnaire the same points determine validity and reliability. The questions were designed to measure the roles of intermediary actors in the Dutch community energy sector. Questions and statements related to the activities identified with the different roles (Geels & Deuten, 2006). A short introduction was provided to make sure the initiatives understood the goal of the research. However,

explaining the research in a short summary cannot cover all questions initiatives might have. When I e-mailed initiatives, it became clear that the difference between intermediary supports (courses – seminars) was sometimes unclear. Finally, questions can sometimes be answered from certain political beliefs rather than a rational understanding and interpretation of the question and the situation (Jones, 2001)

Because both the questionnaire and interviews were conducted in Dutch, all information was translated into English. Although great care was given to retain the meaning and context of the answers, it is sometimes difficult to translate answers provided within a certain cultural context. Nevertheless, I believe the translation barriers between Dutch and English were not problematic. For Dutch readers, the translations provided in Table 3 could help to better understand certain graphs.

Table 3: Translation legal forms

English	Dutch
Co-operative	Coöperatie
Foundation	Stichting
Association	Vereniging
Ltd.	B.V.

Chapter 3: A grassroots perspective on intermediaries

We begin this chapter by introducing the general characteristics of initiatives that participated in the questionnaire. Thereafter, the sections are divided according to the three intermediary roles as identified by Geels and Deuten (2006): networking, aggregation and guiding. Within these roles, networking encompasses activities like conferences, seminars and online forums. These activities provide a network infrastructure to energy initiatives. Aggregation can be interpreted as turning locally acquired knowledge into general rules and principles for the sector as a whole. This includes activities such as the creation, storing, organizing and distributing of knowledge to community energy initiatives (Geels & Deuten, 2006). Guiding is the framing and coordination of action inside local projects, it entails providing guides and giving advice (Hargreaves et al., 2013). In the final section we describe the different types of support that initiatives found missing.

3.1 General characteristics

To capture the general characteristics of initiatives, we asked them to provide information on legal form, projects and their motivation. Figure 5 shows the increase in energy initiatives in recent years, with the majority of initiatives being 2-3 years old. This rapid growth of energy initiatives in recent years has also been reported by the intermediary Hieropgewekt (Hieropgewekt, 2014). However, the size of community energy initiatives differs significantly. Most initiatives have few (0-50) participants while the largest initiatives can have thousands of participants.

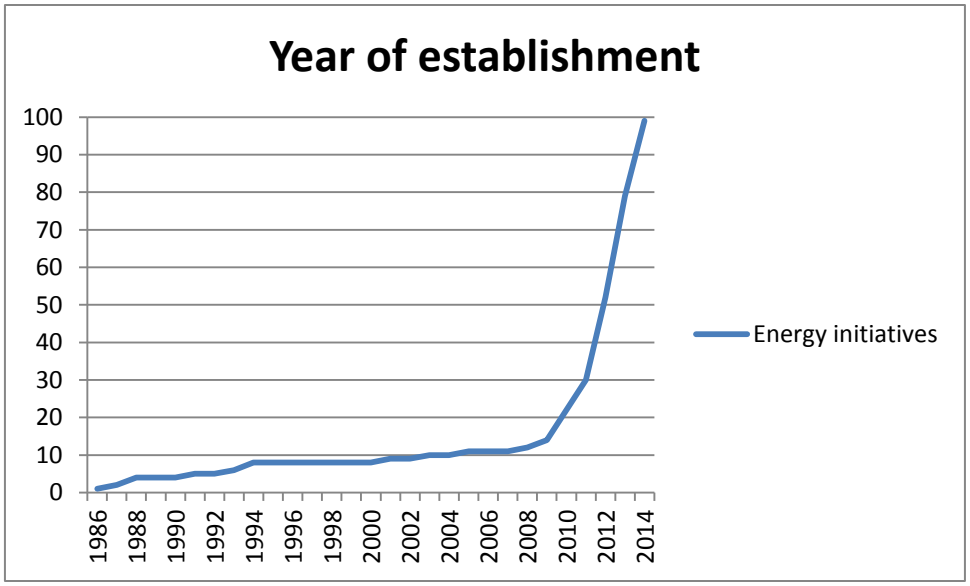

Figure 5: Year of establishment energy initiatives

Figure 6 and Figure 7 show the relative occurrence of the different legal forms seen in community energy, were Figure 7 only shows the legal form of initiatives established in the years 2013-2014. Initiatives in the groups “no legal form” and “other” still need to decide on their legal form or are operated from within another organization. The increase in co-operatives in the years 2013-2014 can partly be explained by the equal and democratic nature of cooperative organizations. The Community energy initiatives (CEI’s) often represent a movement for and by civilians, who value this type of organisation (De Windvogel, 2015; Zuidenwind, 2015). According to Wirth (2014), cooperative organizations are abundant because there is a culturally established tradition of co-operatives. Furthermore, cooperative organizations fit a common sense to produce the energy locally as well as environmentally friendly. Apparently, especially the cultural established tradition of cooperative organizations causes the large number of co-operatives seen in the Netherlands.

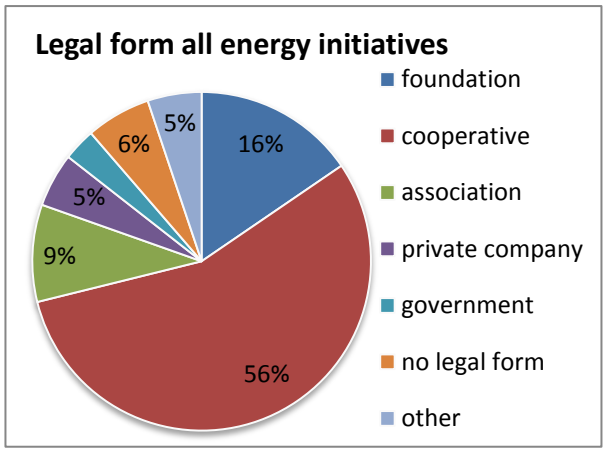

Figure 6 Legal form energy initiatives

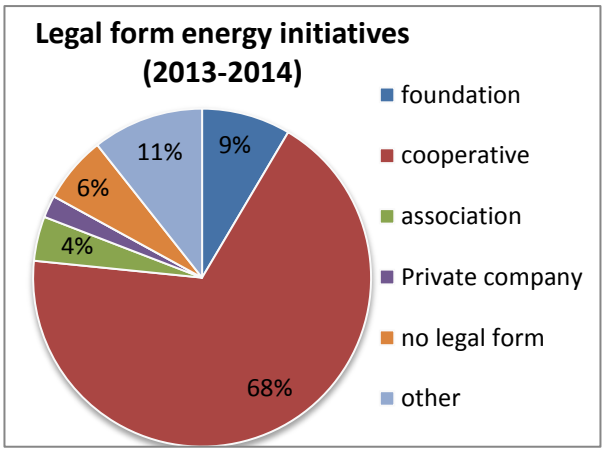

Figure 7 Legal form energy initiatives 2013-2014 (n=47)

Community energy initiatives produce renewable energy and reduce existing energy use in various ways (Figure 8). In the questionnaire, initiatives were able to indicate multiple ways of energy production and saving, hence (Figure 8) displays the energy production or saving type’s relative occurrence. Most initiatives used several ways of saving or producing energy, while those with a single focus are usually producing solar energy. The large diversity in energy initiatives makes intermediary support more complex. As the required support is project and location specific, it makes creating general guides difficult. Hargreaves et al (2013) supports this assumption, arguing that the mix of lessons learned from projects make it difficult to abstract the information into guides for wider applicability in the UK.

According to energy initiatives there are 6 main motivations for staring an initiative (see Figure 9). The most common motivation was the concern about the environment. There is a clear divide between socially oriented initiatives and more return on investment oriented initiatives. One initiative argued, “Asset-based co-operatives focus on a good business case, while co-operatives that focus on social and renewable aspects would rather speak of a yearly budget” (Personal communication, 01-03-2015).

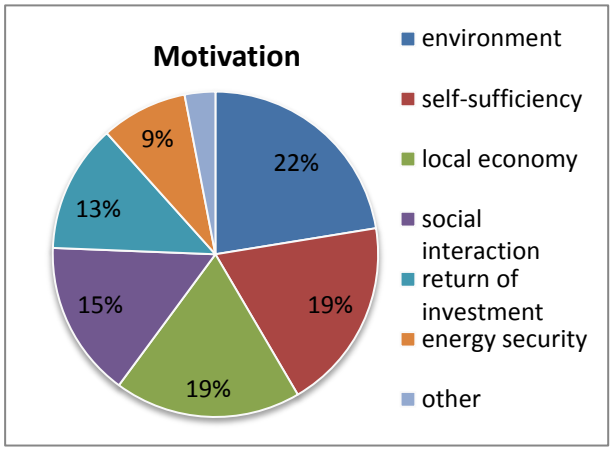

Figure 9 Motivation initiatives (n=99)

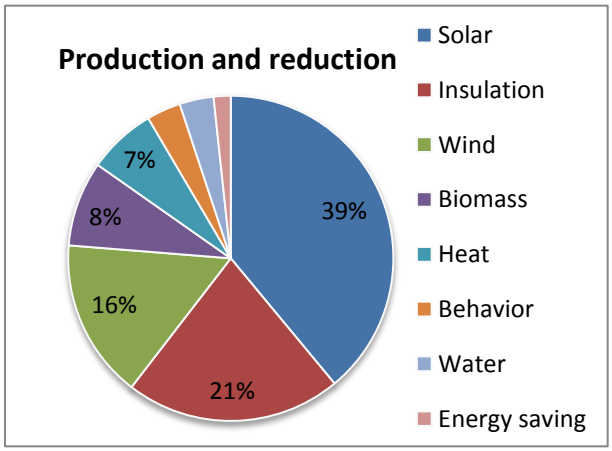

Figure 8 ways initiatives save and produce energy (n=99)

Energy initiatives became more focused on photovoltaic (solar) technologies in the past 29 years (Table 4). Initiatives could indicate multiple technologies used by their initiative. While wind energy was the most common from 1986 to 2010, in the years 2011-2012 it was overtaken by solar energy. However, the percentages only show how many initiatives use a certain technology; it does not show how many kilowatt-hours (kWh) have been generated.

Table 4: renewable technologies used (1988-2014)

Year	Solar	Wind	Insulation	Behaviour	Biomass	Water	Heat	Answers
1986-2010	27%	29%	15%	5%	6%	9%	9%	N=45
2011-2012	41%	12%	24%	4%	10%	5%	4%	N=55
2013-2014	52%	9%	24%	3%	6%	0%	6%	N=62

3.2 Networking

Community energy initiatives were given several statements on networking. Networking is in this case bringing together energy initiatives and inducing interaction, through for example conferences, online forums or workshops. The initiatives had to indicate to what extent they agreed or disagreed with different statements. This paragraph provides an overview of the answers and an analysis of the results.

The first statement asked initiatives to what extent intermediary organizations improve contact between initiatives (Figure 10). Almost all initiatives believe that intermediaries improve interaction between initiatives. When given several statements on how intermediaries improve the network between initiatives, conferences were considered most useful (Figure 11). Next came the availability of courses (Figure 12), an initiative gave the following reason as to why courses were less helpful: "Courses are too much one direction, cooperation and discussion between initiatives about a certain theme is more helpful". Finally, initiatives indicated online forums contributed least to communication with other initiatives. Reasons were "Online forums can sometimes provide interesting information, however communication can be unstructured and therefore it is questionable whether forums really improve cooperation", "My initiative sometimes joins a community of practice, during these meetings there is close interaction to solve common problems" and "Initiatives know their neighbouring initiatives and will work together if there are benefits, but an online forum doesn't create the strong links necessary for progress". These answers show events where initiatives can closely discuss and cooperate are considered most useful.

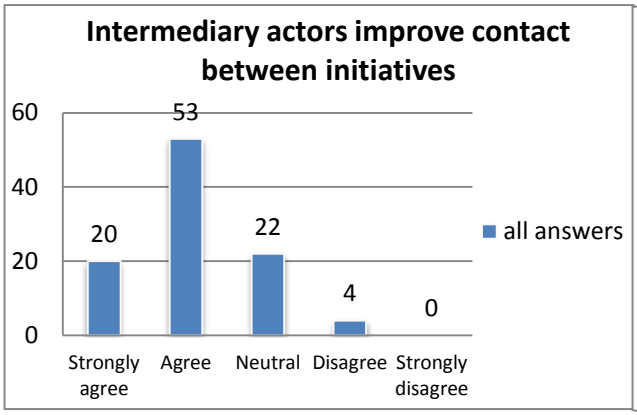

Figure 10: intermediary organizations networks

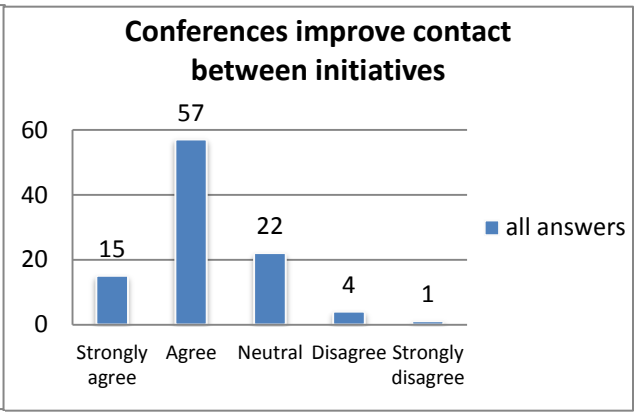

Figure 11: Conferences improve contact energy initiatives

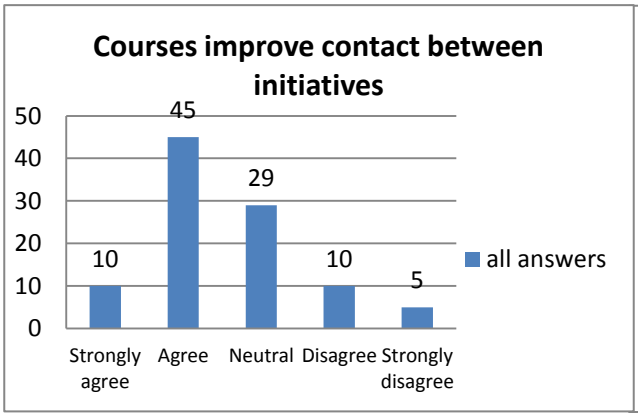

Figure 12: Courses improve contact energy initiatives

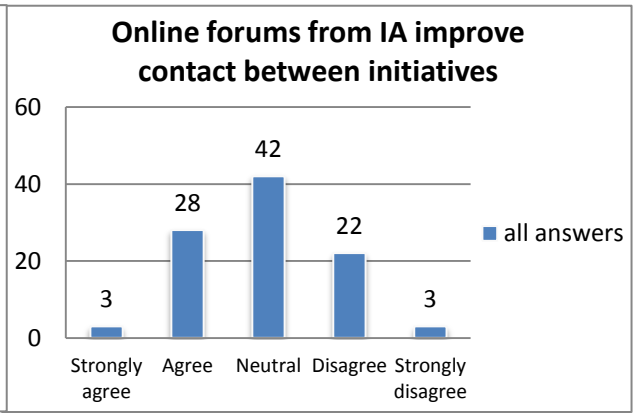

Figure 13: Online forums help communication initiatives

To capture which networks support cooperation of CEI's the questionnaire inquired how initiatives find and communicate with one another. In total 65 initiatives answered what networks they use or what supports them in communicating with other CEI's. The various answers were categorized (Figure 14), providing an overview of the answers. Communication with neighbouring initiatives happens often, as (*28*) initiatives indicated they were in direct contact with neighbouring initiatives. These initiatives argued, "Most initiatives know the initiatives in their region, communication does not have to happen through a third party". This shows neighbouring initiatives communicate and try to support each other, especially older more established initiatives provide support to new initiatives. Other important network organizations are regional intermediaries and environmental federations such as "Groninger Energie Koepel", "VEC-NB" or "Natuur en Milieufederatie Drenthe". These organizations offer a wide variety of support including the organization of meetings, creating a regional institutional infrastructure for initiatives. Other important organizations providing a networking infrastructure are governmental institutions as the municipality or governmental bodies such as Rijkswaterstaat. Interestingly, grid operators provide different kinds of support including a network for initiatives. Finally, there are initiatives indicating to have little or no time to communicate with initiatives or organizations. These initiatives lack capacity or see no benefit in communicating with intermediaries or other initiatives.

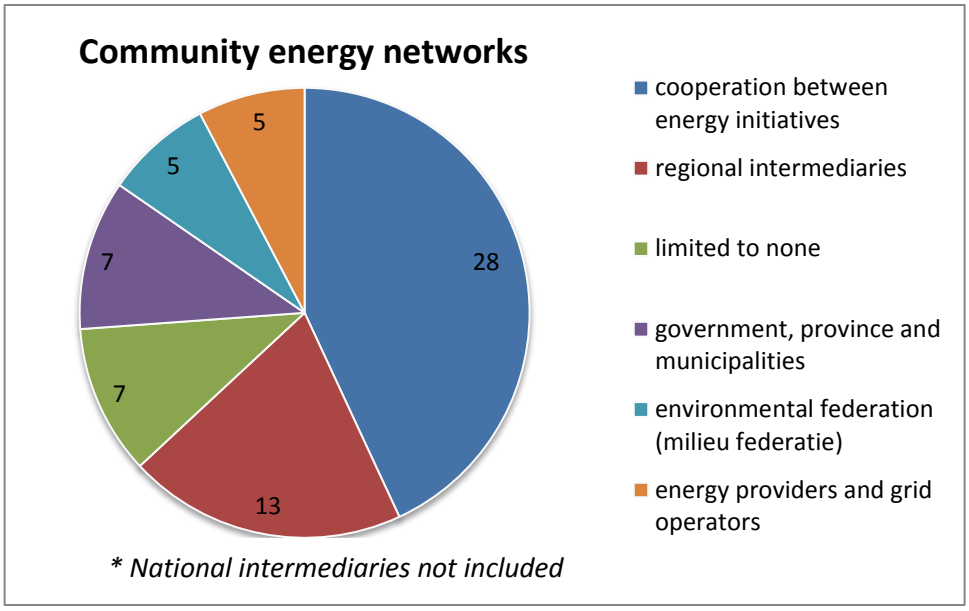

Figure 14: Community energy networks (n=65)

Intermediary actors have an important function in organizing cooperation and interaction between CEI's in the Netherlands. Among the various ways intermediary actors support interaction between initiatives, events such as conferences are found most helpful. Platforms such as online forums are considered useful for finding information, but unsuitable for organizing cooperation. Next to the (typical) intermediaries (Table 2), there are many organizations that supplement communication between initiatives (Figure 14). Perhaps the most important communicative partners are other initiatives, because more established initiatives share information and experience, and have similar perspectives and goals. Finally, some initiatives do not have the capacity or desire to communicate with intermediary organizations, making limited to no use of intermediaries and networks.

3.3 Aggregation

The term aggregation relates to the way intermediaries aggregate locally acquired knowledge into more generally applicable information (Hargreaves et al., 2013). Initiatives gave their opinion on the following statements: information about establishing an energy initiative is available (Figure 16) and information about establishing an energy initiative is useful and clear (Figure 15). Almost all initiatives find information on establishing an initiative to be available. On the usefulness and clarity of the information however, CEI's are more divided. From the 99 initiatives, (41) were neutral on the usefulness and clarity of information. Initiatives provided the following explanations for giving a neutral answer:

"Information to realize an energy initiative is not independent, you have to become member of a larger organization", "Information is not always clear and useful, a contact person works sometimes better", "especially the legislative information was useful, but we think it is possible to develop many more useful steps by step guides"

From the 13 disagreeing initiatives (Figure 15), some initiatives disagreed because their initiative prefers to work independently: "We now see our answer was a little stubborn, because there is useful information, but we are the type of initiative that wants to discover/invent on our own". This initiative also explained they had knowledgeable persons, creating less need for finding information.

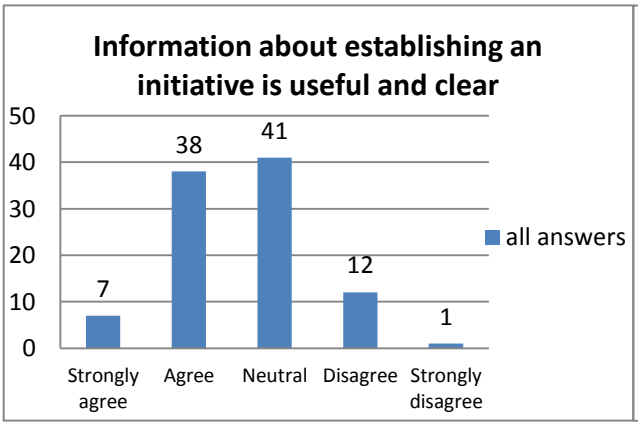

Figure 15: information intermediaries clear and useful

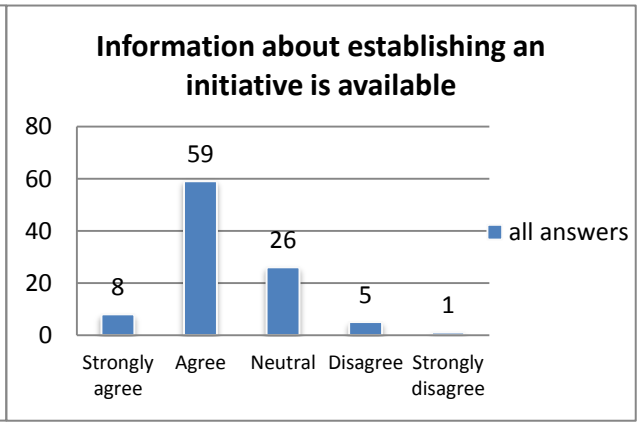

Figure 16: Information on establishing an initiative available

Most initiatives agreed information was up-to-date and did not find any problems with outdated information (Figure 17). According to Hargreaves et al (2013), some information linked to policy and financial models may not remain valid. This makes it necessary for intermediary actors to regularly up-date information with new lessons learned. Answers finding information out-dated may be related to policy and financial models.

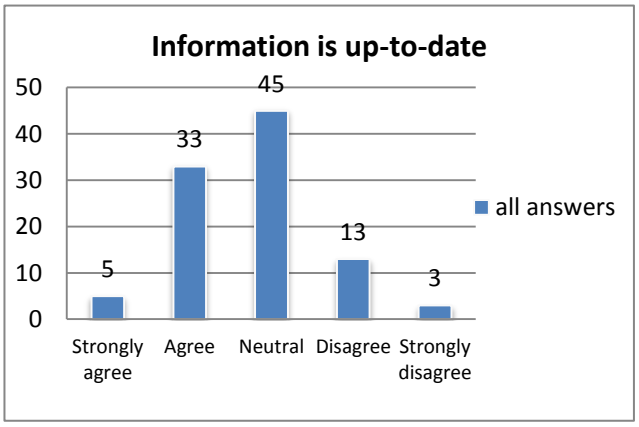

Figure 17: Information intermediaries is up-to-date

It seems CEI's can usually find information on a certain topic. Yet, this information is not always considered useful and clear. Because there is a large variety in CEI's, the knowledge required by an initiative can be very project and context specific (Hargreaves et al., 2013). Therefore a contact person able to explain the information in relation to the project is desired (Personal communication, 06/03/2015). The information's usefulness can also be improved if more and different step-by-step guides become available, according to some initiatives. The information is considered to be up to date by most initiatives. Those finding information outdated might have looked at change-sensitive information, such as financial and policy related documents. Finally, there are initiatives not requiring information, as part of their drive comes from realizing and inventing things for themselves.

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3.4 Guiding

Guiding can be interpreted as the framing and coordination of community energy activities (Hargreaves et al., 2013). Almost 40% agrees or strongly agrees with the statement "Progressive schemes and guides are available", while the remaining majority answered neutrally (Figure 18). From the 18 initiatives disagreeing with the statements, some argue that there could be more guides available and of a better quality (Personal communication, 09/03/2015). The next statement (Figure 18) displays the opinion on the statement "Courses and training are available". One initiative disagreeing with statement argues that "There is a lack of interactive lectures concerning a certain community energy topic" (Personal communication, 04/04/2015). Another argument to disagree was "Lack of courses and training are not the issue for their initiative, but progress is hampered by problems not related to understanding and finding information" (Personal communication, 09/03/2015).

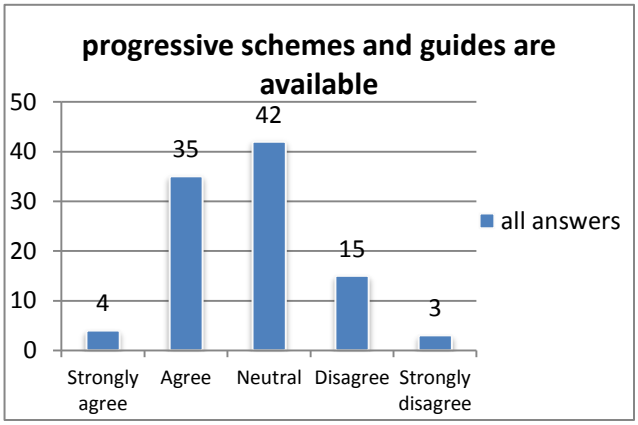

Figure 18: courses and training available for initiatives

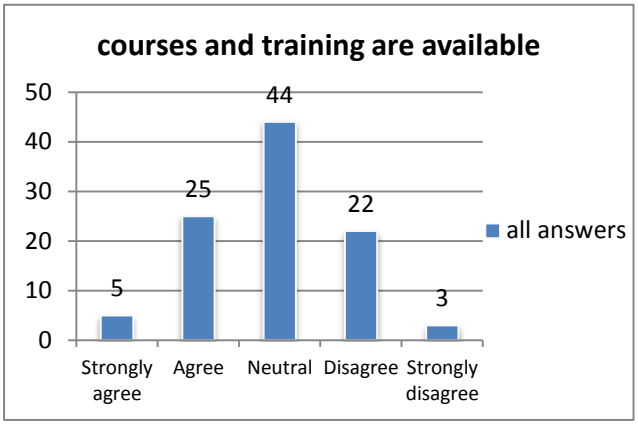

Figure 19: guides and schemes available for initiatives

Most initiatives find that intermediary actors coordinate and frame action community energy initiatives. However, the availability and quality of the step-by-step guides should be increased, which was also described in the previous section. On the availability of courses and training (Figure 19), initiatives argued for more lectures and making these lectures more interactive. One initiative argued: "make the lectures more specific, covering a certain topic about energy, finance or community management". Finally, some initiatives designated: "the availability and quality of guides was not important in the development of their initiative". Although initiatives highlighted points for improvement, many initiatives also found there was sufficient guidance.

3.5 Missing support

The questionnaire also inquired what support community energy initiatives found missing. To have a general idea on how many initiatives miss support. Initiatives answered the following statement: there is enough support for energy initiatives (Figure 20). While most (40%) of the initiatives find there is sufficient support, about 35% has a neutral opinion on the availability of support and 25% disagrees that there is enough support.

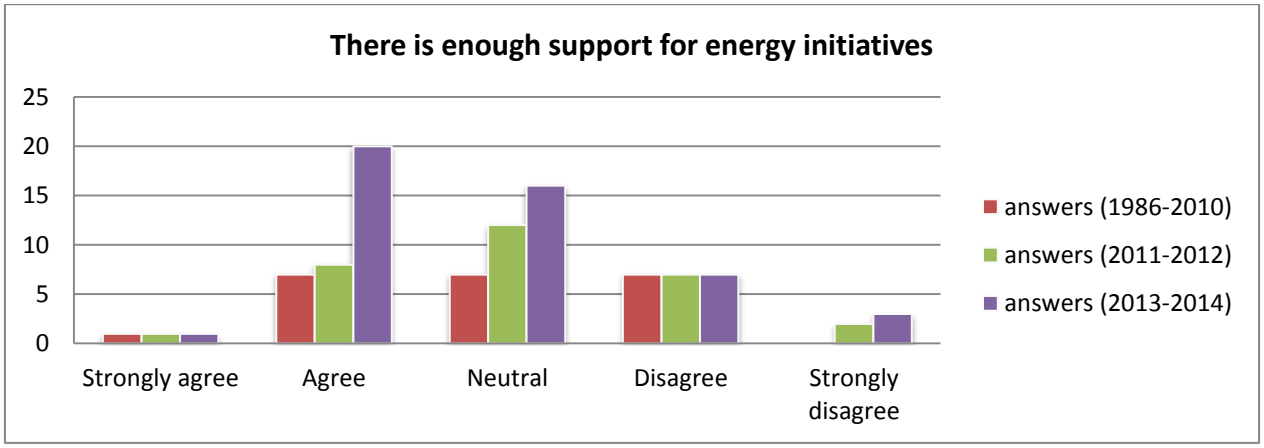

Figure 20: Enough support energy initiatives

According to energy initiatives the organizations that could be held responsible for the missing support were primarily the national government and intermediary organizations (Figure 21). Initiatives could choose: the government, municipalities, intermediary organizations or write their own answer. In total 78 initiatives answered the question, those writing their own answer are put in the category "other". The organizations and reasons mentioned in the other category were: "co-operatives should find each other"; "there should be bottom up support between initiatives", "own responsibility" and "grid companies". Better cooperation between initiatives can, according to some, provide the missing support. Keeping community energy a bottom up movement also motivates initiatives to offer and find support at other initiatives.

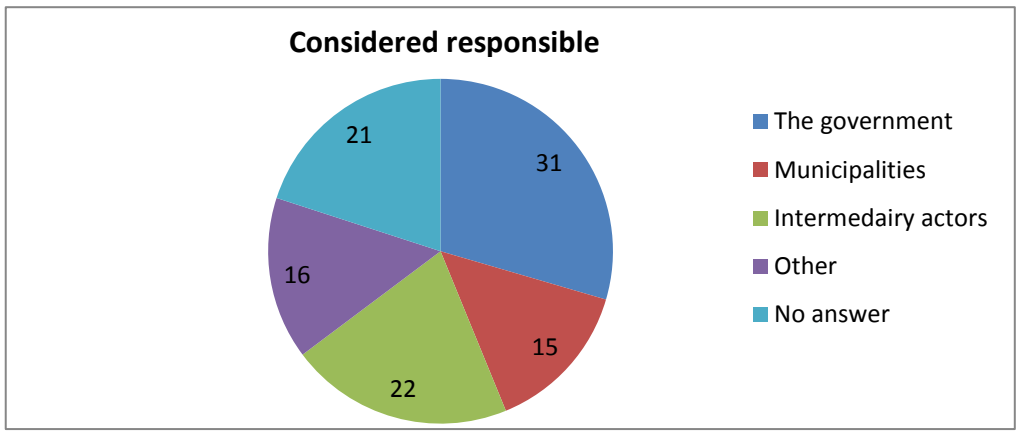

Figure 21: Responsible for missing support

An open question asked what support was missing to CEI's. In total 70 initiatives indicated what support their initiative was missing. These answers were categorized according to the kind of support missing (Table 5). These categories might in some cases overlap, as communication and information can relate to the same missing support. The missing support most often related to: financial, government policy, capacity and communication issues. All (sub) categories are based on at least several (3) initiatives who found this particular support missing. Finally, not all categories indicate support missing, for the category "no support" is based on initiatives not missing or wanting support.

Table 5: Overview missing support

Financial (n=13)	• **Financial guidance** • **Financial support**
Legislative (n=6)	• **Legislative guiding** • **Unclear legislation**
Government policy (n=14)	• **Ambition and support municipality** • **Policy from national government**
Capacity (n=4)	• **Capacity and time energy initiative** • **Unprofessional**
Communication (n=9)	• **Support communication initiatives** • **Support communication residents**
Information (n=8)	• **Independent information** • **Categorization and structure** • **More applicable**
Expert Consultation (n=4)	• **Direct expert support to initiative** • **Progress oriented support**

3.5.1 Financial

Support related to finance was missing according to 13 initiatives. The financial support was divided in financial guidance, financial guidance in the starting face and financial support. Financial guidance includes activities like accounting, finance and sales. Support was specifically missed in these areas: energy contracts, marketing and project feasibility. The following quotes illustrate what financial guidance initiatives were missing:

"Support in developing economic models, so support in finance could be improved ", "How to make a proper contract (advice)", "Affordable guidance and education on the feasibility of projects", "need practical help (advice subsidies and purchasing)" and "The most lacking was financial expertise".

These answers show there is a practical need for knowledge and advice on finance, especially covering subjects such as accounting, marketing and how to determine project feasibility. Another reason why initiatives missed financial support was due to unclear fiscal regulations. Reasons why initiatives find financial support missing can be related to the complexity of fiscal regulations (postcoderoos a tax discount on renewable community energy). There are also initiatives missing financial support in the CEI's starting phase. This support relates to "pre-financing" "Small financial donation for start-up phase"

and “Help with managing memberships”. Because most initiatives started recently (Figure 5), this problem could be encountered by many more initiatives.

Another form of financial support missing is the direct financial support for an initiative. The CEI’s argued for more financial aid and better financial aid mechanisms, such as:

“Feasible practical support: posctcoderoos, tax, feed in tariff”, “raising a fund” and “Finance from local government and province”.

The VEC-NB, a regional intermediary organization, recognized the need for this support. In an interview it became apparent that this intermediary lobbied to raise a financial fund on a provincial level. This fund was intended for compensating voluntary working hours at community energy initiatives.

3.5.2 Legislation

Initiatives missed the following legislative support: “Support with legislative procedures and changes in rules and legislation”. Next to legislative support initiatives argued for clearer legislative frameworks “Consistent legislation” and “it is important that the law makes room for energy initiatives”. These arguments show legislation is considered difficult and not always clear and consistent.

3.5.3 Government policy

Several initiatives (14) disagreed with national policy or missed support from the municipality. On the regional (municipality) level initiatives said: “Cooperation with the municipality could be improved” and “Not all municipalities are ambitious, this is important for finding support from residents”. However, the level of support offered by municipalities is different in every region, making these arguments specific for the location of the initiative. More initiatives disagreed with community energy policy on national level. The following quotes illustrate some of the critiques on national policy:

“The energy act makes suggestions which are difficult to realize, take for example the postcoderoos”, “Under the current policy it is not possible to make a feasible business case”, “Civilians and companies are enthusiastic, the government should facilitate and support this enthusiasm” and “The minister of economic affairs does not take energy initiatives seriously”.

3.5.4 Capacity

Capacity can be interpret as the available working hours, number of volunteers and the energy initiatives communication and working efficiency, as well as the knowledge and qualities from the contributors to the energy initiative. Some initiatives indicate lack of capacity is their main problem: “Organization is unprofessional” and “There is enough enthusiasm, only too unprofessional”. Capacity can have a great effect on an energy initiatives development, as is shown by the following answer: “as far as I can judge there is nothing missing from intermediary organizations, but we lack the capacity and time to benefit from it”. Therefore supporting CEI’s operating capacity can improve community energy development in a broad sense, as initiatives will become more professional and make better use of the support offered.

3.5.5 Communication

Facilitating communication between CEI's is lacking for (9) initiatives. These initiatives argue as follows: "Facilitate a meeting room with coffee and tea" and "There is reasonable cooperation between initiatives, however I would like to see improvement and facilitating meetings would be very valuable". Similarly, initiatives show contact with other initiatives is important: "coordination and cooperation between initiatives is desired", "Time to meet and discuss with other initiatives".

Community energy initiatives cooperate with one another and use various intermediary platforms (See Figure 14, section 3.2) Hargreaves et al (2013), identify the following advantage of cooperation between initiatives: communication between initiatives can help with identifying shared problems and organizing collective action. To starting initiatives communication can be even more valuable, as established initiatives can guide and share their experience (interview Greenchoice), showing that initiatives can provide intermediary support to each other.

Other initiatives lacked support for communicating with residents or possible participants. Arguing for support in: "how to communicate with residents", "Marketing for possible future customers of the energy co-operatives" and "especially communication with residents can be better supported, for example by making tools available, or training volunteers in being an energy ambassador for the neighbourhood". Support on how to communicate with residents can increase the number of participants in energy initiatives, increasing the projects operating capacity and feasibility.

3.5.6 Information

Initiatives (8) argued information could be better structured and useful. Opinions on the information's structure were: "Information is very diverse, could be better categorized, for example: solar energy Stimulating Renewable Energy production (SDE), Solar postcoderoos, isolation, etc. with specific information under each topic", "Overview courses and training" and "too much available, cannot see the wood for the trees". Showing some initiatives find it difficult to find the right information. On the information's usefulness some initiatives said: "information is poorly applicable for our project", "Quality usability" and "Higher quality and depth, this will require a strong vision on what is necessary". These initiatives request easy to understand information to help their initiative. Several intermediary organizations mentioned that they work on more applicable information, with for example step guides or a card catalogue.

3.5.6 Guiding

Expert advice and coordination was missing for some (4) initiatives. Guidance by framing and coordinating community initiatives is offered by some intermediaries (D;P) (See reference codes Table 5). However, it seems not all initiatives find this support suited or are able to make use of the support. This has caused initiatives to miss direct advice to overcome local thresholds.

3.6 Final remarks grassroots support

In sum, according to energy initiatives various kinds of support were lacking. However, this support did not always fall within the roles of intermediary organizations. The support that could be provided by an intermediary organization consisted of financial guides, expert advice, structuring information and communication. The remaining support (government policy and capacity) intermediary organizations could only provide via an indirect supportive role. This indirect role was observed in intermediary organizations that aim to influence policy by lobbying (E).

Apart from the initiatives that lacked support, there were initiatives (7) that found no support was missing or relied completely on their own resources. They do not require support because they focus on inventing things locally. As the following quote portrays: “Honestly we did not look for support, we like to sort out things ourselves, having a unique approach can have advantages”. Intermediary organizations seemed to be aware that some initiatives prefer no help (G).

Chapter 4: Intermediary support in the Netherlands

In this chapter findings on how intermediary actors support community energy development have been presented. The chapter begins with general information on intermediaries active on a national and regional level (Table 6). Thereafter, a similar structure as in chapter 1 is used: networking, aggregation and guiding (Geels & Deuten, 2006). Besides showing the results on the intermediary supportive roles, this chapter looks at the structure of intermediary support (Figure 22) and the support that was according to intermediary organizations lacking in the development of community energy initiatives.

4.1 General information

To understand the roles of intermediary organizations in the Netherlands. Interviews were conducted with 7 intermediaries (Table 6). These intermediaries all provided different support to community energy initiatives. The majority of the questions asked how intermediary actors provided support in networking, aggregation and guiding. Apart from information on the supportive roles in community energy development, information related to the structure of intermediary organizations and opinions on a bottom up energy transition was requested. The data on the structure of intermediary support made it possible to create an overview on the sector (see Figure 22). In this figure an impression of the roles and connections of intermediary organizations from the micro up till the macro level has been presented.

The approached intermediary actors were different organizations and companies. Some intermediary actors functioned as a platform for community energy development (H;N). While other intermediary actors focused more on guiding initiatives, by actively advising or taking over activities (B;D;G). This difference in support can partly be explained by the different legal forms of the intermediary actors: co-operatives, private companies (Ltd.) and unions. Support is offered at different levels for example Buurkracht's support can be found at the grass root (bottem up) level, supporting initiatives in the starting face. While E-decentraal offers support on a governmental more (top-down) level.

On national scale intermediaries knew the support that was offered by other intermediary organizations. This has led to cooperation between several intermediaries that passed on information (E;G). While closer cooperation lead to the merging of intermediary organizations offering rather similar support (E). Because intermediary organizations focus on different kinds of support a main focus of the intermediary was requested (see Table 6). However, many intermediaries provide multiple forms of support, this classification should thus only be interpreted as the main supportive focus and does not exclude other forms of support.

Table 6: Approached intermediary actors

intermediary actors	Main focus	Reference code
Buurkracht (2014)	Starting/ supporting mainly energy saving initiatives in neighbourhoods	**(B)**
DE UNIE (2012)	Duurzame Energie Unie is a 'Shared Service Centre' for local sustainable energy initiatives. Providing services to somewhat established co-operatives, covering a broad range of topics.	**(D)**
E-decentraal (2011/2012)	Lobby the needs/desires of community energy initiatives at the government (economic affairs)	**(E)**
Greenchoice (2001)	Supporting in a broad range of topics with “Buurten met Energie”. Key points: legal support, buying /selling energy and energy tax.	**(G)**
Hieropgewekt (2010)	Main platform and event’s organizer	**(H)**
Nudge (2010)	Serves as a sustainability platform for connecting: people, companies, energy initiatives, organizations, etc.	**(N)**
Pura Vida (2009)	Supporting (project development) primarily municipalities (bottom up energy activities) to reach energy goals	**(P)**
VEC-NB (regional) (2014)	Regional intermediary active in: facilitating meetings, pass on information, share local lessons and lobby on provincial level	**(V)**

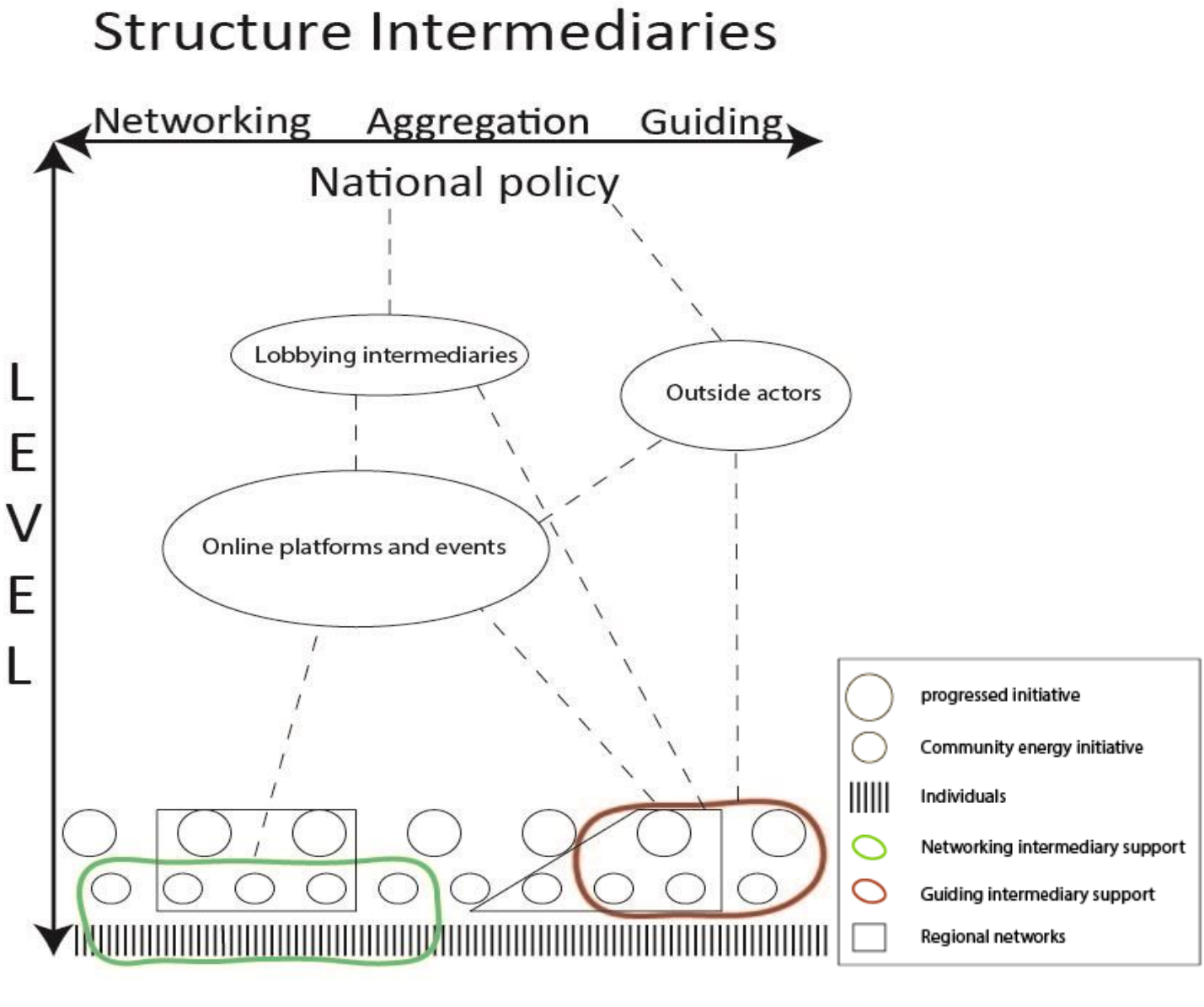

Figure 22: Structure intermediary organizations in the Netherlands

4.2 Networking

All intermediaries provided network services to energy initiatives. The common ways intermediaries facilitated networks were: social media, websites, e-mail, meetings and events. Social media and events were often used to make initiatives aware of a project or intermediary organization. While online websites offer a platform for communicating and bringing together different organizations. Social media and websites also advertised about the different services offered by intermediary organizations. Finally, news emails informed initiatives about the latest changes and progress in regard to energy topics.

Some intermediary organizations network to make CEI's aware of their services. These services can include a network with other (member) CEI's, as well as information and guiding. It became clear intermediary organizations operate on different network levels. For example, one intermediary was focused on finding residents for starting an initiative. In order to establish a "neighbourhood team" with persons capable of running an energy initiative (B). On this level (grassroots level), networking is done by bringing together different "neighbourhood teams" to share lessons and inspire each other. While on a higher level (guiding intermediary support Figure 22), intermediaries look for CEI's which are more or less established. On this level support is focused on helping initiatives grow and improve the management. This support was offered by (specific) progress oriented meetings with energy initiatives (D).

There are intermediaries whose primary function is the provisioning of a network (N). This network can be used by CEI's to find and communicate with: possible participants, other initiatives or useful organizations. Nudge is such an intermediary organizations that supports the establishment of community energy initiatives with a network. On this network, individuals that would like to start an energy initiative can find one another. Such platforms also help communication and information sharing between initiatives and other organizations. In this case, other organizations can be energy companies, municipalities or a local private company (N). These platforms also offer guides showing what is involved in managing an energy initiative (N).

Some intermediary organizations communicate and cooperate by sharing information. For example, e-Decentraal provides information to Hieropgewekt related to legislation and government policy (E). Another example of intermediaries that cooperate are Nudge and Greenchoice. This cooperation allows nudge to offer toolkits wherein different (intermediaries) contribute in their field of expertise. In the case of Hieropgewekt, large events were often financially supported by energy companies (G). Although, all (national) intermediaries seem to know each other, cooperation was not always seen as necessary.

On a regional level intermediaries provide a networking structure as well. A regional intermediary creates a network by sending a newsletter, member meetings and communicating directly with initiatives about new information and developments (V). A key reason for stating a regional intermediary was: "facilitating community energy support on a regional level, allowing locally acquired knowledge to be shared". This shows networking is one of the main regional intermediary activities, the organization considered themselves as "an organization passing on information to initiatives". Regional intermediaries communicate with national intermediaries and share the information with their member initiatives.

In sum, intermediaries support both the establishment and further development of initiatives with networks. Those focusing on establishing new initiatives aim connect persons by offering a communication platform. These platforms are often financially supported by outside actors (energy companies). On a higher level (guiding intermediary organizations Figure 22), help initiatives to grow and improve management. On a national level e-Decentraal communicates the wishes of energy initiatives to the national government. Finally, intermediaries do not only facilitate communication between initiatives, but also arrange partnerships with companies outside the community energy sector.

4.3 Aggregation

Aggregation is the identification of lessons from a range of different projects and turning them in general rules and principles that serve the community energy sector as a whole (Geels & Deuten, 2006). In the Netherlands, a main way intermediaries help to identify key problems is through sharing information on platforms. Since platforms allow experts, initiatives and a wide range of organizations to publish articles about lessons learned in wide a wide range of topics (Hieropgewekt, 2014). These platforms also receive support from other intermediary organisations knowledgeable in a certain energy theme(E;G). Greenchoice for example, provides information on tax, buying/selling energy, subsidies and administration concerning energy. While E-decentraal provides information related to law and policy. However, locally acquired knowledge can in some cases not be turned in general guides. Such as the following quote illustrates; “there is a lot of basic material for energy initiatives, but when realizing a project guides are not always useful” (E).

Key issues in the development of community energy are identified in various ways. One way is the organization of meetings and training to discuss thresholds in development. One intermediary highlights, these are no ordinary meetings, but “intensive solution oriented events” (D). At e-Decentraal, key issues are discovered by organizing “knowledge clusters”, these are meetings attended by many initiatives to determine desired policy changes. Here interests of initiatives are relatively well represented, as six initiatives operate in the board of e-Decentraal. Next to meetings, some intermediaries evaluate projects and determine key issues and store them in a general guide (B).

There are various ways intermediaries turn identified key lessons in general knowledge, examples are: manuals and step guides (D). Besides making information available in guides, intermediaries convey their knowledge directly at meetings and courses (P;D). Finally, some intermediaries make toolkits to assist on certain energy topics. These toolkits could for example explain the marketing and communication of an initiative. Multiple intermediaries cooperated to make some of these toolkits, were one focusses on the content and another makes the toolkit available (N). Nevertheless, toolkits make rather general suggestions and are less suitable for solving project specific thresholds.

Regional intermediaries also aim to share locally acquired knowledge. Although, aggregating local knowledge in more general guides was difficult. As local lessons can be diverse and regional intermediary organizations typically do not have more than 10 member initiatives (V). However, a regional intermediary was planning a “card catalogue”. This catalogue would provide an overview of local lessons in a structured way (V).

In sum, intermediaries on different levels (national – regional) help to identify key lessons and make them available in: guides, toolkits and articles (H;E;D;B). Though, due to the large diversity in local projects guides and toolkits make rather general suggestions. Accordingly, some intermediary organizations provide help in meetings or specialise on an energy theme. So to assist initiatives with more project specific thresholds (B;D;E;P). One regional intermediary, aimed to provide a more structured overview of local lessons by creating a card catalogue. This catalogue would not focus on general lessons, but an overview on locally acquired knowledge.

4.4 Guiding

Guiding is the framing and coordination of community energy action (Hargreaves et al., 2013). In the Netherlands intermediary organizations guide community energy initiatives, but the kind of support and the level of support is quite diverse. On the grassroots (initiative) level, intermediaries offered meetings, guides and presentations. The meetings are typically organized around an (energy) topic (wind, solar, energy subsidy). During such meetings initiatives give presentations and advice to other community energy initiatives. While more established initiatives receive support from experts. When initiatives were more established, guides and tool-kits became less suited to frame and coordinate initiatives.

In the starting phase step guides and toolkits can frame and coordinate initiatives. Step guides cover topics such as: “toolkits how to start and initiative” and “Customer journey step guide” (B;N). Furthermore, posters such as an infographic were made available to initiatives. According to an intermediary “these infographics can make the management of an initiative more graspable and support a starting an initiative”(N). In later developmental stages some intermediary organizations offer guides on more specific topics: “from producing energy to many other topics” (D). The step guides and toolkits for starting an initiative are freely available on knowledge platforms. However, according to E-decentraal step guides can be deceptive as: “Progressive guides create the illusion it will be easy, in reality there is much more involved”.

Guiding after an initiative has been established is primarily done by courses, personal training and interactive meetings. Such events can be workshops on a specific topic, such as a workshop on solar energy (P) or advice from an intermediary more specialized in wind (E)”. DE UNIE provides courses and personal training on a wide range of topics to their member initiatives (D). Intermediary organizations, also support initiatives by taking over certain tasks like the buying and selling of energy (D;G). Moreover, intermediary organizations offer various kinds of services. These services include organizing neighbourhood meetings, making an energy potential map or coherent energy vision for a project or municipality (P).

Intermediaries do not provide strict guidelines to energy initiatives. There are nevertheless preferences on the size of initiative: “a certain number of houses need to be interested and also the number of participants not be too large” (B). Intermediaries also indicate to prefer working with a certain mix of persons in an initiative. Especially, entrepreneurial persons are desirable in an energy initiative (E;B).

In sum, intermediaries coordinate and frame community energy action in different developmental stages. In the starting phase, guides and toolkits from intermediary organizations help to establish initiatives. Next to intermediary support, community energy initiatives also help and advice other energy initiatives. Therefore, some energy initiatives fulfil a kind of intermediary role. After an initiative becomes more developed, meetings and courses offered by intermediary organizations help to frame and coordinate community action. Next to support, intermediary organizations offer services in buying and selling energy. This makes the intermediary completely take over some of the tasks in an energy initiative. Finally, intermediary organizations did not have guidelines for initiatives, but only certain preferences related to the size and participants of an initiative.

4.5 Missing support

Support considered missing can be divided in two categories; support missing from national policy or specific knowledge. Disagreeing with national policy focuses on fiscal regulations not making an energy initiative financially feasible. According to an initiative this is important in community energy development as: "there are enough independent contractors to start an energy initiative, however when there is no financial profit possible the only reason for starting an initiative is doing something good for your neighbourhood" (N). So some intermediaries argue for a "new financial model" to make especially solar projects financially feasible. When considering the energy sector as a whole pricing fossil fuels and CO2 emissions were considered an important stimuli for community energy development. The specific support intermediaries found missing were related to: project development, limit working capacity volunteers, knowledge regulation and finding information. Lack in project development was expressed as follows:

"How do you go from an idea to the realization of a project. People capable of doing this often work for companies paying them. These people (often) won't do the same work voluntary in their free time. There are now companies offering project development but they want to get paid a market price. The community energy sector needs to attract these people to push development forward" (E)

Another issue highlighted by intermediaries is the limited working capacity of volunteers (N;B). Arguing this stalls further development and makes professionally managing an initiative more difficult. On a regional level intermediaries also see the limits of voluntary workers. To resolve this problem, the VEC-NB (a regional intermediary) tried to establish a provincial fund that would offer volunteers some payment.

Intermediaries argued knowledge on regulation could be improved and the available information had to become more structured. This would allow initiatives to make better use of the available knowledge. Several reasons were mentioned why information on regulation had to be improved. Mainly, regulations such as the "postcoderoos" were considered difficult to realize and the large amount of available information can be overwhelming (B). Finally, not all intermediaries find support missing, but argue it is a complex sector were one can disagree with current national policy (D). Next to policy, the limited voluntary working capacity and support in project development were considered the most lacking forms of support.

When asked which organizations was responsible for the missing support, not all intermediaries found an organization responsible. But community energy initiatives should focus on supporting each other. While, some intermediaries held the national government accountable, because subsidiary policy around energy initiatives was considered insufficient. Grid operators and energy companies were mentioned a suitable partner in when staring an initiative. Because these companies could cover some of the financial risks of an energy initiative. Finally, some intermediaries said intermediary organizations should focus on improving the existing support for energy initiatives.

4.6 Final remarks intermediary support

This chapter looked at the roles of intermediary organizations in: networking, aggregation and guiding. Networks appeared to be offered at many levels, with regular communication via email or structural meetings to share information. These networks passed on information in some cases, but there seemed to be no clear core institutional infrastructure. Secondly, in aggregation national platforms functioned as a way to identify common problems. Although, much of the locally acquired knowledge was not turned into more general guides. Furthermore, intermediaries questioned whether guides would be helpful in project realization. Finally, guiding was provided by toolkits and step by step guides. Yet, for more established initiatives, close cooperation at meetings helped their initiatives to develop further.

In the last section, this chapter looked at the support intermediaries missed in community energy development. This included, advice on how to realize a project and the limited working capacity of volunteers. Further, the national policy was criticized, because it did not allow the creation of a financially feasible business case. One intermediary argued, that the community energy sector was challenging, but no support was necessarily missing.

Chapter 5: Discussing the role of intermediaries in energy transitions

The main question of this thesis was: how do intermediary organizations support bottom-up community energy development? In addition, we wanted to know what support was missing in community energy development and how community initiatives differ from niche innovations. The findings on these questions are based on a questionnaire conducted with 99 initiatives, interviews with 7 intermediary organizations and desk research. While the research was conducted with care, the validity and reliability of the results was influenced by the methods used and stakeholders approached. Hence, in this section we discuss the results and look at the factors that influence these findings. Also, we put our findings in the bigger perspective and present additional insights on bottom-up energy transitions.

5.1 The role of intermediary organizations in community energy development

Results from the questionnaire and interviews suggest that intermediary actors facilitate community energy development though networking, aggregation and guiding. Accordingly, intermediary actors can be regarded to play an important role in community energy development. However, when one looks at these intermediary roles (networking, aggregation and guiding) separately, the level of intermediary support differs per initiative and intermediary support doesn't reach the community energy sector as a whole.

In networking, intermediary organizations support community development on the grassroots (lowest) level, by connecting individuals with an environmental drive (B;N;H). On a higher level, online forums allow initiatives to share supportive materials and intermediaries provide meetings and events to share locally acquired lessons (D;E;H;P;V). The results from the questionnaire suggest nonetheless, that communication between initiatives also occurs without support from intermediary actors. Furthermore, sometimes a municipality facilitated direct communication between initiatives. Networking, in the form of the organization of events and meetings, was unavailable to the community energy sector as whole, according to the interviewees. These meetings were only for members of the intermediary organization, or initiatives were unwilling or unable to participate. For this reason, the institutional infrastructure did not seem to support the sector as a whole. Instead, a number of initiatives communicate without the support of intermediary organizations or do not make use of the networks offered by intermediary organizations.

In sum, the data showed intermediary organizations provide guides and toolkits (N;D;G). These guides are based on the experience of community energy initiatives and experts in project realization. According to Nudge (06/02/2015), guides assist in the establishment of an initiative by providing an overview of the factors influencing an initiative. However, guides make general suggestions on community energy initiatives, and typically focus on the starting phase of a community energy initiative. Therefore, the initiatives considered the information to be less useful for executing tasks in a specific local context (E). This suggests that the support offered by guides and toolkits is not essential for community energy development. Aware of the difficulties in aggregation, a regional intermediary suggested a "card-catalogue" showing the experiences in energy projects (V). This should not provide

general guidelines to community energy initiatives, but a variety of local lessons. Next to aggregating lessons into general rules, intermediaries suggested to provide expert advice (counselling), because managing an initiative is not as simple as following a guide and closer assistance in project realization would benefit the development of initiatives (D;E).

The previously mentioned counselling relates to coordinating and framing community action. This research showed that intermediary organizations provide guidance through courses, personal training, interactive meetings and step guides (D;E;B;P;H). The latter was considered less suited to overcome project specific thresholds (E). Complementary to this, 50% of the initiatives found guiding through toolkits and step-guides lacking. Another way intermediaries coordinated initiatives, was by organizing meetings with member initiatives of an intermediary organization (D;B;E). These meetings made it possible to identify common problems and allow experts to suggest solutions. On the Hieropgewekt event from November 2014 lectures on specific topics were given. These lectures allowed initiatives to discuss the information and also support each other. Likewise, the questionnaire showed that initiatives with project experience guided other community energy projects. However, 70% of the initiatives were neutral or negative about the availability of courses and training. Reasons as to why courses and training were lacking, could be the requirement of being a member initiative to attend specific courses and training. In addition, initiatives might have insufficient capacity to attend such services. Intermediary organizations were aware that capacity was a problem for many initiatives. They aimed to improve capacity by “composing the right neighbourhood team”, “training initiatives in management skills” and “taking over certain tasks” (B;D;E;P;G). One intermediary aimed to strengthen capacity by influencing provincial policy, intending to change policy so a small compensation for voluntary working hours would become available (V). Finally, intermediary organizations found expert advice related to an initiatives local context lacking. Therefore some intermediary organizations will focus on this kind of support in the coming years (D;G;B;E).

5.2 Role intermediary organizations in energy transitions

In the last 5 years the number of intermediary actors increased sharply (Figure 5 - section 3.1 general characteristics), thereby facilitating various forms of support and improving the existing institutional infrastructure (B;D;E;G;N;P;V). With this support, intermediary organizations contributed to the rapid increase in community energy initiatives between 2013 and 2015. Although, even with the large increase in community energy initiatives, their share in the total energy production of the Netherlands remains small (D). Experts suggest that the problems seen in the energy grid in Germany, where 16% comes from renewable sources, will arrive in the Netherlands by the year 2020 (E; Eurostat, 2014; Hieropgewekt, 2014). In this transition, I expect intermediary organizations to play a key role in scaling and setting up community energy initiatives. On the one hand, new partnerships (p.48) between community energy initiatives and energy companies will likely continue to lower community energy thresholds and scale up renewable energy production. Yet, according to Hargreaves et al (2013), this “mainstreaming” comes at a cost, for community energy initiatives could become less diverse and dynamic. One could question whether such partnerships between initiatives and energy companies can still be considered a bottom-up energy transition.

On the other hand, the data suggests many initiatives aim to find support from other initiatives. For this support, regional intermediary organizations provide an institutional infrastructure, helping initiatives to cooperate (V). On a national level intermediaries facilitate this cooperation of initiatives as well (D;E;H). This support will become more specialized (energy themes) and better tailored to an initiatives local context. Thus increasing the abundance and development of community energy initiatives in the Netherlands and potentially making a large contribution to the national renewable energy policy objectives.

5.3 Support community energy initiatives found missing

As shown in the previous chapter, initiatives found various kinds of support lacking. Outside of the intermediary roles identified by Geels and Deuten (2006), the questionnaire found two other areas where support was considered lacking: government policy and operating capacity. According to 26 initiatives, government policy was unsupportive, because it was not possible to make an economically feasible business case. Additionally, the legislative procedures related to subsidies were considered "unrealistic and complex". So far, little support on these issues was provided by intermediary organizations directly. Indirectly however, intermediaries influence government policy by lobbying for community energy needs at national and regional governments (E;V). In this way, intermediary organizations still steer policy in a direction that supports community energy development.

Furthermore, initiatives found there was insufficient support for an initiatives operating capacity. In this case, operating capacity relates to the available voluntary work hours and individual skills in an energy initiative. An initiatives' capacity has a large influence on roles provided by intermediary organizations, for initiatives commented: "our initiative does not have the time (capacity) to make use of intermediary support". As a response, intermediary organizations try to lobby for voluntary work compensation at the government (V). Initiatives argued that guides explaining how to contact and find new participants would help as well. Yet, some guides and support on how find participants have already been provided by intermediary organizations but are apparently not used or do not meet the requirements (B;N;G).

Next to intermediary organizations, factors outside the community energy sector influence government support. These are for example landscape pressures and regime actors (Geels, 2004). Landscape pressures can, in the case of community energy initiatives, be viewed as the availability and price of alternative energy sources. In the 1970's and 1980's, an energy crisis caused by low fossil fuel production increased research and development budgets for alternative energies in (OECD) countries (Jacobsson & Bergek, 2004). This also occurred in the Netherlands, were wind power had a strong legitimacy in the 1970's and 1980's, due to fiscal incentives and large grants. Along with, subsidies given to wind energy investors after an energy price crisis in 1984 (Jacobsson & Bergek, 2004). Therefore, landscape pressures appear to influence political decisions regarding support to renewable energy development. In the case of regime actors, government subsidies given to fossil fuel companies create a market advantage for regime actors (OECD, 2012). According Greenpeace (2012) this advantage is retained by the lobbying activities of large energy companies (regime actors). These mechanisms may reduce the extent to which alternative energy niches can challenge and replace existing regime technologies.

5.4 Differences community energy and niche innovations.

Hargreaves et al (2013) highlight several main differences between niche innovations and community energy initiatives, such as a social and environmental drive rather than a monetary drive, or many organizational structures compared to primarily firms (Table 1 - section 1.5.7) . During this research we identified some other differences. Firstly, that an initiative's capacity in terms of voluntary working hours and the participants' skills seem to have a large effect on the development of community energy initiatives. An initiative with sufficient working hours and project experience typically overcomes thresholds much easier (E). According to Smith & Raven (2012), strategic niche management entails the shielding of an innovation from market forces, until the innovation can withstand market forces, by strengthening its economic, technological and organizational competitiveness. In the case of community energy development this depends more on strengthening organizational aspects and less on technological and economic aspects.

Secondly, according to Hargreaves et al (2013), community energy is focused on social and local values, while niche innovations focus more on efficiency and profit. The results from the questionnaire confirm that initiatives focus on social and local values. As an illustration, one respondent argued: "the main reason for starting an initiative was the joy I find in managing it". Although initiatives find return of investment important as well, their main drive often comes from social and environmental values. This has various implications for intermediary organizations, as some initiatives only want to operate on a local level and prefer not to cooperate with intermediary organizations. The following argument of a community energy initiative depicts this point: "Honestly we did not look for support, we like to sort out things ourselves, having a unique approach can have advantages" (Personal communication, 08/03/2015). In the questionnaire, only 5-10% of the initiatives did not require intermediary support. These results suggest that intermediary organizations do not play a key role in the development of all community energy initiatives.

5.5 Validity and reliability

The aim of this study was to produce reliable results on community energy development and the role of intermediary organizations in the Netherlands. Reliability can be interpreted as the extent to which the results represent answers on the research questions and whether these results can be reproduced using the same methodology (Joppe, 2015). According to Bryman (2012), two methods, such as the questionnaire and interviews in this thesis, complement each other. Hence it provides a better picture on how society functions and increases the reliability of the findings. In this study the results from both the questionnaire and interviews were used to verify and clarify the findings. Thus the findings are more reliable compared to using only one method.

Nevertheless, the design of the questionnaire and the initiatives approached influenced the reliability of the results. According to Sinclair (1975), a sample questionnaire (testing if results are consistent) largely increases the reliability of results. However, due to limited time and a target group that was difficult to contact (N), the questionnaire was only tested with friends and individuals not participating in a community energy initiative. In addition, the reliability was influenced by the interpretation of the term intermediary organizations, as this term encompasses many different kinds of organizations providing support to community energy initiatives. Even with the introduction text that explained respondents the

term intermediary organization, the term was still complex. Furthermore, in email conversations with energy initiatives it became clear some types of support are hard to distinguish (annex A). It was for example difficult to know the difference between a seminar and a course. Finally, the perceptions of community energy initiatives on support from intermediary organizations change in time (Golafshani, 2003). This effect might be even more influential in a dynamic sector such as community energy. Therefore, future studies using the same method will find different results.

Results from the interviews were likely more reliable (as it is a reflexive method), allowing the interviewer to ask more questions and observe the interviewee (Brown, 2010). But, because interviews were spontaneous (unstructured), an exact replication of the methods seems unrealistic. Moreover, as in the case with the initiatives, the perceptions of interviewees about the research topic can change over time (Golafshani, 2003). Nevertheless, according to Brown (2010), semi-structured interviews can be considered as a reliable method.

Validity

According to Longhurst and Preston (2009), the methods used in this thesis allow the researcher to find valid data on how society functions. A questionnaire allows the gathering of quantitative information on "attributes, attitudes, or actions of a population by a structured set of questions" (Preston, 2009). Because there are now almost 500 initiatives in the Netherlands, this method helped in reaching 99 initiatives and gathering accurate data. In addition, an online-questionnaire makes it possible to reach many initiatives in a relatively small time frame (Wright, 2006). Data on intermediary organizations, on the other hand, was collected by interviews. This method was better suited for this group because "interviews are useful for investigating complex behaviours, opinions and for collecting information on a diverse range of experiences" (Longhurst, 2009). In this case, additional information encompasses for example opinions on the energy transition, motivations and other roles in community energy development.

The validity, whether the research really measured what it intended to measure, was influenced by the quality of the questionnaire and the qualities of the interviewer (Joppe, 2015; Golafshani, 2003). Because the questionnaire took about 10-15 minutes to fill in, it can be regarded as non-time consuming. In contrast, answers were quite elaborate, suggesting initiatives took the time and care in writing their answers. On the other hand, questions were not always considered clear and sometimes considered too broad. For example, when asked about the intermediary support in the Netherlands, many initiatives gave a neutral answer. However, they did not provide reasons as to why their opinion on intermediary support was neutral. To address this issue, emails were sent to the initiatives inquiring the reasons behind certain answers. In these emails some initiatives clarified their opinion on different statements. But initiatives also said that questions caused confusion for distinguishing between certain intermediary services was not always easy (annex A). Moreover, it showed some initiatives had written from their political conviction rather than evaluating intermediary support. Because intermediary support does not include government policy (directly), results regarding the opinion on intermediary support were perhaps too negative. While only 12 initiatives criticized government policy (directly), it can reduce the findings validity.

As was mentioned, the qualities of the interviewer can affect validity (Golafshani, 2003). In this research, interviewees could exaggerate the support provided by their intermediary organization. Furthermore, positive aspects can be highlighted over negative aspects, such as focusing on the sustainability and renewable nature of the intermediary, instead of economic interests. To counter this issue, the interviews were designed to cover all aspects, including the perhaps more negative ones. Moreover, in the data analysis we incorporated both critical and positive results to produce a more complete result. Finally, different kinds of intermediary organizations were approached to create a fuller picture on intermediary support. Yet, a slight bias towards positive points cannot entirely be prevented.

5.6 Literature discussion

The framework of this study was based on the paper of Hargreaves et al (2013). This framework is based on the intermediary roles in niche development as identified by Geels & Deuten (2006). Technological niches however differ from "grassroots innovations" in some fundamental ways and the role of intermediary organizations in community energy has been somewhat under-researched (Hargreaves et al., 2013). According to Geels & Deuten (2006), intermediary roles in niche development consist of networking, aggregation and guiding. However, in the case of community energy these intermediary roles were found somewhat problematic. In addition, a fourth role "brokering and managing partnerships" was discovered and considered to be of growing importance (Hargreaves et al., 2013). Finally, whether community initiatives share the characteristics of niche innovations, such as an aim towards growth, diffusion and mainstreaming was also questioned (Hargreaves et al., 2013). For this reason, Hargreaves et al (2013) suggests care and sensitivity when transposing theories of intermediaries, because "grassroots innovations encompass a very wide range of different aims, objectives and ideologies".

The three roles of intermediary organizations were problematic when applied to community energy initiatives in the UK for several reasons. Firstly, in networking (establishing an institutional infrastructure) the diversity in projects and different motivations made the creation of a core institutional infrastructure problematic. Suggesting Geels and Deuten's framework should be adjusted in such a way that "it incorporates and respects the diverse aims of local community energy projects" (Hargreaves et al., 2013). Secondly, due to the diversity in local community energy lessons, aggregation into an overall package (guides), would be difficult and perhaps undesired (Hargreaves et al., 2013). Finally, the framing and coordination of community energy initiatives, was difficult because replicating the success from one project to another was often not possible. Furthermore, the problems encountered in networking and aggregation, challenges the creation of lessons that are widely influential (Hargreaves et al., 2013).

Hargreaves et al (2013) also identified a fourth role in which intermediaries support community development: "managing and brokering partnerships". In the UK, Hargreaves et al 2013 finds "a recent shift towards a fourth major role being played by community energy intermediaries that of brokering and managing partnerships with actors outside the community energy sector" (p.878), arguing that intermediaries try to shape initiatives in a wider context (local, commercial and policy). A negative consequence of this "mainstreaming" was that initiatives become less diverse and dynamic. In the previous paragraph (section 5.2) on the role of intermediaries in niche development, a role where Dutch intermediaries initiate energy initiatives is discussed. These intermediaries suggest partnerships to

initiatives, by promoting certain (renewable) energy technologies or advising cooperation with actors outside the community energy sector (B,G). It thus suggests that a similar shift towards intermediaries managing and brokering partnerships was observed in the Netherlands. The intermediary organization e-Decentraal also helps community energy initiatives by influencing national policy, by lobbying at national governments (e.g. the Ministry of Economic Affairs) for policy that supports the community energy sector (E).

We evaluated both intermediary organizations and community energy initiatives to assess the intermediary roles as proposed by Geels and Deuten 2006. The platform offered by the intermediary Hieropgewekt does allow communication between initiatives on a national level as well as the organization of national events. Yet, according to the results, many initiatives do not attend such large events or make use of other networks. These initiatives focus more on local networks or rely completely on their own resources. The community energy landscape seems to look more like a patchwork of smaller and larger networks than one large network. National and regional intermediaries play an important role in provisioning these networks (V;E;H). Yet, there are also networks between community energy initiatives that are not facilitated by an intermediary organization (See Figure 14 - section 3.2). These networks communicate up to a certain extent with other networks and pass on information (V;G). Yet, our results suggest that no core institutional infrastructure representing the whole community energy sector exists.

The diversity in projects and local experiences also makes it less straightforward to create general guides in the Netherlands (E; Hargreaves et al., 2013). The locally acquired knowledge which was aggregated into more general guides focused more on the starting phase, covering topics on how to attract new participants or how to start a co-operative organization (N;H). And, although toolkits and guides were available, few key general lessons frame and coordinate community development (E). According to the interviews, guiding was primarily facilitated by meetings with a limited number of community energy initiatives participating. Here initiatives could provide assistance to one another and receive advice from an expert (B;D). This kind of (small) meetings could relate more to an initiatives local context, allowing the initiative to “make real steps forward” (D). These meetings though were only provided for a limited number of community energy initiatives (D). Consequently, “framing and coordinating” community action by meetings depends on whether the initiative is a member of an intermediary organization.

In sum, we looked at the roles of intermediary organizations in community energy development, using the strategic niche management framework of Geels and Deuten (2006). We observed many similarities between the situation in the UK and the Netherlands. In the provisioning of an institutional infrastructure, intermediary organizations offer various networks on national and regional levels. Additionally, online forums from intermediary organizations gave access to articles, guides and toolkits. Secondly, aggregation of local lessons into general rules and principles was perhaps not as simple and straightforward, due to the diversity in local projects (V). Moreover, guides were considered unsuited for providing assistance in all managing activities (E). Thirdly, the guides and toolkits available would usually focus on the starting phase of a community energy initiative (B;N;E). Finally, a fourth role where intermediary organizations “broker and manage partnerships” was also observed in the Netherlands (Hargreaves et al., 2013). Next to these similarities, there were also several differences, for example the

framing and coordinating was aside from guides and toolkits done by meetings. Probably advice offered in such meetings would take the local context of an initiative into account (D). Additionally, we found that other roles of energy companies in "managing and brokering partnerships". Energy companies seem to provide this role indirectly, by starting an intermediary organization (G). And, aside from financial support, these organizations bring residents together in order to start a community energy initiative. When established, the intermediary provides other roles in networking, aggregation and guiding. Hence, energy companies in the Netherlands provide a broader role in community energy development compared to the situation in the UK (Hargreaves et al., 2013).

5.7 Involved actors outside community energy

'Buurkracht' and 'Buurten met energie' are intermediary organizations initiated by actors (grid operators) outside the community energy sector. These intermediaries help residents to start energy initiatives, provide a network and coordinate projects (B). Although, these organizations can also serve interests outside the community energy sector and therefore might not align with certain social and local values of community energy initiatives (Seyfang, 2009; Hargreaves et al., 2013). A cooperative intermediary commented: "the increased involvement of actors outside community energy is because they try to break into community energy development" (D). According to Hargreaves et al 2013:

Major energy suppliers are increasingly being forced to achieve various statutory targets, such as for the generation of electricity from renewable sources or improvements in the energy efficiency of the housing stock, and see partnerships with local community groups (which are seen as being locally trusted) as having the potential to help them achieve these targets.

This could explain the growing interests of actors outside the community energy sector to get involved. Aside from effects on social and local values, such involvement could support the growth and abundance of community energy initiatives in the Netherlands.

5.8 Characteristics of initiative determine intermediary role

According to our results, energy initiatives either focus on their local context or try to find support from other initiatives and intermediary organizations. An important factor affecting this choice is the background of those managing the initiative, for the management and entrepreneurial capabilities in an initiative largely effects its development (B;E). In this research, some initiatives with a background in project development preferred to "invent the wheel themselves" (Personal communication, 09/03/2015; G). Moreover, when initiatives lack operating capacity, it reduces the available time to cooperate with intermediary organizations. Finally, the motivation of an initiative (Figure 8) also determines cooperation with intermediary organizations. Characteristics of community energy initiatives therefore seem to determine what role intermediary organizations fulfil and how fast the community energy initiative will develop.

As many initiatives seem to struggle with under capacity, intermediary support will only reach more established and well managed initiatives, thereby reducing the role of energy intermediary organizations in a bottom-up energy transition. Even so, our results also showed there are many different networks supporting community energy initiatives. More established initiatives often function as a kind of intermediary in regional networks. These more established initiatives can thus share information to (under capacity) initiatives and in this way initiatives still benefit indirectly from intermediary organizations.

Chapter 6: Conclusions

The main aim of this research was to provide a clearer understanding on the roles of intermediary organizations in community energy development. Literature suggests that intermediary organizations provide an important role in bottom-up energy transitions, contributing to national policy objectives in mitigating climate change and renewable energy production. The framework used describes four kinds of intermediary roles. (1) networking; (2) aggregation (3) guiding; and (4) the managing and brokering of partnerships. Hence, the first three roles in this framework are based on strategic niche management of technological niches, while grassroots innovations, such as community initiatives are fundamentally different from technological niches. Letting intermediary roles in community energy development deviate from the applied theoretical framework.

In this study we used an online questionnaire, interviews with intermediary organizations and desk research. The questionnaire collected data from 99 community energy initiatives. Furthermore, 7 interviews were conducted with intermediary organizations, these organizations were selected on their different roles in community energy development. In addition, desk research was used to contact the initiatives and research the support offered by intermediary organizations. Throughout the research, great care was given to the replicability and validity of the methods used. By emailing community energy initiatives, answers in the questionnaire were verified and two methods have been used to create a fuller picture on the roles of intermediary organizations.

Following the theoretical framework, this section presents the intermediary roles in: networking, aggregation, guiding and managing partnerships. In the second section, the main findings on the sub research question, what support was missing, has been presented. Finally, policy implications, theory and recommendations for future research are discussed.

6.1 Intermediary roles in community energy development

6.1.1 Networking

Intermediaries in the Netherlands create an institutional infrastructure on multiple levels and with different intensions. On the grassroots level, intermediaries provide online platforms to support the establishment and starting phase of an energy initiative. Here the main objective was not necessarily to connect energy initiatives, but to provide a network around a sustainable theme and supporting individuals with a sustainable idea. Moreover, intermediary organizations approached neighbourhood residents with the intention of initiating a community energy initiative. When “a neighbourhood team”, was founded, the intermediary organization would continue support, by for example facilitating meetings with other initiatives. The latter type of intermediary organization was according to the data of growing importance and emerged only recently in 2013-2014.

On a regional level, intermediary organizations provided an institutional infrastructure by member meetings, newsletters and in general the passing on of information. These regional intermediary organizations focus on improving community energy development, by sharing information (from other

intermediary organizations) and the lessons of their member initiatives. On a national level, online platforms like Hieropgewekt provide an institutional infrastructure by making an overview of community energy in the Netherlands, planning (national) events and bringing together all kinds of actors in the community energy sector. Apart from these main platforms, networking on a national level is more segmented. The diversity in community energy initiatives has motivated intermediary organizations to specialize on certain themes. This includes themes related to the type of energy, such as wind and solar. But the motivation and cooperative identity of initiative play a role as well. Finally, these intermediary organizations often require a membership to make use of their services and network.

In the Netherlands intermediary organizations provide an important institutional infrastructure on multiple levels. However, 5-10 percent of the community energy initiatives make no use of intermediary organizations. This suggests that this institutional infrastructure does not provide a key role in the development of all community energy initiatives. Moreover, initiatives from the same region often communicate with each other. These networks do not receive support from an intermediary, but by passing on information and facilitating meetings, intermediary organizations can still contribute to such networks. Finally, although intermediary organizations cooperate, there seems to be no core institutional infrastructure. This could be explained by the difficulties encountered when aggregating local lessons into general rules and principles, as the diversity in projects make that few rules and principles guide the community energy sector as a whole.

6.1.2 Aggregation

Literature suggested that aggregating local lessons into general rules is perhaps not straightforward, due to the variety in local contexts and projects. According to the results, intermediary organizations created several general guides and toolkits. These typically focused on the starting phase of an initiative, such as how to find support for your initiative or how to manage a co-operative. Intermediary organizations and initiatives emphasized the limits of guides and toolkits, because such guides and toolkits could provide useful suggestions, but does not cover everything. A regional intermediary hinted at creating a “card catalogue” that would contain case studies of different projects, instead of creating aggregated lessons and rules. Such an alternative way of sharing locally acquired lesson will probably more effectively support community development.

In general, initiatives found there were sufficient general guides supporting community energy development. However, more specific (step-by-step) guides on a wide range of topics were considered missing. Such a specific guide could for example be: “how to realize solar energy production with SDE”. Initiatives also indicated that information in guides was not always useful or clear (data). Nevertheless, creating useful and clear guides supporting all community energy initiatives might be problematic, due to the large variety in projects and changes in policy.

6.1.3 Guiding

Due to the difficulties in aggregation, few general rules guide the community energy sector as a whole. Nevertheless, guides can provide useful suggestions and can improve the management of an initiative. According to the results, guiding mostly occurs during activities such as courses, personal training and interactive meetings. These activities, organized in groups of 5-20 initiatives, allow experts to provide

advice related to the specific project and local context. Furthermore, initiatives with project experience can share their knowledge and advise other initiatives. The amount of these activities seems insufficient and they are often only available for member initiatives from an intermediary organization. Reasons given as to why this support was lacking, were that project developers (experts) are in short supply and initiatives need to be relatively established to participate in these activities.

In general, community energy initiatives were divided on guiding support offered by intermediary organizations. About 40% of the community energy initiatives found that there were sufficient schemes and guides available, while the remaining majority found that there was a lack of specific and useful guides. About half of the initiatives argued that there were insufficient meetings and courses on certain energy topics. The segmentation in networks can partly explain the different opinions on guiding support.

6.1.4 Managing and brokering partnerships

The final role, managing and brokering partnerships, is of growing significance in community energy development. Similarly to literature, the reason for energy companies to begin such partnerships was:

Major energy suppliers are increasingly being forced to achieve various statutory targets, such as for the generation of electricity from renewable sources or improvements in the energy efficiency of the housing stock, and see partnerships with local community groups (which are seen as being locally trusted) as having the potential to help them achieve these targets. (P.877)

However, in the Netherlands such partnerships were indirect, with intermediary organizations started by an energy company. Furthermore, these intermediary organizations would, next to financial support, provide assistance with a network, sharing knowledge and advice. Another way intermediaries supported community development was by influencing policy (by lobbying) to better match the needs of the community energy sector.

6.2 Intermediary roles energy initiatives found missing

About 40% of the initiatives indicated there was enough support from intermediaries. This includes (6) community energy initiatives preferring not to use services from intermediary organizations. These initiatives prefer to rely on the resources and skills found within the initiative and local context. Apparently, intermediary organizations are not the key for developing the whole community energy sector, but rather the drive and management of the community energy initiatives. Of course, the drive and management can be influenced and supported by intermediaries, thereby further improving the functioning of the community energy sector.

The remaining 60% found intermediary support could improve in finance, legislation, information structure, and expert advice. According to 11 initiatives, support in finance and legislation could be improved by providing advice on the feasibility of a project and in guidance in legislation and policies. A lack of expert advice “1:1”, was found missing by 4 initiatives, possibly originating from a similar lack in support on finance and legislation. Expert advice in project development has to take the local context of an initiative into account, as well as the financial situation and project feasibility. The large variety of information made it difficult to find information, (7) initiatives argued, suggesting an overview on available courses and training would help. On the usability and quality of the information, initiatives found that more in-depth guides and toolkits were missing. According to Hargreaves et al (2013), Though, the large diversity in community energy initiatives and different local contexts makes aggregating local knowledge in general rules and principles complicated. In addition, the intermediaries in the Netherlands found guides and toolkits deceptive, as many more factors are involved in the management of a co-operatives community energy initiative (E;D).

More aspects of intermediary organizations initiatives found lacking included facilitating meetings and marketing. Organizing meetings between energy initiatives could according to 6 initiatives be improved through for example: “a municipality making a meeting room available”. The initiatives emphasized these meetings should be organized by community energy initiatives, because intercommunication was considered helpful and a bottom-up approach was more desirable. Facilitation of meetings depends on the region of the initiative, as certain regional intermediaries provide the possibility to meet with other initiatives on a regular basis. Finally, support in the marketing of initiative was lacking, especially on the promotion of an initiative and finding new participants to manage the initiative. There are intermediaries providing toolkits and support on how to find participants and involve people in the initiatives management (B;N;G), in the form of toolkits that are freely available on websites and presentations on marketing. Still, some initiatives are unable to find the information or find the toolkits and advice not useful.

Community energy initiatives also disagreed with current governmental policy. 11 Initiatives complained that creating a positive business case was not feasible. Moreover, subsidy policies supporting community energy initiatives (SDU, PCR) were considered hard to realize for community energy initiatives. Another factor slowing community energy development, according to both initiatives and intermediary organizations, was a limited operating capacity. A limited capacity makes an initiative unprofessional in executing tasks and makes initiatives unable to fully profit from intermediary support.

6.3 Policy implications

Community energy initiatives differ in management and capacity from niche innovations. Strategic niche management of community energy initiatives does not emphasize on cost efficiency in mass production or learning more about the technology (Kemp et al., 1998). Yet, community energy initiatives focus more on the social context and have a voluntary and environmental drive (Hargreaves,2013b). We found that because of the voluntary and environmental drive, initiatives struggle with under capacity, caused by a limited availability of voluntary hours and a lack of management skills. To reduce the problems of under capacity (unable to execute tasks or make use of intermediary support), a fund allowing initiatives to provide volunteers some compensation is proposed. This concept was already negotiated on a provincial level by the regional intermediary VEC-NB and on the Hieropgewekt event in November 2014. The idea of creating a fund to compensate voluntary hours is widely supported in the community energy movement. Moreover, changing current subsidies (SDE) to compensate voluntary hours can provide additional benefits such as increasing the abundance of energy initiatives, their professionalism and potentially lowering the legislative complexity for community energy initiatives. However, intermediaries can lobby for funding voluntary hours at provincial and national government, but providing this compensation is not directly the role of an intermediary organization.

Intermediary roles community energy initiatives found lacking were related to project realization, specifically finance, marketing and legislation. Guides covering these topics can provide valuable insights. Yet, applying the information within a local context is challenging. Because of this and a lack of useable guides, initiatives argued for more expert advice in project development. Also, diverse publicly available guides on project realization, covering certain energy types (solar, wind, bio, hydro) can benefit community energy development. A good start would be to organise meetings with a small number of community energy initiatives and an expert having professional experience in project realization, or other community energy initiatives having gained project experience.

Facilitating meetings by intermediary organizations was according to some initiatives missing. The facilitation of meetings however depends on the region of the community energy initiative, as several regional intermediary organizations provide regular meetings with other member initiatives. In some regions the municipality functioned as an intermediary organization, by supporting the organization of meetings. The possibility to meet other community energy initiatives and communicate on a regular basis was considered to give a large boost to the development of an initiative.

6.4 Theoretical implications

This research identified the different roles of intermediary organizations in the Netherlands. Although intermediary roles overlapped with those in niche innovations, there were several differences. In networking, no core institutional was observed but rather a patchwork of larger and smaller networks. Due to the differences in community energy initiatives in motivation and energy production, a core infrastructure is perhaps not possible. Community energy initiatives can in some cases (lobbying) be presented as a homogeneous group, but in many other cases this was difficult. The same issue seemed to hinder aggregation of local lessons into general rules. Therefore, the diversity in community energy projects causes intermediary organizations to provide somewhat different roles.

Hargreaves et al (2013) made an analysis of community energy in the UK. In the Netherlands, similar roles of intermediary organizations were identified. This includes the role of intermediary organizations that manage and broker partnerships. Yet, in the Netherlands partnerships were formed by intermediary organizations initiated by an energy company. These intermediary organizations provided various roles in community energy development including the management of partnerships. Another role of energy companies was the providing of services. Here the intermediary organization would take over the tasks related to tax and selling energy. Furthermore, this research found that some initiatives prefer not to cooperate with actors outside the community energy sector.

The MLP framework helped to make an overview on how community energy initiatives can cause a bottom-up energy transition. However, initiatives did not always desire to grow or challenge regime technologies. These initiatives consequently, keep operating at the niche level in the MLP framework which makes energy initiatives less competitive with regime technologies.

This research had limitations with regard to the data collected and the answers on the research questions. Since the research focused on understanding the roles of intermediary organizations the questions were rather general about the support from intermediary organizations. This allowed creating an overview on the different roles, but it also made the data less specific. For example, the results showed that there were networks on different levels that communicated to some extent. Although, this did not explain how these networks internally function and how these networks were exactly connected to one another. Therefore, more in-depth research focusing on the different roles could contribute to the understanding of intermediary roles in community energy development.

6.5 Future research

Due to the limited literature on the role of intermediaries in community energy development, comparison with the situation in many other countries becomes challenging. Therefore, more research on the role of intermediary organizations in different countries would make it possible to compare intermediary roles. Furthermore, the current theoretical framework on intermediary roles has been somewhat problematic when applied in the context of community energy, because intermediary roles in community energy development vary from those in technological niches. Accordingly, more research on intermediary roles looking at the difference between community energy and technological niches might result in a framework better matching the community energy sector.

In this research, the role of managing and brokering partnerships appeared to be of growing importance. This role was first discovered by Hargreaves et al (2013) in an analysis of intermediary organizations in the UK. In the Netherlands, this role only emerged recently in the years 2013-2014. However, the number of initiatives engaging in such partnerships increased rapidly and these partnerships also helped the initiation of new community energy initiatives. These partnerships could reduce the diversity in community energy initiatives and be unsupportive of social and local values. Therefore, new research, looking at the effects of these partnerships on energy transitions and how it shapes community energy initiatives could provide insights in how energy companies affect bottom-up energy transitions.

In all three intermediary roles as identified by Geels & Deuten (2006) intermediaries support community energy development in the Netherlands, contributing to the abundance of energy initiatives and supporting the initiatives further development. Hence, the extent to which energy initiatives benefit from intermediaries depends on how and by whom an initiative is managed, their capacity and motivation. Future research looking at how these characteristics influence growth and intermediary roles would provide a better understanding of bottom-up transitions.

Finally, our results suggested different subsidiary regulations would better support community energy development. For example, subsidy that compensated voluntary hours could help initiatives develop. Yet, research on how compensating voluntary hours or other research on subsidies is lacking. Hence, a study looking at the positive and negative effects of different subsidies is required.

6.6 Final remarks

The role of intermediary organizations was found to be important in bottom-up energy transitions. Nevertheless, intermediaries did not provide a direct key role in the development of all energy initiatives, as some initiatives had a local focus and aimed to realize the project in a local context. Indirectly however, intermediary organizations shape national policy to better suit the development of community energy initiatives. This support also benefits those community energy initiatives focusing on their local context. Furthermore, initiatives indicated there was sufficient intermediary support and their development was hindered by other factors (national policy, economics). It thus suggests, community energy initiatives valued support from intermediary organizations, but considered other factors key in further development.

According to the data, most intermediary organizations were established in the last 4 years. The roles provided by intermediary organizations were thus relatively new. Therefore, the supportive roles of intermediaries could still be improved or changed in the coming years. One intermediary role was the managing and brokering of partnerships. This role increased the abundance of community energy initiatives in the Netherlands, by reducing the thresholds for starting an energy initiative. Hereby, intermediary organizations contribute to reaching national renewable energy objectives. It thus suggests that intermediary organizations provide a key role in community energy development. Moreover, when certain conditions (economic, policy), become more complementary to community energy development, intermediaries can have an even more crucial role in scaling energy initiatives. Thus, contributing to national policy objectives in renewable energy production and the reduction of greenhouse gas emissions.

7. References

ANP. (2014). "Doelstelling duurzame energie onhaalbaar." *De Volkskrant*. Amsterdam. Retrieved from http://www.volkskrant.nl/binnenland/doelstelling-duurzame-energie-onhaalbaar~a3761618/

Bomberg, E., & McEwen, N. (2012). Mobilizing community energy. *Energy Policy*, *51*, 435–444. doi:10.1016/j.enpol.2012.08.045

Bosman, R., Avelino, F., Jhagroe, S., Loorbach, D., Diercks, G., Verschuur, G., & Heijden, J. van der. (2013). *Energielente op komst ? De (on)macht van bottom-up en top-down in de energietransitie. DRIFT ESSAY nr. E 2013.02*. Dutch Research Institute for Transitions: Rotterdam.

Brown, A. P. (2010). Qualitative method and compromise in applied social research. *Qualitative Research*, *10*(2), 229–248. doi:10.1177/1468794109356743

Bryman, A. (2012). *Social Research Methods*. Oxford: Oxford University Press. Retrieved from https://books.google.com/books?hl=nl&lr=&id=vCq5m2hPkOMC&pgis=1

De Windvogel. (2015). De Windvogel is een burgercoöperatie. Wat betekent lidmaatschap van De Windvogel? Retrieved January 1, 2015, from http://www.windvogel.nl/?page_id=4533

Devine-Wright, P. (2005). Beyond NIMBYism: towards an integrated framework for understanding public perceptions of wind energy. *Wind Energy*, *8*(2), 125–139. doi:10.1002/we.124

Eurostat. (2014). *Share of renewables in energy consumption up to 14 % in 2012*. Brussels. Retrieved from http://europa.eu/rapid/press-release_STAT-14-37_en.htm

Geels, F., & Deuten, J. J. (2006). Local and global dynamics in technological development: a socio-cognitive perspective on knowledge flows and lessons from reinforced concrete. *Oxford Journals*, *33*(4), 265–275.

Geels, F., & Raven, R. (2006). Non-linearity and expectations in niche-development trajectories: ups and downs in Dutch biogas development. *Technology Analysis & Strategic Management*, *18*(3-4), 375–392. doi:10.1080/09537320600777143

Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems. *Research Policy*, *33*(6-7), 897–920. doi:10.1016/j.respol.2004.01.015

Geels, F. W. (2005). The dynamics of transitions in socio-technical systems: A multi-level analysis of the transition pathway from horse-drawn carriages to automobiles (1860–1930). *Technology Analysis & Strategic Management*, *17*(4), 445–476. doi:10.1080/09537320500357319

Geels, F. W. (2010). Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy*, *39*(4), 495–510. doi:10.1016/j.respol.2010.01.022

Geels, F. W., & Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy*, *36*(3), 399–417. doi:10.1016/j.respol.2007.01.003

Genus, A., & Coles, A.-M. (2008). Rethinking the multi-level perspective of technological transitions. *Research Policy*, *37*(9), 1436–1445. doi:10.1016/j.respol.2008.05.006

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. *The Qualitative Report*, *8*(4), 597–607. doi:10.2307/302397

Greenpeace. (2012). *Rio+20 should deliver concrete commitments on fossil fuel subsidy reform*. Amsterdam. Retrieved from http://www.greenpeace.org/international/Global/international/publications/RioPlus20/Fossil-Fuel-Subsidies.pdf

Griffee, D. T. (2004). Research Tips: Interview Data Collection. *Journal of Developmental Education*, *28*(3), 36–37.

Hargreaves, T., Hielscher, S., Seyfang, G., & Smith, A. (2013). Grassroots innovations in community energy: The role of intermediaries in niche development. *Global Environmental Change*, *23*(5), 868–880. doi:10.1016/j.gloenvcha.2013.02.008

Hekkenberg, M., & Verdonk, M. (2014). *Nationale Energieverkenning 2014. ECN-O--14-036.* Petten: Energieonderzoek Centrum Nederland. Retrieved from http://www.pbl.nl/sites/default/files/cms/publicaties/pbl-2014-nationale-energieverkenning-2014_01364.pdf

Heun, M. K., & de Wit, M. (2012). Energy return on (energy) invested (EROI), oil prices, and energy transitions. *Energy Policy*, *40*, 147–158. doi:10.1016/j.enpol.2011.09.008

Hieropgewekt. (2014). Hier opgewekt | Het kennisplatform voor lokale duurzame energie initiativen. Retrieved October 15, 2014, from http://www.hieropgewekt.nl/

Hoffman, S., Fudge, S., Pawlisch, L., High-Pippert, A., Peters, M., & Haskard, J. (2013). Public Values and Community Energy: Lessons from the US and UK. *Sustainability*, *5*(4), 1747–1763. doi:10.3390/su5041747

Hoffman, S., & High-Pippert, A. (2010). From private lives to collective action: Recruitment and participation incentives for a community energy program. *Energy Policy*, *38*(12), 7567–7574. doi:10.1016/j.enpol.2009.06.054

Howells, J. (2006). Intermediation and the role of intermediaries in innovation. *Research Policy*, *35*(5), 715–728. doi:10.1016/j.respol.2006.03.005

Isreal, G. D. (1992). *Determining sample size. Fact sheet PEOD-6*. Gainesville: University of Florida: Cooperative Extension Service. Retrieved from http://www.soc.uoc.gr/socmedia/papageo/metaptyxiakoi/sample_size/samplesize1.pdf

Jacobsson, S., & Bergek, A. (2004). Transforming the energy sector: the evolution of technological systems in renewable energy technology. *Industrial and Corporate Change*, *13*(5), 815–849. doi:10.1093/icc/dth032

Jones, B. D. (2001). *Politics and the Architecture of Choice: Bounded Rationality and Governance*. Chicago: University of Chicago Press.

Joppe, M. (2015). *The research process*. *Ghuelp University*. Ghuelp. Retrieved from https://www.uoguelph.ca/hftm/research-process

Jørgensen, U. (2012). Mapping and navigating transitions—The multi-level perspective compared with arenas of development. *Research Policy*, *41*(6), 996–1010. doi:10.1016/j.respol.2012.03.001

Jørgensen, U., & Sørensen, O. (2002). *Arenas of development. In: Shaping Technology, Guiding Policy: Concepts, Spaces and Tools.* Chelenham: Edward Elgar Pub.

Kemp, R., Rip, A., & Schot, J. W. (2001). Constructing Transition Paths Through the Management of Niches. *Path Dependence and Creation*. Mahwah New Jersey and London: Lawrence Erlbaum.

Kemp, R., Schot, J., & Hoogma, R. (1998). Regime shifts to sustainability through processes of niche formation: The approach of strategic niche management. *Technology Analysis & Strategic Management*, *10*(2), 175–198. doi:10.1080/09537329808524310

Kivimaa, P. (2014). Government-affiliated intermediary organisations as actors in system-level transitions. *Research Policy*, *43*(8), 1370–1380. doi:10.1016/j.respol.2014.02.007

Laes, E., Gorissen, L., & Nevens, F. (2014). A Comparison of Energy Transition Governance in Germany, The Netherlands and the United Kingdom. *Sustainability*, *6*(3), 1129–1152. doi:10.3390/su6031129

Lawhon, M., & Murphy, J. T. (2011). Socio-technical regimes and sustainability transitions: Insights from political ecology. *Progress in Human Geography*, *36*(3), 354–378. doi:10.1177/0309132511427960

Longhurst, R. (2009). *International Encyclopedia of Human Geography*. *International Encyclopedia of Human Geography*. Elsevier. doi:10.1016/B978-008044910-4.00458-2

Loorbach, D., & Van Raak, R. (2006). Strategic Niche Management and Transition Management different but complementary approaches. Rotterdam: Erasmus University. Retrieved from hdl.handle.net/1765/37247

Markard, J., Raven, R., & Truffer, B. (2012). Sustainability transitions: An emerging field of research and its prospects. *Research Policy*, *41*(6), 955–967. doi:10.1016/j.respol.2012.02.013

Mergenthaler, E., & Stinson, C. (1992). Psychotherapy Transcription Standards. *Psychotherapy Research*, *2*(2), 125 – 142.

Ministry of economic affairs. (2013). Visie lokale energie. Netherlands: Rijksoverheid. Retrieved from http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2013/11/08/visie-lokale-energie.html

Murphy, D. J., & Hall, C. a S. (2011). Energy return on investment, peak oil, and the end of economic growth. *Annals of the New York Academy of Sciences*, *1219*, 52–72. doi:10.1111/j.1749-6632.2010.05940.x

Naus, J., Spaargaren, G., van Vliet, B. J. M., & van der Horst, H. M. (2014). Smart grids, information flows and emerging domestic energy practices. *Energy Policy*, *68*, 436–446. doi:10.1016/j.enpol.2014.01.038

Nightingale, A. (2009). *International Encyclopedia of Human Geography*. *International Encyclopedia of Human Geography*. Elsevier. doi:10.1016/B978-008044910-4.00552-6

Nykvist, B., & Whitmarsh, L. (2008). A multi-level analysis of sustainable mobility transitions: Niche development in the UK and Sweden. *Technological Forecasting and Social Change*, *75*(9), 1373–1387. doi:10.1016/j.techfore.2008.05.006

OECD. (2012). Inventory of estimated budgetary support and tax expenditures for fossil fuels 2013. Paris : OECD/IEA. doi:10.1787/9789264187610-en

Opdenakker, R. (2006). Advantages and Disadvantages of Four Interview Techniques in Qualitative Research. *In Forum Qualitative Sozialforschung / Forum: Qualitative Social Research*, *7*(4). Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/175/391

Park, J. J. (2012). Fostering community energy and equal opportunities between communities. *Local Environment*, *17*(4), 387–408. doi:10.1080/13549839.2012.678321

Patwardhan, A., Semenov, S., Burton, I., Oppenheimer, M., Pittock, A. B., Rahman, A., … Hanson, C. E. (2007). *Assessing key vulnerabilities and the risk from climate change. Climate Change 2007: Impacts, Adaptation and Vulnerability: Contribution of working group II to the fourth assessment report of the intergovernmental panel on climate change*. Cambridge, UK: Cambridge University Press.

Pepermans, G., Driesen, J., Haeseldonckx, D., Belmans, R., & D'haeseleer, W. (2005). Distributed generation: definition, benefits and issues. *Energy Policy*, *33*(6), 787–798. doi:10.1016/j.enpol.2003.10.004

Preston, V. (2009). *Questionnaire Survey*. *International Encyclopedia of Human Geography*. Elsevier. doi:10.1016/B978-008044910-4.00504-6

Raven, R., Van den Bosch, S., & Weterings, R. (2010). Transitions and strategic niche management : towards a competence kit for practitioners. *International Journal of Technology Management*, *51*(1), 57–74.

Rip, A., & Kemp, R. (1998). *Technological change*. *Human choice and climate change. Vol. II*. Battelle press.

Rogers, J. C., Simmons, E. A., Convery, I., & Weatherall, A. (2008). Public perceptions of opportunities for community-based renewable energy projects. *Energy Policy*, *36*(11), 4217–4226.

Safarzyńska, K., Frenken, K., & van den Bergh, J. C. J. M. (2012). Evolutionary theorizing and modeling of sustainability transitions. *Research Policy*, *41*(6), 1011–1024. doi:10.1016/j.respol.2011.10.014

Schot, J., & Geels, F. W. (2008). Strategic niche management and sustainable innovation journeys: theory, findings, research agenda, and policy. *Technology Analysis & Strategic Management*, *20*(5), 537–554. doi:10.1080/09537320802292651

SER. (2013). *Energieakkoord voor duurzame groei*. *Sociaal-Economische Raad*. Den Haag. Retrieved from http://www.energieakkoordser.nl/~/media/files/internet/publicaties/overige/2010_2019/2013/energieakkoord-duurzame-groei/energieakkoord-duurzame-groei.ashx

Seyfang, G. (2009). *The new economics of sustainable consumption; seeds of change*. Basingstoke: Palgrave Macmillan.

Seyfang, G., Hielscher, S., Hargreaves, T., Martiskainen, M., & Smith, A. (2014). A grassroots sustainable energy niche? Reflections on community energy in the UK. *Environmental Innovation and Societal Transitions*, *13*, 21–44. doi:10.1016/j.eist.2014.04.004

Seyfang, G., Park, J. J., & Smith, A. (2013). A thousand flowers blooming? An examination of community energy in the UK. *Energy Policy*, *61*, 977–989. doi:10.1016/j.enpol.2013.06.030

Shove, E., & Walker, G. (2007). CAUTION! Transitions ahead: politics, practice, and sustainable transition management. *Environment and Planning A*, *39*(4), 763–770. doi:10.1068/a39310

Sinclair, M. A. (1975). Questionnaire design. *Applied Ergonomics*, *6*(2), 73–80. doi:10.1016/0003-6870(75)90299-9

Smith, A., & Raven, R. (2012). What is protective space? Reconsidering niches in transitions to sustainability. *Research Policy*, *41*(6), 1025–1036. doi:10.1016/j.respol.2011.12.012

Stewart, J., & Hyysalo, S. (2008). Intermediaries, users and social learning in technological innovation. *International Journal of Innovation Management*, *12*(03), 295–325. doi:10.1142/S1363919608002035

Trochim, W. M. K. (2014). Types of Surveys. Retrieved October 15, 2014, from http://www.socialresearchmethods.net/kb/survtype.php

Van Lente, H., Hekkert, M., Smits, R., & van Waveren, B. (2003). Roles of Systemic Intermediaries in Transition Processes. *International Journal of Innovation Management*, *07*(03), 247–279. doi:10.1142/S1363919603000817

Verdonk, M., & Wetzels, W. (2012). *Referentieraming Energie en Emissies: Actualisatie 2012 Energie en emissies in de jaren 2012, 2020 en 2030*. *Planbureau voor de Leefomgeving*. Den Haag. Retrieved from https://www.ecn.nl/publicaties/ECN-E--12-039

Vereniging van Nederlandse Gemeenten. (2013). *Lokaal energiek: decentrale duurzame elektriciteit*. Den Haag. Retrieved from https://www.vng.nl/files/vng/20130129_lokaal_energiek_samenvatting.pdf

Walker, G. (1997). Renewable energy in the UK: the Cinderella sector transformed? *Geography*, *82*, 59–74.

Walker, G., & Devine-Wright, P. (2008). Community renewable energy: What should it mean? *Energy Policy*, *36*(2), 497–500. doi:10.1016/j.enpol.2007.10.019

Walker, G., Devine-Wright, P., Hunter, S., High, H., & Evans, B. (2010). Trust and community: Exploring the meanings, contexts and dynamics of community renewable energy. *Energy Policy*, *38*(6), 2655–2663. doi:10.1016/j.enpol.2009.05.055

Walliman, N. (2006). Social research methods. London: Sage Publications Ltd.

Warren, C. R., Lumsden, C., O'Dowd, S., & Birnie, R. V. (2005). "Green On Green": Public perceptions of wind power in Scotland and Ireland. *Journal of Environmental Planning and Management*, *48*(6), 853–875. doi:10.1080/09640560500294376

Wirth, S. (2014). Communities matter: Institutional preconditions for community renewable energy. *Energy Policy*, *70*, 236–246. doi:10.1016/j.enpol.2014.03.021

Wright, K. B. (2006). Researching Internet-Based Populations: Advantages and Disadvantages of Online Survey Research, Online Questionnaire Authoring Software Packages, and Web Survey Services. *Journal of Computer-Mediated Communication*, *10*(3), 00–00. doi:10.1111/j.1083-6101.2005.tb00259.x

Zuidenwind. (2015). De coöperatie Zuidenwind. Retrieved January 1, 2015, from http://www.zuidenwind.org/?page_id=64

8. Appendices

Annex A. Types of intermediary support

Intermediary actors	**Aggregation**			
Indicators:	**creation knowledge**	**Storing and organizing**	**distributing knowledge**	
Hieropgewekt				
e-Decentraal				
	Networking			
Indicators:	**Conferences**	**Seminars**	**Online forums**	**Other**
Hieropgewekt				
e-Decentraal				
Intermediary actors	**Guiding**			
Indicators:	**Rules**	**guidelines**	**Best working practices**	**Other**
Hieropgewekt				
e-Decentraal				

Annex B. The questionnaire

Algemene Informatie

Naam van uw initiatief:

Jaar van oprichting:

Hoeveel afnemers/leden heeft uw initiatief?

Wat is uw functie binnen het energie initiatief?

Wat is de rechtsvorm van uw initiatief?

- Coöperatie
- BV
- Maatschap
- NV
- Vereniging
- Anders:

Op welke wijze word energie opgewekt of bespaart?Meerdere antwoorden mogelijk

- Zon
- Wind
- Biomassa
- Warmte
- Water
- Isolatie
- Anders:

Welke nationale intermediaire organisaties kent u?Meerdere antwoorden mogelijk

- Hieropgewekt
- E-decentraal
- Duurzameenergieunie (De Unie)
- Nudge
- Greenspread
- Anders:

Welke regionale intermediaire organisaties kent u?voorbeelden zijn: Lokale Energie Voorwaarts (Groningen), Energie service punt zeeland

Wat is de motivatie voor uw initiatief? Meerdere antwoorden mogelijk

- Het milieu

- ☐ De lokale economie
- ☐ Zelfvoorzienend zijn
- ☐ Sociale interactie
- ☐ Energie zekerheid
- ☐ Terug verdienen van investering
- ☐ Anders: ____

Deel 1 Communicatie

1 Wat vindt u van de volgende stellingen over intermediaire organisaties?

	Zeer mee eens	Mee eens	Neutraal	Mee oneens	Zeer mee oneens
Intermediaire organisaties bevorderen contact tussen initiatieven	○	○	○	○	○
Online forums bevorderen contact tussen initiatieven	○	○	○	○	○
Conferenties bevorderen contact tussen initiatieven	○	○	○	○	○
Cursussen bevorderen contact tussen initiatieven	○	○	○	○	○

1.1 Op welke wijze heeft u verder nog contact met andere initiatieven?

Deel 2 beschikbare kennis

2 Wat vindt u van de volgende stellingen over kennis verstrekking door intermediaire organisaties?

	Zeer mee eens	Mee eens	Neutraal	Mee oneens	Zeer mee oneens
Informatie over het opzetten van een energie initiatief is beschikbaar	○	○	○	○	○
Informatie over het opzetten van een energie initiatief is bruikbaar en duidelijk	○	○	○	○	○
Informatie over het opzetten van een energie initiatief helpt bij: financiering, leden werving en het maken van een ondernemingsplan	○	○	○	○	○
Informatie over het opzetten van een energie	○	○	○	○	○

	Zeer mee eens	Mee eens	Neutraal	Mee oneens	Zeer mee oneens
initiatief is up to date					

Deel 3 Begeleiding

3 Wat vindt u van de volgende stellingen over begeleiding van intermediaire organisaties?

	Zeer mee eens	Mee eens	Neutraal	Mee oneens	Zeer mee oneens
Er zijn stappenplannen/gidsen beschikbaar					
Er zijn richtlijnen voor energie initiatieven beschikbaar					
Er zijn cursussen en trainingen beschikbaar					

Deel 4 Ontbrekende support

4 Er is over het algemeen genoeg support voor energie initiatieven.

- Zeer mee eens
- Mee eens
- Neutraal
- Mee oneens
- Zeer mee oneens

4.1 Welke vorm van support ontbreekt naar uw mening? Geen ontbrekende hulp ga naar overige opmerkingen

4.2 Wie is verantwoordelijk voor de hulp die naar uw mening ontbreekt?meerdere antwoorden mogelijk

- De overheid
- Gemeenten
- Intermediaire organisaties
- Anders:

Hartelijk dank voor het invullen van de questionnaire!

Zou ik u eventueel nog mogen benaderen voor verdere toelichting?

- Ja
- Nee

Overige opmerkingen over hulp aan energie initiatieven.

Annex C. Interview example

Interview example (Nudge)

Introductie

Ik ben Jorn Schoffelen studeer Klimaat studies en doe op dit moment mijn master scriptie bij de vakgroep milieubeleid in Wageningen.

Mijn onderzoek kijkt welke rol intermediaire organisaties hebben bij de ontwikkeling van energie initiatieven hebben. Intermediaire organisaties zijn organisaties die verbinden, kennis bundelen en begeleiding bieden aan energie initiatieven. Verder focust mijn onderzoek zich op hoe deze ondersteuning bijdraagt aan een transitie naar duurzamere energie voorziening.

Wat ik te weten wil komen.

Welke/wat voor ondersteuning word aangeboden. Welke ondersteuning er ontbreekt voor energie initiatieven of buurten die een energie project willen starten. Welke hulp energie initiatieven volgens jou nodig hebben.

Hoe ziet de ondersteuning van energie initiatieven er in Nederland uit

De data die ik verzamel met mijn interviews zal gebruikt worden om de conclusies van het onderzoek te onderbouwen. Mijn thesis zal uiteindelijk worden opgenomen in de database van de vakgroep milieubeleid aan de universiteit Wageningen. Er bestaan ook plannen om het uiteindelijke rapport toe te voegen aan het kennisdossier van Hieropgewekt.

Mag ik de naam van Nudge/u verbinden aan de antwoorden? Ja/Nee

Is het goed als ik dit interview opneem? Ja/Nee

Wilt u het onderzoeksrapport ontvangen? Ja/Nee

Voorzitter

Wat is de rechtsvorm?

_____

hoeveel leden heeft Nudge op dit moment?

_____

Voor wie Nudge bedoelt?

_____

Sinds wanneer bestaat Nudge?

_____

Deel 1 Communicatie

Is Nudge een platform zodat mensen met duurzame ideeën met elkaar kunnen communiceren?

_____
_____
_____
_____

Heeft Nudge nog contact met overheid of andere organisaties ?

_____
_____
_____
_____

Zijn er nog meer manieren waarop Nudge conact heeft met hun leden?

_____
_____
_____
_____

Deel 2 Kennis verstrekking

Deelt Nudge kennis en wat voor kennis is dit?

_____
_____
_____
_____

Hoe deelt Nudge deze kennis?

_____
_____
_____

Hebben jullie een algemeen kennis dossier?

_____
_____
_____

Word jullie kennis up-to-date gehouden? Beleid veranderd.

_____
_____
_____

Deel 3 begeleiding

Maakt Nudge stappenplannen voor decentrale energie initiatieven?

_____
_____
_____

Geeft Nudge cursussen/trainingen aan decentrale energie initiatieven?

_____
_____
_____

Welke begeleiding biedt Nudge verder nog?

_____
_____
_____

4 Ontbrekende hulp

Welke ondersteuning is volgens jou belangrijk voor een energie initiatief?

_____
_____
_____
_____

Welke ondersteuning ontbreekt op dit moment voor energie initiatieven? (kijkend naar nudgers)

_____
_____
_____
_____

Wie is verantwoordelijk voor de steun die ontbreekt?

_____
_____
_____
_____

In Nederland is er op dit moment een structuur van (intermediaire organisaties, overheid, gemeenten, milieu federatie, Provincie, stichtingen, overkoepelende coöperaties, energie bedrijven) om energie initiatieven te steunen. (Lokaal tot nationaal niveau). Zou u deze structuur kunnen illustreren op een A4tje.

Wat is de rol van Nudge binnen deze structuur?

_____
_____
_____
_____

Hoe denkt u dat energie initiatieven zullen bijdragen aan een energie transitie?

_____
_____
_____
_____

Bedankt voor dit interview!

Heeft u verder nog opmerkingen?

_____
_____
_____
_____

Zou ik u in de toekomst nog mogen benaderen voor verdere toelichting

JA/Nee

Annex D. Illustrations structure intermediary organizations