New energy alliances

Exploring the partnerships between local energy cooperatives and energy companies in the Netherlands

The Dutch energy market is changing quickly. Citizens increasingly take a more active role, causing interesting shifts in the roles and responsibilities of all actors in the energy market. Some citizens have even started to organise themselves in 'energy cooperatives', producing renewable electricity and in some cases even delivering it to consumers themselves. Cooperatives in this respect might play a potential key role in bringing about an energy transition in the Netherlands. In developing their projects, cooperatives however face several important challenges and incentives. To address these, cooperatives increasingly cooperate with energy companies, creating ´new energy alliances´ in the energy market. At first sight, this might seem remarkable as cooperatives and energy companies can be regarded as rivals, both producing and supplying electricity. Taking a closer look however reveals that partnering with an energy company offers important benefits for a cooperative. The partnerships for example provide cooperatives with the knowledge, expertise and finances needed to develop projects. The partnerships between cooperatives and energy companies can in this way have an important beneficial influence on the development of cooperatives in the Netherlands, enhancing their contribution to an energy transition in the Netherlands.

Key words: energy transition, community energy, cooperatives, energy companies, energy intermediaries

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Executive summary

"the cake for sustainability is large enough in the Netherlands, so let's not make it a competition, but let's focus on strengthening the entire movement."
- Greenchoice, 2016

The Dutch energy market is changing quickly. Citizens increasingly take a more active role, causing interesting shifts in the roles and responsibilities of all actors in the energy market. Some citizens have even started to organise themselves in 'energy cooperatives', aiming to bring energy back to the local scale. The number of cooperatives in the Netherlands has grown rapidly over the past few years and a clear trend of professionalization is visible among them. An increasing number of cooperatives produce renewable electricity and in some cases even deliver it to consumers themselves. As a result, cooperatives have increasingly attracted attention as potential key players in bringing about an energy transition in the Netherlands.

By producing and supplying electricity, cooperatives take over some of the core activities of the traditional energy companies. At first sight, cooperatives and energy companies therefore seem to be rivals. Remarkable however is that cooperatives and energy companies have increasingly started working together over the past few years, creating 'new energy alliances' in the energy market. At second sight, cooperatives and energy companies thus appear to be partners. Taking a closer look however reveals that for both parties, a partnership might offer important benefits. For energy companies, cooperatives might form an important way to adapt to and embrace their new role in the future energy system. For cooperatives on the other hand, partnering with energy companies can be an important strategy to address the challenges and incentives they face in their development.

But in what ways do cooperatives work with energy companies? And what influence does partnering with an energy company eventually have on the development of a cooperative? More importantly, does this ´new energy alliance´ between cooperatives and energy companies eventually help cooperatives to grow and eventually bring about an energy transition in the Netherlands? To answer this question, the following research question was formulated to guide this project:

In what ways do energy cooperatives cooperate with energy companies, and what role do these partnerships play in the development of the cooperative energy sector in the Netherlands?

To enable answering this question, 6 expert interviews, a data-analysis and 24 in-depth interviews were conducted; out of which 13 cooperatives and 11 energy companies. The research has shown that when choosing a partnership, cooperatives can choose between two types of energy companies; a cooperative or commercial energy company. In contrast to commercial energy companies, the cooperative companies have the same organisational structure as the cooperatives themselves, which means that the cooperatives are co-owners of the energy company and have a right of say in its decision-making. The three most important motives for cooperatives to choose between the two types turn out to be sustainability, price and degree of stability.

In total, six types of partnerships were found in this research, which can broadly be divided into partnerships with or without production. For partnerships without production, cooperatives tend to choose cooperative energy companies, while for production partnerships, commercial energy companies are more popular. The *first* type of partnership is relatively 'light' and often informal. The energy company thereby provides advice, services or training to the cooperative for example on juridical, technical or marketing issues. This type of partnership turns out to have a strong beneficial influence on cooperatives, addressing their need for expertise. In a *second* type, the resale partnership, the cooperative resells the electricity of an energy company to its members or customers. No production is involved here. By paying a fee for each customer the cooperative acquires, the energy company helps to create a business model

from which a cooperative can pay its volunteers for their work. Several energy companies thereby develop marketing activities to boost the customer acquisition of cooperatives, which has an important beneficial influence on the growth of a cooperative.

In the *third* and *fourth* type of partnerships, both production partnerships, the cooperative entirely owns and develops a solar or wind project itself. The energy company in this respect only fulfils the supplier role, purchasing the produced electricity and selling it to customers. By taking over some complex administrative tasks, the energy company can save a cooperative time and risks. The *fifth* type of partnership represents the most 'heavy' type, as the cooperative and energy company in this case jointly own and develop the project. An important conclusion is that the cooperative and energy company complement each other well in this partnership. The cooperative on the one hand is strong in organising the participation and support of local residents; the energy company can bring in the expertise, experience and finances needed to develop production projects. This partnership type especially stimulates the development of younger cooperatives, who can learn a lot about project development in a relatively short time. The *sixth* partnership in contrast turns out to offer relatively few benefits for cooperatives. In this case, the energy company completely owns and develops the project by itself and the cooperative is only involved to organise the (financial) participation of local residents.

In all partnerships, detrimental influence occurs when administrative problems arise. These problems take up a lot of time and can create complaints among customers. Additional detrimental influence occurs when an energy company already has a negative reputation among local residents. This negatively affects the community support for a cooperative, when it chooses to work with that particular energy company.

Overall, cooperative energy companies turn out to play a strong role in the accumulation and sharing of knowledge among cooperatives, given their already strong position in the cooperative network. Commercial energy companies on the other hand play only a very limited role in the stimulation of knowledge exchange, but instead play an important role in providing advice and coordinating in projects on the ground.

An important conclusion of this research is that although the resale partnership has a beneficial influence, in the end this partnership does not seem to contribute much to a stronger role of cooperatives in the energy transition. The acquisition of customers remains a difficult challenge, all the more as the potential customer base of cooperatives is limited due to the cooperatives' local scale. In order to strengthen their contribution to the energy transition, cooperatives are therefore recommended to prioritise production projects above the resale of energy. Partnerships with energy companies can in this respect provide cooperatives with the knowledge, expertise and finances needed to develop production projects, which eventually results in an increase in the amount of renewable electricity produced by cooperatives.

At the same time, this research has however also shown that cooperatives are increasingly finding alternatives for working with energy companies. Not only the emergence of cooperative project development agencies, but also the cooperative energy companies can in this respect be seen as important alternatives to working with the traditional commercial energy companies. The conclusion however is that at this moment, cooperatives and energy companies still need each other. The expectation therefore is that cooperatives and energy companies will remain partners for now and that in the future, many more 'new energy alliances' are to come.

I. Introduction

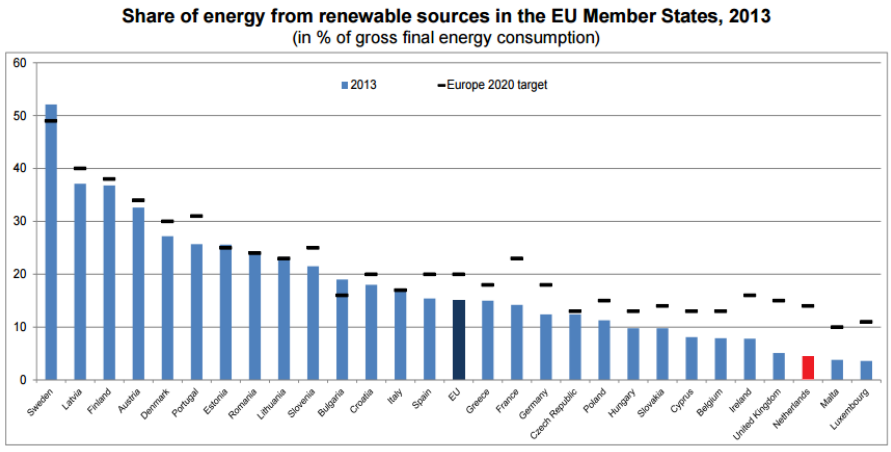
This first chapter introduces the underlying societal rationale of this research; the pressing need for an energy transition. Energy cooperatives, that form the focus of this research, might play a crucial role in this energy transition. This chapter shows that a particular knowledge gap however still exists around energy cooperatives, and explains how this research aims to contribute to filling this gap. This results in a set of research aims and questions, which will be structurally addressed through four research phases. The chapter concludes with a reading guide.

I. The need for an energy transition

Climate change is one of the most pressing worldwide societal issues of today. In order to mitigate climate change, a transition is needed from fossil fuels to renewable forms of energy such as wind, solar and biomass power. The shift to renewables will make an important contribution to the reduction of emitted greenhouse gases, the main cause of global warming. In December last year a record number of 186 countries signed a new international agreement which should keep global warming below 2°C (UN COP21, 2016). This United Nations agreement will force national governments to set ambitious national climate goals and accelerate the energy transition in their country.

To accelerate the energy transition in the Netherlands, the Dutch government set the ambition to increase the share of renewable energy resources to 14% in 2020 and a further 16% in 2023. However, a recent Eurostat report suggests that the Dutch energy transition is progressing at a continental pace, with the current share of renewables stuck at around 4,5% (2015). Shockingly, the Netherlands even ranks among the lowest among the EU Member States (Figure 1). An explanation for this is that the Netherlands still predominantly depends on fossil fuels for its electricity production, with a small number of large-scale plants generating the bulk of electricity (CBS, 2016, p.10-11).

Figure 1: The lagging position of the Netherlands in the share of renewable energy



Source: Eurostat, 2015, edited by author.

Although opinions about the reasons for the slow transition to a more sustainable energy system in the Netherlands vary widely among scholars (see Blokhuis *et al.*, 2012; Schoor & Scholtens, 2015; Verbong, *et al.,* 2008; Verbong & Geels, 2007; Verbong & Geels, 2010), they seem to have a more common ground concerning a possible solution to the problem; decentralised generation. This entails the generation of electricity in multiple generating units close to the point of use (Allen *et al.*, 2007, p.530). This means that electricity generation becomes more geographically dispersed and relatively small-scale, in contrast to the strongly centralised current energy system.

More importantly, decentralised generation relies almost entirely on renewable energy sources. According to Wolsink, it is therefore considered the "environmentally friendly alternative to the traditional power supply system" and a primary tool to address climate change (2012, p.823). Moreover, the Dutch government seems to have realised the potential of decentralised generation too, as one of the

ambitions formulated in 2015 is to cover the electricity demand of at least one million households via decentralised renewable energy generation in 2020 (SER, 2015, p.8). As a result of the increasing focus on decentralised generation, a strong decentralisation trend seems to be taking place in the energy market.

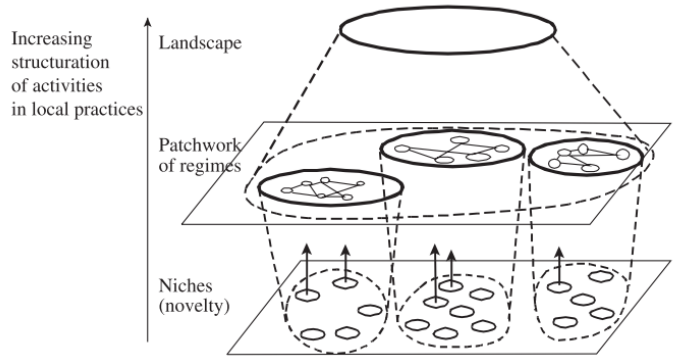
II. A key role for community energy

This decentralisation trend is causing interesting shifts in the energy market. New actors are emerging and the roles and responsibilities of existing actors are changing, creating new relations within the Dutch electricity supply chain. In particular, the citizen is increasingly taking up an active role in the supply chain, in contrast to its traditional passive role as energy consumer. This increased consumer participation in the energy system seems to be radically redefining the relationship between state, market and civil society.

Citizens are increasingly involved in the delivery and generation of electricity and the development and operation of new energy systems (Boon & Dieperink, 2014, p.297-8). Moreover, a variety of locally initiated civil society organisations has emerged in the Netherlands, aiming at the local provision and consumption of renewable energy. These initiatives are generally referred to as 'community energy' (Boon & Dieperink, 2014; Hielscher *et al.,* 2011; Seyfang & Haxeltine, 2012; Schoor & Scholtens, 2015; Walker, 2008; Walker & Devine-Wright, 2008).

Over the past few years these community energy initiatives have increasingly attracted attention as "potential sources of innovation to support sustainable energy transitions" (Hargreaves *et al*., 2013, p.868). According to Seyfang & Haxeltine they can be regarded as grassroots innovations, "innovative networks of activists and organisations that lead bottom-up solutions for sustainable development; solutions that respond to the local situation and the interests and values of the communities involved" (2012, p.384). Innovation theory notes how these innovations, developed and tested inside protected 'niche spaces', can grow through experimentation, shared learning and networks and ultimately influence the mainstream regime (Figure 2) (Verbong & Geels, 2010, p.1215).

Figure 2: Niche innovations influencing the mainstream regime



Source: Verbong & Geels, 2010, p.1215.

The community energy sector also constitutes such a 'niche', supporting innovative local-scale renewable energy solutions (Hielscher *et al*., 2011, p.17). Community energy initiatives for example generate their own electricity with renewable energy projects, but are also "deemed suitable vehicles for raising awareness of sustainable energy issues, improving public receptivity to renewable energy installations, increasing engagement in behaviour-change initiatives and reducing carbon emissions as a result" (Seyfang *et al.,* 2013, 978). The initiatives in this way generate ideas and practices that can be taken up in the mainstream, and from which mainstream actors can learn (Bergman & Eyre, 2011, p.345).

In short, community energy initiatives can function as niches where innovative renewable energy activities are developed that can ultimately challenge the existing centralized Dutch energy system. In this way, community energy can play a key role in the energy transition in the Netherlands and might potentially even form the fibre of a new future energy system. Although the current contribution of

community energy to the total installed capacity of renewable energy in the Netherlands is still relatively small – around 3% in 2015 – figures from other countries such as Germany – where over 50% of the installed capacity is owned by private citizens and local initiatives – shows the enormous potential of community energy (Schwencke & Elzenga, 2015a, p.17-18; Oteman *et al.*, 2014, p.9).

II. Energy cooperatives

Community energy encompasses many different types of initiatives. Estimations of the total number of initiatives in the Netherlands vary somewhere between 400 to 600 (Schwencke, 2012, p.3). These initiatives vary widely in the scope of their activities and degree of professionalization, ranging from young initiatives doing energy awareness activities in the neighbourhood to more professional cooperatives exploiting their own wind turbines since the 80s. As the initiatives often operate on the local scale and their numbers grow every day, it is difficult to generate a clear overall picture (Schwencke, 2012, p.4). This research therefore focuses on a specific group of initiatives; energy cooperatives.

Although community energy can take many different organisational forms, the cooperative form is the most commonly used form when a community initiative starts to develop more structural and professional projects. As this research focuses on the more professional community initiatives, the scope of the research is limited to those initiatives that are citizen-led and have a formal cooperative form.

A recent survey commissioned by HIER Opgewekt, the official national platform for community energy in the Netherlands, counted 220 energy cooperatives in 2015 (LEM, 2015). These cooperatives realise collective solar and wind projects and increasingly also develop energy saving and energy supply activities. Many scholars note an increasing ambition to grow and become more professional among these cooperatives, or in innovation theory terms; the community energy niche is growing and becoming more standardised (Blokhuis et al., 2012; Schwencke & Elzenga, 2015a; Schoor & Scholtens, 2015). Over the past few years cooperatives have grown significantly in the amount of members and customers, and take on increasingly complex and large-scale projects. Some larger cooperatives have even developed into (semi)professional project developers (Elzenga & Schwencke, 2014, p.24).

III. Knowledge gap

As a result, energy cooperatives in this way can also play an increasingly important role in the energy transition. While developing their projects, cooperatives however encounter many important challenges an incentives. These challenges have received a lot of attention from scholars (Oteman *et al.,* 2014; Seyfang & Smith, 2007; Walker, 2008). Increasing their number of members, building the capacity to manage an increasing number of transactions and gaining sufficient knowledge and experience are examples of challenges that become especially relevant when cooperatives start to develop more professional projects.

To address these challenges and incentives energy cooperatives adopt a range of different strategies, involving both short and longer term partnerships with actors in their network. This research focuses on one type of partnership in particular: those with energy companies. Energy companies are responsible for the supply of electricity to the end-use consumer and in some cases also produce electricity themselves. In recent years the number of partnerships between cooperatives and energy companies seems to be increasing rapidly. This seems remarkable, given the increasing tension between energy companies and the newly emerging cooperatives. By producing and in some cases even supplying energy, cooperatives namely take over important core tasks of energy companies. This means that in essence, cooperatives and energy companies can be regarded as direct competitors, both generating and delivering electricity. The emergence of cooperatives in this respect has important consequences for the role of the energy company in the electricity supply chain.

Partnerships with energy companies however also seem to offer important benefits for cooperatives. Energy companies can for example take over complex administrative tasks, or provide the knowledge and resources needed to develop projects. In general, large Dutch energy companies have recently started developing supportive services for energy cooperatives. An example of this is Greenchoice, an energy company that is a frontrunner in cooperation with energy cooperatives in the Netherlands. At the same

time, new energy companies are emerging in the Netherlands, pioneering new business models and forms of cooperation with cooperatives.

By developing these new forms of cooperation with cooperatives, energy companies seem to assume a role similar to that of community energy intermediaries as described by Hargreaves *et al.* (2013). These intermediaries play an important role in stimulating the development of cooperatives, through "facilitating dialogue, providing guidance, bridging gaps, advocating reform, or pioneering novel forms of interaction" (Moss, 2009, p.1481). From the perspective of cooperatives, cooperation with new and existing energy companies might be an important strategy to face the challenges and incentives they encounter in developing projects. Partnerships with energy companies might in this way even enhance the impact of cooperatives in the energy transition. But what types of partnership are there? What role do both the cooperative and energy company play in this? And does such a partnership ultimately have a beneficial influence on the development of a cooperative, or rather a detrimental influence?

These questions have received limited academic attention yet, and only little insight exists into the influence of the partnerships on the development of cooperatives in the Netherlands. By focusing on these partnerships, this research aims to contribute to filling this knowledge gap; and in this way ultimately aims to stimulate the development of cooperatives in the Netherlands.

IV. Research aims and questions

The following three aims specify what is to be achieved by the research:

- Contributing to theory about the interaction between civil society and the market and exploring the potential key role that this can play in bringing about an energy transition in the Netherlands; contributing to theory about energy intermediary actors in the Netherlands;
- Contributing to the development of the cooperative energy sector in the Netherlands and its impact in the energy transition, by providing energy cooperatives with knowledge about the advantages and disadvantages of partnerships with energy companies, and how these partnerships could be used for the benefit of their projects;
- Contributing to an active role of energy companies in the Dutch energy transition, by providing energy companies with knowledge about the challenges that energy cooperatives face and the possibilities of partnerships with cooperatives;

On the one hand, this research has two theoretical aims. By examining the partnerships between cooperatives and energy companies, this research in fact examines the interaction that is taking place between the civil society and market sphere. Because of these partnerships, the boundaries between the two spheres become blurred and interesting new hybrid forms seem to emerge. But what hybrid forms are there; and do the forms ultimately also have an impact on the energy transition? By focusing on these questions, this research aims to contribute to theory about the interaction between civil society and the market; and the potential role that this interaction can play in the energy transition in the Netherlands. Besides this, this research also aims to contribute to energy intermediary theory. To date, academic evidence on energy intermediaries in the Netherlands is still limited. By examining the potential role of the energy company as energy intermediary, this research aims to add to this academic evidence.

On the other hand this research also has practical aims. Although several cooperatives in the Netherlands already work with energy companies and the number of partnerships with energy companies is increasing rapidly, knowledge and experiencies with these partnerships are generally not yet shared among cooperatives. As a result, limited insight exists in how partnerships with energy companies could be usefully employed in the development of projects, or conversely, how disadvantageous influences of partnerships with energy companies could be avoided. Providing more insight into the advantages and disadvantages of these partnerships can therefore aid cooperatives in the development of their projects and in this way contribute to the development of the cooperative energy sector in the Netherlands.

The last aim of this research is to contribute to an active role of energy companies in the Dutch energy transition, by providing energy companies with knowledge about the challenges that energy cooperatives face and the ways in which they can respond to these challenges. Moreover, as cooperatives form an important potential target group in the future business model of energy companies, knowledge about the possibilities of partnerships with cooperatives can be very valuable for energy companies (Accenture Strategy, 2015, p.7). To achieve these aims the following main research question is formulated:

In what ways do energy cooperatives cooperate with energy companies, and what role do these partnerships play in the development of the cooperative energy sector in the Netherlands?

To be able to answer the main research questions and to provide a clear structure for the research, the following sub-questions have been formulated:

1. *In what way are the main roles and responsibilities in the Dutch energy market changing, and why does this change occur?*
2. *To what extent do cooperatives play a role in the decentralisation trend, and how has the cooperative energy sector in the Netherlands developed over the past few years?*
3. *What challenges and incentives do cooperatives face in the development of their projects?*
4. *To what extent do cooperatives work with energy companies, and what alternative ways do they use to face their challenges and incentives?*
5. *To what extent does the energy company fulfil an energy intermediary role in these partnerships, and what motives are behind their actions?*
6. *What influence does the partnership between cooperatives and energy companies have on the challenges and incentives that cooperatives face?*

V. Research phases

To answer these questions the research has been divided into four phases (**Figure 3**). Each of these phases focuses on one research method, including both quantitative and qualitative methods. This research therefore takes a mixed-methods approach, with different methods used sequentially. The end-product of one phase thereby forms the starting point for the next phase.

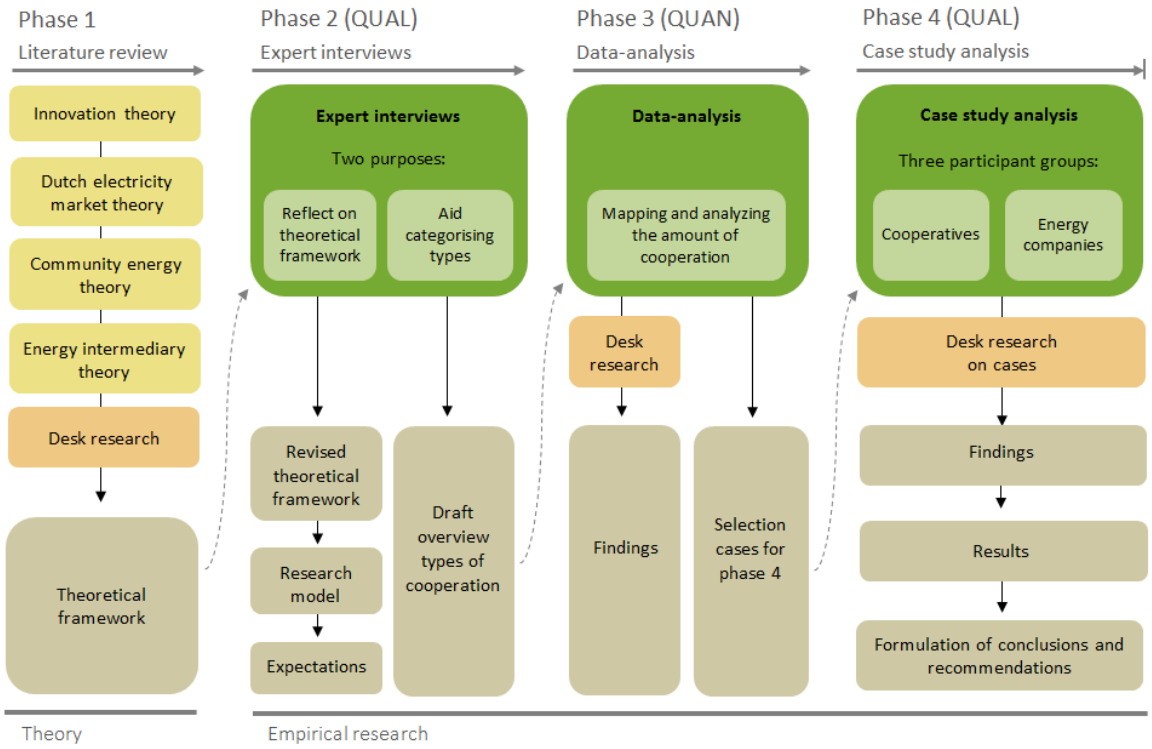
The *first phase* of the research encompasses a review of the literature, which eventually results in important context information and a theoretical framework for analysis. This includes literature on innovation theory, the Dutch energy market, community energy and energy intermediaries. Although the body of literature on the development of cooperatives in the Netherlands has been growing recently, the number of academic sources available is still limited and might therefore be insufficient to construct a theoretical framework. Additional information is therefore gathered through desk research into policy studies, reports, news articles and other sources available online.

In the *second phase* of the research a number of experts in the field are consulted during exploratory interviews, with a twofold aim. Firstly, the experts are asked to reflect upon and fine-tune the theoretical framework. This results in a revised framework, from which the research model and expectations are formulated. The experts' additions are thereby integrated throughout the theoretical chapters 2 and 3. Secondly, the experts were also asked to help construct a preliminary overview of the different types of cooperation between cooperatives and energy companies, which forms the basis for the data-analysis in phase 3. Phase 1 and 2 combined allow answering the first three sub-questions.

In the *third phase* a data-analysis is carried on the basis of secondary survey-based data from HIER Opgewekt, on all 220 cooperatives in the Netherlands. The purpose of the data-analysis is to count how often each type of partnership occurs in the Netherlands, as there is no scientific data on this available yet. As the entire population of cooperatives in the Netherlands is included, the data-analysis improves

the possibility to generalise the results of this research. General conclusions can in this way be drawn reasonably for all cooperatives in the Netherlands. Besides this, the data-analysis also forms the basis for selecting the cases for in-depth analysis in the fourth phase. The data-analysis allows answering the fourth sub-question.

Figure 3: Overview of research stages



In the *fourth phase* a case study analysis is carried out. Data is collected through semi-structured interviews with cooperatives and energy companies. These interviews enable to acquire in-depth knowledge about the cooperation with energy companies, and the role of the partnership in the development of cooperatives in the Netherlands. Additional desk research on the different case studies is carried out to complement information acquired during the interviews. Besides this, additional data is collected by attending an event organized by energy company Greenchoice, where the interaction between the energy company and cooperatives is observed first-hand.

The collection of data eventually results in the findings and results of this research. Subsequently, the final step of includes the formulation of conclusions and recommendations. In this way the fifth and sixth sub-questions can also be answered.

VI. Reading guide

This research is structured as follows; the first chapter discusses the context in which this research takes place, the Dutch energy market. The chapter discusses the interesting and important shifts in the market and introduces the basic concepts used in this research. The second and third chapter contain the theoretical framework of the research, with chapter 2 focusing on cooperatives and the challenges and incentives they face; and chapter 3 on the energy intermediary framework. The fourth chapter describes the methodology used in this research. The fifth and sixth chapter contains the results of the research, followed by the conclusions in chapter 7. The eighth and last chapter reflects on the shortcomings of the methods and results in the research and makes several recommendations for further research.

1. Changing roles in the energy market

As mentioned in the introduction, decentralisation is causing interesting shifts in the Dutch energy market. This market forms the context in which the partnerships between cooperatives and energy companies take place. This chapter zooms in on these shifts; what is happening and why? Moroever, what do the changes mean for the actors in the electricity supply chain, including cooperatives and energy companies? By explaining the context, this chapter introduces some of the basic concepts used in this research, creating a foundation for the rest of the research.

The chapter starts by discussing the main actors and their roles and responsibilities in the electricity supply chain, which shows how electricity is generated, transmitted, distributed and eventually supplied to the consumer. It subsequently discusses how decentralisation is causing these roles and responsibilities to shift, leading to a changing role for the energy company and the emergence of a new type of actor in the chain: community energy actors. This chapter thereby answers the first research question:

In what way are the main roles and responsibilities in the Dutch energy market changing, and why does this change occur?

The chapter concludes by discussing the interesting tension that these new actors create in the electricity market and the policy context within which they operate.

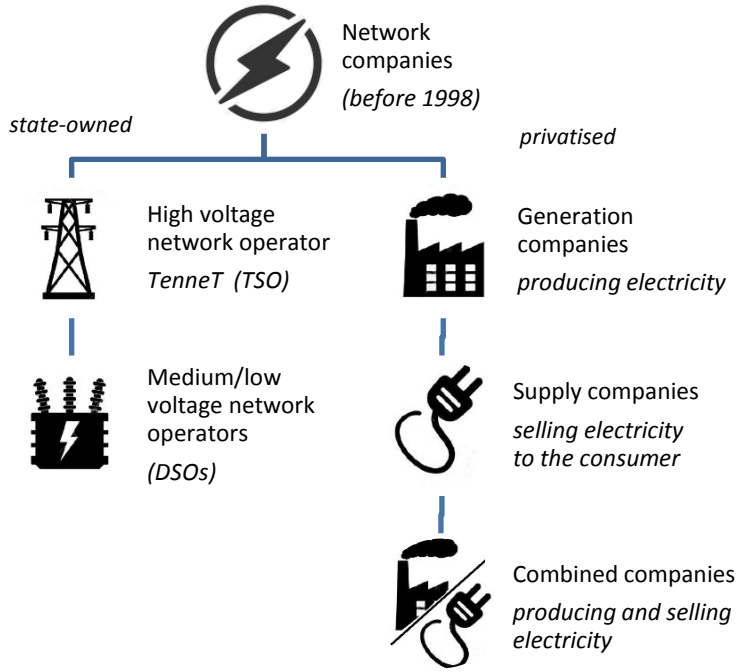
1.1 The emergence of commercial energy companies

Since the mid-1990s liberalisation has dominated the energy policies in the European Union, "with the Netherlands as one of the frontrunners" (Verbong & Geels, 2007, p.1030). Market mechanisms were introduced to stimulate efficiency and competitiveness in the sector and to accelerate the transition to a sustainable energy system. A fundamental concept in these liberalisation policies is the so-called 'unbundling': the separation of the core activities in the electricity industry. Where the generation, trade and sale of electricity in the Netherlands were formerly combined within large network companies, these activities were formally separated with the introduction of the 1998 Electricity Law (Verbong & Geels, 2007, p.1029). Over the course of roughly two decades, the former network companies split up into network operators and generation/supply companies (Figure 4).

Part of the former network companies' activities were transferred to a new state-owned entity, TenneT, which became the transmission system operator (TSO) of the high voltage grid. The 1998 law established TenneT as "the main hub for all transactions" in the Dutch electricity market and owner of the Amsterdam Power Exchange (APX), the main trade place for electricity in the Netherlands (ibid.). Through this actor the government enforces and steers the electricity market. Later, also the medium- and low-voltage grids were unbundled, resulting in a new group of formally independent distribution system operators (DSOs). These DSOs, eight in total, are responsible for "the construction, maintenance, management and development of the transportation and distribution networks for electricity between the high voltage grid and the consumers" (Tanrisever *et al.*, 2015, p.1365). Each DSO manages one or more separate distribution grids in the Netherlands.

The remaining parts of the network companies completed their transformation into commercial companies, either generating electricity or buying it from generators and selling it to consumers (Verbong & Geels, 2007, p.1030). The commercial side is therefore represented by generating companies, supplying companies and companies that combine the two activities (Figure 4). This research focuses on all three types of companies, and uses the term 'energy company' in general. With the creation of the commercial companies, firms in the electricity market became free to compete. In addition the demand side of the market was also fully liberalised in 2004, giving consumers freedom in their choice of energy company (Tanrisever *et al.*, 2015, p.1364).

Figure 4: Unbundling of the network companies



Source: based on Verbong & Geels, 2007; Tanrisever *et al.*, 2015.

1.2 The electricity supply chain

With these major changes in formal rules and networks the current electricity regime was created. The current electricity supply chain includes six phases with independent parties covering the generation, trade, transmission, distribution, metering and supply of electricity (Figure 5) (Tanrisever *et al.*, 2015, p.1365). In the first phase electricity is *generated* by production companies, with gas- and coal-fired plants remaining the dominant production sources of in the Netherlands (IEA, 2015). Although gas and coal account for 54.7% and 27,3% of total electricity production, the use of renewable sources such as wind and solar power is slowly increasing (ibid.).

In the second phase the generated electricity is *traded* by program responsible parties (PRPs; also known as balance responsible parties, BRPs) (TenneT, 2016). The PRPs are responsible for the technical balance of the electricity system. As the storage possibilities of electricity are still limited, the supply and demand of electricity need to be in balance at all times. The PRPs are responsible for forecasting the net demand of all electricity consumers, both private and industrial. On the basis of their expectations, the PRPs submit an E-program to TenneT, containing the forecasted net demand and supply of the connections they manage (Tanrisever *et al.*, 2015, p.1365).

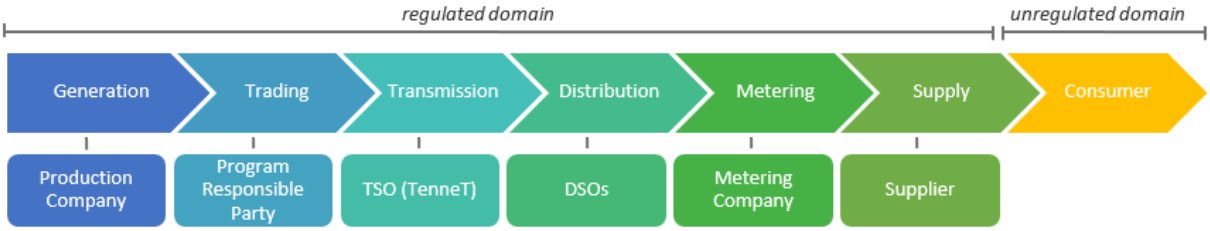
During the third phase of *transmission* in the supply chain the electricity is transported from generation to the high voltage grids, operated by the national TSO TenneT. From this grid the electricity is further *distributed* in the fourth phase, via the medium- and low-voltage grids operated by the DSOs. In the fifth phase the actual amount of electricity used by consumers is *measured*, which results in the data needed to complete the financial transactions between all parties in the supply chain. The metering is mostly done by the DSOs themselves. The sixth and final phase encompasses the actual *supply* of electricity to the end-user, where energy companies sell the electricity to consumers. These energy companies form the final stage in the electricity supply chain and function as “the first contact for the household customer regarding billing, house-moves, switching [energy contract] requests and energy supply” (ETP SmartGrids, 2015, p.14).

Besides supplying electricity to consumers, several energy companies also produce electricity, which allows them to sell the electricity they produce directly to their consumers. According to a recent survey

of CE Delft, 9 out of 37 Dutch energy companies also have production activities (2015, p.5). The Dutch energy company therefore forms an important player in the chain. Some of the larger energy companies thereby not only produce and supply electricity, but also fulfil the role of the PRP.

An important distinction within the electricity supply chain can be made between the regulated or public domain and the unregulated or private domain. Because power supply is a public service in the Netherlands, the parties in the electricity supply chain are subject to stringent government regulations. While the government steers and manages the market through state-owned TSO and DSOs in the trade, transmission and distribution phases, in the generation and supply phases companies have to comply to strict rules and regulations to ensure the national security of electricity supply. The consumer domain on the other hand is unregulated, and consumers are free to choose their energy company.

Figure 5: The electricity supply chain



Source: based on Tanrisever *et al.,* 2015, p.1365, edited by author

1.3 Increasing consumer participation

The electricity supply chain described above represents the conventional, traditional organisation of electricity in the Netherlands. Here the government and large-scale energy producers are responsible for the operation and maintenance of the system, while households are "typically configured as 'passive end-users' or 'captive consumers' who are dependent on monolithic and distant energy providers" (Naus *et al.,* 2015, p.126). Due to this system, energy consumption has acquired a largely 'taken-for-granted status' in everyday life. Historically, the relationship between energy companies and consumers has therefore "been rather lopsided" (IBM, 2007, p.1).

Especially in the past few decades however, this relationship has started changing. The processes of liberalisation since the 1980s and more recently the increasing concerns over climate change, rising energy prices and technological advancement have led to greater consumer participation in the energy system. Consumers were given free choice between energy companies and energy sources, and some have started to generate their own electricity. As a result, consumers are increasingly involved in "the development of energy systems (co-construction), the delivery and generation of energy services (co-production) and/or the ownership and operation of these systems and services" (Boon & Dieperink, 2014, p.297-8).

This shift from passive end-users towards active participation is radically redefining the traditional relationship between energy companies and consumers (IBM, 2007, p.1; Bergman & Eyre, 2011, p.347). The most basic role of the consumer, that of passive end-user, is becoming less passive as consumers increasingly keep track of their own energy consumption, share information about their energy use with other households and shift the timing of electricity-consuming activities such as laundry practices to low tariff hours (Naus et al., 2015). Financial incentives thereby often form the main motive, although also environmental motives increasingly drive consumers to make more conscious choices regarding their energy use. In this way, "the home has become a more explicit site for environmental action by citizens" (Naus et al., 2015, p.127).

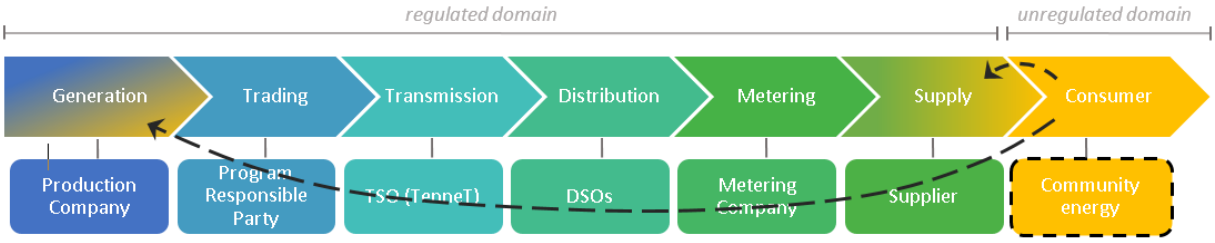
Perhaps the clearest form of increased consumer participation however is the emergence of a new group of actors; community energy actors. This group includes "a diversity of actors including local utilities and companies, consumer co-operations, housing associations or municipalities, who simultaneously provide

and consume energy" (Boon & Dieperink, 2014, p.298). Schwencke and Elzenga note how these actors want to bring energy supply 'back to basics', driven by a desire to become self-sufficient and independent of the traditional energy companies (Schwencke & Elzenga, 2015a, p.18). Moreover, strengthening the local economy by keeping revenues within the region and making electricity supply more sustainable are also important motives for community actors in the Netherlands (ibid.). Community energy is covered in more detail in chapter 2.

1.4 Rearranging the supply chain

The emergence of these community energy actors has some important consequences for the electricity supply chain. First, their activities in the field of generating electricity mean that the consumer is moving into the domain of electricity generation, the first phase in the supply chain (Figure 6). As a result the supply chain can in fact be re-conceptualized as a circle, with the last phase of the chain blending into the first (Figure 7). The consumer becomes producer, indicating the emergence of the 'prosumer' (as for example discussed by Schoor & Scholtens, 2015, p.667; Bergman & Eyre, 2011, p.347; Ornetzeder & Rohracher, 2013, p.858). By producing electricity through for example collective windmills or simply placing PV panels on their roof, consumers become prosumers; "producers of technology, but still well grounded in the knowledge and the day-to-day experiences of ordinary users" (Ornetzeder & Rohracher, 2013, p.858).

Figure 6: The influence of increased consumer participation in the electricity supply chain



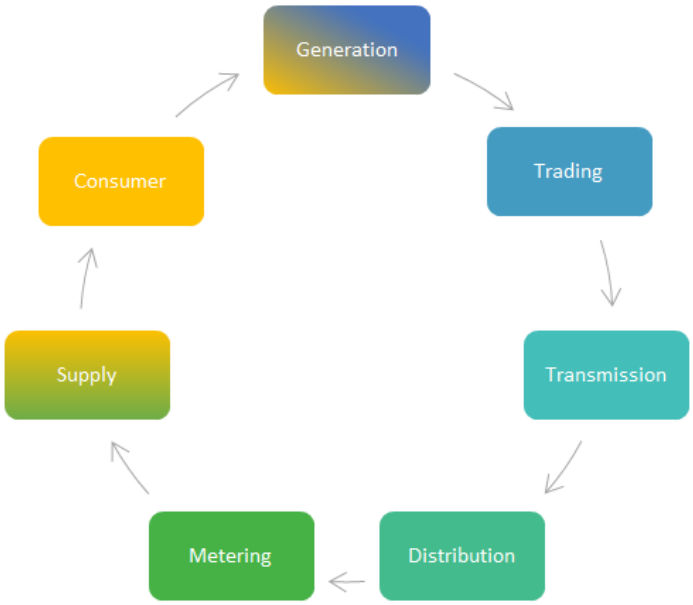
Source: based on Tanrisever *et al.*, 2015, p.1365, edited by author

Second, some community energy actors have also started moving into the domain of electricity supply, the sixth and last phase of the electricity supply chain. Although the number of community energy actors involved in the supply phase is at this time still relatively limited, the numbers are growing quickly. Many cooperatives that generate their own electricity sooner or later also formulate the ambition to sell this electricity directly to their own customers. In this respect, a small number of community energy actors has even acquired their own independent supplier license (Schwencke & Elzenga, 2014a, 27).

Summarising, over the past few years consumers have started shifting from the traditional, passive end-user towards active participation in the Dutch energy system. While 'passive' consumers have become increasingly aware of energy use and as a result make more conscious choices when it comes to their electricity supply; other consumers have started to organize themselves into a range of new community energy actors, which generate their own electricity and in some cases even develop electricity supply activities.

The emergence of these community energy actors means that the generation of electricity is no longer confined to a small number of large-scale power plants, but becomes more geographically dispersed. This indicates a strong decentralisation trend in the energy system, also referred to as decentralised generation (Allen *et al.*, 2007; Schoor & Scholtens, 2015; Wolsink, 2012; Devine-Wright & Devine-Wright, 2009; Verbong & Geels, 2010). In many future scenarios decentralised generation plays a central role, in particular to stimulate the transition to a sustainable energy system. According to Verbong and Geels the exact role of decentralised generation however depends on economic, institutional and cultural dynamics, and varies from remaining relatively confined to specific niches to growing out into a new decentralised control paradigm (Verbong & Geels, 2010, p.1217-9).

Figure 7: Rearranged electricity supply chain



1.5 A changing role for energy companies

Whichever role decentralised generation will however fulfil in the future, the decentralisation brings change to the energy market. It creates new roles for community energy actors, but at the same time also changes the role of existing actors. Although the increased consumer participation has consequences for all actors in the chain, this section focuses on the consequences for energy companies in particular; as these form the focus in this research.

In the first phase of the chain, new community actors such as cooperatives form competition for energy companies producing electricity. As an increasing share of renewable electricity is produced at a decentralised scale, less electricity is needed from the large-scale, centralised generation plants. As a result, the "utilisation degree of the [centralised] generation capacity will decrease significantly" (Verbong & Geels, 2010, p.1217). Moreover, the decentralised renewable electricity also forms an alternative to the non-renewable sources of the traditional large coal and gas fired plants. In this way, the entrance of new decentralised generators causes a slow but steady decline in revenues for the traditional generation companies, as these "new entrants capture part of the market" (Accenture Strategy, 2015, p.20).

In response, many energy companies have started "managing a low-carbon energy portfolio", which according to Accenture Strategy forms an important future business model for the companies (2015, p.7). Energy companies such as Eneco and Essent have already taken significant steps in developing renewable energy projects, including for example large-scale wind parks. However, although decentralised generation is growing rapidly in the Netherlands, Verbong and Geels argue that a complete re-alignment of the electricity sector towards decentralised generation is not realistic (2010, p.1217). Instead they argue that beside decentralised generation units, large-scale biomass, coal, multi-fired and nuclear power plants will remain important, combined with new large-scale offshore wind farms (ibid.).

Also in the supply phase the increased consumer participation changes the role of the energy company. A concrete example of this is the fact that some community energy actors have acquired a supplier license themselves. The two energy companies Duurzame Energie Unie (DE Unie) and Noordelijk Lokaal Duurzaam (NLD), initiated and owned by consumer cooperatives, recently succeeded in acquiring a supplier license, allowing them to buy and sell electricity on the wholesale market. This seems to suggest a full take-over of the energy company's role, which according to Elzenga and Schwencke is a unique

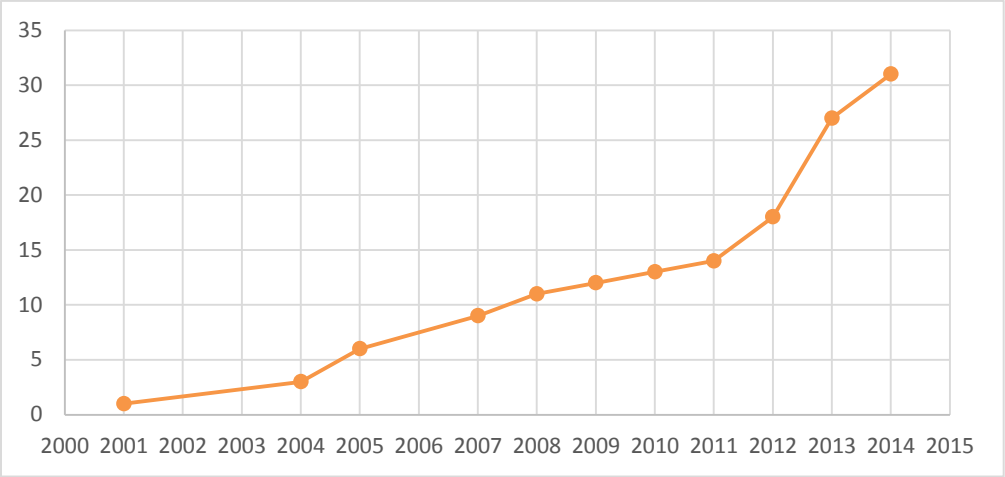
event in the Netherlands (ibid.). In this way, increased consumer participation in the electricity chain can even lead to the traditional energy company being put out of action.

Moreover, the role of the energy company in the supply phase is also changing as individual consumers have become more critical in the supply phase in their choice of energy company, taking into account factors such as affordability, the sustainability of energy resources and additional services. This "increased ability to exercise choice in the nature of their consumption" is facilitated by the recent emergence of new websites designed especially for comparing different energy companies such as Pricewise.nl or Energievergelijker.nl (ETP SmartGrids, 2015, p.13).

As a result, the competition among energy companies has increased significantly over the past few years, with over half of the 37 current energy companies on the Dutch market active since 2009 and new energy companies emerging each year (Figure 9). These new companies often pioneer new forms of business models, different from the traditional model which is based on selling electricity per kWh. According to a report by Accenture namely, the "established utility business model, based on selling electricity as a commodity, (…) is not equipped for a low-carbon transition" (Accenture Strategy, 2015, p.7).

Developing new business models, products and services is therefore "by far the greatest opportunity for retailers in the current energy market with margins under pressure" (ETP SmartGrids, 2015, p.23). Building "a more consumer-centric relationship with their customers" thereby forms a key innovation strategy for energy companies (Gangale et al., 2013, p.628). Examples of these new products and services developed by energy companies are advice and support for households, on generating electricity at the household level through for example PV panels or combined heat and power pumps. Besides this, many energy companies now also offer their customers the possibility to take energy efficiency measures. In short, the more active role of the consumer means that consumers require different products and services from energy companies, besides the traditional energy contract.

Figure 8: The number of energy companies in the Netherlands[1]



Source: based on CE Delft, 2015

As a result, energy companies "are evolving towards a customer-oriented demand side manager and energy service provider" (ETP SmartGrids, 2015, p.8). This suggests a general shift in the role of energy companies from selling electricity as a commodity to 'energy as-a-service providers' for a wide spectrum of consumers (Accenture Strategy, 2015, p.7). According to Accenture Strategy, the realignment of the energy company business model towards 'energy-as-a-service' could generate business value between €65 billion and €80 billion per year (2015, p.24).

[1] Excluded from this figure are Delta, E.ON, Eneco, Engie/Electrabel, RWE/Essent and Vattenfall/Nuon. These six supplier companies adopted their current form during the liberalisation of the market in 2004, but were already active in the Dutch energy market before this year.

1.6 Cooperation and tension in the supply chain

Summarising, the increased participation of consumers in the electricity supply chain has an important impact on the roles and responsibilities of energy companies; in both the generation and supply phase. On the one hand, this leads to new forms of *cooperation* in the supply chain. Several energy companies have for example started to work together with consumers and community energy actors, such as Greenchoice developing 'wind shares' with De Windcentrale, Eneco developing a solar farm with Solar Green Point and Essent developing solar panels with FC Groningen (ibid., p.81).

For energy companies, these new forms of cooperation require a strong shift from "their one-dimensional business-to-consumer relationship to a partnership model" with shared profits and risks. According to Accenture Strategy however, energy companies could capture revenues between €10 billion and €20 billion per year by developing such partnerships (2015, p.26). The newly emerging community energy actors might in this way even help energy companies in their transformation towards a new role in the energy system.

The increased participation of consumers however at the same time also leads to new forms of *tension*, in places where consumers partly or completely take over the function of the energy company in the supply chain. This is for example the case when community energy actors produce their own electricity, decreasing the utilisation degree of existing generation plants owned by energy companies; or when community energy actors even arrange their own supplier license. In both these cases community energy actors become direct competition for existing energy companies in the chain, or put differently: the new, "non-traditional entrants challenge incumbents" (Accenture Strategy, 2015, p.7). In sum, the increased consumer participation in this way creates both new forms of cooperation and tension in the Dutch electricity supply chain.

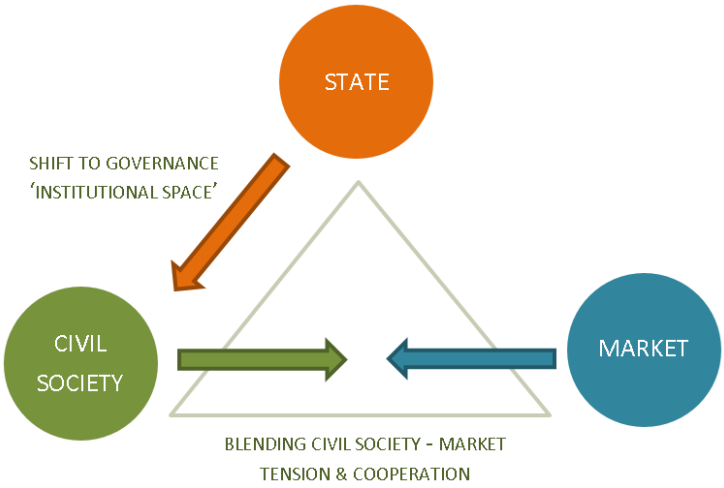
1.7 Redefining state, market and civil society relations

These new forms of cooperation and tension in the chain are also visible in the theoretical state – market – civil society triangle (Figure 8). The new forms of cooperation between consumers and energy companies imply that the civil society and market sphere are blending into each other. Naus *et al*. refer to this as the 'horizontal and vertical opening-up of the household', indicating the increasing cooperation among households in community energy initiatives, and "the new possibilities [for households] to outsource tasks and disclosure information to service providers" respectively (Naus et al., 2015, p.126). By reorienting their business models towards partnerships consumers and community energy actors, energy companies are shifting from the market sphere towards the civil society sphere.

On the other hand the tension is also visible in the triangle, which is created as consumers take over certain market functions. Schwencke and Elzenga in particular note how larger cooperatives in the Netherlands increasingly function as market parties instead of purely passion-driven community initiatives (Schwencke & Elzenga, 2014a, p.11). This means that civil society actors are increasingly shifting towards the market sphere. Summing up, decentralised generation in this way seems to redefine the relationship between civil society and the market.

But also the relationship between civil society and the state is affected by the increased consumer participation. Regarding this relationship, a shift from government towards governance is visible. As civil society takes a more prominent role, "steering no longer is the privilege of governmental agencies, but is *de facto* (…) the common responsibility of a variety of agencies, representing governmental bodies, market agencies and civil society organisations" (Arts, B. Leroy, 2006, p.12). As a result, the role of the state changes from imposing uniform state solutions to a more facilitating role, creating "institutional space for local (community) players" (Oteman et al., 2014, p.1).

Figure 9: Redefining state - market - civil society relations



1.8 The rules of the game

As mentioned before, the context in which energy companies and other actors in the energy market operate is subject to stringent government regulations. An elaborate body of policies, laws and regulations together form the 'rules of the game', the conditions under which the cooperation between energy and community energy actors takes place. Remarkably, these rules of the game can in some cases even exacerbate the new forms of tension between community energy actors and energy companies.

This has to do with the fact that the current Electricity Law in the Netherlands dates from 1998, and although some amendments have been made since, the main structure of the law has remained unchanged. As a result, the current rules and regulations do not always seem to be equipped to deal with the rapidly changing roles in the electricity market, including the increased consumer participation or newly emerging community energy actors. This is especially the case for community energy actors producing their own electricity, as this means that the consumer enters the regulated domain (Figure 6).

In this respect, the law dictates that each consumer to have an energy company – a party with a supplier license – to cover their electricity demand. However, with the growing number of prosumers in the electricity supply chain, consumers have effectively become producers and energy companies too. Obtaining the license needed to legally fulfil the supplier role is however very difficult for consumers, because of the high requirements for this license. As a result, many of the new community energy actors are obliged to cooperate with energy companies.

The institutional framework in this case seems to exacerbate the tension between community energy actors and energy companies. Another example of this are the energy taxes that consumers pay over the electricity supplied to them. Although individual consumers producing their own electricity are exempted from this tax by feed-in tariffs[2], collective consumer organisations are not. This makes it difficult for these organisations to make collectively generated electricity viable. Moreover, it is also not possible for

[2] In the Netherlands this is known as 'salderen'. Where producers of electricity receive about six to seven cents for each kWh, consumers pay about 20 cents for each kWh. "The difference is caused by distribution costs, energy tax and value added tax. When a consumer has a solar panel that produces electricity, he or she can deduct the produced energy from his or her total energy bill" and save about 20 cents per kWh of electricity generated by the solar panel (Boon, 2012, p.29). This electricity is for direct use and not imported from the grid. Conversely, "if the solar panels produce more electricity than the owner consumes annually, the surplus is compensated with six to seven cents" (Ibid.). Before 2016, it was legally not possible to generate renewable energy anywhere outside of your own property. Collective generation projects therefore had to design a profitable businesscase based on six to seven cents per kWh, which was nearly impossible. Since 01-01-2016 however, the energy tax for collective projects has been abolished in a new postal code regulation, creating more space for community initiatives (Hieropgewekt, 2016).

community energy actors to deliver self-produced electricity directly to their customers, given the obligation to use the public grid (Wolsink, 2012, p.832).

Because of these "legal restrictions some organisations openly challenge the legislation and experiment with collectively generating renewable energy" (Boon, 2012, p.41). Schwencke also notes how wind cooperatives in the Netherlands have been fighting for 'self-delivery'; the direct delivery of power to members without the interference of energy companies, VAT or energy taxes (Boon, 2012, p.13). The institutional framework in this case forms an institutional barrier, especially for community energy actors that produce their own electricity. For community energy actors without production projects this barrier is less pressing, as the activities of these actors mainly take place in the unregulated domain.

The current Electricity Law thus still seems to be based on the traditional relationships between state, market and civil society, with centralised utilities providing electricity to passive end-users. In 2010 the national government started the process of designing an entirely new institutional framework for electricity in the Netherlands, to modernise the 1998 Law. This law draft ('wet STROOM') was completed in May 2015, but was rejected by the First Chamber in December 2015 (VEMW, 2016). Although this has delayed the implementation of the new law, some recent amendments have been made to accommodate the decentralised production and supply of renewable energy (Schwencke & Elzenga, 2014a, p.34). Within what timeframe the new law will be adopted however, remains unclear.

The many different policies, laws and regulations influencing the electricity market form a field of research on its own, and have received a lot of attention from scholars (see for example Oteman *et al*., 2014; Verbong *et al*., 2008). The aim of this research however is not to examine this framework, but to focus on the interaction that takes place within it. The focus thereby lies on the interaction between energy cooperatives and energy companies in particular. In this respect, in particular the obligation for consumers to cooperate with a supplier-licensed party is important. This creates the basic need for cooperatives to either cooperate with energy companies, or to find alternative strategies to cover the supplier license.

1.9 Conclusion

Summarising, fundamental shifts seem to be taking place in the energy market due to an increasing decentralisation trend. This has important implications for the relation between state, market and civil society. Where the energy system was long organized in a central manner with clear one-directional producer-consumer relations, the system is now shifting towards a more decentralised organization with more complex relations. This has resulted in new forms of cooperation and tension emerging in the electricity supply chain, which become especially visible between energy companies and the newly emerging community energy actors. Where these community energy actors can on the one hand aid energy companies in their transformation towards a new role in the energy system; the actors can on the other hand form direct competition.

Exactly this cooperation and tension between community energy actors and energy companies forms the focus of this research. This research thereby focuses on one community energy actor in particular; the energy cooperative. The next two chapters will discuss thee two actors and their forms of interaction in more detail. These two chapters form the theoretical framework, whereby Chapter 2 explains the emergence and characteristics of energy cooperatives, and Chapter 3 focuses on the interaction of cooperatives with energy companies.

2. Theory I: Energy cooperatives

This chapter forms the first half of the theoretical framework, which forms a conceptual toolbox to guide the interpretation and analysis of data in this research. This framework offers a useful 'pair of glasses' to examine the interesting forms of interaction between cooperatives and energy companies in a structured way. The focus of this chapter lies on energy cooperatives, and the aim is to address the following research questions:

To what extent do energy cooperatives play a role in the decentralization trend, and how has the cooperative energy sector in the Netherlands developed over the past few years?

What challenges and incentives do energy cooperatives face in the development of their projects?

The chapter starts by discussing community energy and the different ways in which 'community' can be interpreted. The following sections focus on energy cooperatives, the particular form of community energy on which this research focuses. Subsequently the current trends in the cooperative energy sector are discussed, including the increasing scope and scale of cooperative projects in the Netherlands. The chapter concludes with a detailed explanation of the different internal and external incentives and challenges that cooperatives face, plotted together in a SWOT-analysis.

2.1 Conceptualising community energy

"Community or grassroots initiatives, community initiated sustainable energy, civic engagement, civil (society) participation, community ownership or governance, local ownership, community management, social action and societal initiative"; these are just some of the many terms used to indicate the involvement of communities in renewable energy projects (Healey, as cited in Oteman, 2012, p.2). It shows the variety of terms used by scholars, policy-makers and citizens in debates around the participation of citizens in local renewable energy. As the degree of citizen participation varies greatly among initiatives, 'community energy' is a flexible concept. A precise definition of community energy therefore remains "difficult to pin down" (Walker & Devine-Wright, 2008, p.497).

Nevertheless, a useful definition is given by Oteman *et al.*, who define community energy as "decentralized, non-governmental initiatives of local communities and citizens to promote the production and consumption of renewable energy" (2014, p.2). Boon and Dieperink, talking of 'Local Renewable Energy Organisations' (LREOs), thereby elaborate on the specific activities of community energy. They state that the organisations "aim to educate or facilitate people on efficient energy use, enable the collective procurement of renewable energy or technologies or actually provide (i.e. generate, treat or distribute), energy derived from renewable resources for consumption by inhabitants, participants or members" (Boon & Dieperink, 2014, p.298). Moreover, many definitions emphasize the non-commercial aspect of community energy, stressing the fact that the organisations "rely to a large extent on the engagement and actions of highly motivated people with limited power and limited resources" (Oteman *et al.*, 2014, p.2). According to these definitions a broad spectrum of initiatives can be characterised as 'community energy', differing in "scale, interconnectedness, interest, participation and organisational arrangements" (Boon, 2012, p.18).

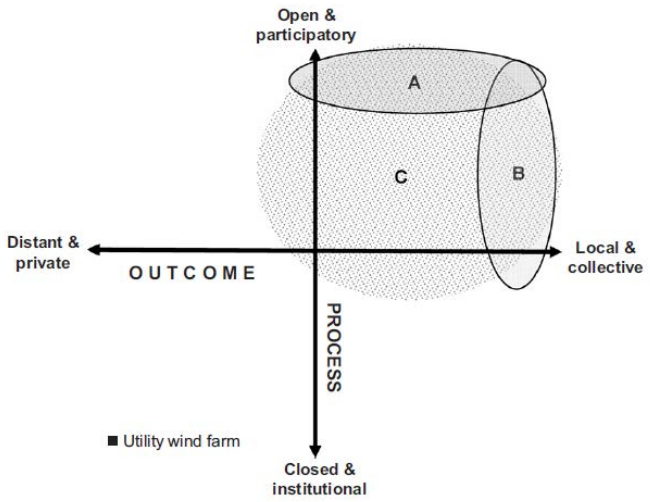
2.2 Interpreting 'community'

All definitions however, in varying degrees, seem to highlight two important aspects of community energy projects, namely that "communities (…) exhibit a high degree of ownership and control, as well as benefiting collectively from the outcomes" (Seyfang *et al.*, 2013, p.978). In other words: the actively involved group and the target group. Walker and Devine-Wright translate these two aspects into a process and outcome dimension, according to which community energy projects can be categorised (Figure 10). The process dimension on the one hand concerns "who a project is developed and run *by*, who is involved and has influence" (Walker & Devine-Wright, 2008, p.498). Central here is the level of participation of a community and its citizens. The outcome dimension on the other hand shows "who the project is *for*; who it is that benefits particularly in economic or social terms" (ibid.). This dimension concerns the spatial and social distribution of the outcomes of a project.

These two dimensions can be plotted together to form a theoretical space in which different combinations of process and outcome are represented (Figure 10). Community energy initiatives end up in different corners of the figure, according to the way in which 'community' is interpreted. Walker and Devine-Wright broadly distinguish between three interpretations of community. The first interpretation (A) focuses on the process dimension and argues that community energy projects necessarily have a high degree of citizen involvement, with local people involved in the initiation, organisation and running of the project. The second interpretation (B) instead focuses on the outcome dimension. According to this interpretation community projects do not necessarily include citizens, but benefits of the project should be distributed among the local community. In this view, projects by local authorities or businesses can be classified as community projects as well. The loosest definition of community projects (C) is concerned less with either of the two dimensions but takes a more pragmatist view. The most important goal in this view is to create a productive and useful project, which means that many different combinations of process and outcome are regarded as acceptable (Walker & Devine-Wright, 2008, p.499).

In the view of Walker and Devine-Wright, the 'ideal' community project would lie in the top right corner (2008, p.498). These projects have a high degree of citizen participation and aim to keep profits within the local community, reinvesting these in new energy projects and local public facilities (Schwencke & Elzenga, 2015b, p.53). These projects often adopt a cooperative model, with local consumers being the members (Blokhuis *et al*., 2012, p.682-3). In contrast, more distant and closed projects can be found in the bottom left corner of the figure, including for example a conventional utility wind farm. These projects have a low degree of citizen participation and distribute the revenues among distant shareholders rather than local people, or generate energy for the grid rather than for local use (Walker & Devine-Wright, 2008, p.498). Individual ownership models with a "strong focus on achieving profit targets" are more common here (Blokhuis *et al.*, 2012, p.682).

Figure 10: Understanding community energy through the process-outcome dimension



Source: Walker & Devine-Wright, 2008, p.498.

Regardless of the precise interpretation, community energy initiatives seem to have a strong focus on the local scale, both in the process and outcome dimension. Concerning the process dimension this means a focus on involving *local* citizens, living in a certain locally demarcated area. Citizens of a city in the north of the Netherlands for example would not participate in a community energy project in the south. Concerning the outcome dimension, community energy projects explicitly aim to keep the benefits of the project within the local community and economy. This means that the revenues of the project are reinvested within a certain demarcated local area. Moreover, the local scale often forms an intricate part of community projects' philosophy and strategy.

This is also visible in the yearly Local Energy Monitor report, which shows that the lion's share of the community energy cooperatives in the Netherlands include or in some way refer to the name of a town,

city or region (LEM, 2015, p.71-80). The geographical scale thus forms an important part of the local branding of community energy initiatives, and for the initiatives' activities in general. This might also explain why especially the northern province of Friesland has the highest numbers of cooperatives in the Netherlands (LEM, 2015, p.15). In this province a relatively high number of people live in small country side villages. These villages generally have a strong sense of community, creating a fertile basis for community organisations.

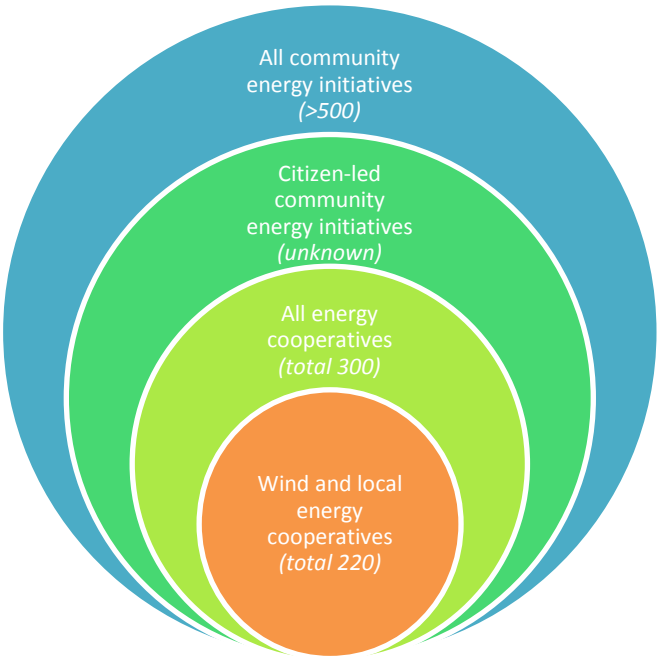
2.3 Focusing on wind and local energy cooperatives

In the Netherlands a large variety of community energy initiatives exists, with a range of interpretations of community. The total number of initiatives in the Netherlands was estimated at around 500 in 2015, encompassing projects initiated by citizens, local authorities and commercial parties (LEM, 2015, p.3). Many of the initiatives led by local authorities or businesses however only have a minimum involvement of citizens, focusing more on the outcome rather than the process dimension. As this research primarily aims to investigate initiatives where citizens are highly involved in the set-up, organisation and running of projects, this research focuses only on those initiatives that are primarily initiated by citizens.

The group of citizen-led community energy initiatives in the Netherlands is however still quite large, varying from small neighbourhood initiatives and homeowner associations to large, experienced wind cooperatives. Many of these initiatives operate on the local scale, which means that they have a low visibility, and their numbers are still growing every day. This makes it difficult to generate a clear overall picture, and for this reason this research focuses on a specific group of citizen-led initiatives; energy cooperatives.

The cooperative model is the most commonly used juridical form among initiatives, especially when an initiative starts to develop more structural and professional projects. In 2015, 300 energy cooperatives existed in total in the Netherlands, including three types of cooperatives: wind cooperatives, focused primarily on wind energy projects; local energy cooperatives with a broader focus on energy; and project or product cooperatives, especially linked to one project or production unit (LEM, 2015, p.12). As the third group of cooperatives are often initiated by wind cooperatives and local energy cooperatives, this creates some overlap. For this reason, project and product cooperatives have been left out of the target group in this research.

Figure 11: The target group of this research: wind and local energy cooperatives



Source: author's own, based on Lokale Energie Monitor (2015).

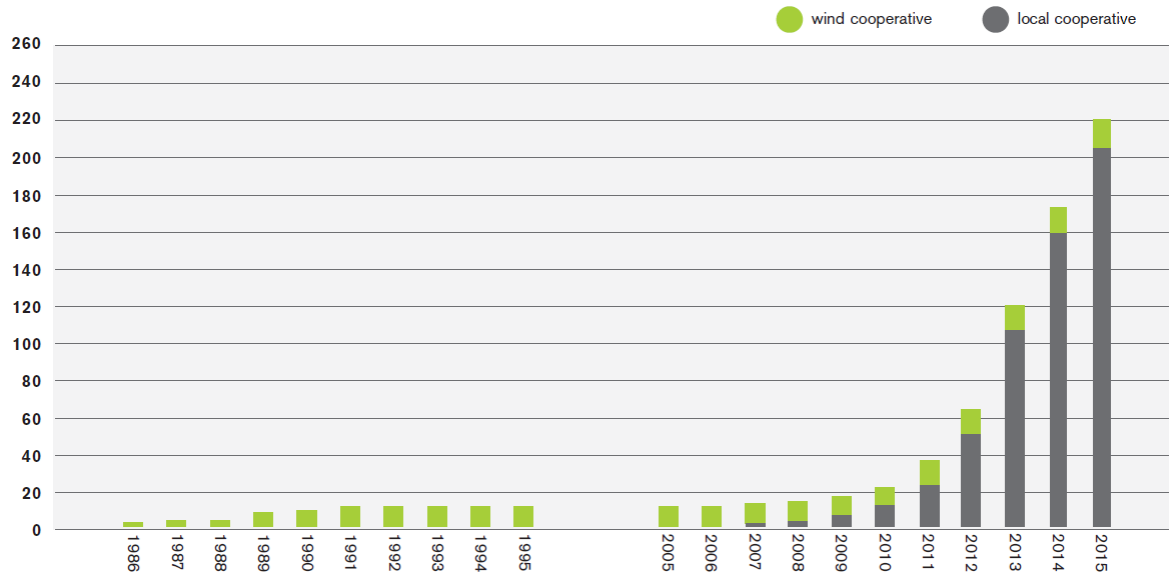
This leaves a group of 220 cooperatives, including 19 wind cooperatives and 201 local energy cooperatives, representing between 35.000-40.000 members in the Netherlands (LEM, 2015, p.4). This group, hereafter called 'energy cooperatives' or 'cooperatives', forms the target group of this research (Figure 11).

The primary goal of the cooperatives is the provision of renewable energy and energy conservation. This is often linked to the broader goal of improving the living environment, the quality of life and strengthening the local community and economy. To this end, the cooperatives develop activities around the production, supply and conservation of energy (LEM, 2015, p.11; Blokhuis *et al.*, 2012, p.681). In the case of production, the cooperative acts as the initiator, project developer, financer, operator and/or owner of the production unit. The decision power thereby lies with the members of the cooperative, who buy shares or provide loans to the cooperative to finance new projects. Project revenues are reinvested in new local projects, and in this way kept within the local community. Given this explicit aim to keep benefits within the local community and the open and participatory character of the cooperative model, energy cooperatives closely resemble the 'ideal' community project in the top right corner of the process-outcome dimension (Figure 10) (Walker & Devine-Wright, 2008, p.498).

2.4 Two generations of energy cooperatives

Although the growth of the community energy sector in the Netherlands has started accelerating only relatively recently, energy cooperatives have already been active in the Netherlands since the 80s (Figure 12). The first wind cooperatives emerged 20-25 years ago, collectively developing wind farm projects. These cooperatives consist of a key group, often the board, surrounded by a group of active volunteers and 100-500 members. A small group of cooperatives has over 1000 members. Most of these cooperatives, such as Kennerwind, Zeeuwind and De Windvogel, still exist and have evolved into an established and well-organised sector of (semi)professional project developers. Because of its long history, the cooperative wind sector has a rich experience in cooperative projects (Schwencke & Elzenga, 2014b, p.9).

Figure 12: Total number of energy cooperatives per year



Source: LEM, 2015, p.12, edited by author.

A second generation of energy cooperatives emerged from 2007 onwards, with Texel Energie being the first in 2007. These local energy cooperatives have a broader focus than the wind cooperatives, aiming to improve the living environment of a neighbourhood, town, city or region and developing multiple projects and activities to achieve this. The focus thereby not only lies on energy generation, but also on the conservation and supply of energy (Schwencke, 2012, p.11). Given this focus on the local provision of

energy the second generation of cooperatives is also referred to as 'the new utilities' ('de nieuwe nuts') (Schwencke, 2012, p.20).

The period between 2011 and 2014 shows a remarkable increase in the number of cooperatives, with a peak in the establishment of new cooperatives around 2013 (LEM, 2015, p.13). Of the total number of 220 cooperatives, 75% has been established after January 2013, 51% after January 2014 and 43% in 2015. This means that most local energy cooperatives have been active for two or three years. The Dutch cooperative energy sector has therefore experienced a rapid growth phase over the last 4-5 years.

2.5 Cooperative activities: increasing scope and scale

As soon as citizens aim to develop larger energy projects, the adoption of the formal cooperative model is often a first and logical step. These larger projects involve serious money, contractual obligations and responsibilities, which requires structural cooperation and continuity (LEM, 2015, p.10). Research by Schoor and Scholtens shows how initiatives in the Netherlands "with highly committed members, stimulating leadership and multiple activities [typically] go through a formalisation process after a period of six months to two years" (2015, p.672). A similar formalisation process is noted among community initiatives in the UK by Seyfang *et al.*, who regard it as an inevitable part of the development process.

These formally registered cooperatives vary greatly in their phase of development. While the majority of the cooperatives is relatively small-scale and operates entirely on volunteers, the older and more experienced cooperatives have an annual turnover between €50.000-€200.000, employing one or more paid workers (LEM, 2015, p.17). The phase of development is reflected in the activities that the cooperatives take up. Most cooperatives start off small, organising neighbourhood activities around energy conservation, offering energy and heat-scans and setting up information centres. According to Elzenga and Schwencke, information and advisory services are the most accessible activities for cooperatives, requiring only a basic level of expertise (Schwencke & Elzenga, 2015b, p.53). At least 70% of the cooperatives in the Netherlands organise such services (LEM, 2015, p.47).

Similarly, collective purchasing actions also present only small challenges for cooperatives. Cooperatives in these cases act as mediators between demand (citizens) and supply (builders and installation companies). Relatively little expertise, skills and continuity are required for this, the business model is good and local support is high. Additionally, no investment financing is needed. Around 30% of the cooperatives undertake collective purchasing actions (LEM, 2015, p.48). Another relatively accessible activity among cooperatives is the resale of electricity. Almost 60% of the cooperatives in the Netherlands offers the possibility to buy electricity via the cooperative, which requires only some knowledge in the field of bargaining and the energy market. In this case the cooperative purchases electricity from an energy company, and resells this to its members or customers. This 'resale construction' is often used by cooperatives in the starting phase, as an easy way to acquire members and revenues, as also emphasized by Prins, one of the experts (Schwencke & Elzenga, 2014b, p.8; Prins, 2015).

Moreover, an increasing share of this electricity sold to members and customers is generated by cooperatives themselves. Most cooperatives namely formulate the ambition to develop into an organisation that not only provides energy related services, but also takes up production projects. These projects concern mainly solar and wind power projects, although a small number of cooperatives also develop projects from other renewable sources such as water power, heat power or biomass. The first solar projects were realised from 2010, and the number has been increasing quickly since 2014 and 2015 especially. A total of 56 solar power projects, accounting for 6,7 MW, have been realised by cooperatives until 2015. For 2016 at least 53 additional cooperative solar projects with a total capacity of over 26 MW are scheduled, and 55 projects of in total 25 MW in the following years (LEM, 2015, p.23).

Most cooperatives start with small solar projects on the roofs of schools, sports associations or other public buildings. The past two to three years however show a steady increase in the scale of solar projects, shifting from solar panels on roofs to solar farms on the ground (LEM, 2015, p.30). According to Boon this increase in the scale of activities is a logical development, as small projects often struggle to become cost effective (2012, p.29). He therefore argues that cooperatives should increase the scale of

their projects “in order to ensure regular and certain financial incomes that cover the necessary expenditures and initial investments” (ibid.).

However, the larger a project becomes, the higher the level of complexity and capital-intensity. Larger projects involve a complex financial administration, considerable liability risks and long term commitments. Cooperatives aiming to develop such projects therefore need to acquire the needed financial, legal and organisational expertise, and the success of the projects depends on “their ability to evolve from voluntary organisations into professional organisations” (Boon, 2012, p.27).

This is also the case for wind power projects, which also involve high financial investment costs, lengthy planning and participation procedures and an average time-span of 7-12 years (Schwencke & Elzenga, 2014a, p.42). Moreover, local resistance against wind turbines often forms an important bottle-neck for projects. Perhaps not surprisingly, the majority of the total 81,5MW cooperative wind power in the Netherlands has therefore already been realised before 2012, by the older and more experienced wind cooperatives (LEM, 2015, p.39). The emergence of new wind cooperatives since 2011 has however given rise to new projects, resulting in an additional 24,5 MW realised until 2015. In the coming years wind power is expected to gain further momentum, with a total of 150 MW planned for 2017-2018 (LEM, 2015, p.42).

2.6 A professionalization trend

The increasing scope and scale of cooperative projects suggests a trend of growth and professionalisation in the Dutch cooperative energy sector. This trend is also discussed by Schwencke and Elzenga, who note a clear wish among community initiatives to professionalise (Schwencke & Elzenga, 2015a, p.18). The activities that the cooperatives undertake thereby seem to shift from providing energy services to larger energy production projects (Schwencke & Elzenga, 2015b, p.53). Additionally, Hermans and Fens identify an increase in projects including the actual supply of electricity, where cooperatives are “undertaking provisioning services” (Hermans, P. Fens, 2013, p.19).

While almost two thirds of the cooperatives in the Netherlands already provide electricity to its members and customers via the resale construction, two recently established new cooperatives have taken the supply function one step further. The cooperatives DE Unie and NLD, established in 2013 and 2014 respectively, have both acquired a supplier license which enables them to directly purchase electricity on the wholesale market and sell this to customers. The members of NLD and DE Unie are existing wind and local energy cooperatives, who because of this new ‘cooperative energy company’ no longer need the mediation of a traditional commercial energy company to supply electricity to its members and customers.

To obtain a supplier license a party has to comply to the strict rules and regulations that apply for energy companies, including the conditions set by the Consumer & Market Authority (ACM, 2016). These regulations require a high level of organisational, financial and technical qualities to ensure that parties comply to the legal obligations for supplying electricity to customers. The acquiring of a supplier license by two cooperatives therefore forms an important illustration of the ongoing professionalisation in the cooperative energy sector.

An important remark is that the professionalization trend does not apply to all cooperatives, and not every cooperative has the ambition to increase the scope and scale of its projects. Seyfang *et al.* note that “although some groups do have ambitions to expand and grow, others are simply providing local solutions to local needs as an end in itself, and have no desire to expand” (2013, p.988). This also seems to be the case in the Netherlands, where experts identify an area of tension between the smaller scale idealist and the more commercially oriented people who want to scale up local renewable energy (Bert Jan Krouwel as cited in (Schwencke, 2012, p.27).

2.7 Incentives and challenges for cooperatives

Although the majority of the cooperatives in the Netherlands expresses the wish to professionalise, “the growth potential of voluntary associations is uncertain, and [there are] hurdles to be overcome in

becoming more businesslike and commercial" (Seyfang et al., 2013, p.988). This is not unsurprising, given the fact that cooperatives are increasingly developing projects in the regulated domain of the electricity supply chain (Figure 6). Electricity is highly regulated and technically specific, making the settlement of transactions complex and expensive. This presents significant challenges for cooperatives. According to Hielscher *et al.*, cooperatives even "spend only ten percent of their time on developing their projects, as the rest of the time is used to ensure the survival of the organisation: such challenges (…) relate to operational, legal or funding issues" (Hielscher *et al*., 2011, p.11). On the other hand many incentives exist for cooperatives, including for example support from communities, government policies and other organisations.

Previous research has much to say about the incentives and challenges faced by cooperatives (see for example (Boon & Dieperink, 2014; Hielscher *et al*., 2011; Schwencke & Elzenga, 2014a; Seyfang *et al*., 2013; Schoor & Scholtens, 2015; Verbong *et al*., 2008; Walker, 2008). From this body of research Seyfang *et al*. have eventually distilled a useful distinction between two types of incentives and challenges; internal and external. Seyfang and Smith use a similar categorisation, discussing both intrinsic (internal) and diffusion (external) challenges and benefits (Seyfang & Smith, 2007). This distinction enabled Seyfang *et al.* to plot all incentives and challenges into a SWOT (strengths, weaknesses, opportunities, threats) analysis for community initiatives in the UK.

Using their work as a basis, a thorough search of the literature and additional desk research resulted in a SWOT analysis specifically geared towards cooperatives in the Netherlands (Table 1). Most of the weaknesses and threats that cooperatives face thereby form the absence of the strengths and opportunities. The weakness 'need to engage with community/recruit members' for example forms the opposite of the strength 'community engagement activities'. This SWOT analysis forms the first part of the analytical framework to measure the influence of cooperation with energy companies on the development of cooperatives.

Table 1: Incentives and challenges facing Dutch energy cooperatives

	Incentives	Challenges
Internal	STRENGTHS	WEAKNESSES
	• Qualities of group • Skills among group • Group vision • Project management • Specific/technical aspects • Community engagement activities	• Need funding/access to finance • Need time/volunteers • Need expertise/advice • Need to engage with community/ recruit members
External	OPPORTUNITIES	THREATS
	• Community support • Links with other cooperatives • Network organisations' support • Local organisations' support • Local authorities' support • Businesses' support • Policy support	• Public apathy/attitudes/NIMBYs • Lack of support from other actors • Government policy/changes • Bureaucracy • Planning restrictions/hurdles

Source: based on Seyfang *et al.* (2013, p.984).

As this SWOT analysis forms a comprehensive overview, not all incentives and challenges might be equally important for cooperatives. For this reason, several experts were asked to reflect on the SWOT analysis during the expert interviews in the second phase of this research. The experts in this way gave an indication of which incentives and challenges are most pressing for cooperatives nowadays. In general, all experts recognized a trend towards professionalisation among cooperatives, with the number and scale of cooperative projects growing quickly. Prins adds that this trend is also reflected in the challenges and

incentives that cooperatives face (2015). She notes how in the early years of HIER Opgewekt, the main problems for cooperatives were related to the foundation of a cooperative, choosing a legal form and recruiting members (ibid.). Nowadays cooperatives mainly consult HIER Opgewekt for questions concerning project realisation. The most important challenges and incentives are summarized in the following subsections.

2.7.1 Recruiting members and customers

One of the most important strengths of successful cooperatives is a high degree of engagement with the local community. To gain the support of wider communities, Attema and Rijken emphasize the importance of designing a project according to the needs of local residents and of actively involving the residents in the projects, as this creates community support for the cooperatives' projects in the area (2013, p.16). According to Attema and Rijken, this is only possible when a cooperative uses its communication tools well (2013, p.29).

A relatively new strategy to engage with the community and recruit new participants for projects is crowdfunding. This strategy is becoming more popular, with cooperatives either cooperating with crowdfunding platforms such as Greenspread or 'Duurzaam Investeren' (Investing Sustainably), or setting up a crowdfunding project themselves. The 'crowd' thereby not necessarily forms a separate organisation, participants have no decision power over the project and do not necessarily live in the local vicinity. It thus forms a low-threshold possibility for people to participate in cooperative projects, and the platforms are often quickly 'sold out' (LEM, 2015, p.14).

Conversely, a lack of engagement with the local community forms an important weakness. According to the experts, the challenge to recruit members even forms one of the most pressing challenges for cooperatives nowadays. Members (or customers) are essential for cooperatives, as they bring in the financial resources needed for projects by providing loans to the cooperative (Schwencke & Elzenga, 2014a, p.55). Many cooperatives however experience difficulties in attracting (new) members, due to "either low local awareness of their organisation, low interest in energy issues, unwillingness to be committed to such organisations or the discouragement resulting from a financial contribution" among the local community (Boon, 2012, p.111). As a result residents are often difficult to mobilise, which means that especially for younger cooperatives, who are not as well-known yet among local residents, attracting members can therefore be a labour-intensive activity (Schwencke & Elzenga, 2014a, p.34).

2.7.2 Finding finances, volunteers and expertise

An additional major challenge according to the experts is the need to access funding or other financial resources to create a viable business case. This challenge becomes increasingly pressing given the current trend towards larger production projects, which require high investments such as installation costs and costs to connect the project to the grid (Verbong et al., 2008, p.560). Banks however are often reluctant in giving out loans, as most cooperatives are established only recently and have a short track record, lacking the required organisational continuity (Schwencke & Elzenga, 2015b, p.56). Cooperatives therefore often draw on their personal resources to meet the short term financial needs of the group, which creates "a distinct lack of strategic financial resilience or capacity-building" (Seyfang *et al*., 2013, p.984).

Related to the financial challenge is the challenge of finding sufficient times and/or volunteers to carry out project work. The majority of the cooperatives in the Netherlands relies on volunteers, while a few older and more experienced cooperatives employ one or two people (LEM, 2015, p.17). Cooperative projects – especially larger projects – can however be very labour-intensive, asking a great amount of time, effort and endurance from volunteers. Relying on volunteers to deliver these services unpaid thus forms an important bottleneck for many cooperatives. Elzenga and Schwencke in this respect talk of 'volunteer fatigue', which makes it a challenge for cooperatives to find sufficient volunteers for their project work (Schwencke & Elzenga, 2014a, p.76). Many cooperatives therefore aim to generate structural income with their activities, not only to finance new projects, but also to be able to offer volunteers a financial compensation for their efforts.

Moreover, relying on volunteers also means that cooperatives are often dependent on the skills and knowledge of these volunteers. As a result, certain skills and knowledge gaps might be present in the group (Seyfang et al., 2013, p.985). Cooperatives therefore often have a need for expertise and advice, including for financial, technical, legal and organisational expertise, but also the marketing and communication expertise needed for example for larger scale energy conservation activities (Schwencke & Elzenga, 2014a, p.43). This challenge becomes particularly pressing given the professionalisation trend in the Dutch cooperative energy sector, as larger projects require a significant amount of expertise, time and endurance (Schwencke & Elzenga, 2015b, p.58).

2.7.3 Policy challenges and incentives

In finding funding or other types of finances, important opportunities might be formed by the policy context. This context largely determines the conditions under which cooperative emerge and develop (Schwencke, 2012, p.24). Oteman *et al.* in this respect talk of the amount of 'institutional space', indicating "the degree of discretionary freedom of community initiatives to decide autonomously about the design of a project (in terms of procedures and planning) and its contents (in terms of its goals and means)" (2014a, p.4). In the Netherlands the amount of institutional space is determined by no less than four ministries, including Economic Affairs, Finance, Interior & Kingdom Relations and Infrastructure & the Environment (Schwencke & Elzenga, 2014a, p.7).

These ministries can create important opportunities for cooperatives by setting up grant funding and financial incentive policies such as feed-in tariffs and the SDE+ subsidy scheme (Table 2). These policies make it easier to create a viable business case for cooperatives (Schwencke & Elzenga, 2014b, p.8). Especially in the case of the postal code ('postcoderoos') regulation, the recent lowering of the fiscal tariff to zero has stimulated the development of cooperative solar projects. As a result, the number of solar projects is expected to almost double in the coming year (LEM, 2015, p.23). In sum, "government-financed support schemes are crucial to larger projects" (Walker, 2008, p.4403).

Table 2: Three main regulations for cooperatives in the Netherlands

	Feed-in tariff	Postal code regulation	SDE+
Scale	• Small-scale projects;	• Larger scale projects;	• All projects eligible;
Target group	• Households, other small-scale producers of renewable electricity;	• Members of cooperatives and home-owner associations	• Businesses; • Non-profit organisations
Regulation	• Obligation for energy companies to buy back surplus electricity generated by small-scale producers, to a maximum of 5.000 kWh; • Small-scale producers are paid a cost-based price for the electricity fed back into the grid.	• Members living within the vicinity (a certain group of postal codes) of the production unit get a fiscal discount on the collectively generated electricity; • Fiscal discount formerly amounted to 7,5 cents/kWh, tariff from 01-01-2016 lowered to zero; • Members have lower costs; cooperative generates income over the electricity produced.	• Subsidy scheme; • Compensates the extra costs of renewable energy production; • Compensation sum per kWh produced; • Granted for 12-15 years

Source: based on LEM, 2015.

Although these regulations creates opportunities, the experts emphasized that the policy context at the same time forms one of the main threats for cooperatives. The Dutch policy context is well-known for its instability, with "frequent changes in regulations and subsidy schemes and the refusal to support the [renewable energy] industry over an extended period of time" (Verbong *et al.*, 2008, p.561). These frequent changes have created uncertainties and hampered investments, undermining the efforts of cooperatives and creating an image of unreliability for the national government.

Moreover, the Dutch regulations and subsidy schemes are generally considered as complex and bureaucratic. Especially concerning collective energy generation, "Dutch policies on renewable energy are considered to impede innovation through demanding administrative procedures and unfavourable financial incentives" (Naus *et al*., 2015, p.6). The postal code regulation for example is a notoriously complex regulation, including long pay-back times and a complex financial administration (Schwencke & Elzenga, 2014a, p.10). An important remark however is that the recent changes in fiscal regulations have created more room for the development of cooperatives. In particular the regulation for lowered fiscal tariffs has been improved, lowering the tariff for collectively generated energy from 7,5 cents/kWh to zero in January 2016 (Hieropgewekt, 2016). This seems to indicate a growing amount of institutional space for cooperatives in the Netherlands (Oteman et al., 2014).

2.7.4 Support and networks

Besides these challenges, the experts emphasized that the amount of support from the community and other actors are vital for cooperatives. Support from local residents and other local organisations and businesses, such as schools, sports associations, housing corporations or home-owner associations, create important opportunities for cooperatives to recruit members and customers, and a strong basis to develop projects. Other important partners are local businesses such as shops, local installation companies, restaurants or farms (Schoor & Scholtens, 2015, p.670). Additionally, cooperatives in the Netherlands also cooperate with larger commercial parties such as energy companies, for example by reselling the electricity from an energy company to their members in a resale construction (LEM, 2015).

Conversely, the absence of support from the community and other actors can present significant challenges. A lack of support from local residents can for example result in public apathy, the NIMBY (Not In My Back Yard) syndrome and other negative attitudes among the local community. The efforts of energy cooperatives in practice in this respect are not necessarily a guarantee for community support. The intention to make the local community benefit does not convince all residents and can even be regarded as bribery by some (Schwencke & Elzenga, 2015b, p.57). An example of this is the case of the cooperative Energie-U from Utrecht, that in commission of the municipality worked on the development of a wind project near the city for two years. Yet, the project was eventually cancelled by the council due to strong local resistance, despite the considerable efforts put in by Energie-U (Schwencke & Elzenga, 2015a, p.20).

Strong networks in this respect form an important opportunity for cooperatives (Schoor & Scholtens, 2015, p.670). Through various local, regional and national networks, cooperatives give and receive help from a range of organisations (Seyfang et al., 2013, p.986). The majority of cooperatives for example cooperates with other cooperatives within their local environment, forming reciprocally supportive links. Examples of this are the Vereniging Energie Coöperaties (Association Energy Cooperatives) in Noord-Brabant, the Community of Practice in Gelderland or the national REScoopNL network (LEM, 2015, p.18). These networks facilitate knowledge sharing and mutual learning, "providing distinctive expertise that is not readily available elsewhere" (Walker, 2008, p.4403). In addition, networks provide the possibility to create a joint lobby force with other initiatives (Schwencke, 2012, p.26).

2.8 Conclusion

This chapter formed the first half of the theoretical framework. The next chapter forms the second half, and discusses how the challenges and incentives discussed above might be addressed by cooperatives; through creating partnerships with experienced and professional energy companies. The chapter thereby explains how energy companies can play a potential supporting role for cooperatives, by developing 'energy intermediary' activities.

3. Theory II: Cooperation with energy companies

As discussed in the previous chapter, cooperatives are growing fast in the Netherlands. Their road is however not without obstacles, as cooperatives face important challenges and incentives in the development of their projects. By partnering with energy companies, cooperatives might be able to address their challenges and incentives. Energy companies can in this way play an important role in the development of the cooperative, resembling the 'energy intermediary' role. This potential role is discussed in detail in this chapter. Additionally, a tentative overview is made of the different types of partnerships possible between cooperatives and energy companies. At the end of the chapter, the theoretical frameworks of chapters 2 and 3 are combined to create a research model, from which the research expectations are formulated.

3.1 Cooperation as a strategy

As discussed in section 2.7.4, one of the most important opportunities for cooperatives is networking. By "forging supportive partnerships and networking links with external organisations", cooperatives are better able to address the various challenges they face (Seyfang et al., 2013, p.985). Cooperation with external organisations, especially experienced and professional parties, can help cooperatives to realise their projects (2015b, p.59). Although the older wind cooperatives in the Netherlands have developed into stable and professional organisations on their own, this took them some 25 years. In particular for the large group of younger cooperatives in the Netherlands, cooperation with professional parties therefore forms an essential strategy to develop sufficient professionality and continuity.

This is strengthened by the increasing professionalization trend in the Netherlands, which stimulates the uptake of larger and more complex projects that require a high degree of professionality. As a result, Elzenga and Schwencke observe an increasing amount of cooperation with experienced and financially strong parties, also including commercial businesses (2015a, p.20). Examples of this are the cooperation between Energie-U and the consultancy companies Ecofys, Blix and Renewable Factory in Utrecht, or the cooperation between Lochem Energie and several installation and building companies in Lochem (Elzenga & Schwencke, 2014a, p.47; LEM, 2015, p.48).

Cooperatives thereby also increasingly seem to cooperate with larger energy companies. On the one hand, this is a logical consequence of the increasing uptake of production projects by cooperatives, as the supply of self-produced electricity requires a supplier-licensed party (see 1.6). On the other hand, the amount of cooperation with energy companies is also increasing among cooperatives without production projects. Recent research for example shows that in 2015 almost 60% of the Dutch cooperatives had arranged a resale construction with an energy company (LEM, 2015, p.49).

3.2 Partnerships with energy companies

Overall, the amount of cooperation with energy companies thus seems to be increasing among cooperatives, which can be explained by the increasing uptake of production projects and the institutional framework in the Netherlands. Another explanation might be the changing role of the energy company, caused by decentralisation in the supply chain. As a result, energy companies are stimulated to develop into "another type of service provider", which involves new forms of cooperation with actors in the chain (Naus et al., 2015, p.8). This has also created a more open attitude among energy companies towards new actors emerging, including cooperatives.

Conversely, it also seems reasonable to suppose that the attitude of cooperatives towards energy companies has improved over the past few years. While energy companies were previously mainly regarded as non-cooperative, commercial competition, the increasing amount of partnerships seem to suggest that more cooperatives nowadays regard energy companies as useful partners. An energy company can for example offer a resale construction, provide administrative capacity, resources or advice to support cooperatives. Partnerships can in this way have important consequences for the development of cooperative projects, and form an important strategy for cooperatives to address the challenges they face. Positive experiences of cooperatives with energy companies can thereby have a knock-on effect on other cooperatives, further stimulating partnerships with energy companies.

By stimulating the development of cooperatives projects, energy companies seem to fulfil a role similar to that of community energy intermediaries, as discussed by Hargreaves *et al.* (2013). In general, the 'energy intermediary theory' forms a useful framework to examine the role of the energy company in their partnerships with cooperatives. The framework namely enables to measure the influence that the energy company has on the development of cooperatives. The next section will elaborate on the energy intermediary theory.

3.3 The emergence of energy intermediaries

Intermediary actors can be broadly defined "as organisations 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 those projects (Hargreaves *et al*., 2013, p.870). Many different types of intermediaries exist, encompassing governmental, NGO and private intermediaries, who operate across national, regional and local scales (Seyfang *et al.*, 2013, p.986). The common factor among these intermediaries is that by "facilitating dialogue, providing guidance, bridging gaps, advocating reform, or pioneering novel forms of interaction" they play an important role in the development of cooperatives (Moss, 2009, p.1481).

Especially in the past few years, the restructuring of the electricity market has created openings for intermediary functions, leading to the emergence of a range of new market actors performing new tasks (Moss, 2009, p.1481). These intermediaries can range from "business consultants or research organisations 'translating' novel environmental regulations into practice, to non-profit agencies brokering new forms of market regulation; from information campaigns encouraging greater resource efficiency, to innovation networks improving communication flows between technology providers and users" (ibid.).

To date little attention has been paid to intermediary actors in the Netherlands, making academic evidence on Dutch energy intermediaries limited. This research therefore draws on a study on the role of intermediaries in the cooperative energy sector in the UK. In this study Hargreaves *et al.* conducted interviews with 94 different energy intermediaries, asking them about their aims, objectives and activities in the field of community energy (2013). They identified a range of activities, varying from developing networks between community energy groups and providing tools to offering professional services or even initiating new community energy projects.

Hargreaves *et al*. subsequently compared these activities to the three traditional roles of intermediary actors, as discussed by Geels and Deuten (2006). In this way, they assessed to what extent the 94 intermediaries succeeded in supporting community energy through their intermediary role. These three roles include: aggregating lessons from across multiple local projects, establishing an institutional structure, and framing and coordinating action on the ground in local projects (Hargreaves *et al.*, 2013, p.878). Hargreaves *et al.* thereby identified a fourth role from their findings, which has become increasingly important: brokering and managing partnerships between community energy projects and other actors. This results in four energy intermediary roles (Table 3).

Table 3: Four key roles for community energy intermediaries in the Netherlands

	Key intermediary role	Explanation	Exemplary activities
1	Aggregating lessons from local community energy projects	The aggregation of knowledge from across a wide range of community energy projects, to identify general lessons that are useful for the community energy sector as a whole;	Developing (online) toolkits or handbooks to facilitate the exchange of experiences across projects.
2	Establishing an institutional infrastructure for community energy	The creation of an institutional infrastructure that serves as a repository and forum for the storage, exchange and circulation of knowledge about	Creating web-based knowledge repositories or active (social) networks.

		community energy projects;	
3	Framing and coordinating community energy action on the ground	The framing, initiation and coordination of action inside community energy projects.	Drawing from aggregated knowledge to provide advice, guidelines or even templates for how subsequent local projects should develop.
4	Brokering and managing partnerships	The brokering and managing of partnerships between community energy projects and other actors from outside the community energy sector.	Negotiating, lobbying, identifying new sources of investment and developing new models for cooperative projects.

Source: based on Hargreaves *et al.*, 2013.

Especially this fourth role offers an interesting perspective for this research, as Hargreaves *et al.* specifically discuss the brokering and managing of partnerships with "major energy companies" (Hargreaves *et al.*, 2013, p.877). Because energy companies are increasingly interested in partnerships with local community groups, intermediaries play an important role in brokering these partnerships, by "introducing partners to one another, helping community groups overcome any distrust and wariness of working with large companies; drawing up the terms and conditions on which partnerships are based, and in ensuring that partnerships genuinely benefit local community groups" (ibid.).

3.4 The energy company as energy intermediary

Although Hargreaves *et al.* regard energy intermediaries and energy companies as separate actors, this research aims to examine the overlap between these two actors. Many of the activities recently developed by energy companies namely seem to resemble energy intermediary activities, such as the initiation of new partnerships to realise cooperative projects, or the offering of professional services such as legal or financial advice to support cooperatives. Looking at energy companies through the energy intermediary lens might therefore lead to a better understanding of the precise role of energy companies in their partnerships with cooperatives, and the effects that their activities have on the development of cooperatives in the Netherlands.

Moreover, "the notion of intermediaries encourages us to look beyond the provider – regulator – user triad", as energy intermediaries are typical "boundary organisations" that connect and bridge between different actors (Moss, 2009, p.1484). Energy intermediaries therefore often "do not fit neatly into one of the three categories of provider, user, or regulator", and contribute to the blurring of boundaries between these traditional categories (Moss, 2009, p.1480). This means that energy intermediaries can simultaneously take up provider, regulator or user functions and conversely, that providers, regulators and users can take up intermediary functions. Energy companies, who might previously be categorised as purely commercial 'provider', might therefore also develop intermediary activities.

Seyfang *et al*. even include "private sector businesses (installers and consultants), whose customer base is not limited by geography" as one category of energy intermediaries (2013, p.986). Moreover, Moss also specifically notes the emergence of "'market intermediaries' within the context of shifting relations between production and consumption" (2009, p.1482). Especially from 2010 onwards, a new wave of these market intermediaries emerged, including "a number of independent consultants and professional service providers" (Hargreaves *et al.*, 2013, p.871). Around this year, energy companies in the Netherlands also started developing products and services around cooperatives.

This research however does not aim to suggest that the recent activities of energy companies are purely driven by the motivation to support cooperatives. Rather, this research recognises that energy companies are first and foremost commercially-driven actors. This does however not mean that energy companies cannot fulfil an intermediary role, as Moss notes that "intermediaries, like all actors, are motivated by their own interests, whether political, commercial, social, or organizational" (2009, p.1491). It is therefore always important "to avoid prejudgmental views of intermediaries as being independent arbiters (…); intermediaries are not neutral or arbitrary, but play a role in ordering and defining relationships" (Moss,

2009, p.1485). Intermediation is therefore not necessarily neutral or benign, and intermediaries should be considered as political players in their own right.

Commercial values and intermediary activities therefore do not necessarily collide. Moreover, many intermediaries even emerged because of new market opportunities that could be exploited. These commercial intermediaries are "all driven – at least in part – by the need to make a profit and to compete successfully in the marketplace" (Moss, 2009, p.1491). Additionally, some actors might also be pushed into an intermediary role, by institutional changes. Energy companies are for example increasingly forced to comply to governmental renewable energy regulations, and "see partnerships with local community groups (which are seen as being locally trusted) as having the potential to help them achieve these targets" (Hargreaves *et al.*, 2013, p.877). Cooperatives are often seen as the appropriate party to secure citizen participation in renewable energy projects, making cooperation with cooperatives a conscious strategy for energy companies.

Summarising, this research does not claim that energy companies, in their new role in the decentralising electricity supply chain, suddenly shed their commercial interests, but rather that their newly developed activities might have important consequences – both intended and unintended – for the development of the cooperative energy sector in the Netherlands. Energy companies might in this way be seen as energy intermediaries.

3.5 Beneficial or detrimental?

The question however is: are these consequences of cooperation with energy companies beneficial for cooperatives, or detrimental? On the one hand, cooperation with energy companies can offer cooperatives the organisational, financial or legal support that complex renewable energy projects require (Elzenga & Schwenke, 2014a, p.35). Cooperation with an energy company can therefore have a beneficial effect on the professionality of a cooperative. Moreover, complex organisational and technical activities "can be outsourced to organisations like Greenchoice, Trianel or Anode, which effectively decreases the perceived complexities" (Boon, 2012, p.27).

On the other hand, Moss also argues to take into account "the potentially negative impacts of intermediaries, whether in failing to perform intermediary functions, in causing unintended negative effects or in using their position to prevent – rather than facilitate – exchange" (2009, p.1485). In particular, cooperatives seem at risk of losing certain important values when cooperating with energy companies. Here, the process-outcome dimension of Walker and Devine-Wright offers useful insights.

Being commercial parties, energy companies end up in the bottom left corner of the process-outcome dimension, developing projects with low citizen participation and distributing the benefits among distant shareholders rather than local people (Figure 4). Cooperatives on the other hand are placed in the top right corner of the figure, developing participatory and local projects. By jointly developing projects with an energy company, a cooperative might therefore be at risk of watering down its values. Concretely, this might mean that the benefits of the project are not distributed among the local people, or that local people have less opportunity to participate in the project. Boon and Dieperink add that in this way, "suppliers and installers of renewable energy and technologies are argued to affect the local perception towards LREOs" (2014, p.301). This can lead to a decrease in community support for cooperatives, making the recruitment of new members even harder.

Pronk, one of the experts interviewed, also emphasizes how cooperative and commercial values can collide in partnerships between cooperatives and energy companies (2015). In extreme cases, cooperatives can in this way even be regarded as ambassadors of energy companies, which according to Pronk is one of the largest dangers of cooperation with energy companies. This creates distrust among the community and diminishes community support (ibid). This danger is also noted by Jonker, who warns against the risk of the energy company 'taking over' the cooperative (2015). The collision of values can in this way lead to a lack of trust between the cooperative and energy company.

3.6 Energy companies' motives

In general, the experts therefore emphasise that *trust* forms an important factor in partnerships between cooperatives and energy companies. The underlying motives of the energy company thereby seem to play an important role. Pronk in this respect argues that the more an energy company's motives coincide with those of the cooperative, the higher the degree of trust between the two parties and the more likely a cooperative is to cooperate (2015).

As discussed in Chapter 2, cooperatives have a strong motivation to improve their local living environment and make the supply of electricity more sustainable (Attema & Rijken, 2013, p.12; Elzenga & Schwencke, 2015a, p.18). According to Pronk, energy companies that formulate similar aims and incorporate these into their business model, have the best chance to successfully work with cooperatives. Jonker thereby identifies three particular motives for energy companies to work with cooperatives (2015):

1. *A market in transition*: energy companies need to adjust their activities to the changing market. Energy companies realise their role is changing and start adapting their business model to survive. New business models thereby centre around delivering support and services and facilitating other parties in supplying electricity;
2. *Creating a new market*: the growing cooperative sector forms a new potential market for energy companies, where money can be made. Energy companies therefore start experimenting with new forms of partnerships, products and services;
3. *Sustainability*: energy companies can also have an intrinsic motivation to contribute to a solution to climate change problems.

Where the first two motives seem logical motives for energy companies, Jonker seems a bit sceptical about the third motive. Although many energy companies articulate a strong vision on ecological sustainability, he argues that for many energy companies sustainability mainly forms a marketing instrument instead of a leading motive.

3.7 Alternative strategies

Differing motives between cooperatives and energy companies might thus eventually lead to certain disadvantages for cooperatives. Especially in the case of commercial energy companies, the collision between the motives and values of the two parties can bring significant problems, such as decreasing community support. The experts however argued that in this respect, the recently emerged *cooperative* energy companies NLD and DE Unie might be an important alternative strategy for cooperatives.

These energy companies are also fully supplier-licensed parties, but are organized according to the legal cooperative form. Prins therefore explains that cooperative energy companies can be regarded as 'super cooperatives', with values very similar to those of cooperatives (2015). This type of energy company is therefore seen to focus less on making profits, which means that cooperatives are less at risk of being regarded as the energy company's sales channel. Moreover, Prins emphasized that in contrast to most commercial energy companies, cooperative companies have a rich supply of knowledge on cooperatives and a clear vision on how a cooperative should develop (2015).

This implies that cooperative energy companies have motives very similar to the cooperatives, which would create a higher degree of trust and a less problematic partnership. On the other hand, the cooperative energy companies DE Unie and NLD have only been active since 2013, which means that these energy companies might have less organizational continuity and professional experience to draw from. Moreover, cooperative energy companies might also have less financial resources to support cooperatives, and as a result offer different possibilities for cooperation than commercial companies.

Summarising, cooperation with both *commercial* and *cooperative* energy companies can have an important influence on the challenges and incentives that cooperatives face. The question then is: to what extent do cooperatives choose to cooperate with commercial and cooperative energy companies? What are their reasons to cooperate, or to avoid cooperation? Do cooperative energy companies offer the same products and services as commercial companies? Who initiates the partnership in the first place? And

what effect does working with cooperative energy companies have on the challenges and incentives that cooperatives face, compared to cooperation with commercial energy companies?

To date, little insight exists into these questions and as a result, it is also unclear what consequences this influence might have for the actions of cooperatives. This research aims to fill this knowledge gap. In summary, the research aim is to examine the different forms of partnerships between cooperatives and energy companies – both commercial and cooperative - and the influence of these partnerships on the challenges and incentives that cooperatives face.

3.8 Tentative overview of partnership types

Besides fine-tuning the theoretical framework, the experts were also consulted to create a tentative overview of the different types of partnerships between cooperatives and energy companies. This resulted in the overview included below (Table 4). An important distinction can be made between cooperatives with and without production projects.

Table 4: Tentative overview of the types of partnerships between cooperatives and energy companies

WITH PRODUCTION	
Type of cooperation	Explanation
1. Providing services	The energy company provides advisory services to the cooperative.
2. Resale construction	The cooperative collectively purchases electricity from the energy company; the energy company in turn financially compensates the cooperative for each customer.
WITHOUT PRODUCTION	
Type of cooperation	Explanation
3. Private production	Most of the electricity produced by the cooperative production project is used directly, off the grid; any surplus electricity is purchased by the energy company, for a feed-in tariff.
4. Public production	The electricity produced by the cooperative production project is delivered directly to the public grid; the electricity is purchased by the energy company, and sold to customers. Cooperative and energy company have a Power Purchase Agreement (PPA).
5. Co-ownership	The energy company is co-owner of a cooperative production project, and jointly exploits the production unit with the cooperative.

Concerning partnerships without production, the simplest type of cooperation (1) encompasses the energy company providing advisory services to support the cooperative, including for example advice on legal, organizational, financial or technical issues. Energy companies can in this way for example also support cooperatives in the starting phase. A second type of cooperation is the resale construction (2), which has been discussed earlier in the theoretical framework (section 2.5). Here a cooperative collectively purchases electricity from an energy company and resells this to its members or customers with a discount. The cooperative receives a financial compensation from the energy company for each member.

Concerning the partnerships with production, a first type involves private production projects (3). In this case, the cooperative has a production project where the electricity is directly used privately. By law, the energy company is obligated to purchase any surplus electricity fed back into the public grid from the cooperative, for a feed-in tariff. Additionally, a partnership can also involve public production (4). In this case, the cooperative has a production project where the generated electricity is delivered directly to the public grid. The energy company purchases the electricity from the cooperative and sells it to customers. These can be the energy company's own customers and/or the members of the cooperative. In this type of partnership, the cooperative and energy company have a Power Purchase Agreement (PPA). In the last type of production partnership the energy company directly invests in a cooperative production project

and becomes co-owner of the project (5). Energy company and cooperative in this case jointly exploit the production unit.

The overview in Table 4 forms the basis for the data-analysis in the third phase of this research, where each type of cooperation will be counted. The data-analysis in this way provides more insight into which types of cooperation occur most often in the Netherlands. Subsequently, this tentative overview will be tested and fine-tuned in the fourth phase.

3.9 Conclusion

This chapter has discussed the second half of the theoretical framework, which includes the energy intermediary theory. By applying this theory to the Dutch energy market, which has not been done before, this research aims to contribute to theory about energy intermediaries in the Netherlands. The two theories discussed in chapter 2 and 3 – the SWOT analysis and energy intermediary theory – can be translated into a research model, from which research expectations can be formulated. These expectations will be tested in the result chapters of this research, using two methods: data-analysis and a case study analysis. These methods are explained in more detail in the next chapter.

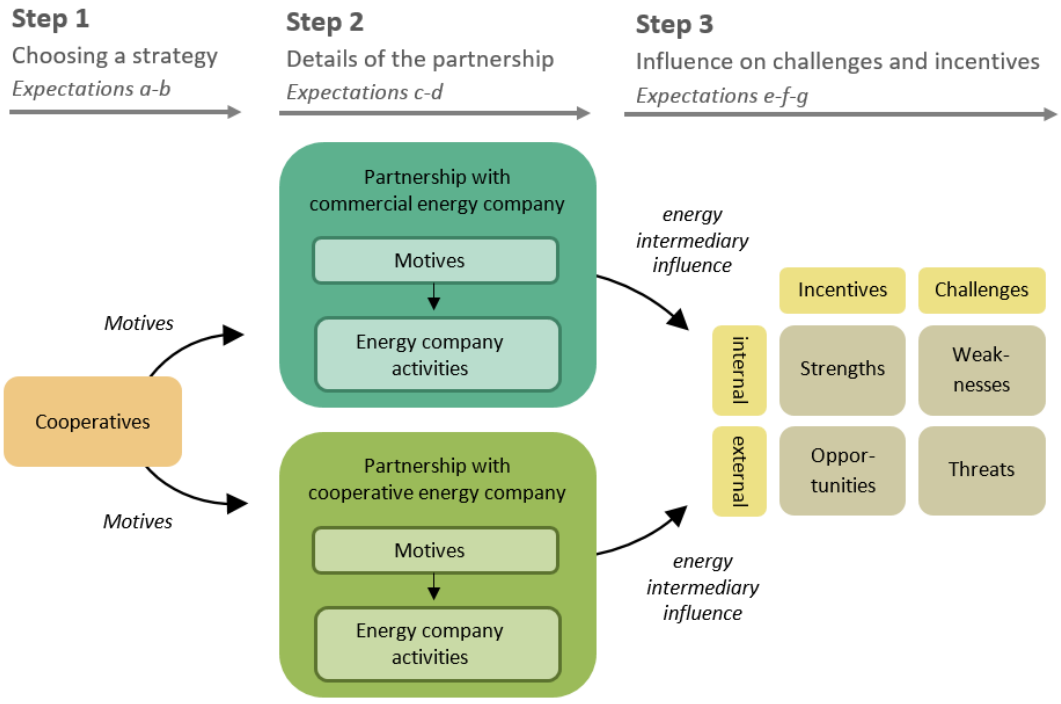
4. Methodology

This chapter explains the research strategy and methods adopted in this research. Before turning to the methods however, the chapter starts with the research model, which forms the basic structure of the research. From this model the research expectations are formulated, which are tested in the results and conclusion chapters. Section 4.2 explains the general choice to use mixed methods for this research. The following sections discuss the used methods in more detail; the expert interviews in section 4.3; data-analysis in section 4.4 and case study analysis in section 4.5.

4.1 The research model and research expectations

From the theoretical framework a research model has been constructed, including the main concepts and relations of the research (Figure 13). This model enables to answer the main question of the research: *"In what ways do energy cooperatives cooperate with energy companies, and what role do these partnerships play in the development of the cooperative energy sector in the Netherlands?*". The model can be roughly divided into three steps, representing the chronological steps a cooperative passes through in cooperation with an energy company. For each step several research expectations can be formulated. The three steps are discussed in order below.

Figure 13: The research model



Step 1: Choosing a cooperation strategy

The first step concerns the strategy a cooperative chooses. In this regard, cooperatives can choose to work with two types of energy companies: commercial or cooperative energy companies. This is visualised by the two arrows pointing towards the two types of partnerships (Figure 13). Cooperatives have particular motives to choose either of the two.

Step 1 Research expectations

Concerning the first step two research expectations can be formulated. A first expected important motive for cooperatives to choose an energy company is the – ecological - sustainability of the energy company. As cooperatives generally have a strong vision on sustainability and renewable energy, this is expected to be an important precondition when selecting a partner. A second expected motive is the organisational structure of the energy company. Cooperatives are likely to cooperate with external organisations with

similar aims and values, or in other words: a similar vision and position in the process-outcome dimension (section 2.2). This means that cooperatives are expected to prefer cooperation with energy companies that develop projects with a high degree of citizen participation and distribute benefits among local people. In this way, cooperatives are less at risk of watering down their values and losing community support.

A third expected motive to choose an energy company is the professionality and experience of the company. In section 2.5 and 2.6 the current professionalization trend among cooperatives has been discussed, which shows that cooperatives increasingly take up larger and more complex projects that require a high degree of professionality. Cooperatives are therefore likely to choose an experienced energy company. Summarising:

a. *The sustainability, organisational structure and experience of an energy company are the three main motives for cooperatives when choosing an energy company.*

Concerning the actual choice that cooperatives make; the first motive suggests that cooperatives are likely to choose a cooperative energy company, as the intrinsic motivation of this type of energy company is likely to be more aligned with that of cooperatives. The second motive however suggests that suggests that cooperatives are likely to choose a commercial energy company, given the fact that the two cooperative companies NLD and DE Unie only exist since 2014. The cooperative companies can therefore be expected to have less professional experience than the longer existing commercial energy companies.

Adding up however, the expert interviews have given reason to expect that the intrinsic motivation of an energy company weighs stronger for cooperatives than its experience and professionality. Ultimately, the expectation therefore is that cooperatives are more likely to choose a cooperative energy company, as this type of company lies closest to their own intrinsic motivation. The following expectation is therefore formulated:

b. *Cooperatives are likely to cooperate with cooperative rather than commercial energy companies.*

Step 2: The details of the partnership

The second step concerns the details of the partnership. Central here are the activities that the energy company undertakes for the cooperative. Just like the cooperative, the energy company has particular motives to develop these activities. This connection is visualised by the small arrow within the partnership (Figure 13). A partnership with a commercial energy company can thereby differ from a partnership with a cooperative company.

Step 2 Research expectations

Also for this step two expectations are formulated. The expert interviews suggested that the the main motive for commercial energy companies is the exploitation of new market opportunities in the quickly growing cooperative energy sector. By partnering with cooperatives, commercial energy companies can create a new market. Although sustainability can also form a motive for commercial energy companies, the expectation is that it is not the leading motive. This however is a tentative expectation, which will be tested during the in-depth interviews with both energy companies and cooperatives.

c. *The main motive for commercial energy companies to form partnerships with cooperatives is the exploitation of new market opportunities.*

Concerning the motives of cooperative energy companies, the experts emphasized that these can be assumed to be the same as the motives of cooperatives themselves. For this reason, no separate expectation is formulated for the motives of cooperative energy companies. Moreover, because cooperative energy companies have the same motives and organisational structure as cooperatives themselves, their activities are expected to be more tailored to the needs of cooperatives. For commercial energy companies in contrast, cooperatives are not their core business. This results in the following expectation:

d. *Cooperative energy companies develop different activities than commercial energy companies, as their activities are more tailored to the needs of cooperatives.*

Step 3: Influence on the challenges and incentives

The third step concerns the actual influence of the partnership on the development of cooperatives. To measure this influence, a SWOT analysis is used to operationalise the development of cooperatives. Cooperatives face various incentives and challenges when developing their projects, both internal and external. The SWOT analysis categorises these incentives and challenges into strengths, weaknesses, opportunities and threats (**Figure 13**).

With the SWOT analysis, the influence of both a commercial and cooperative partnership on the challenges and incentives can be measured. In general, Dutch energy companies are increasingly developing activities to support cooperatives, for example by offering legal or financial advice, or by supporting cooperative projects financially. The energy companies in this way seem to assume a role similar to that of energy intermediaries, who play an important role in stimulating the development of cooperatives. The aim of this research is to assess to what extent energy companies can be regarded as energy intermediaries.

Step 3 Research expectations

Three expectations can be formulated for the third step. The first expectation concerns the extent to which the energy company can be characterized as energy intermediary. The expectation is that cooperative energy companies play a stronger intermediary role than commercial energy companies. The reason for this is that the cooperative companies are expected to have a better understanding of cooperatives and a stronger network in the cooperative energy sector, because cooperatives form their core business. This means that cooperative energy companies already fulfil two intermediary roles; aggregating lessons and establishing an institutional infrastructure for the storage, exchange and circulation of knowledge about community energy projects. For most commercial energy companies in contrast, cooperatives are not their core business and the cooperative energy sector forms an entirely new market. The expectation is therefore that:

e. *Cooperative energy companies fulfil a stronger energy intermediary role than commercial energy companies.*

The last two expectations concern the actual influence of the partnerships on the challenges and incentives of cooperatives. According to the theoretical framework, the beneficial influence of cooperation with an energy company is expected to mainly relate to four internal challenges. Firstly, a partnership with an energy company can help overcome the challenge of obtaining access to finances, as energy companies are generally financially strong parties. This enhances the possibility for cooperatives to create a viable business case. Secondly, energy companies can provide expertise and advice on complex organizational, financial and legal issues, for example in cooperation type 1. Thirdly, an energy company can provide a solution to the need for time and volunteers, as cooperatives can outsource certain activities to energy companies. A fourth beneficial influence of cooperation with an energy company is on the challenge of recruiting members. As discussed in section 3.7, the resale construction is expected to form an easy way for cooperatives to attract new members and revenues. The beneficial influence is summarized in the following expectation:

f. *Cooperation with an energy company has a beneficial effect on the following intrinsic challenges: the need for access to finance; the need for expertise and advice; the need for time and volunteers; and the need to recruit members.*

In contrast, detrimental influence of cooperation with an energy company is expected to be mainly confined to the external challenge of creating local community support. As discussed in section 3.5 and emphasized by the experts and many scholars, energy companies can negatively influence the perception of cooperatives among local residents. By cooperating with an energy company, cooperatives are at risk of watering down their participatory and collective values, as well as their initial driver to be independent.

This is expected to result in a decrease of community support and the creation of negative public attitudes towards cooperatives. This expectation, formulated below, is strengthened by the fact that energy companies often regard cooperatives as the appropriate party to secure citizen participation in their renewable energy projects, as discussed in section 3.4.

g. *Cooperation with an energy company has a detrimental effect on the external challenge of creating community support.*

4.2 Research strategy

4.2.1 Research philosophy

The philosophy underpinning this research is critical realist, combining both positivist and interpretivist views. Concerning ontology, this research assumes that on the one hand, cooperatives are assumed to exist independent of social actors and to be very much the same. Regarding energy cooperatives as an independently existing, relatively homogenous group enables to generalise the findings about cooperatives in the Netherlands. On the other hand, this research also aims to examine the particular meanings that cooperatives attach to their functioning and to their interaction with energy companies. Subjective factors such as trust and culture are important variables that determine the forms of cooperation. This requires a view that acknowledges that social phenomena do not exist independent, but are created from perceptions and actions of social actors (Saunders *et al.*, 2009, p.111). Concerning ontology, this research therefore takes a critical realist view; assuming that cooperatives exist independently of human thoughts and beliefs, but interpreting them through social conditioning.

Epistemology in turn discusses the question of what constitutes acceptable knowledge. Here again, this research takes a critical realist view, as this suits the research best. Cooperatives thereby provide credible data, facts, which means that the researcher can work towards law-like generalisations (Saunders *et al.*, 2009, p.113). The researcher is thereby relatively independent of the process of data collection and his or her influence on the data is relatively small. On the other hand, cooperatives are social phenomena which are open to different interpretations. These interpretations unavoidably mean that the researcher has a larger influence on data collection. During the in-depth interviews needed to explore such motives and meanings, the influence of the researcher on the framing of the questions and interpretatation of respondents' answers is namely much more pronounced. This research therefore again has a critical realist view, where objective data can be collected about cooperatives, but with room for different interpretations.

4.2.2 Mixed methods

The critical realist philosophy thus is the basis for this research, forming the middle ground between positivism and interpretivism (Saunders *et al.*, 2009, p.119). This means that also for the data collection, a combination of both quantitative and qualitative methods would best enable answering the research question:

In what ways do energy cooperatives cooperate with energy companies, and what role do these partnerships play in the development of the cooperative energy sector in the Netherlands?

This question encompasses both descriptive and explanatory research. On the one hand, the question aims to map the existing cooperation between cooperatives and energy companies in the Netherlands, which involves descriptive research. On the other hand, the question aims to explore these partnerships and examine their influence on the development of cooperatives. This involves explanatory research. This research therefore forms a descripto-explanatory study (Saunders *et al.*, 2009, p.140).

As descriptive and explanatory research require different research strategies, this research uses a mixed method design. For the descriptive part of the research quantitative research methods are best suited. These allow for the collection and analysis of a large amount of data in an economical way, enabling easy comparison (Saunders *et al*., 2009, p.144). To this end, survey-based secondary data from HIER Opgewekt was analysed, covering all 220 energy cooperatives in the Netherlands. This analysis provides insight into the general patterns of cooperation between cooperatives and energy companies. Prior to the data-

analysis, exploratory interviews were conducted with six experts in the field. Besides fine-tuning the theoretical framework, these experts aided in constructing a tentative overview of the different types of partnerships, which formed the basis for the data-analysis.

An important shortfall of the data-analysis is the limited ability to explore and understand phenomena. Although the analysis will provide general descriptive insights, it does not offer much opportunity for explanation due to the limited amount of variables included in the secondary data (Saunders et al., 2009, p.146). For the explanatory part of the research qualitative methods are therefore better suited. The data-analysis was therefore followed by a case study analysis. In these case studies the general patterns found in the quantitative data-analysis were explored in more depth, using semi-structured interviews.

The case study analysis in this way fills in the gaps left by the data-analysis. Another important strength of combining a data-analysis and case study analysis in this research is an improvement in the generalisability of the research results. As no scientific data has been collected yet on the partnerships between cooperatives and energy companies, it is very valuable to generate research results that are – to a degree – generalisable for all energy cooperatives in the Netherlands. A case study analysis alone however offers limited possibility to generalise findings, due to the small sample size. Combining it with the data-analysis helps to overcome this shortfall and enables the generalisation of the research conclusions.

4.3 Expert interviews

Summarising, this research thus combines exploratory interviews, a data-analysis and case study analysis. Before conducting the data-analysis and case study analysis, a preliminary round of exploratory interviews with experts in the field was conducted. The aim of the expert interviews in this research was twofold. On the one hand to fine-tune the theoretical framework; on the other hand to make a tentative overview of the different types of partnerships.

4.3.1 The participants

To ensure a diversity of insights, experts from different organisations and institutions were selected. Six experts were interviewed in five interviews. As there is no comprehensive list available of people with expertise in the field of energy cooperatives and energy companies in the Netherlands, the snowball sampling strategy was used (Saunders *et al.*, 2009, p.240). Each expert was asked to identify further experts, which eventually resulted in six experts being consulted (Table 5).

Among the consulted experts is one expert from the public sphere; Anne-Marie Pronk is a specialist working at Klimaatverbond , a network of over 150 municipalities, provinces and water bodies stimulating and facilitating initiatives in the field of climate policy. Jan Jonker, professor at Radboud University Nijmegen and expert in the field of sustainable entrepreneurship was consulted; as well as Rick Bosman and Antonia Proka, both working at the DRIFT (Dutch Research Institute for Transitions) and involved in the TRAPESES (Transition Patterns Enabling Smart Energy Systems) research by TU Delft, DRIFT and Alliander. These three experts all have a strong academic background.

Finally, two experts were interviewed in the civil society sphere, both working at HIER Opgewekt. Katrien Prins works as project manager at HIER Opgewekt, the national knowledge platform for local renewable energy initiatives in the Netherlands. Anne Marieke Schwencke is an independent researcher and expert in the field of local renewable energy, who recently joined HIER Opgewekt as main author of the Local Energy Monitor. This is the yearly survey among all energy cooperatives in the Netherlands, first issued in 2015, which also forms the basis for the data-analysis in this research.

Moreover, given her rich expertise in the field of energy cooperatives, Anne Marieke was involved as a second supervisor in this research, besides the Radboud University supervisor. She was therefore consulted three times during the research period, during which the research and findings were discussed and fine-tuned when necessary. This formed a valuable addition to the research.

An important remark is that one of the later participants of the case study analysis can in fact also be regarded as an expert. Siward Zomer namely not only is the director of cooperative De Windvogel, but also the chairman of ODE Decentraal, the official national body representing energy cooperatives in the Netherlands. To avoid confusion, his interview is however used and listed under the case study interviews in section 4.5.

Table 5: Expert participants

#	Participant name	Background	Affiliated organisation(s)	Date interview
1	Annemarie Pronk	Public sphere	Klimaatverbond Nederland; Zonatlas; Lokale Energie Etalage	19-11-15
2	Jan Jonker	Academic	Radboud University Nijmegen	04-12-15
3	Rick Bosman; Antonia Proka	Academic	DRIFT (Dutch Research Institute for Transitions)	26-11-15
4	Katrien Prins	Civil society sphere	HIER Opgewekt	01-12-15
5	Anne Marieke Schwencke	Academic; civil society spere	ASI Search, HIER Opgewekt	30-11-15 / 26-02-16 / 23-05-16

4.3.2 Methods to collect the data

All experts were firstly contacted via e-mail, followed by a face-to-face interview. The interviews were unstructured, without a predetermined list of questions to guide the interview. This enabled the discussion to lead into previously undiscovered areas, which proved useful for the research (Saunders *et al*., 2009, p.324). The experts were given the opportunity to talk freely about their experiences with energy cooperatives, the challenges that cooperatives face and the interaction with energy companies. Furthermore, they were asked to help constructing a tentative overview of the different types of partnership between cooperatives and energy companies. Additionally, some of the experts also made suggestions on the selection of cases for the later case study analysis. With the exception of the two additional consults with Anne Marieke Schwencke, all interviews were recorded and later transcribed. These transcriptions were used for analysis.

4.4 Data-analysis

The purpose of the data-analysis in this research was to count the different types of partnerships. As the analysis included all 220 cooperatives, an overall picture could be created of the general patterns of cooperation between cooperatives and energy companies in the Netherlands. Besides this, the data-analysis was also used to identify interesting cases for the case study analysis in the next research phase.

4.4.1 Using secondary data from HIER Opgewekt

The basis of the data-analysis is formed by secondary data from HIER Opgewekt, which originates from the Local Energy Monitor (LEM) carried out by Anne-Marieke Schwencke for HIER Opgewekt. The LEM forms the first annual report and analysis of the cooperative energy sector in the Netherlands, and was conducted for the first time in 2015. To collect information and give an overview of all developments within the sector, a survey was conducted among over 140 cooperatives and other initiatives. These cooperatives received a questionnaire, asking them to provide information about their realised and planned projects; and activities in the field of energy supply and energy saving.

As the LEM uses the same definition of cooperatives as this research, the data was suitable to use in this research. Moreover, the survey was carried out in 2015 and knew a high response rate, making it the most recent and complete research available on the topic. Besides this, the fact that the LEM was carried out on behalf of HIER Opgewekt, the official national knowledge platform for energy initiatives in the Netherlands, and supported by several governmental institutions; the RVO (Rijksdienst voor Ondernemend Nederland), ECN (Energieonderzoek Centrum Nederland), PBL (Planburea voor de Leefomgeving), CBS (Centraal Bureau voor de Statistiek) and VNG (Vereniging Nederlandse Gemeenten). This means that the data is likely to be reliable and trustworthy, which it was taken as a basis for the data-

analysis. Nevertheless, the use of secondary data brings some important pitfalls to consider; these are discussed in Chapter 7.

4.4.2 Methods for collecting and analysing the data

The data from HIER Opgewekt encompassed both a list of all 220 cooperatives, including variables such as year of initiation, location and whether the cooperative is involved in a resale partnership; and a list of all cooperative solar and wind projects in the Netherlands. These two lists were integrated and additional desk research on the internet was carried out, on the websites of cooperatives, energy companies and other media.

The aim of the desk research was to fill in the gaps left in the HIER Opgewekt data, and more importantly, to identify for each solar and wind project which energy company was involved. This created a rough overview of all partnerships between cooperatives and energy companies. Partnerships were subsequently categorised into partnership types, using the tentative overview created with the experts. This resulted in a comprehensive database encompassing all cooperatives, cooperative projects, partnership types and involved energy companies.

Subsequently, this database was analysed using Excel. Several interesting general patterns emerged from the data-analysis, which were examined in more detail in the case study analysis. However, also vice versa the case study analysis brought up some interesting findings, which could be tested in the data-analysis. The data-analysis and case study analysis were therefore not used strictly sequentially, but formed an iterative process.

4.5 Case study analysis

As mentioned above, the quantitative data-analysis offered only limited possibility to explain patterns. To enable a richer understanding of the partnerships between cooperatives and energy companies, a case study analysis was therefore carried out. In total 24 in-depth interviews were conducted.

4.5.1 The participants

The database of partnerships resulting from the data-analysis formed the basis for selecting the cases for in-depth analysis, complemented by advice from the experts. In this way, interesting cases were picked out and contacted for in-depth interviews. This research thereby included multiple cases, which suits the aim to give a broad overview of the partnerships between cooperatives and energy companies in the Netherlands. The aim thereby was to include as many complete partnerships as possible; meaning that both the cooperative and energy company were interviewed to show both sides of the story.

In total, 13 cooperatives and 11 energy companies were interviewed (Table 6;Table 7). Out of the 11 interviewed energy companies, 2 energy companies have no or only minimal partnerships with cooperatives. E.On in this respect only has one old PPA with Deltawind, which will soon expire; and Nieuwestroom does not work with cooperatives at all. These two companies are specifically included in the research to examine their motives not to work with cooperatives (anymore). Additionally, the former director of Trianel has been interviewed, an energy company that used to work with cooperatives until their bankruptcy in 2012. This means that both current partnerships and partnerships in the past are included in the research. Out of the 13 cooperatives, 2 belong to the first generation of cooperatives, set up between 1986 and 1995 (see section 2.4).

The remaining 11 cooperatives were set up in 2010 or later. The partnerships between the participants are visualised in Figure 14. This also shows how the cooperatives and energy companies are related to one another; and also shows how E.ON and Nieuwestroom do not or only in a limited way work to cooperatives.

Figure 14: Network diagram of all examined partnerships

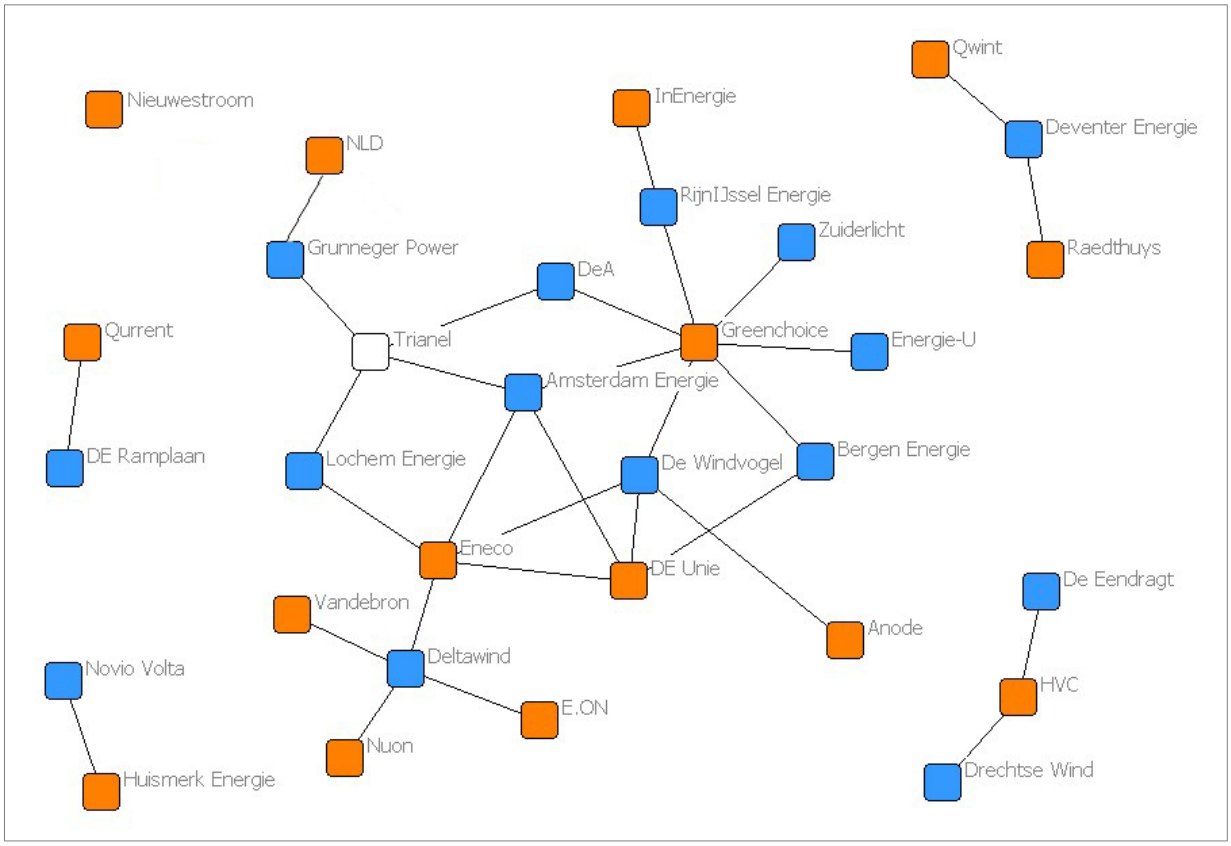


Table 6: Case study participants - cooperatives

#	Participant name	Organisation	Affiliation with organisation	Nature of activities	Date interview
1	Siward Zomer	De Windvogel (1991); ODE Decentraal	Director De Windvogel; chairman ODE Decentraal	Only production	30-03-16
2	Sander Willemsen	Energie-U (2010)	Director	Only resale	15-04-16
3	Bas van Nistelrooij	Noviovolta (2013)	Chairman	Only resale	07-04-16
4	Monique Sweep	Deltawind (1989)	Director	Only production	18-04-16
5	Steven Volkers	Grunneger Power (2011)	Director	Resale and production	25-04-16
6	Roeland Kneppers	Bergen Energie (2011)	Chairman	Resale and production	28-04-16
7	Michael Boddeke	DeA (2012)	Director	Resale and production	13-04-16
8	Petra Lettink; George Lagerberg	Rijn en IJssel Energie (2012)	Project leader; treasurer	Resale and production	12-04-16
9	Frank Boon	Zuiderlicht (2013)	Executive, project leader	Resale and production	25-04-16
10	Art den Boer	DE Ramplaan (2011)	General board member, communication advisor	Resale and production	20-04-16
11	Rolf Steenwinkel	Amsterdam Energie (2011)	Director	Only resale	28-04-16

12	Jan de Vries	Deventer Energie (2012)	Director	Resale and production	22-04-16
13	Paul Stolte	Lochem Energie (2011)	Co-initiator and project manager	Resale and production	26-04-16

Table 7: Case study participants - energy companies

#	Participant name	Organisation	Affiliation with organisation	Working with cooperatives yes/no	Date interview
1	Michael Fraats	Trianel (until 2012)	Former director	Yes (formerly)	11-04-16
2	Martijn van Son	NLD	Marketing & business development	Yes	04-04-16
3	Ram van Erkelens	DE Unie	Accountmanager	Yes	29-03-16
4	Joost Berkvens	HVC	Manager Local energy	Yes	22-04-16
5	Gijs van der Velde	E.ON	Business development & innovation	No	01-04-16
6	Paul van der Hoeven	Eneco	Senior Innovation manager	Yes	19-04-16
7	Jeroen Vanson	Greenchoice	Accountmanager Local energy projects	Yes	08-04-16
8	Daan Grooten	Qurrent	Innovation & business development manager	Yes	20-04-16
9	Bert Hendriks	Huismerk Energie	Spokesman	Yes	21-04-16
10	Arthur Vermeulen	Raedthuys	Manager Raedthuys Wind	Yes	14-04-16
11	Remko ten Barge	Nieuwestroom	Financial director	No	08-04-16

4.5.2 Methods for collecting the data

In total, 24 in-depth interviews were carried out with cooperatives and energy companies. This enabled personal interaction, which is essential to fulfil the task of entering the social world of energy cooperatives and energy companies and understanding the interaction from their point of view. Moreover, the interviews not only provided insight into current partnerships, but also enabled to ask questions about partnerships in the past. The research in this way also included an aspect of time, giving it more depth.

A semi-structured approach was taken for the interviews. This means that the interviewer develops a broad topic list with questions and topics that need to be covered during the conversation, usually in a particular order. This topic list is based on the research model and takes into account the research expectations, which links the interviews directly to the theoretical framework. This topic list forms a guide during the interview, but by no means forms a strict recipe; the interviewer may stray from the guide whenever deemed necessary. On the one hand, semi-structured interviews in this way enables to compare the interviews, as the basic structure in each interview is the same. On the other hand, the topic list leaves sufficient room to explore interesting side paths during the interviews. Moreover, it also leaves room for participants to express their views in their own terms.

No notes were taken during the interviews, instead all interviews were recorded and later transcribed. Three different topic lists were used; for cooperatives, cooperative energy companies and commercial energy companies (Appendices 1-3). Additionally, a separate topic list was created for Trianel, as this formed a special case in the research (Appendix 4). The topic lists were thereby developed iteratively;

questions were developed, tested and refined based on subsequent interviews. The topic lists were sent to the participants a few days before the interview, to allow the participants to prepare themselves. In this way the chance of a participant not knowing an answer is minimalised, as participants can discuss the questions within their organisation in advance if they do not possess the knowledge themselves.

Additional desk research was carried out to complement the information acquired through the interviews. This included a search on the Internet for both formal and informal documents, such as business plans, websites, news articles and meeting minutes.

Besides the in-depth interviews, additional data was collected through attending an event organised by Greenchoice. On this event some 20 cooperatives were invited by Greenchoice, to discuss the future strategy of the energy company. This formed a valuable addition to the research, as the event formed an opportunity to observe the direct interaction between Greenchoice and its cooperatives. The role of 'participant as observer' was thereby adopted, which means that the researcher takes part in the activities but his or her role as a researcher is made clear to everyone. As a result, specific questions could be asked of the participants to enhance the understanding of the event (Saunders *et al*., 2009, p.294-5). During the event notes were taken, which were later summarised into a report of the event.

4.5.3 Methods for processing and analysing data

The collected data was subsequently analysed in Nvivo, a programme for the analysis of qualitative research data. With this programme, relevant statements from the interviews could be coded to different themes, to be able to compare the views of different participants. For this coding process, a first coding scheme was created, relating to the different themes of the research. This first set was made using a deductive approach; the codes were deducted from the research model underpinning the research. Subsequently, the coding scheme was adapted and complemented throughout the coding process; using an inductive approach. Using Nvivo in this way enabled the structural analysis of the interview data, which resulted in the findings and results in chapter 5.

4.6 Research ethics

This research was carried out on behalf of the Radboud University Nijmegen. This means that it is an independent research and that research findings and results are public. An important point to take into account however is that the research process was combined with an internship at the company Energy eXchange Enablers B.V. (EXE), part of the network operator Alliander. This internship has formed a valuable addition to this research, as it provided important context information on the functioning of the energy market. The internship has in this way created a clear image of the context in which this research takes place; this has eventually resulted in Chapter 1 of this research.

The results of the research at the same time formed a market analysis for EXE. Although the research process was carried out independently, the involvement of EXE had important consequences for the collection of data. Moreover, the research in essence forms a market research, which means that participants as a result might be hesitant in providing information. Cooperatives for example might not want to share all their experiences in working with energy companies and vice versa; energy companies might not want to share the strategy they use to operate in the highly competitive energy market.

For this reason, during both the expert and in-depth interviews, the involvement of EXE/Alliander was made clear to each participant at the onset of the interview. Additionally, permission was asked to record the interview; and the participant was offered the possibility to review used quotes before publication of the research. The transcriptions of the interviews are thereby strictly confidential and not shared with anyone. In this way, informed consent was obtained from all participants and the participants' confidentialy and privacy was protected.

5. Results I

This chapter now turns to the results of this research project. The hypotheses formulated in section 4.1 will be tested here, on the basis of the data collected through the data-analysis and 24 semi-structured interviews with cooperatives and energy companies. For reasons of readability, the results have been split up into two chapters. These two chapters follow the three steps of the research model, which represent the chronological steps a cooperative passes through in cooperation with an energy company. The first two steps are covered in Chapter 5; the third step in Chapter 6. Besides the three steps, the in-depth interviews also brought up some important dilemma's involved in the partnerships. These are discussed after the third step in Chapter 6.

5.1 An overview of the partnerships

Before turning to the three steps, below an overview is given of the various types of partnerships between cooperatives and energy companies (Table 8). This table is a new version of the tentative overview in section 3.7, fine-tuned using the data from HIER Opgewekt and the in-depth interviews.

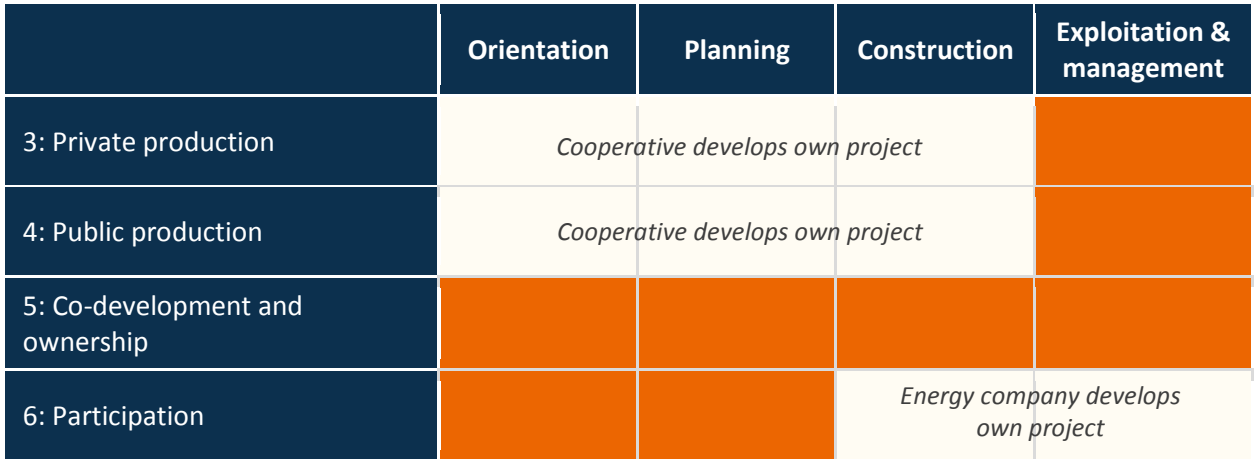
Table 8: Overview of the types of partnership

WITHOUT PRODUCTION	
Type of cooperation	Explanation
1. Advice & services	The energy company provides advice or other services to support a cooperative, either formal or informal. Examples are toolkits for starting cooperatives, masterclasses or project-related advice on financial, juridical or technical issues.
2. Resale construction	The cooperative purchases electricity from the energy company and sells this to members/customers. The energy company financially compensates the cooperative per customer, which generates an income flow for the cooperative. In most cases, the administration and customer service lies with the energy company, including the collection risk; the marketing is done by the cooperative.
WITH PRODUCTION	
Type of cooperation	Explanation
3. Production for private use	This concerns only solar projects. The cooperative develops a project where the produced electricity is directly used on the spot. The project has no separate connection to the grid, but uses an existing connection. The energy company detracts the produced electricity from the energy bill, this is called *net-metering*. a. Small roofs: members of the cooperative install solar panels on their own roof; the cooperative facilitates this by offering one or more deals with solar panel supplier and installation companies. The produced electricity is used directly by the member itself. b. Larger roofs: the cooperative develops a solar project on a larger roof, for example a school or industrial building. The electricity produced is used directly by the school or company itself.
4. Production for public use	This concerns both wind and solar projects. The cooperative develops a project where the generated electricity is delivered directly to the grid. The project has a separate large-scale connection to the grid. The energy company is only involved as supplier party, purchasing the electricity and selling it to customers. The cooperative and energy company create an official Power Purchase Agreement (PPA). a. SDE: the energy company simply sells the electricity to its own customers. The cooperative receives a price per kWh for the produced electricity. These projects are often (but not always) realized with SDE subsidy. b. Postal code projects: the project is realized with the postal code regulation. The energy company sells the electricity to a specific group of customers living in a designated area (postal code). The energy company settles this administratively. c. Rental projects: the cooperative develops a solar production installation and rents the PV panels to a group of members. The energy company detracts the electricity produced from the tenants' energy bills.

5.	Co-development and ownership	This concerns both wind and solar projects. The energy company is co-developer and -owner of the cooperative's project, and after project completion also fulfils the supplier function. Cooperative and energy company jointly develop and exploit the production installation. The division of shares in development and ownership between the cooperative and energy company varies.
6.	Participation (financial or non-financial)	The project is entirely developed and owned by the energy company. The cooperative is only involved to organise the support and/or participation of local residents in the production project. This often includes the organisation of financial participation of local residents, in the form of crowdfunding.

As the development project covers several different phases, the partnership with an energy company can also cover different phases. Four phases can be identified (Figure 15) (RVO, 2016). During the first phase, feasibility studies are carried out and the political support is created to be able to realise the project. The second phase involves environmental studies, obtaining planning licenses and participation procedures. During the third phase, the project is constructed; followed by the fourth phase in which the project is managed and exploited. In this phase the project produces electricity, which is sold to customers.

Figure 15: The four project phases

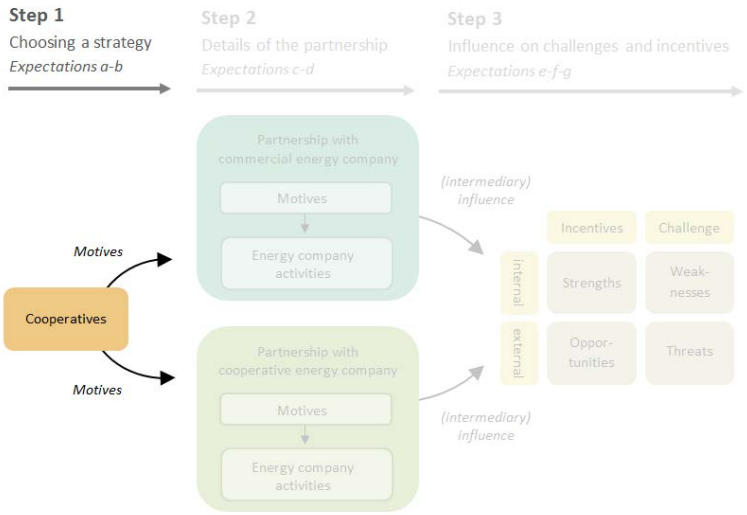


In type 3 and 4, the cooperative itself develops the project. The partnership with an energy company in this case only covers the fourth phase, in which the company purchases and settles the produced electricity. In type 5, the cooperative jointly develops the project with an energy company, which automatically means that the energy company is also involved in the exploitation and management of the project. The partnership in this case covers all phases. In type 6, the partnership only involves the first two phases, after this the energy company entirely develops and exploits the project on its own. Type 1 and 2 are not included in the figure, as these are not linked to a specific phase.

5.2 Step 1: Choosing a strategy

This section discusses the choices a cooperative makes concerning its cooperation strategy and the motives behind this (Figure 16). What type of partnership is needed, and what type of energy company is most suited to work with; a commercial or cooperative company? The data-analysis thereby provides an interesting insight into the outcome of the process: which energy companies are most popular among cooperatives in the Netherlands?

Figure 16: Research model step 1 - Choosing a strategy



5.2.1 Two development strategies

The most basic factor influencing the choice for a partnership and energy company is the strategy a cooperative adopts. According to the former director of Trianel, cooperatives can generally be classified into two groups, looking at their strategy to develop a business model (Fraats, 2016):

1. Growing through energy supply
2. Growing through production projects

The first group of cooperatives doesn't have their own production project yet, and chooses to start with the supply of energy. The partnership in this case concerns a resale construction, type 2, in which the cooperative purchases electricity from the energy company and sells this to its members. The energy company and cooperative agree on a separate price the consumer pays by getting his or her energy via the cooperative. The energy company pays a fee per customer to the cooperative; these revenues subsequently form the basis to develop their own production projects at a later stage. The challenge in this strategy is to acquire customers; the higher the number of customers, the more a cooperative can invest.

The second group of cooperatives chooses to focus on realising production projects first. During the realisation, the cooperative acquires customers for this specific project. When the production project is completed and reaches the exploitation phase, the revenues of the produced electricity form the income basis of the cooperative. In this case the cooperative enters into a production type of partnership with an energy company, including type 3, 4, 5 or 6. The challenge in this strategy is to attract sufficient capital and expertise to develop production projects.

As discussed in section 2.5, the resale construction is regarded as an accessible way to acquire members and revenues, especially for younger cooperatives (Schwencke & Elzenga, 2014, p.8). Several participants however emphasize that the resale strategy is decreasing in popularity. Zuiderlicht is an example of this, indicating to have made a recent shift towards "project focus instead of member focus" (Boon, 2016). For Lochem Energie and Grunneger Power too, it was a conscious decision to focus on the realisation of production projects.

5.2.2 The challenge to acquire customers

One of the most important reasons for the participants to switch to a production strategy are the disappointing results of the resale construction. Acquiring sufficient customers to create a viable business model turns out to be one of the most important challenges for cooperatives nowadays. As a result, many cooperatives struggle to achieve the number of customers aimed for. Although the number of customers often grows quickly at the onset of the resale partnership, the drawing of new customers seems to reach

a plateau after some time. Zuiderlicht in this respect emphasizes how their initial optimistic ideas about acquiring customers "turned out to be an illusion" (Boon, 2016).

"we'll acquire a lot of people who want green energy (…) well that turned out to be an illusion"
- Zuiderlicht

Most cooperatives and energy companies have therefore lowered their expectations of the resale construction. DeA describes how "in 2012, 2013, many of these energy cooperatives were booming business, everyone was talking about them and expecting a lot (Boddeke, 2016). But in day to day reality, it's really just disappointing" (2016). Also for energy companies, the number of new customers delivered by the resale construction is much lower than expected. Although the total number of customers supplied through cooperatives is unknown, all participants indicate that cooperative customers only form a fraction of an energy company's total customer base.

The difficulties surrounding the resale construction were already discovered earlier by Trianel, an energy company active on the Dutch electricity market until their bankruptcy in 2012. Trianel was among the first energy companies to work with cooperatives and they too soon ran into the problem of stagnating customer acquisition. Trianel explains how "it was a learning process for us to see how cooperatives continually overestimated themselves" (Fraats, 2016). To address the problems, Trianel decided to propose several legislative changes, in cooperation with the ACM. By fine-tuning the legislation around cooperatives, they aimed to improve the results achieved through partnerships with cooperatives.

Before these changes could come into effect however, Trianel went bankrupt in December 2012. The ACM nevertheless carried through Trianel´s proposals, which led to important changes in legislation concerning partnerships between cooperatives and energy companies. The story of Trianel is explained in detail in BOX 1.

BOX 1: Trianel: a story with crucial consequences for legislation

Before their bankruptcy in 2012, Trianel worked with 10 to 15 cooperatives. These partnerships were all resale partnerships, whereby the cooperatives purchased electricity from Trianel and sold it to its customers. Trianel explains how cooperatives could thereby use the company's supplier license under their own label and lay-out. This visibility towards the customer still forms an important wish among cooperatives. Trianel itself formed the back-office party, managing the administration, all communication on behalf of the cooperatives and purchasing the electricity on the wholesale market[3]. The cooperatives themselves were responsible for the acquisition of customers.

Trianel in this way created "a sort of white labelling" construction for the cooperatives, as Trianel itself was invisible to the customer (Fraats, 2016). However, when after a year the results of the resale partnerships still seemed to lag behind, Trianel deliberated on how to improve the results and bring more standardisation into the partnerships. As the ACM at that time had already posed some questions, Trianel decided to develop several adjustments in the legislation in cooperation with the ACM. Concretely, they proposed two changes:

1. It had to be clear that it was a white label construction, with Trianel being the energy company;
2. The official contract should be between customer and energy company; not between customer and cooperative.

While the first proposal came from the ACM, the second formed a joint proposal of the two. These changes would enable Trianel to "standardise, bundle and spread the risks", and avoid problems in the case of bankruptcy of one of the cooperatives (2016). Trianel designed the two adjustments in cooperation with the ACM, but before the official letter was sent, the energy company was declared bankrupt on the 21th of

[3] Exception to this was Grunneger Power; this cooperative already had its own 'energy company' to manage their administration and customer relations. Trianel in this case only delivered electricity from the wholesale market, as supplier-licensed party.

December 2012. The bankruptcy was in part caused by the payment issues of three of Trianel´s customers at that time, of which one cooperative. At the same time however, Trianel´s parent company in Germany had complications as well, and the German board decided to focus on the German market alone. Nevertheless, the ACM carried through the legislative adjustments, which are still in force now. As a result, full white label constructions are now restricted, which is strictly monitored by the ACM.

Remarkable in this story is that the stricter legislation around white label constructions is not the result of Trianel's bankruptcy, but instead was initiated by the company itself, although in cooperation with the ACM. On the one hand, Trianel thereby aimed to better manage their financial risks; as "100 individual contracts with customers create a lower debtor risk than 1 contract with a cooperative that manages 100 customers" (Fraats, 2016). On the other hand however, the proposals also implicated a limitation of the visibility of the cooperative towards the customer, while this forms one of the main wishes of cooperatives in a resale partnership.

Several explanations for the challenge of acquiring members were already discussed in section 2.7. The participants in this research however raise several other causes, including for example the lack of financial means for cooperatives to develop marketing strategies. NLD, one of the cooperative energy companies, adds that "the people starting a cooperative are not necessarily good salesmen. And they often underestimate the amount of work and time it takes" (van Son, 2016).

"then you're competing with yourself and I don't think that's very smart"
- Lochem Energie

An additional explanation is given by Zuiderlicht, who points out that in some cases, the price customers pay for energy via the cooperative is higher than the regular energy price of the energy company (Boon, 2016). Lochem adds that some energy companies even develop additional marketing activities in the cooperative's area, offering discount prices below the cooperative´s price. Lochem argues that "then you're competing with yourself and I don't think that's very smart" (Stolte, 2016). This seems surprising, as energy companies in this way worsen the challenge of acquiring customers for cooperatives.

Perhaps the most remarkable explanation however is given by the former director Trianel, who argues that cooperatives have a geographically limited target group. He explains that the potential customer base of a cooperative is limited to the local scale in which the cooperative acts, which is mostly a municipality or small region. This means that within this area, a cooperative "will not acquire 100.000 customers, unless you are operating in the Amsterdam Metropolitan Area" (Fraats, 2016). The growth potential of a cooperative is therefore limited by the local nature of the cooperative. This seems remarkable, since the local scale often forms the raison d'être for a cooperative. This would mean that cooperatives' focus on the local scale not always turns out to be beneficial.

"that's an island, everyone knows each other there. Makes it easier I think."
- Zuiderlicht

The resale construction does however not necessarily lead to a dead-end. Ameland Energie Coöperatie, Texel Energie and Deltawind are often mentioned as exceptions, as these cooperatives have succeeded in acquiring a large number of customers. Here too, geographical limitation plays a role. In these particular cases the limitation however seems to work for the benefit of the cooperatives; all three cooperatives are active on islands, small geographical areas with a high social cohesion. Similar to the northern provinces, as discussed in section 2.2, these islands are likely to have a strong sense of community, creating a fertile basis for cooperatives. Zuiderlicht seems to confirm this; "that's an island, everyone knows each other there. Makes it easier I think" (Boon, 2016).

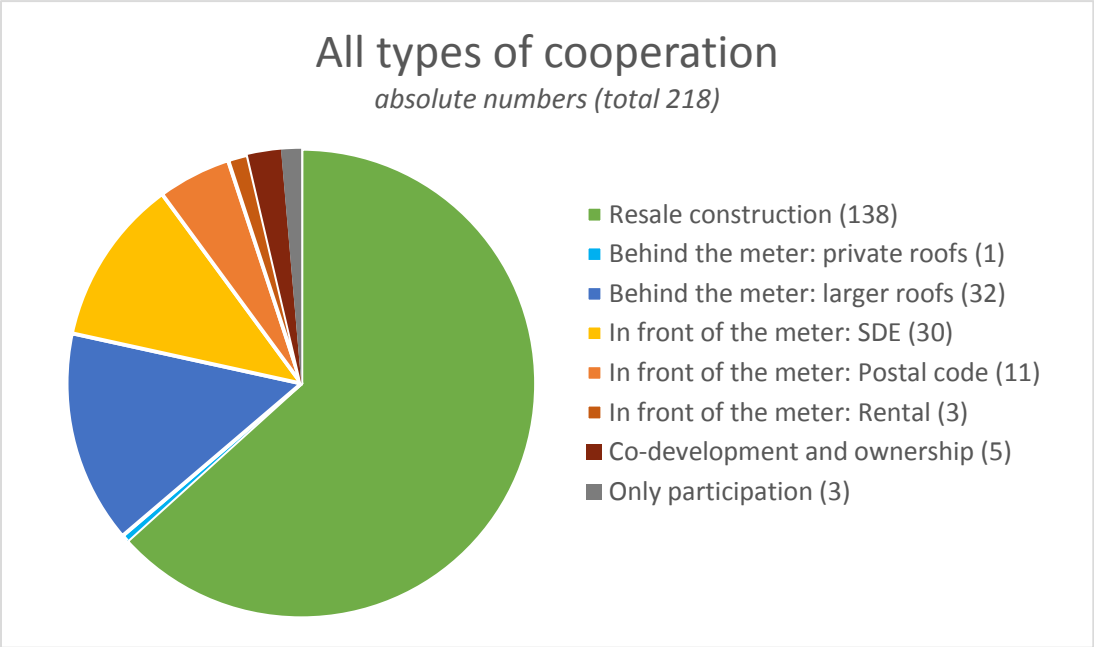
5.2.3 A growing focus on production

According to the participants, the discouraging results of resale partnerships have contributed to the growing focus on production among cooperatives. Nevertheless, at this moment the number of resale partnerships is still larger than the number of production partnerships (**Figure 17**). This could be explained by the fact that resale partnerships require much less capacity and no pre-investment, making it a relatively accessible activity for younger cooperatives. This seems to be confirmed by the data-analysis,

which shows that 67% of the resale partnerships is with cooperatives initiated in 2013 or later. Moreover, many of the cooperatives developing production projects use the resale partnership as a second service. Lochem in this respect argues that the supply of energy via a resale partnership can be an additional service, but should not be the main activity of a cooperative.

In total 63% of the 220 cooperatives has a resale partnership and 37% does not. This shows a slight increase in resale partnerships, compared to 2015 (LEM, 2015, p.6). A small percentage of the 37% is preparing resale, the rest - consciously or not - does not have a resale partnership.

Figure 17: All types of partnerships between cooperatives and energy companies



Source: author's own, based on data from HIER Opgewekt.

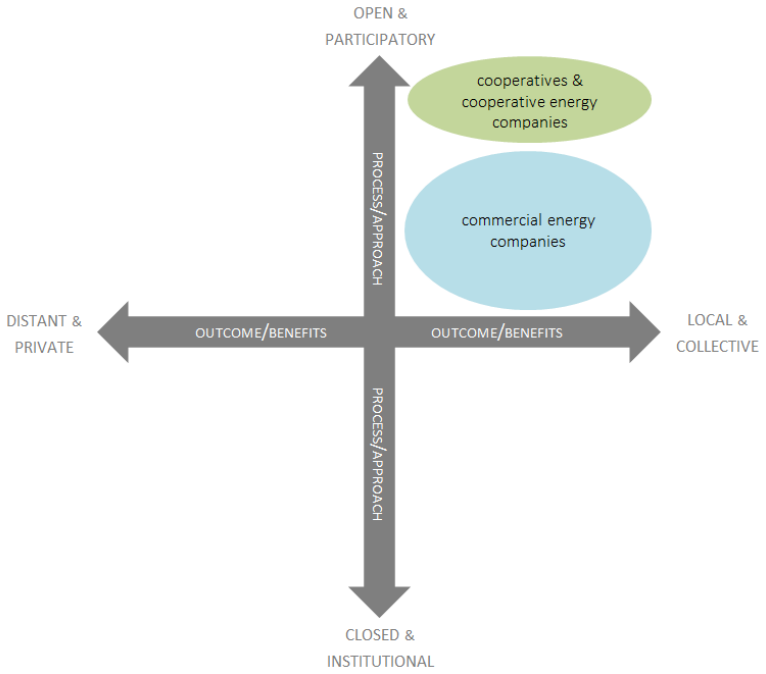
5.2.4 Two types of energy companies

After determining a strategy, cooperatives choose an energy company to work with. Cooperatives in this respect have two options: a commercial or cooperative energy company. As discussed in section 2.6, the two cooperative companies NLD and DE Unie emerged only recently, in 2013 and 2014. In fact, the bankruptcy of Trianel formed an important trigger for the emergence of these energy companies. While the bankruptcy led to significant problems for all cooperatives working with Trianel at that time, for Amsterdam Energie and Grunneger Power in particular it formed a strong motive to consider setting up their own supplier-licensed energy company. This eventually led to the emergence of the two cooperative energy companies. This means that the bankruptcy of Trianel has created a second option for cooperatives when choosing an energy company.

The essential difference between cooperative energy companies and their commercial counterparts is in the degree of participation. The cooperative organisation structure means that the cooperatives choosing NLD and DE Unie become co-owners of the company and actively participate in the decision making of the energy company. As DE Unie explains, this means "having a direct right of say, really being heard and being able to co-decide on where we're going" (van Erkelens, 2016). For commercial companies in contrast, the ownership of the energy company lies with the shareholders, which means that cooperatives have no participation in the decision making of the company.

> "having a direct right of say, really being heard and being able to co-decide on where we're going"
> - DE Unie

Figure 18: Plotting cooperative and commercial companies in the process-outcome dimension



Source: author's own, based on Walker & Devine-Wright, 2008, p.498.

Translating this into the process-outcome dimension of Walker and Devine-Wright, as discussed in section 2.2, the two types of energy companies turn out to have a different position (Figure 18). Cooperatives and cooperative energy companies on the one hand can be categorised in the A area, which means that their organisation and projects have a maximum degree of participation. Commercial energy companies on the other hand have a lower degree of participation, both in their organisation and projects.

Figure 19: Indirect membership at cooperative energy company NLD

1 Local residents are members of a cooperative;

2 The cooperatives are member of one of the three umbrella organisations;

3 The three umbrella organisations are members of NLD;

4 NLD in turn supplies electricity back to the local residents, its customers.

Source: http://www.noordelijklokaalduurzaam.nl/over-ons/wie-zijn-wij (translated by author).

Although both NLD and DE Unie are cooperatively organised, there does seem to be a difference between the two companies. At DE Unie, cooperatives are direct members and thus have a direct right of say in the

company. At NLD however, the cooperatives are a member of one of the three northern umbrella organisations, which in turn are the members of NLD (Figure 19). NLD explains that in this way "the energy cooperatives are the indirect owners, and indirectly co-decide on our strategy" (van Son, 2016). The umbrella organisations thereby act as advocates for the cooperatives, translating input from the cooperatives to NLD and vice versa. In practice, this indirect representation can however lead to miscommunication. For this reason both Grunneger Power and NLD indicate to have the aim to organise a more direct way of membership, similar to DE Unie.

5.2.5 A blurring boundary between the two types

While the two similar cooperative energy companies thus turn out to be more different than expected, the distinction between cooperative and commercial might at the same time be less black-and-white than expected. Some commercial energy companies also seem to seek ways to organise a stronger form of participation in their company. An example of this is Greenchoice, who recently organised a 'cooperative day' in Amsterdam on which its affiliated cooperatives were invited to give their opinion on Greenchoice's strategy for the future. Greenchoice explains that "we see what's happening in the market and of course we have our ideas about that, but we want to develop this vision jointly with these cooperatives" (Vanson, 2016).

Although the gesture seems to be positively received by the cooperatives, it also seems to create some confusion. Greenchoice tells how more than one cooperative has asked why the energy company itself is not a cooperative, a question which was asked again during the day in Amsterdam. In response Greenchoice however indicates to have no intention to adopt a cooperative organisation structure.

"they sometimes ask me; why aren´t you a cooperative yourselves?"
- Greenchoice

Another interesting case in this respect is Qurrent, a commercial energy company which also seems to adopt cooperative characteristics. Qurrent created the 'Qurrent cooperative', of which each customer automatically becomes a member. Only recently, Qurrent organised its first general assembly meeting (BOX 2). Cooperatives working with Qurrent however do not seem to be included as members in the cooperative. All in all, both Greenchoice and Qurrent are interesting cases, blurring the distinction between commercial and cooperative energy companies. Theoretically, this means that commercial energy companies are moving upwards in the process-outcome dimension (Figure 18). Additionally, it seems to create new, hybrid forms between the civil society and market sphere. These hybrid forms will be discussed in more detail in the conclusion in Chapter 7.

BOX 2: Qurrent: 'the largest energy cooperative in the Netherlands' [4]

Qurrent forms an interesting hybrid of cooperative and commercial energy companies. The company created a separate cooperative entity called the 'Qurrent cooperative'. Each customer of Qurrent automatically becomes a member of this cooperative, which now counts around 25.000 members. The Qurrent cooperative thereby hosts all the company's production projects, which means that in theory all members could co-decide on these projects.

Although the exact role and rights of the members in the cooperative long remained somewhat unclear, the recently organised first Qurrent general meeting on the 21th of May 2016 seems to have brought more clarity. An open call to all customers in January 2016 resulted in the selection of three new members of the Member Council. These were appointed during the general meeting, replacing the former three members who were employees of Qurrent. As described in the general meeting documents, the Member Council forms the main body of the cooperative[5]. Additionally, all members have the right to initiate new projects within the cooperative, under the supervision of Qurrent´s only shareholder, Stichting DOEN.

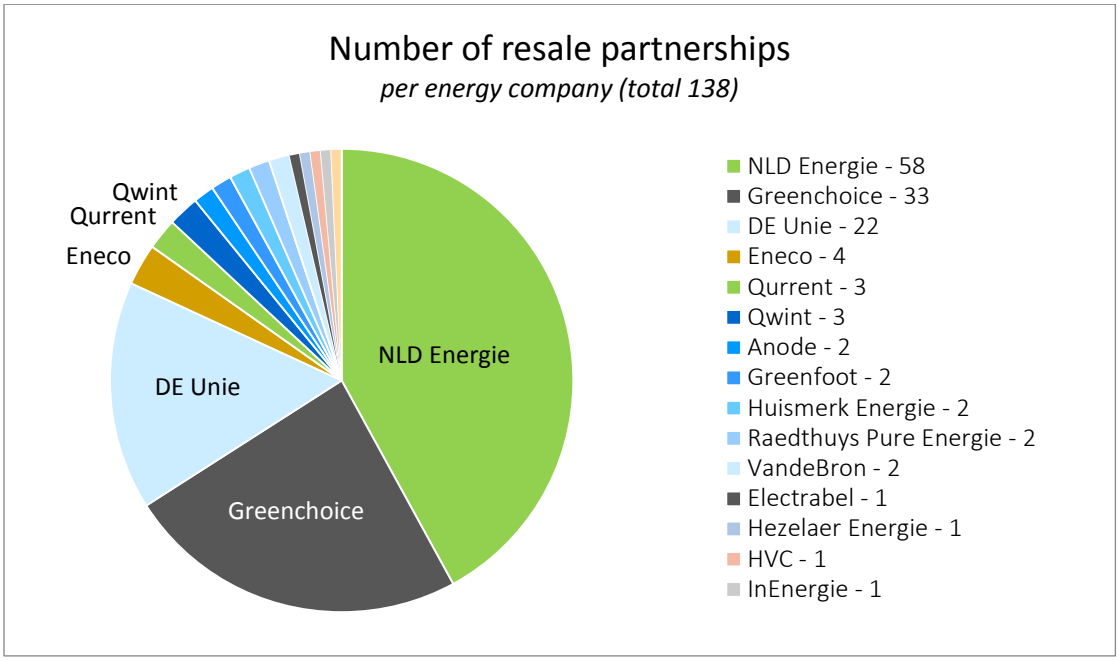
[4] As mentioned on https://www.qurrent.nl/updates/bericht/1250/grootste-windmolenpark-van-burgers-wordt-werkelijkheid.
[5] As can be found on https://www.qurrent.nl/SiteFiles/doc/alv/Stukken_ALV_cooperatie_Qurrent_21_mei_2016.pdf.

What still seems to remain somewhat unclear, is the degree to which the members of the Qurrent cooperative are also co-owners of the production projects. At this moment, ownership only seems to be arranged through the supply of energy. Members in this case purchase a share in one of Qurrent's wind turbines, which equals a certain amount of electricity. Automatic ownership of the assets of the cooperative through membership, as is the case for DE Unie and NLD, does not seem to be arranged (yet).

5.2.6 Making the choice

Having discussed the two general options a cooperatives can choose, this section now turns to the actual results of the choice. What type of company do cooperatives choose? Remarkably, there seems to be a large difference between resale partnerships and production partnerships. Concerning resale, cooperatives seem to prefer the two cooperative energy companies, and Greenchoice (Figure 20). For production partnerships however, the data-analysis shows a reverse picture. Here the commercial energy companies are most popular (Figure 21). The cooperative energy companies in contrast together only hold 5 production contracts. To gain a better understanding of these results, it is useful to examine the motives behind the choices. To this end, an overview is made of the 10 criteria that were most often mentioned by the cooperatives in this research (Figure 22). These criteria offer some interesting insights.

Figure 20: Choosing an energy company – resale partnerships, 2016



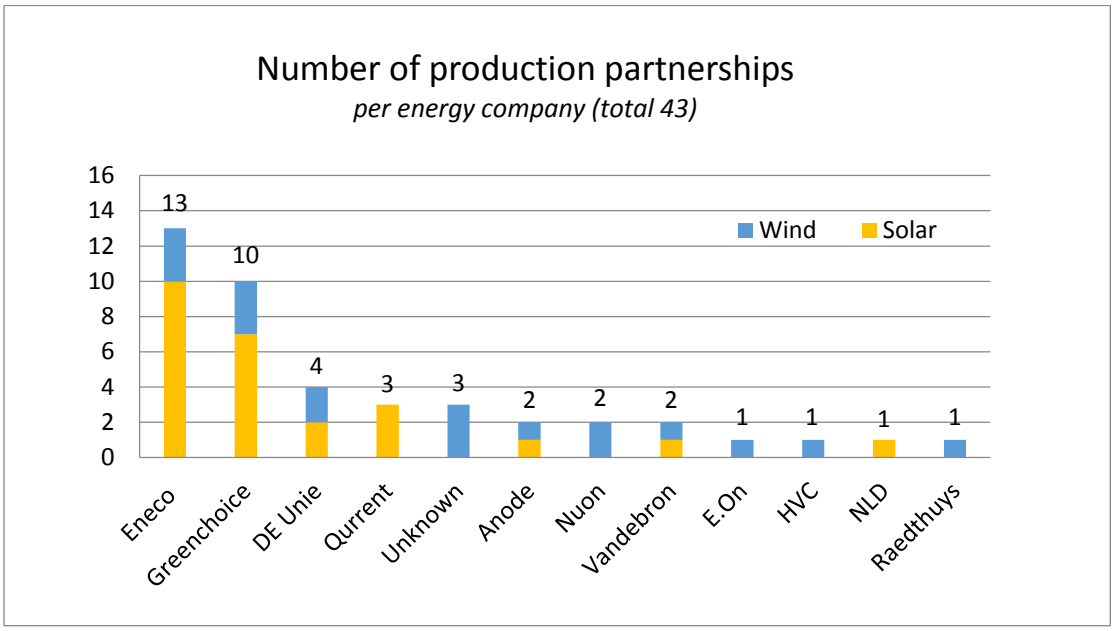
Source: author's own, based on data from HIER Opgewekt.

A first interesting criterion to examine is organisational structure: the main difference between cooperative and commercial companies. According to De Windvogel, organisational structure forms the cooperative energy companies' unique selling point. He argues that as a cooperative company, "you have your moral equal on your side, I think that's stronger than any sales argument from large energy companies" (Zomer, 2016). For this reason, the expectation (b) was that cooperatives are likely to cooperate with cooperative rather than commercial energy companies. As Rijn en IJssel Energie states: "That's how we really want it, taking matters into own hands, creating our own system" (Lagerberg & Lettink, 2016). Remarkable however is that organisational structure only turns out to be the sixth most important criterion. Moreover, looking at the distribution of partnerships for both resale and production, organisational structure seems to play a more

> "That's how we really want it, taking matters into own hands, creating our own system."
> - Rijn en IJssel Energie

important role in the case of a resale partnership; here NLD and DE Unie together hold 80 of the 138 resale contracts, followed by Greenchoice with 33 contracts (Figure 20).

Figure 21: Choosing an energy company – production partnerships[6]



Source: author's own, based on data from HIER Opgewekt.

Greenchoice thereby seems to form a special case, working with a high number of cooperatives in both resale and production partnerships. This can be explained by the fact that Greenchoice was the first energy company to actively steer in the direction of cooperatives. In total, the energy company now works with some 40 cooperatives, which "is really like an oil stain… well oil stain might not be the right word, but a 'green stain' that has spread quickly" (Vanson, 2016).

The director of Grunneger Power provides an explanation for the dominance of cooperative energy companies in resale partnerships. He explains that reselling the electricity of a cooperative energy company is not always seen as resale, as cooperatives regard NLD and DE Unie as their "own energy company" (Volkers, 2016). The energy company in this respect functions more as the back-office of the cooperatives. An additional explanation might be the degree of visibility of a cooperative towards the customer, which is considered to be higher at cooperative energy companies. This criterion was mentioned by 4 cooperatives (Figure 22). Although the possibilities to use their own label have been restricted since Trianel's bankruptcy (see BOX 1), this still forms an important criterion for cooperatives. Cooperatives in this respect want their own label or logo to be used in the communication towards customers. As already pointed out by Pronk in the expert interviews, cooperatives in this way want to avoid being regarded as "ambassadors of energy companies" (section 3.7).

All in all, organisational structure thus seems to play a less decisive role for production partnerships, as commercial energy companies turn out to be popular here[7]. Eneco and Greenchoice as largest parties hold 13 and 10 partnerships respectively (Figure 21). Instead, price seems a more important criterion here; this was mentioned by 8 out of 13 cooperatives (Figure 22). De Windvogel states that for them "the goal is the highest benefit from our electricity, very crude, but that's it really" (Zomer, 2016). Lochem explains that they always try to get a competitive price, because "no matter how much they like Lochem Energie, if

[6] For some of the wind production contracts, it was impossible to find out which energy company is involved as supplier party ('Unknown'). This concerns three projects of the older wind cooperatives, developed a longer time ago.

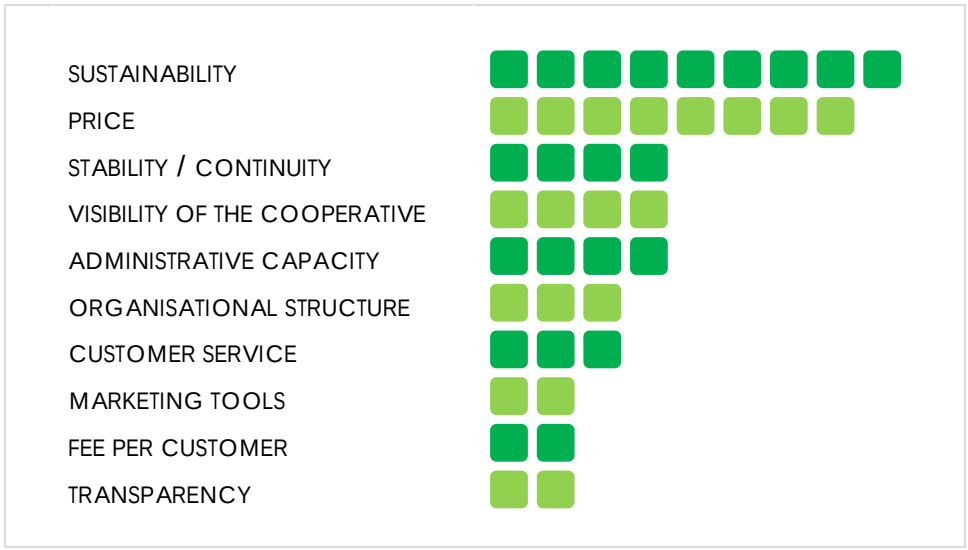
[7] An important remark here is that the results of the data-analysis might be biased towards commercial energy companies. At the time of the completion of several production projects the cooperatives energy companies did not exist yet, meaning that the production partnership automatically went to a commercial company.

another company is cheaper, we'll have to talk until we're blue in the face to persuade them. So price is important" (Stolte, 2016).

Price thus turns out to be an important criterion to be able to create a viable business case. Cooperative energy companies in this respect seem to be less strong than commercial companies, as NLD states: "we can't compete against the offer of Qurrent for example" (van Son, 2016). This can in part be explained by their recent start, which means that their customer base is still relatively small. This results in a smaller financial base to offer competitive prices. NLD adds that their relatively young age also means that cooperative companies generally have less capacity to develop production partnerships. NLD explains that they "generally don't have the knowledge and experience ourselves to do that, or the financial means mainly" (van Son, 2016). In this respect he points that the energy company is run by a small number of people, limiting their capacity to develop larger projects.

"if another company is cheaper, we'll have to talk until we're blue in the face to persuade them. So price is important."
- Lochem Energie

Figure 22: Top 10 selection criteria[8]



Source: author's own.

Their relatively young age also means that cooperative energy companies might be less financially stable than some of the longer existing commercial energy companies. Stability and continuity in fact turns out to be the third most important criterion (Figure 22). In particular those cooperatives that experienced the consequences of Trianel's bankruptcy, emphasize the importance of this criterion in their decision. Both Lochem and DeA explain that especially after Trianel, it was important for them to "choose a partner that doesn't go bankrupt" (Boddeke, 2016). The stability of an energy company thereby mainly seems to be important for production partnerships, which involve higher investments and financial risks.

"we have to choose a partner that doesn't go bankrupt"
- deA

A last but not least criterion for cooperatives is 'sustainability'. In fact, this criterion was mentioned by 9 out of 13 cooperatives, making it the number one of all criteria (Figure 22). Sustainability turns out to be the basic criterion for cooperatives; if an energy company is considered to be not sustainable, it is not included on the list of candidates in the first place. How 'sustainable' an energy company is, is determined by the degree to which the energy company's electricity comes from renewable energy sources.

[8] Based on the 13 in-depth interviews with cooperatives in this research. Criteria included in this overview but not discussed in the text are the availability of marketing tools to help the cooperative acquire customers; the degree to which the company's administrative system is equipped to deal with cooperative projects; the company's customer service; its resale fee and transparency.

Sustainability rankings such as by the Consumentenbond (Consumer Union) or Greenpeace often form important standards in this respect. These rankings compare energy companies on the origins and production method of their electricity.

Some of the contracts still include energy companies that are not necessarily known for its strong vision on sustainability, such as Nuon, E.ON and Anode (Figure 21). These however often concern older wind contracts which are still running. When these contracts are renewed, cooperatives choose for a more sustainable energy company. An example of this is Deltawind, who recently renewed their contract for wind park Battenoert and chose Vandebron as a new partner. Deltawind explains how "in 2003 we chose for E.ON, we would never do that now, meaning: we want an energy company that is consciously involved in sustainable development" (Sweep, 2016). This seems to suggest that sustainability has become more important over the years.

"It has to be a clean energy company"
- DE Ramplaan

5.2.7 Organising the selection process

At the onset of the selection process cooperatives generally draw up a set of criteria, upon which they contact several energy companies that meet their requirements. Where the range of energy companies to choose from was relatively limited until a few years ago, the competition among energy companies in the field of cooperatives has increased quickly over the past few years. Eneco in this respect argues that the market is a "red ocean, with many similar parties competing against each other" (van der Hoeven, 2016). Cooperatives often let several energy companies make a bid, as Qurrent states: "A cooperative easily shops at five energy companies" (Grooten, 2016).

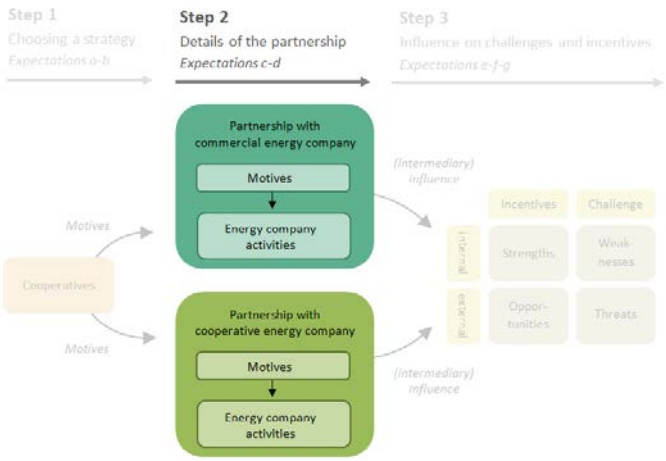
"A cooperative easily shops at five energy companies"
- Qurrent

The organisation of the selection process thereby varies between cooperatives, depending on the precise organisation of the cooperative. Some cooperatives have a separate business office managing the operational activities, which is also in charge of the selection. In these cases, for example for DE Ramplaan, Zuiderlicht and Deltawind, the members do not play an active role in the selection process. For other cooperatives the general assembly meeting is the body in charge of the selection of an energy company, of which Amsterdam Energie and Rijn en IJssel Energie are examples. In these cases energy companies are often invited to give a presentation at the meeting, where all members of the cooperative assemble and decisions are made.

5.3 Step 2: Details of the partnership

The second step concerns the details of partnerships between a cooperatives and energy company (Figure 23). The six different types of partnerships are discussed in order, including the specific activities that energy companies undertake within the partnership. Subsequently, the chapter concludes by discussing the motives that energy companies have to undertake these activities.

Figure 23: Research model step 2 - Details of the partnership



5.3.1 Type 1: Advice and services

In this type of partnership, an energy company provides a cooperative with advice or training, for example on juridical, financial or marketing issues. Additionally, energy companies in some cases also provide additional products or services to the cooperative itself or to its members. This type of cooperation however turns out to be mostly informal and not recorded in a formal contract, which means that there are no quantitative data available on it. For this reason, type 1 is not included in the data-analysis.

Nevertheless, many examples came forward from the interviews, including for example an app developed by Eneco, to provide Lochem and its members with real-time insight into the production of their wind or solar project. Another example is given by Deltawind, who explains that "Eneco has a certain programme they use to quickly calculate the shadow flicker of a wind turbine", which is available to them in some cases. Greenchoice additionally indicates to help cooperatives get started by answering questions via e-mail and meeting with cooperatives in person. Also the two cooperative energy companies seem to be active in organising masterclasses, trainings and other knowledge-related activities.

"We had to teach them how to deal with customer relations, energy procurement, prices, margins, acquisition"
- Trianel

An important finding is that these forms of advice and services are often combined with other types of cooperation. The former director of Trianel for example explains that their resale partnerships automatically meant providing additional advice on the commercial processes concerning the resale of energy. He explains that Trianel "had to teach them [the cooperatives] how to deal with customer relations, energy procurement, prices, margins, acquisition, the whole process of dealing with a customer after acquisition" (Fraats, 2016).

5.3.2 Type 2: The resale construction

In the resale partnership, the general role of the energy company is to manage customer relations, administration and the procurement of energy. The cooperative in turn is in charge of the acquisition of new customers, including the marketing. Although some cooperatives arrange (part of) the customer relations and administration themselves, Noviovolta explains how for most cooperatives this division of tasks "is the most comfortable (…), the easiest for the members and the easiest for Huismerk [the energy company]" (van Nistelrooij, 2016).

In all resale partnerships the energy company financially compensates the cooperative for per acquired customer, per year. Energy companies in this way "create a capital flow towards the cooperatives" (Vanson, 2016). Most fees thereby lie between €25 and €50 per customer per year. The settlement of this fee is determined by the cooperative; in some cases the fee goes directly to the cooperative, in other cases (part of) the fee is paid out to the customer.

Given the strong desire among cooperatives to be visible towards their customers, many energy companies try to create space for the cooperative to use its own label or logo. Cooperatives working with DE Unie for example often use their own logo, but add 'powered by DE Unie' underneath (**Figure 24**). The energy company in this way becomes "a sort of shared service centrum, a service company where the cooperative is 100% at the forefront and DE Unie remains in the background and takes over the more complex tasks" (van Erkelens, 2016). Greenchoice uses a similar "dual branding strategy whereby the cooperative is clearly visible, but it is also very clear to customers that Greenchoice is the supplier" (Vanson, 2016).

"a shared service centrum (…) where the cooperative is 100% at the forefront and DE Unie remains in the background"
- DE Unie

Figure 24: Using both the cooperative's and energy company's logo

Kennemerwind is een producent van duurzame energie en verzorgt vanaf 1 juli 2015 ook de levering van duurzame energie, stroom en gas, aan klanten. Hiervoor werken wij samen met DE Unie, DE Unie is de leverancier.
Wilt U duurzame energie bij ons afnemen? Klanten kunnen zich eenvoudig aanmelden bij Kennemerwind. Wij verzorgen kosteloos de overstap van uw oude leverancier naar ons leveringsbedrijf. Een zakelijke aansluiting? Wij maken vrijblijvend een offerte op maat.

Source: http://www.kennemerwind.nl/dewindst/.

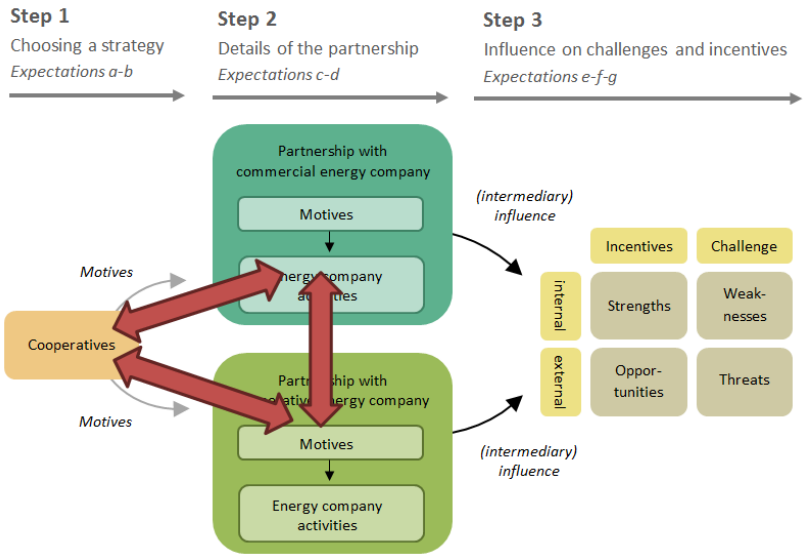
The interviews show that some energy companies develop additional activities in the resale partnership, to boost the customer acquisition of cooperatives. An important example of this is Greenchoice, who stimulate their existing customers living in the area to become a member of the cooperative. The cooperative can in this way quickly expand its customer base. Additionally, Greenchoice is currently planning a new national marketing campaign to gain more publicity for its cooperatives. Also the cooperative energy companies increasingly take a more active role in the acquisition of customers. As NLD explains: "a lesson we've learnt is that remaining an anonymous back-office party doesn't work, cooperatives expect more from you" (van Son, 2016).

"that gives us a huge boost, to grow from our current 400 members to above 10.000"
- Amsterdam Energie

A very interesting move by DE Unie in this respect is their recent partnership with Eneco. In november 2015 Eneco became a member of DE Unie (BOX 3). Explaining their motives to start this partnership, DE Unie states that what their company "needs the most at this moment, are more customers. So that's a first pilot we're doing with Eneco, to acquire more customers for the cooperatives" (van Erkelens, 2016). Eneco thereby has the marketing tools and capacity that DE Unie does not have itself. This first pilot will be in cooperation with Amsterdam Energie, one of DE Unie´s cooperatives. Eneco will thereby allocate some of their wind turbines to Amsterdam Energie, who will exclusively sell the energy under their own label and tariff. Eneco additionally backs the cooperative with a marketing budget. Amsterdam Energie explains how this will give them "a huge boost, to grow from our current 400 members to above 10.000" (van Steenwinkel, 2016).

The cooperation between DE Unie and Eneco has a very important consequence for the partnerships between cooperatives and energy companies overall. It creates a new link between the two types of partnerships a cooperative can choose. Concretely, it means that a commercial energy company enters into the existing partnership between a cooperative and cooperative energy company, to fulfil an additional role. In this way, a new sort of tripartite partnership ('energy alliance') is created, whereby a cooperative works with two energy companies at the same time (**Figure 25**). This new connection thereby seems to have a beneficial effect on all three parties; while creating opportunities for cooperatives to address their challenges, it also allows both energy companies to specialise in those activities they are strong at.

Figure 25: A new tripartite energy alliance in the research model



BOX 3: A surprising partnership between DE Unie and Eneco

In november 2015 a surprising new partnership was announced in the energy market: Eneco became an official member of DE Unie, acquiring the same rights and duties as other cooperatives. This news was received with considerable astonishment in the sector, as it meant an unprecedented degree of cooperation between the cooperative and commercial world. Especially among cooperatives, this also led to some suspicion. De Windvogel for example states that for DE Unie, it's "unique selling point is: you're purely owned by the cooperatives (…) and now there's a stranger in our midst, a large energy company" (Zomer, 2016). Energie-U adds that "we shouldn't do that I think, becoming brothers with Eneco" (Willemsen, 2016).

Figure 26: The partnership between Eneco and DE Unie

Source: http://nieuws.eneco.nl/bijzonder-bondgenootschap.

DE Unie explains that also for their members, the decision to start working with Eneco was "of course a big decision…" (van Erkelens, 2016). He adds however that eventually "all our members were in favour of a partnership, because it really offers them a lot of opportunities too" (ibid.). These opportunities broadly cover two areas. On the one hand, Eneco can offer the marketing capacity that DE Unie needs to boost the

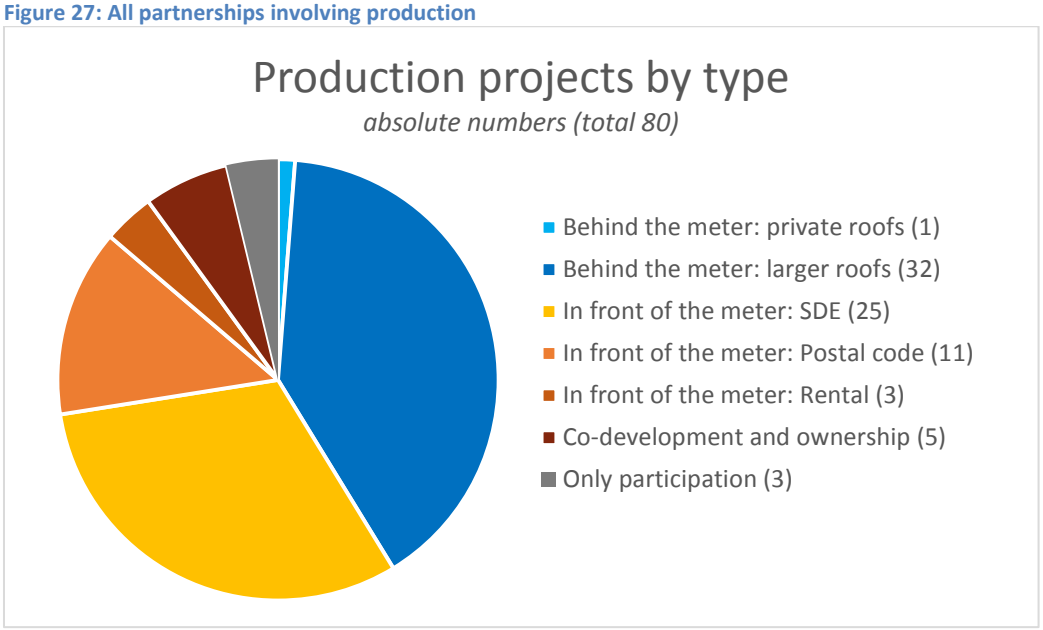
acquisition of customers among its cooperatives. An upcoming pilot with Amsterdam Energie is an example of this. On the other hand, Eneco can also strengthen DE Unie in their development of production projects. As DE Unie emerged in 2014, its knowledge and experience in the field of production projects is still limited. NLD therefore states to understand the motives of DE Unie, as Eneco "has the knowledge and experience that cooperatives can use very well, I think mainly in the field of production projects and how to develop those" (van Son, 2016).

For Eneco on the other hand, the partnership with DE Unie enables them to bundle smaller cooperatives and focus more on the production side. Trianel in this respect argues that Eneco "has given a clear message by becoming a member of DE Unie: go to DE Unie first, join forces there and then come to me, instead of come to me directly" (Fraats, 2016). Eneco also explains that "DE Unie has a much more specialised service, they are more equipped to deal with this sector, with cooperatives, than we are" (van der Hoeven, 2016). They however add that the partnership also forms a way for them of "being close to the fire" and following the developments in the cooperative sector (Ibid.). The partnership in this way offers important benefits for both parties, whereby DE Unie "knows how to connect to those local cooperatives and Eneco is less strong at that, but on the other side DE Unie lacks the marketing and operational capacity, which Eneco does have" (van Erkelens, 2016).

5.3.3 Type 3: Solar projects on small and large roofs

Contrary to type 1 and 2, the third partnership type involves production. The cooperative in this case develops a solar project, either on small roofs of individual houses or on large roofs, including for example schools or industrial buildings. Comparing the number of all production partnerships, projects on larger roofs form the largest category (Figure 27). In contrast, only one project on small roofs was recorded. The numbers for both small and large roofs are however expected to be much higher in reality. The reason for this is that cooperatives do not always regard type 3 as official production, as the produced electricity is for private use. This would mean that not all private production projects are included in the HIER Opgewekt figures that formed the basis of this data-analysis.

Figure 27: All partnerships involving production



Source: author's own, based on data from HIER Opgewekt.

The role of the energy company in this type of partnership is relatively small. Their job is to measure the amount of electricity produced and to detract this amount from the building's energy bill. This is also called *net metering*. This means that the partnership between cooperative and energy company is confined to the last phase of a project, the exploitation and management phase (see Figure 15). As the produced electricity is used privately, there is no official Power Purchase Agreement (PPA) between the

cooperative and the energy company. The private use of the electricity also means that the cooperative is not able to select the energy company; the settlement of the electricity is taken care of by the existing energy supplier of the building. This means that there is no data available on the distribution of private production projects among the different energy companies.

5.3.4 Type 4: Partnerships for public production

The fourth type of partnership also involves production, but in this case the produced electricity is for public use. This concerns both wind and solar projects. In all three variations of this type (see **Table 8**), the energy company fulfils a similar role; the company purchases the produced electricity from the cooperative and sells it to customers. The cooperative and energy company agree on a price per kWh and create an official PPA. The energy company is therefore again only involved as supplier party and plays no part in the development phase of the project. Its role is mainly administrative.

For SDE projects, type 4a, the administrative tasks are relatively straightforward. In this case, the energy company simply sells the electricity to its customers, who can live anywhere and are not necessarily members of the cooperative. For postal code projects however, the administrative task is more complex. Here the electricity is allocated to a particular group of customers; those living in the postal code area of the project. These customers are also members of the cooperative. Each customer thereby gets a particular share of the electricity, which is settled on their energy bill[9]. This means that some form of communication is needed between the administrative systems of the cooperative and energy company. While the cooperative records the exact share of the customer, the energy company uses this share to settle matters financially. A similar situation occurs for type 4c, although here the electricity is not sold to a group of customers living in the area of the production installation, but to a group of tenants. The cooperative in this case develops a solar project and hires the PV panels out to a group of members. The energy company settles the produced electricity on the tenants' energy bills[10].

Especially for type 4 partnerships, a remarkable additional role of the energy company can be identified. Several cooperative production projects have led to juridical discussions concerning 'self-produced' electricity. According to Schwencke, this forms an important political focal point at the moment (2016). Eneco in this respect jointly instituted a court case with Lochem Energie. The energy company thereby supports the cooperative in its claim for self-produced electricity for their solar project on the roof of Lochem's city hall, putting forward some of their legal experts. A similar partnership was seen between De Windvogel and Anode. Although the court case of Eneco and Lochem is still running, De Windvogel and Anode lost their case. In both cases, the energy company formed the official legal opponent of the state.

A last important finding concerning type 4 pointed out by several participants is that the number of postal code partnerships is likely to grow quickly in the near future. This is caused by the recent adjustment of the regulation in January 2016 (see section 2.7.3). As a result, many cooperatives are now developing postal code projects. Lochem in this respect explains that out of all business models cooperatives can use, "especially after the change in legislation on January the 1st, the postal code regulation is the most attractive. So that will be the direction in the future" (Stolte, 2016).

> "the postal code regulation is the most attractive. So that will be the direction in the future."
> - Lochem Energie

5.3.5 Type 5: Co-development and ownership

In this type of production partnership the energy company plays the most extensive role. Here the company is involved in all four development phases of the project (**Figure 15**), which means that the energy

[9] This explanation is simplified to enhance the comprehensibility. In reality the customers living in the postal code area are exempted from the energy tax over the produced electricity, which the energy company then settles on their energy bill. This is because the production installation is seen as the property of the customers; the law states that no energy tax has to be paid over self-produced electricity.

[10] Similar to the customers in postal code projects, the tenants are exempted from the energy tax, as the electricity produced by the hired PV panels is considered to be self-produced electricity.

company is co-developer and –owner and after project completion also fulfils the supplier function. The cooperative and energy company often create a separate legal entity to develop the project, in which both parties have (equal or otherwise divided) shares.

Although this type of partnership has long been used by the older wind cooperatives, recently some new partnerships were developed by Raedthuys with Deventer Energie; and Eneco with Ameland Energie Coöperatie. For Raedthuys and Deventer Energie this formed an entirely new type of partnership, which meant that "for both, it was an exploration to design such a partnership" (Vermeulen, 2016). In total 5 projects were developed in this way, of which one solar project and four wind projects (**Figure 28**).

Although the development is shared between the cooperative and energy company, the precise task division between the two varies. An important distinction can be made here between the first and second generation cooperatives. The first generation wind cooperatives generally have a high level of experience with the development of projects and therefore have an equal or even larger share in the development and ownership of the project. Second generation cooperatives however have less experience with complex, capital-intensive production projects. As a result, these cooperatives often have a smaller share in the development. An example of this is the partnership between Raedthuys and Deventer Energie, where Raedthuys took on the entire project development while Deventer Energie played an active role in organising the participation of local residents in the project. As a result, Deventer Energie owns 25% of the project, against 75% for Raedthuys. The division of shares thus seems to depend on the amount of knowledge, experience and financial capacity of the cooperative.

"wind projects are a different story, you're immediately talking about millions, high risks up front, societally sensitive, spatial impact…"
- Raedthuys

Deltawind also argues that "the second generation doesn't have much choice, looking at the knowledge and financial means you need to develop a wind park" (Sweep, 2016). Deltawind thereby specifically aims at wind projects, as these generally require a lot more capacity than solar projects. This seems to be confirmed by the dominance of wind projects in Figure 28. Raedthuys summarises that "a wind project is a different story, you're immediately talking about millions, tens of millions, high risks up front, societally sensitive, spatial impact… you don't do that with a couple of neighbours and volunteers". The recently developed solar park by Eneco and Ameland Energie Coöperatie forms an exception here. This however concerned a land-based solar park, which similar to wind parks also have a high spatial impact.

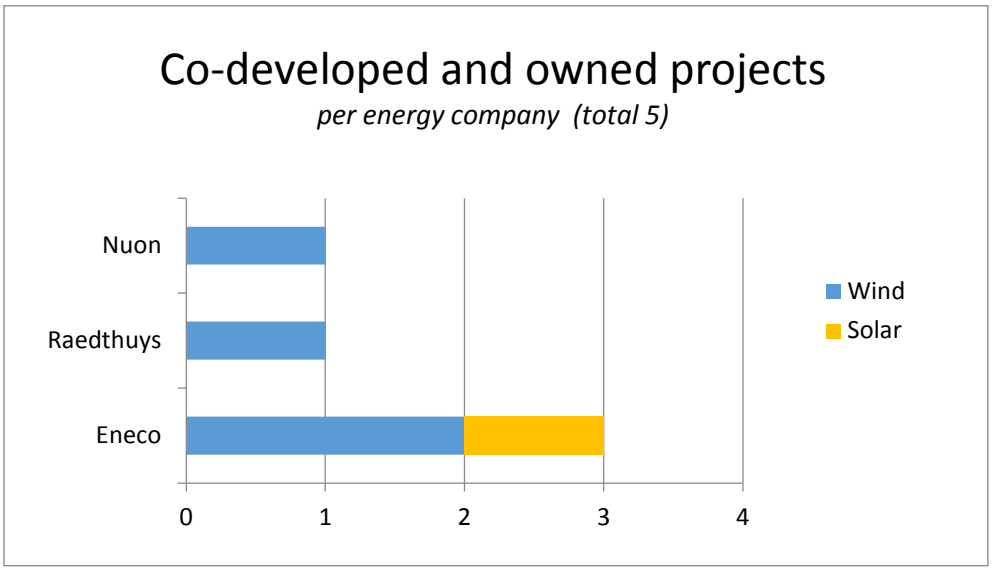
Remarkable is that many participants emphasized how, especially in a type 5 partnership, cooperative and energy company complement each other very well. For cooperatives on the one hand, the partnership forms a way to quickly accumulate knowledge and experience in the field of project development, and to realise a large project even without experience. As Deventer states; "for us in 2014, 2015, it would have been way out of our league to do it all on our own" (de Vries, 2016).

Deltawind points to another benefit of this partnership, which is that energy companies often already have land positions; locations on which projects can be developed. This in fact forms an increasingly important challenge that cooperatives face, which has not been previously mentioned in the theory (see section 2.7). This for example includes farmland to develop wind turbines on, but also large roofs to develop solar projects on. Especially for the second generation of cooperatives this is a pressing challenge, as locations to develop wind or solar projects are becoming scarcer. DE Ramplaan even argues that this forms the number one challenge of the future.

For energy companies on the other hand, it also has significant benefits. The involvement of a cooperative seems to address one of their most important current challenges: creating support for their projects among local residents. De Windvogel states that "in a wind project it's just incredibly expensive for them to involve the neighbourhood, to involve people, and they also won't succeed in doing it" (Zomer, 2016). Qurrent agrees with this, stating that a cooperative is able to "the local support, they know the politics, they know where to find supporters that can co-invest in projects" (Grooten, 2016). Energy companies in

contrast often are “too far away from their customers”, which makes it difficult for them to come into contact with local residents (van der Velde, 2016).

Figure 28: Type 5 partnerships[11]



Source: author’s own, based on data from HIER Opgewekt.

“If you want to realise a row of five wind turbines somewhere, I’d rather have four than five not”
- Raedthuys

This seems to confirm that including cooperatives to secure citizen participation in their projects is a conscious strategy for energy companies, as discussed in section 3.4. Raedthuys indeed explains that cooperatives are a solution for those “projects where we’ve had an initiative for years, but which just doesn’t make progress because the local politics are hesitant” (Vermeulen, 2016). Raedthuys would therefore rather give away one of their wind turbines to a cooperative, instead of not realising any at all. Afther their first project with Deventer Energie, they now have six new projects with cooperatives under development.

According to Greenchoice, cooperatives and energy companies in this way “mutually reinforce each other” (Vanson, 2016). As Raedthuys summarises: “What they have, we don’t; we will always be the party from outside the area. And what we have, they usually don’t; that’s knowledge and money and power to do such projects. And that’s often a very good match” (Vermeulen, 2016). This also means that the cooperative is not always the party initiating a partnership; energy companies increasingly realise the strength of cooperatives and ask cooperatives to participate in their projects. An important addition is that in these cases, the municipality is often the party to advise an energy company to contact the local cooperative, which was for example the case for Deventer Energie and Raedthuys.

“What they have, we don’t (…) and what we have, they usually don’t”
- Raedthuys

Despite this good match, not all cooperatives want to co-develop their project with an energy company. Generally it seems that the more experienced a cooperative, the less it is inclined to work with an energy company. Whenever possible, cooperatives therefore want to “remain owner themselves” (Stolte, 2016). Moreover, Bergen Energie also warns against type 5, as this automatically means that after completion of the project, the PPA-contract will also go to the energy company. This is often a precondition for energy companies to co-develop a project with a cooperative.

[11] The number of type 5 partnerships is expected to be larger in reality, as some data on older wind projects is missing.

5.3.6 Type 6: Organising participation

Also in type 6 the strength of the cooperative in engaging with the community comes out well. In this case, the project is however entirely owned and developed by the energy company. The role of the cooperative is therefore limited to the orientation and planning phase (**Figure 15**). An example of this is Drechtse Wind, a cooperative that supported energy company HVC in the political process preceding one of their wind projects. In other cases the cooperative organizes financial participation, often in the form of crowdfunding. This means that the cooperative brings in (part of) the capital needed to invest in a project. The members of the cooperative in this case receive a financial return over their investment.

"the cooperative… well is involved, but are associated in a light form, not a heavy one"
- Energie-U

Presently, only three cases of type 6 are known. On the one hand, this could be explained by the fact that this type of partnership does not necessarily include a formal contract. This means that the number is expected to be underrepresented in the data-analysis; there might well be more variations of type 6 which are not recorded in the figures. On the other hand, the partnership also does not seem to offer many benefits for the cooperative. This might be an explanation for the low number. In all three cases, the cooperative organised financial participation, without any ownership tied to this for the cooperative. This seems remarkable, as ownership and right of say forms one of the core values of cooperatives. Not all cooperatives therefore seem to be as positive about type 6, including for example Energie-U who states that "the cooperative… well is involved, but are associated in a light form, not a heavy one" (Willemsen, 2016).

5.3.7 Motives to work with cooperatives

After discussing all six partnerships and the specific activities that energy companies undertake therein, this last section focuses on the motives behind these activities. As shown clearly in type 5 and 6, a first important motive for energy companies to work with cooperatives is to create community support for their own projects. This is especially relevant for those energy companies that develop production projects themselves, such as Eneco, HVC or Raedthuys. These energy companies can in this way expand their own portfolio by developing projects jointly with cooperatives. But also for energy companies without their own project development division, cooperatives form a way to expand their portfolio. By partnering with cooperatives and becoming involved as the supplier party, these energy companies can add the electricity produced by the cooperatives to their portfolio.

As discussed in section 1.4, creating such a "low-carbon energy portfolio" forms one of the most important future business models for energy companies (Accenture Strategy, 2015, p.7). Cooperatives thus form a way to strengthen this business model, as Qurrent states: "those projects, those wind turbines and solar parks, I can't do that without cooperatives or local parties" (Grooten, 2016). This means that as formulated in expectation c, the exploitation of new market opportunities does seem to be the main motive for commercial energy companies.

"we try to enter into as many PPA's as possible so that we can limit our electricity from the wholesale market"
- Qurrent

Ultimately, creating a portfolio with renewable energy projects brings in more customers, as this improves their image. Qurrent explains that they "try to directly enter into as many PPA's as possible so that we can limit our electricity from the wholesale market, because the market is increasingly moving towards green electricity produced locally in the Netherlands" (Grooten, 2016).

Their image towards customers thus forms another important motive for energy companies to work with cooperatives. In this respect, the earlier mentioned rankings also turn out to be important for the energy companies. Greenchoice explains that "for all those rankings and also our own story towards our customers that proposition of 100% sourced from the Netherlands is very important" (Vanson, 2016). Many energy companies thereby emphasize that supporting and developing the production of local renewable energy forms their core vision. Eneco explains that in this respect, their vision of 'sustainable local together' "fits perfectly with the cooperatives" (van der Hoeven, 2016).

6. Results II

This chapter contains the second part of the results. While the previous chapter covered the first two steps of the research, this chapter focuses on the third step. This involves the actual influence of the partnership on the development of cooperatives. Before being able to assess this influence however, some important obstacles dilemma´s that are involved in partnerships between cooperatives and energy companies have to be discussed. These obstacles and dilemma's namely also form an important determinant of the actual influence of the partnership. Subsequently, the third step of the research is discussed, assessing the intermediary role of energy companies and their beneficial and detrimental influence.

6.1 Obstacles and dilemma's involved in cooperation

While examining the different types of partnerships, some specific obstacles and dilemma´s were brought up by the participants. Firstly, two important obstacles are discussed; the collision between cooperative and commercial values and administrative problems. Subsequently, two relevant dilemma's are discussed.

6.1.1 A first obstacle: colliding values

A first important obstacle that can complicate the relationship between the cooperative and energy company is the collision between cooperative and commercial values, as already pointed out by one of the experts in section 3.7. This collision between cooperatives and energy companies is caused by their different ideas about how to develop a project, as illustrated by their different positions in the process-outcome dimension (**Figure 18**). This difference can lead to a sense of distrust between the two partners and create a negative attitude towards the other. Trianel in this respect explains that some cooperatives had an innate negative attitude towards energy companies, arguing that "those are the big bad guys, we need to watch out for them because their interests are the opposite of ours" (Fraats, 2016). In some cases this even seems to withhold cooperatives from working with energy companies in the first place, fearing that their projects will be taken over by the energy company.

"those are the big bad guys, we need to watch out for them"
- Trianel

E.ON explains that for them "the opinion that large energy companies are not trustworthy, that commercial companies have conflicting interests, and that local cooperatives lose their non-profit identiy by working with them" forms one of the largest obstacles withholding them from working with cooperatives (van der Velde, 2016). Trianel adds that such an attitude "does not testify a sense of realism, it's just not fair" (Fraats, 2016). He explains that at the time of Trianel, this attitude therefore also created a negative response among energy companies, resulting in "that area of tension, the polarisation increasing more and more" (Fraats, 2016).

"You can see that area of tension, the polarisation increasing more and more "
- Trianel

Commercial is in some cases thus regarded as 'universally bad' by cooperatives, creating frustration among energy companies. Not only energy companies however turn out to run into this negative attitude towards commercial values; also for cooperatives it can form a problem. Many cooperatives have developed into professional organisations and take a business-like approach in their projects, which is necessary to operate in the competitive energy market. This is however not obvious to everyone, leading to confusion when people run into business-like minded cooperatives.

An example of this is HVC, who states that "some cooperatives are simply entrepreneurs, they want to develop projects and earn their living with it" (Berkvens, 2016). Deltawind regularly runs into this and summarises that: "A community initiative is considered to be tree-hugging, voluntary, not commercially viable, while we're a commercially successful project. But we are a community initiative! That's hard to understand for some people" (Schwencke, 2014).

"A community initiative is considered to be tree-hugging, voluntary, not commercially viable, while we're a commercially successful project"
- Deltawind

A general image therefore seems to prevail of cooperatives being unprofessional and non-commercial; whereas energy companies are the commercial professionals. This seems to confirm the division in the state – market – civil society triangle, where the three spheres form separated categories (see section 1.3). Even among cooperatives themselves, this division appears to be deeply engrained. Unsurprisingly, the collision between commercial and cooperative values therefore also forms a challenge for the cooperative energy companies. Grunneger therefore argues that "NLD has to keep the social goals we have with the cooperative within sight and the cooperatives have to remember that running a social enterprise also means operating in a business-like way" (Volkers, 2016).

De Windvogel however argues that the collision has become smaller in recent years, due to the increasing professionalisation of cooperatives. He explains that "most of the older cooperatives refused to work with the large companies over the past 10, 15 years, or put differently: you couldn't work with them, they would constantly throw in their ideals" (Zomer, 2016). This attitude however seems to be disappearing now, as also NLD notes that "it's not 'dirty' anymore, commercial and marketing (…) at first people were rather averse of it, but now… the realisation has grown that it's necessary" (van Son, 2016).

6.1.2 A second obstacle: administrative hiccups

A second important obstacle in partnerships turns out to be the administration. As discussed, an important part of the role of the energy company in all partnerships is the management of administrative tasks. During the interviews, administration was however often mentioned to be a cause for problems. As cooperatives are a relatively new activity for most energy companies, the partnerships often require changes in their administrative systems. This often leads to problems, as the large administration systems of energy companies are generally not designed to deal with cooperatives.

An example of such an adjustment is the desire of DeA to be able to distinguish between their different production projects, so that customers can choose a particular source. This requires a direct administrative link between the source and customer. Although energy companies generally try to meet such desires, this particular adjustment proved to be difficult for Greenchoice to adjust in their systems.

"it's a big company, a slow company, their administration is very… just not equipped for this type of partnerships"
- Lochem Energie

Other administrative 'hiccups' were mentioned by Deltawind, Lochem, DE Ramplaan and Rijn en IJssel, indicating the importance of this obstacle. For Rijn en IJssel in particular, administrative problems even formed one of the reasons to terminate their partnership with InEnergie, who according to them "were just not equipped to deal with our questions. So that's why we reached a deadlock, the administration just wasn't arranged well" (Lagerberg & Lettink, 2016). Cooperatives thereby indicate that the larger the energy company, the higher the number of administrative problems. Lochem in this respect explains that Eneco is "a big company, a slow company, their administration is very… just not equipped for this type of partnerships" (Stolte, 2016).

6.1.3 Standardisation versus customization

Especially the administrative hiccups seem to bring up an important first dilemma for energy companies. On the one hand, it energy companies need to scale up in order to survive in the energy market. Qurrent explains that "If you don't succeed in achieving scale in time, it's end of story". The tipping point thereby lies around 10.000 customers, according to Qurrent. Energy companies therefore have a strong incentive to standardise their partnerships with cooperatives. Cooperatives acknowledge this, as Lochem explains that "Eneco is just not interested in parties with 30 members. They're just too big for that (…) for them cost-benefit remains important" (Stolte, 2016).

"Eneco is just not interested in parties with 30 members. They're just too big for that"
- Lochem Energie

Cooperatives however do not lend themselves well for standardisation, given their much smaller size. Eneco thereby adds that especially the second generation of cooperatives has deepened their dilemma, as the partnerships with younger cooperatives generally require much more customization. This in contrast to the first generation, which according to Eneco was relatively straightforward, "simply a customer-supplier agreement" (van der Hoeven, 2016). Eneco therefore summarises that "if we only make separate agreements that are all different, well… you can't grow then" (ibid.). According to Qurrent however only a limited degree of standardisation is possible with cooperatives: "we would like to standardise the proposition more so that it costs less time, but the projects are so different that it wouldn't work" (Grooten, 2016).

Nevertheless, energy companies develop different strategies to achieve some degree of standardisation among their cooperatives. Qurrent for example states that this means "automatizing processes much better and also demanding input, the *right* input from cooperatives" (Grooten, 2016). The recent partnership between Eneco and DE Unie can in this respect also be regarded as a way to solve the dilemma. This has created a way for Eneco to bundle many different cooperatives in one; and to concentrate on the larger, more professional cooperatives themselves. Moreover, also cooperatives recognise the need to standardise, to be able to accelerate the development of cooperative projects in the Netherlands. Bergen Energie and several cooperatives even take this one step further, creating a new framework agreement between cooperatives and multiple energy companies (BOX 4).

BOX 4: A new framework agreement

In cooperation with several other cooperatives, Bergen Energie is exploring the possibilities to create a framework agreement between cooperatives and multiple energy companies. This framework agreement would not only enable the standardisation of cooperative-energy company partnerships, but also address several important future challenges. One of the largest future problems according to these cooperatives is the fact that it is currently impossible for consumers to participate in multiple cooperative projects at the same time, when these projects are hosted by different energy companies.

An concrete example of this; when a consumer participates in a postal code project with energy company 1, he/she is a customer of energy company 1. If the same consumer wants to participate in a solar park project by another cooperative nearby, which works with energy company 2, this is not possible; the consumer cannot be a customer of both energy companies. This means that the consumer cannot participate in both projects, but is obliged to choose between the two. This severely limits the possibilities for cooperatives to acquire participants for their projects. In other words: it hampers the development of cooperative projects.

Bergen Energie argues that to lift this barrier, a new degree of cooperation between energy companies is necessary. Their aim is therefore to create a framework agreement, in which multiple energy companies exchange the needed data and in this way create a large back-office administration system for cooperative projects.

Such a framework agreement will have important consequences for the partnerships between cooperatives and energy companies. On the one hand, it will stimulate the standardization of partnerships between cooperatives and energy companies and in this way accelerate the development of cooperative projects. On the other hand, the framework agreement also means an unprecedented degree of cooperation between energy companies, changing the competition in the energy market. In this research specifically, the framework agreement would create a very interesting new type of partnership; not between one cooperative and one energy company, but between multiple cooperatives and energy companies.

An important remark is that the cooperative energy companies seem to offer more room for customized partnerships, as cooperatives form their core business. According to NLD, a concrete example of this is the facilitation of postal code regulation, which is designed specifically for cooperatives. They argue that "there are suppliers that don't want to do that, or who simply can't do it because their systems can't cope with it" (van Son, 2016). Nevertheless, for the cooperative companies too it is crucial to eventually achieve scale, especially because of their focus on cooperatives. This namely means that the cooperative energy companies acquire 100% of their customers via cooperatives, while customer acquisition is one of the most important challenges for cooperatives nowadays. NLD therefore argues that the cooperative companies "will have to grow and join in the competition on the market" (van Son, 2016).

Many participants in this respect point out that DE Unie's partnership with Eneco also seems to be an important strategy for DE Unie to scale up. Qurrent explains that "Eneco is of course a party that can give DE Unie a lot of body and access to money for example" (Grooten, 2016). Additional future partnerships between the cooperative and commercial energy companies would therefore not be a surprise. Grunneger in this respect states: "they will have to partner up and possibly even cooperate with larger parties to organise things back to back" (Volkers, 2016).

In essence, the areas of tension between standardisation-customisation and commercial-cooperative seems to represent two different approaches towards the energy transition: energy companies on the one hand generally aim to make large steps, look for ways to really make impact. E.ON in this respect states: "Will it really make a difference or not? Because that's the most important reason for me to do it, I want renewable energy to be produced on a large scale eventually" (van der Velde, 2016). Although cooperatives also aim to scale up the production of renewable energy, their approach is different. In contrast to energy companies, cooperatives want to keep the energy transition close to the citizen and develop everything in cooperative ownership. These two opposing approaches to the energy transition result in the two areas of tension between the two parties.

6.1.4 Participation with or without cooperatives?

The two obstacles discussed above also result in a second dilemma. On the one hand, many energy companies seem to regard cooperatives as the appropriate party to organise community support. According to De Windvogel, "there is only one organisation that can really involve people in the energy transition, by giving a right of say, by co-investing" (Zomer, 2016). On the other hand, not all energy companies take this for granted however, remarking that cooperatives might not always be a representative image of the local community. Raedthuys explains that "if a cooperative has a few hundred members that's a lot, but a society is much larger than a few hundred people" (Vermeulen, 2016). For this reason, Raedthuys argues to work with other local partners too, including for example municipal sustainability organisations. In this way "the benefits of a project can be distributed more broadly than among the cooperatives' members alone" (ibid.).

Moreover, some cooperatives also point out that even cooperatives themselves not always succeed in creating community support. Rijn en IJssel for example explains how one of their projects ran aground, as "the neighbourhood really went into protest. So it all seemed to go very well, but now it's sort of on hold" (Lagerberg & Lettink, 2016). As already discussed in section 2.7, cooperatives thus turn out not to be a guarantee for community support.

> "if a cooperative has a few hundred members that's a lot, but a society is much larger"
> - Raedthuys

As a result some energy companies choose to develop other ways of organising participation, without working with cooperatives. An example of this is E.ON, who attempted to work with cooperatives in the first place but eventually decided to create its own cooperative 'Samen Zon'. Local residents would become members of this cooperative, which aimed to realise its own renewable energy projects and at the same time support other local projects. E.ON thereby explains that in this way they wanted to "give it an own entity, its own branding, so Samen Zon, and E.ON supports Samen Zon" (van der Velde, 2016). With this cooperative they developed a pilot project, which resulted in their "first solar farm (…) of 90 panels, that's running, with 20 members so we went through all phases, organising a general assembly

meeting, arranging planning permits and completing the installation" (van der Velde, 2016). The pilot project formed a way to experiment with creating community support and test the commercial viability of cooperative models.

Another example was Raedthuys, who before they started working with cooperatives developed their own 'obligation model'. In essence this is a form of crowdfunding, organised by the energy company itself. Raedthuys explains how this model is "used since in all our wind projects, whereby local residents have priority and a higher return on their investment" (Vermeulen, 2016). The model in this way resembles the type 6 partnership, although organised with individual residents instead of a cooperative.

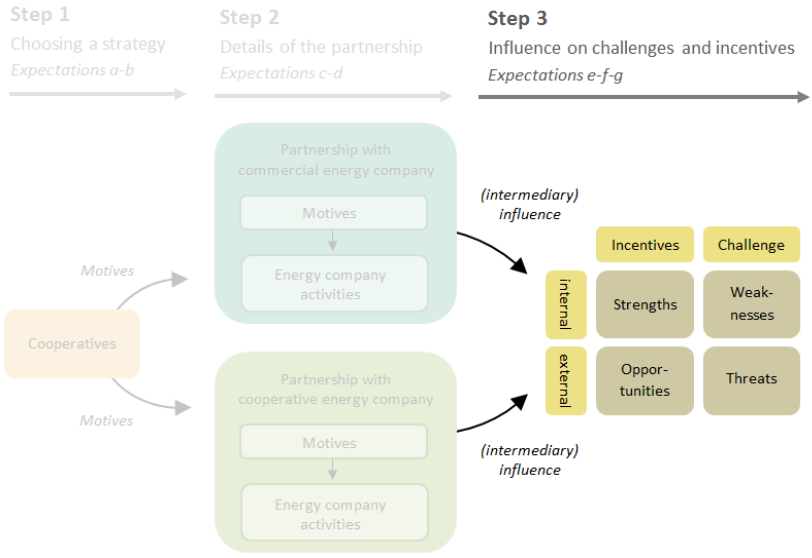
"We don't see ourselves as the platform to organise the participation of citizens"
- HVC

Raedthuys however argues that working with cooperatives works much better for them than their own participation model. They explain that "if you work with a local club, you can create a much stronger connection" (Vermeulen, 2016). Moreover, E.ON's cooperative model too seems to run into the difficult challenge of creating community support, given the relatively small number of 20 members in their Samen Zon cooperative. Most energy companies therefore seem to conclude that cooperatives, although no guarantee for community support, do seem to be a logical partner for them in organising participation. HVC therefore summarises that "We don't see ourselves as the platform to organise the participation of citizens (…) So we want to do this with citizen-led cooperatives, they are more credible, more visible, they are recognised, they represent the local area" (Berkvens, 2016).

6.2 Step 3: Influence on incentives and challenges

Having discussed these important obstacles and dilemma's, it is now possible to assess the actual influence that partnerships have on the challenges and incentives faced by cooperatives; the third step of the research model (Figure 29). This section firstly discusses to what extent the activities of both commercial and cooperative energy companies can be regarded as energy intermediary activities. Concluding the chapter, the actual beneficial and detrimental effects of partnerships with energy companies are summarised.

Figure 29: Research model step 3 - Influence on challenges and incentives



6.2.1 Commercial energy companies as intermediaries?

In the previous sections the specific activities of commercial energy companies have been examined. But to what extent can these activities be categorised as energy intermediary activities? The four intermediary roles, as discussed in section 3.3, are hereby used as a guideline. The specific 'energy

intermediary activities' found have been summarised in Table 9, for both commercial and cooperative energy companies.

Table 9: Overview of the intermediary activities of commercial and cooperative energy companies

	Key intermediary role	Activities by commercial energy companies	Activities by cooperative energy companies
1	Aggregating lessons from local community energy projects	*Limited:* sponsoring a platform for starting cooperatives; presentations at external events; blogs.	*Strong:* multiple trainings and masterclasses; conferences; toolkits; inspirational and information events.
2	Establishing an institutional infrastructure for community energy	*Limited:* sponsoring HIER Opgewekt.	*Strong:* member portal; events to share experiences; member days.
3	Framing and coordinating community energy action on the ground	*Strong:* project-related advice; initiating new projects.	*Limited:* project-related advice, initating.
4	Brokering and managing partnerships	*Limited:* joint court cases.	*Strong:* mediating between cooperatives and commercial energy companies.

Source: author's own, based on Hargreaves *et al.*, 2013.

Role 1: aggregating lessons, accumulating knowledge and sharing it

The first role concerns the aggregation of lessons from across a wide range of cooperative projects, and the translation of these lessons into concrete toolkits or handbooks for cooperatives. This role seems relatively limited for commercial energy companies, as not many toolkits or handbooks have been developed. Where Eneco until recently had a brief set step-by-step explanation on how to start a cooperative on their website, this explanation has now been replaced by a reference to a book written by the director of DE Unie, 'A local energy company, how do I do that?' (**Figure 30**). Other commercial energy companies such as Qurrent or Raedthuys did not develop any similar activities.

Greenchoice however seems to be an exception here. Greenchoice explains that together with one of their partners they developed a platform where cooperatives can get "an explanation on: how does it work, starting such a cooperative, what statutes do you need, there is an action plan on how to start a cooperative, administrative issues you need to take into account" (Vanson, 2016). In this way they aim to support not only professional but also starting cooperatives. Additionally, Greenchoice explains that they often give presentations on events and cooperatives' general assembly meetings, and share their knowledge via a blog.

Role 2: establishing an infrastructure to store, exchange and circulate knowledge

The second role concerns the creation of infrastructures to circulate the accumulated knowledge and experiences of cooperatives, such as a web-based platform or social network. The role of commercial energy companies however turns out to be limited here. Lochem in this respect argues that "sharing knowledge is not per se the task of an energy company, HIER Opgewekt would be more useful as a platform for cooperatives". Another often mentioned network is the provincial Association for Energy Cooperatives in Gelderland (Vereniging Energie Coöperaties Gelderland), formerly known as the Community of Practice. This association generally helps cooperatives "to tackle the problems they encounter. They have masterclasses, from which you can learn a lot. You learn a lot from others" (van Nistelrooij, 2016).

> "sharing knowledge is not per se the task of an energy company"
> - Lochem Energie

Rijn en IJssel summarises that "we're already taking care of that ourselves" (Lagerberg & Lettink, 2016). An important finding therefore is that this intermediary role is already fulfilled by other, existing networks. Energy companies however acknowledge this, and refer cooperatives to these networks. As Qurrent states: "it's a matter of referring them to HIER Opgewekt (…) and then they have to go to the information events of HIER Opgewekt" (Grooten, 2016).

Figure 30: Eneco's former online explanation on how to start a cooperative

Source: https://www.eneco.nl/over-ons/wat-kunt-u-doen/.

In general, HIER Opgewekt is often referred to by cooperatives. An important remark however is that Greenchoice is the main partner of HIER Opgewekt, sponsoring their yearly HIER Opgewekt congress. Rijn en IJssel thereby explains that "in the beginning when we didn't exchange much information in Gelderland, that [congress] was a yearly event where we met each other and exchanged information. And of course Greenchoice together with HIER Opgewekt was there from the start" (Lagerberg & Lettink, 2016). They add that for them this was an important plus point, as "Greenchoice from the start saw: this is an important movement and we have to support it" (ibid.). This means that Greenchoice did fulfil an important intermediary role at a time when the current networks did not exist yet.

> "Greenchoice from the start saw: this is an important movement and we have to support it"
> - Rijn en IJssel Energie

Role 3: actively contribute to cooperative projects

The third role encompasses an active contribution to cooperative projects. Examples of this are providing advice, guidelines and templates to develop subsequent cooperative projects, or even initiating projects. The role of commercial energy companies in this respect seems to be quite large, especially in a type 5 partnership concerning a co-developed and co-owned project. Commercial energy companies in this case have a rich experience with project development, from which they often advise the cooperative (see section 5.3.5). But also in other partnership types energy companies provide advisory services to cooperatives, including for example advice in the field of marketing, juridical issues or business cases (see section 5.3.1).

Besides providing advice energy companies also increasingly initiate cooperative projects themselves, seeking partnerships with cooperatives to create community support for their projects. Although the ownership is shared in these partnerships, it causes the number of cooperative projects in the Netherlands to grow. Moreover, as discussed in section 6.1.3, energy companies increasingly try to standardise their partnerships with cooperatives, by using standard documentation or formats for projects. This means that commercial energy companies also play a role in developing templates for subsequent projects.

An interesting trend concerning this particular intermediary role however, is that cooperatives increasingly seem to fulfil the advisory role themselves. This seems to be illustrated by the recent emergence of cooperative project development agencies. These agencies are set up by groups of cooperatives, aiming to accelerate cooperative projects in the area. A concrete example of this is the

agency Kennemer Energie by DE Ramplaan, Bergen Energie and a few other cooperatives in Noord-Holland that started on 1 July 2016. Besides this, Grunneger Power is planning to start a similar cooperative agency together with the two northern umbrella organisations and other Frysian cooperatives. Grunneger explains that this agency should be "able to set up larger solar projects (…) moving on to projects with a larger scale (Volkers, 2016).

This development can in fact be seen as an alternative to cooperation with energy companies, especially as the trend is strongly driven by the wish to create a fully cooperative chain. The cooperatives in this way want to become independent of commercial energy companies, "bringing everything we develop into collective ownership" (Volkers, 2016).

Role 4: brokering and managing partnerships

The fourth role includes brokering and managing partnerships between cooperatives and third parties. This for example involves lobbying at governmental institutions, negotiating on behalf of cooperatives, identifying new sources of investment and developing new models for cooperative projects. Commercial energy companies in this respect usually have a limited role. Two exceptions to this would be Eneco and Anode, who by supporting Lochem Energie and De Windvogel in their court case play a brokering role.

Interesting is that on the cooperative day organised by Greenchoice in Amsterdam, some cooperatives emphasized that energy companies should play a stronger role in lobbying for cooperatives at governmental institutions. This means that cooperatives would rather see energy companies fulfilling a stronger intermediary role in brokering and managing partnerships. In response however Greenchoice explained that as a smaller energy company, they usually don't have the capacity to do so.

6.2.2 Cooperative energy companies as intermediaries?

This section now turns to the potential role of *cooperative* energy companies as energy intermediaries. Does the fact that their activities are more tailored to the needs of cooperatives also mean that they play a stronger intermediary role?

Role 1: aggregating lessons and accumulating knowledge

Concerning the first role, cooperative energy companies seem to fulfil a stronger role than commercial companies. In comparison NLD and DE Unie develop more knowledge-related activities, to share their knowledge on cooperative projects. NLD for example organises marketing masterclasses, congresses, inspirational events and developed an online toolkit "with flyers, presentation material, that sort of things… so concrete tools they can use" (van Son, 2016). DE Unie additionally organises "a training for new members (…) to teach them how to deal with the systems, where we brush up their basic knowledge about the energy market" (van Erkelens, 2016).

Role 2: establishing an infrastructure to store, exchange and circulate knowledge

Logically, cooperative energy companies also seem to play a stronger role in creating knowledge infrastructures. Both DE Unie and NLD actively create structures to share knowledge, including for example events to let cooperatives share best practices and a member portal "where also classified documents can be shared" (van Erkelens, 2016). As a result of the cooperative structure, cooperatives "within the cooperation… well share [knowledge] easier and quicker among them" (ibid.).

NLD thereby also emphasizes the already existing strong networks of cooperatives. They however argue that their goal is to strengthen the existing network, by supporting new cooperatives in their development. NLD adds that in stimulating sharing knowledge "I see a strong additional value for us (van Son, 2016).

"the fact that we exist (…) ensures a strengthening of the entire existing network"
- NLD

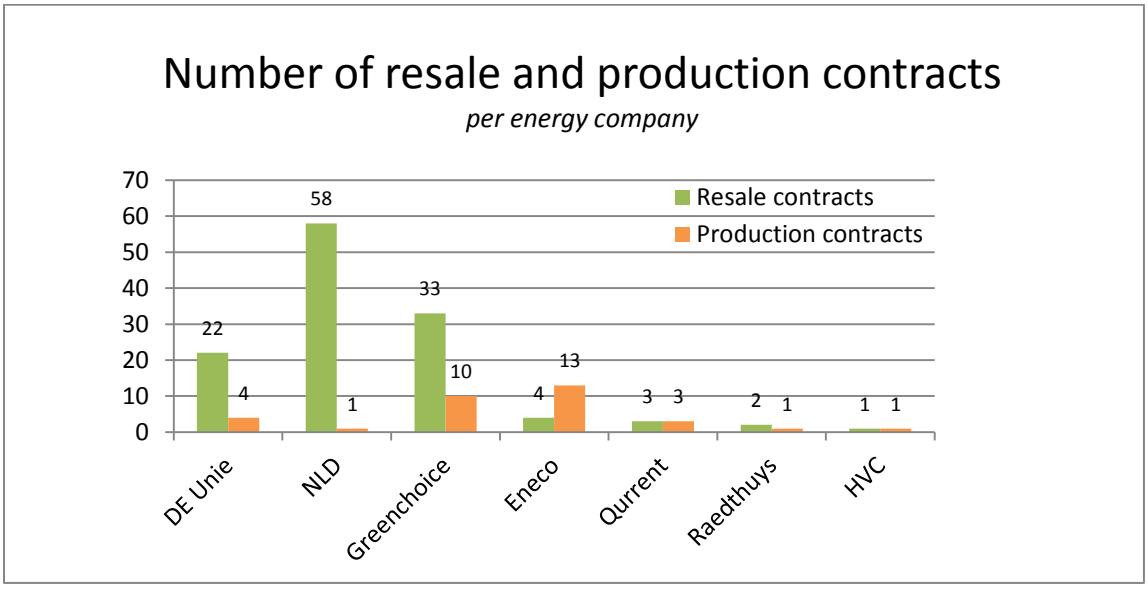
Role 3: actively contribute to cooperative projects

In contrast to the first and second role, cooperative energy companies might play a less strong intermediary role in providing advice than commercial energy companies. Although both NLD and DE Unie have a high number of resale partnerships, they have only a few production partnerships (**Figure 31**). This

means that they can give advice on matters concerning resale partnerships, but their knowledge on production in contrast is limited, especially compared to for example Eneco or Greenchoice.

Moreover, NLD in particular mentions their attempts to develop templates for subsequent projects. NLD explains that they eventually aim for "one model for everyone (…) and we want a single contract, it has to be able to scalable" (van Son, 2016). Moreover, NLD aims to develop a checklist for business cases.

Figure 31: Comparing the strengths of energy companies



Source: author's own, based on data from HIER Opgewekt.

Role 4: brokering and managing partnerships

Concerning the fourth role, DE Unie seems to play a unique intermediary role because of their partnership with Eneco. This means that DE Unie and Eneco jointly aim to develop new services for cooperatives, creating a new type of tripartite partnership between the three parties. DE Unie thereby seems to be a mediator between the cooperatives and Eneco, as they have a better understanding of the cooperatives' needs. This means that DE Unie plays the exact intermediary role as described in section 3.3, "introducing partners to one another, helping community groups overcome any distrust and wariness of working with large companies; drawing up the terms and conditions on which partnerships are based, and in ensuring that partnerships genuinely benefit local community groups" (Hargreaves *et al.*, 2013, p.877).

6.2.3 Beneficial influence

Summarising, both types of energy companies to a greater or lesser degree seem to fulfil an energy intermediary role, as several of their activities can be categorised as typical intermediary activities. This means that these activities have a beneficial influence on the development of cooperatives. But how does this beneficial influence take shape? Which challenges and incentives from the SWOT analysis, as discussed in section 2.7, are influenced by the partnership?

One of the most important beneficial influences of energy companies is related to the challenge of 'need time/volunteers', which turned out to be the number one challenge as stated by cooperatives in this research. The challenge thereby mainly focuses on being able to pay volunteers for their work. Deventer explains that "you have to be able to offer people a salary, if you say: join us" (de Vries, 2016). Zuiderlicht however states "that's where we are now with the cooperative movement, it's still founded too much on… almost 80-90% voluntary time" (Boon, 2016).

> "that's where we are now with the cooperative movement, it's still founded too much on… almost 80-90% voluntary time "
> - Zuiderlicht

Energy companies in this respect seem to have a beneficial influence in

several ways. Most importantly, by enabling the creating of a viable business model for the cooperative, for example by paying a fee per customer in the resale partnership. Additionally, energy companies can also take over the administrative tasks involved in the supplier function. These tasks generally require a high level of professionality, including complex administration systems. Deltawind in this respect explains that "supplying energy is a profession (…) so we said: well no, we're not going to do that ourselves" (Sweep, 2016).

"we have 850 customers now, and 400 customers come from those marketing actions. So it really pays off."
- DeA

Concerning the resale partnership, energy companies also help creating a more solid business model by developing additional marketing activities to boost the customer acquisition of cooperatives. This means that the energy company also has a clear beneficial influence on the challenge of 'need to engage with community/recruit members', one of the most important challenges. As a result, many participants indicate that their number of members or customers has grown quickly since their partnership with an energy company. Examples of this are Deventer energie, who went from 20 to around 180 members since their partnership with Raedthuys; and DeA, who acquired some 400 additional customers through Greenchoice's marketing activities.

Bergen thereby emphasizes that working with an energy company also seems to create trust among people, when the energy company has a good reputation. He explains that Greenchoice "is trusted by many people, so it's a company… a proven service provider so to say. So if you partner with them, that trust also affects you" (Kneppers, 2016). This is an interesting finding, as it indicates that cooperation with an energy company does not necessarily have a detrimental impact on the amount of community support for a cooperative. Interestingly, this trust in large energy companies seems to be a legacy of the centrally organised energy system, where people as 'passive consumers', trusted in the large traditional utilities to deliver their energy (see section 1.2).

Another beneficial influence of energy companies is on the challenge 'need expertise/advice'. As discussed in section 6.1, energy companies turn out to play an important role in advising cooperatives in the development of projects. Deltawind therefore argues that "an energy company knows the way, has experts employed, knows how the regulations work (…) so you can get a lot of knowledge and experience from an energy company" (Sweep, 2016). But also by creating infrastructures for cooperatives to share their experiences, or by organising masterclasses or information events themselves, energy companies have a beneficial influence on the need for expertise.

"Cooperatives have a lack of knowledge and money. Well that's where we can add value"
- Raedthuys

Besides this, energy companies can have an additional beneficial influence on the challenges of 'need funding/access to finance' and 'lack of support from other actors'. Concerning the first challenge, energy companies are able to bring in financial capital, by co-investing in projects. Greenchoice specifically mentions as one of their strong assets: "We also have the financial means to co-invest. I think that's a great benefit" (Vanson, 2016). Raedthuys also summarise that "cooperatives have a lack of knowledge and money. Well that's where we can add value" (Vermeulen, 2016). Concerning the second challenge, Rijn and IJssel explains how their partnership with Greenchoice created more trust and support from other actors, including for example municipalities or companies. According to them, "sometimes it's hard to gain foothold, to be taken seriously as a cooperative" (Lagerberg & Lettink, 2016).

6.2.4 Detrimental influence

Conversely, a partnership might also have detrimental influences on the challenges and incentives of cooperatives. Administrative problems, discussed in 6.1.2, create a first detrimental influence. These problems can cost cooperatives a lot of time and frustration. Lochem for example explains how the settlement of the energy bills in their postal code project "went wrong so many times that it almost became a weekly task to set it right again" (Stolte, 2016). The partnership in this way seems to worsen the challenge of 'need time/volunteers'. Moreover, in some cases administrative problems can even lead to a

termination of the partnership, as was the case for Rijn en IJssel and energy company InEnergie. Rijn en IJssel in this case didn't want to risk acquiring more customers, as the problems had already caused several complaints. The administrative problems in this way also indirectly worsened the challenge of 'need to engage with community/recruit members'.

Another detrimental influence seems to occur when an energy company already has a negative reputation among local residents. Deltawind explains how "there can be a sort of aversion, for example farmers who have done business with Eneco already and apparently had a bad experience there" (Sweep, 2016). As a result, some residents refused to join Deltawind. Energie-U in this respect also notes the negative reputation of Eneco in Utrecht because of their activities in the field of district heating, which turned out to have a poor environmental quality. Although Energie-U currently does not work with Eneco, some of their members emphasized their negative opinion on Eneco. Cooperation with an energy company can in this way has a detrimental impact on the challenge of 'community support'.

"people say: 'I see Greenchoice on a price comparison website and the difference is €200, so why should I come to you?' "
- DeA

Concerning the resale partnership, energy companies in some cases also turn out to have a detrimental influence on the challenge of 'need to engage with community/recruit members'. This detrimental influence occurs when the energy company offers lower energy prices via special marketing actions or price comparison websites, outside of the cooperative. DeA explains that customers in this way "say: that's very strange, I come to you but meanwhile I see Greenchoice on a price comparison website and the difference is €200, so why should I come to you?" (Boddeke, 2016).

A last important detrimental influence seems to have been caused by Trianel. The problem of difficult customer acquisition eventually brought Trianel to propose several adjustments in the governmental regulations around cooperatives. Although these adjustments were co-designed and eventually carried through by the ACM, they led to change in government policy which was not beneficial for cooperatives. As a result of the changes, the possibilities for cooperatives to use their own label or brand have been restricted. The partnerships with Trianel therefore eventually had a detrimental impact on the 'government policy/changes' challenge.

Summing up, energy companies turn out to have both beneficial and detrimental influences on the challenges and incentives of cooperatives. These have been added to the SWOT-analysis (Table 10).

Table 10: The beneficial and detrimental influence of energy companies

	Incentives	Challenges
Internal	STRENGTHS	WEAKNESSES
	• Qualities of group • Skills among group • Group vision • Project management • Specific/technical aspects • Community engagement activities	• Need funding/access to finance (+) • Need time/volunteers (+) (-) • Need expertise/advice (+) • Need to engage with community/ recruit members (+) (-)
External	OPPORTUNITIES	THREATS
	• Community support (+) (-) • Links with other cooperatives • Network organisations' support • Local organisations' support • Local authorities' support • Businesses' support • Policy support	• Public apathy/attitudes/NIMBYs • Lack of support from other actors (+) • Government policy/changes (-) • Bureaucracy • Planning restrictions/hurdles

Source: based on Seyfang *et al.* (2013, p.984).

6.3 Conclusion

Wrapping up, Chapter 5 and 5 have systematically analysed the three steps involved in a partnership between a cooperative and energy company. This involved the selection of an energy company to work with, based on particular motives; the different types of partnerships and the roles that both the cooperative and energy company play in these; the motives that energy companies have to work or not to work with cooperatives; the degree to which energy companies can be seen as energy intermediaries; and the actual influence of the partnership on the challenges and incentives that cooperatives face.

But what general conclusions can be drawn from these findings, about the cooperation between cooperatives and energy companies in the Netherlands? And what effect do the partnerships have on the development of the cooperative energy sector as a whole? These questions will be addressed in the next chapter, which includes the conclusions of this research.

7. Conclusions and recommendations

This chapter contains the conclusions of the research. The first section focuses on answering the main research question, followed by the second section which discusses the theoretical conclusions of this research. The third section formulates some recommendations, for cooperatives and further research.

7.1 Conclusions

This research concentrated on answering the following research question:

In what ways do energy cooperatives cooperate with energy companies, and what role do these partnerships play in the development of the cooperative energy sector in the Netherlands?

To enable answering this question, this research first identified the specific challenges and incentives that cooperatives face nowadays, which form an important determinant for the development of the cooperative energy sector in the Netherlands. A comprehensive study of the literature resulted in a SWOT-analysis, including the strengths, weaknesses, opportunities and threats that cooperatives face. Subsequently, to be able to measure the influence that partnerships with energy companies have on the SWOT-analysis, an energy intermediary framework was adopted. 'Energy intermediaries' are organisations that stimulate the development of cooperatives, through four specific roles: aggregating lessons from cooperative projects; creating infrastructures to share knowledge; providing advice and coordinating projects on the ground; and brokering and managing partnerships.

This theoretical framework was translated into a research model, from which expectations were formulated. Additionally, a tentative overview of the different types of partnerships was made with help from six experts. The expectations were subsequently tested through 24 in-depth interviews, among which 13 cooperatives and 11 energy companies. Besides this, a quantitative data-analysis was conducted including all 220 cooperatives in the Netherlands.

7.1.1 Choosing a strategy and partner to work with

In total, six types of partnerships were found in this research, which can broadly be divided into partnerships with or without production. Cooperatives can thereby adopt two different strategies to develop; either growing by reselling the electricity of an energy company, which leads to a resale partnership, or by focussing on production projects, which leads to a production partnership. Although the majority of the partnerships between cooperatives and energy companies in the Netherlands are resale partnerships, an increasing number of cooperatives shifts its focus towards production partnerships. Cooperatives can thereby generally choose two types of energy companies to work with; a cooperative or commercial energy company. The cooperative energy companies thereby have the same organisational structure as the cooperatives themselves, which means that the cooperatives are co-owners of the energy company and have a right of say in its decision-making.

The three most important motives for cooperatives to choose a certain energy company turn out to be sustainability, price and degree of stability. This means that expectation a, '*The sustainability, organisational structure and experience of an energy company are the three main motives for cooperatives when choosing an energy company*' is only partially verified. The sustainability of an energy company thereby indicates the degree to which its electricity comes from renewable energy sources, which indeed forms a basic criterion for all cooperatives. Price encompasses the price per kWh that the energy company offers for a cooperative's produced electricity; and the degree of stability indicates the organisational continuity of an energy company.

Despite the fact that cooperative energy companies have the same organisational structure and values as cooperatives, cooperatives not always turn out to choose a cooperative energy company. This means that the organisational structure of an energy company does not always form a decisive motive. The conclusion is that their choice strongly depends on the type of partnership they seek. For resale partnerships, cooperatives tend to choose cooperative energy companies, while for production partnerships, commercial energy companies are more popular. This means that expectation b,

'Cooperatives are likely to cooperate with cooperative rather than commercial energy companies', is also only partially verified.

7.1.2 The six partnerships and their influence on cooperatives

For each partnership, the specific role of both the cooperative and energy company was examined, including the degree to which the energy company's activities can be characterised as energy intermediary activities. In this way, a picture has been created of the ways in which a particular partnership influences the development of cooperatives – positively or negatively.

The *first type of partnership* represents a relatively 'light' type, as this type is often informal and not recorded in an official contract. The energy company in this case provides advice or services to a cooperative, for example on juridical, technical or marketing issues. Cooperative energy companies in this respect develop many knowledge-related services, such as masterclasses, toolkits or a member portal to share experiences among cooperatives. An important conclusion is that commercial energy companies in turn only seem to offer advice and services in combination with another type of partnership. This type of partnership turns out to have a strong beneficial influence on cooperatives, as it addresses their need for expertise.

In the *second type of partnership*, the cooperative resells the electricity of an energy company. Both cooperative and commercial energy companies thereby have a similar role, arranging the back-office, customer relations and energy bills. The energy company thereby pays a fee per customer to the cooperative. Additionally, some energy companies develop marketing activities to boost the customer acquisition of cooperatives. The resale partnership turns out to have a generally beneficial influence on cooperatives. A first beneficial influence concerns the acquisition of new customers, which turns out to be one of the most important challenges for cooperatives nowadays. By developing additional activities to boost the customer acquisition, energy companies stimulates the growth of the cooperative.

Another beneficial influence is on the need for time and volunteers among cooperatives. By paying the cooperative a fee per customer, the energy company helps to create a business model from which a cooperative can pay its volunteers for their work. In contrast, a detrimental influence occurs when administrative problems arise in the partnership. These problems take up a lot of time and can create complaints among customers, making it more difficult for cooperatives to acquire new customers. Additionally, when an energy company offers lower energy prices outside of the cooperative, this has a detrimental impact on the customer acquisition of cooperatives.

The *third and fourth type of partnerships* both concern production projects, whereby the produced electricity is for private and public use respectively. In these cases the cooperative entirely owns and develops the project itself. The partnership with an energy company is therefore limited to the last phase of a project alone, the exploitation and management phase. The energy company purchases the produced electricity and either settles it on the energy bill in the case of private production or directly sells it to customers in the case of public production. The role of the energy in these partnerships is in essence only administrative.

These administrative tasks however often require complex administration systems and more importantly; a supplier license. Outsourcing these tasks to an energy company therefore saves a cooperative time and risks, which creates a beneficial influence on the cooperative's development. Additionally, when energy company co-invests in a project, this also creates a beneficial influence on the need for finance among cooperatives. Lastly, this partnership can again have a detrimental influence on a cooperative when administrative problems arise.

The *fifth type of partnership* represents the most 'heavy' type, as the cooperative and energy company in this case jointly own and develop the project. This means that the partnership covers all the phases of a project, from orientation and planning of the project to the construction and exploitation. As the

cooperative energy companies do not have their own project development division, they are not involved in this type of partnership. Commercial energy companies in contrast do play a role here.

An important conclusion is that the cooperative and energy company complement each other well in this partnership. The cooperative on the one hand organises the participation and support of local residents and in some cases also does part of the project development; the energy company also takes on the project development and additionally co-invests in the project. The partnership in this way has a strong beneficial influence on the experience and expertise of a cooperative, as the commercial energy company brings its rich experience with project development into the partnership. This especially stimulates the development of younger cooperatives, who can learn a lot about project development in a relatively short time. An additional beneficial influence is on the need for finance among cooperatives. Commercial energy companies are generally financially strong parties, who co-invest in the project.

The fifth partnership in particular shows the cooperative's strength: organising the participation and support of local residents. This strength also turns out to form the main motive for commercial energy companies to work with cooperatives. Cooperatives in this way form a way for energy companies to expand their renewable portfolio. This means that expectation c, "*The main motive for commercial energy companies to form partnerships with cooperatives is the exploitation of new market opportunities"* can be confirmed.

In the *sixth and last type of partnership*, the energy company completely owns and develops the project by itself. Again, this type is only developed by commercial energy companies. As the cooperative itself is not involved in the project development of the project but merely organises participation, this type of partnership does not seem to have a significant beneficial influence on the development of the cooperative.

Summarising, a partnership with an energy company is indeed found to have a beneficial influence on the following challenges: the need for access to finance; the need for expertise and advice; the need for time and volunteers; and the need to recruit members. This means that expectation f is verified. Detrimental influence on the other hand can indeed occur when an energy company already has a negative reputation among local residents. People in this case can refuse to join the cooperative, when it works with that particular energy company.

An interesting conclusion however is that when an energy company has a positive reputation of being a trusted service provider, cooperation with that energy company can also be beneficial for the cooperative. People are in this way more inclined to join the cooperative, as they trust the energy company. This means that expectation g, *Cooperation with an energy company has a detrimental effect on the external challenge of creating community support*, is only partly verified.

7.1.3 Energy companies as intermediaries

Overall, some important differences exist between the activities of cooperative and commercial energy companies. Where cooperative energy companies mainly host resale partnerships and only a few production partnerships; commercial energy companies host mostly production partnerships. Cooperative energy companies however do offer more advice and services to cooperatives, in the form of masterclasses, congresses, and toolkits. Cooperative energy companies in this respect have a better understanding of cooperatives' needs, as cooperatives form their core business. This means that expectation d*; Cooperative energy companies develop different activities than commercial energy companies, as their activities are more tailored to the needs of cooperatives*; can be verified.

Overall, cooperative energy companies were thereby found to play a stronger intermediary role, especially by sharing their own knowledge and by creating infrastructures to share this knowledge among cooperatives. Their stronger role can be explained by the fact that the cooperative energy companies have been initiated by cooperatives themselves, which means that they have a stronger position in the cooperative networks. Moreover, they also have a better understanding of the cooperatives' needs. Commercial energy companies in contrast play only a limited role in sharing knowledge and creating

knowledge infrastructures, as cooperatives use their own existing networks to do this. A remarkable additional intermediary role was identified for DE Unie in the field of brokering and managing partnerships. This cooperative company entered into a partnership with Eneco, in which they jointly develop new services for cooperatives. This creates a new type of tripartite partnership between the three parties, whereby DE Unie operates as a mediator between cooperatives and Eneco.

Commercial energy companies in contrast mainly play an important intermediary role in providing advice, and coordinating projects on the ground. This role however seems to grow smaller, as cooperatives become more professional or even start their own cooperative project development agencies. These agencies thereby form an alternative for cooperation with energy companies. All in all, this means that expectation e, *Cooperative energy companies fulfil a stronger energy intermediary role than commercial energy companies*, can be verified.

7.2 Theoretical conclusions

Besides the two practical aims of providing both cooperatives and energy companies with knowledge about the possibilities and consequences of partnerships, this research also aimed to contribute to theory about the interaction between civil society and the market and to theory about energy intermediaries. These theoretical aims are discussed in this section.

7.2.1 Contributing to the state-market-civil society theory

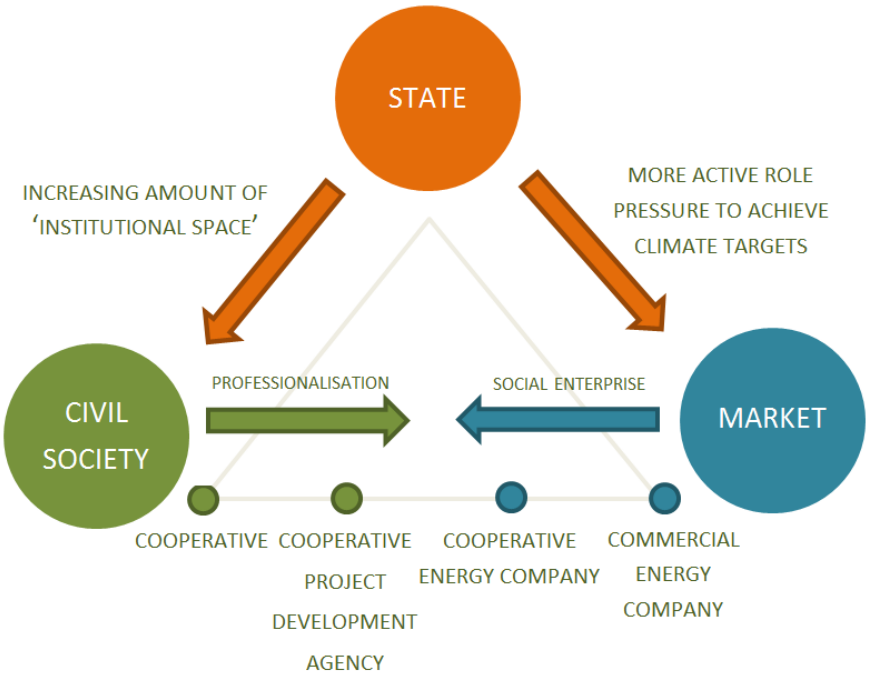
An important theoretical conclusion in this research is that as a result of the partnerships between cooperatives and energy companies, the boundaries between civil society and the market are becoming blurred. Several new hybrid forms thereby seem to emerge between the civil society and market sphere, as discussed in section 5.3.8. Firstly, cooperatives themselves become more professional and increasingly operate in a business-like way in order to create a viable business model. Cooperatives in this way shift towards the market sphere. Secondly, the most recent hybrid form are the cooperative project development agencies, initiated by several groups of more professional cooperatives.

Thirdly, the cooperative energy companies NLD and DE Unie also form hybrid models, combining commercial and cooperative aims in a 'social enterprise'. Lastly, some commercial energy companies seem to shift in the direction of the cooperative energy companies, blurring the boundary between the two types of energy companies. Examples of these are Greenchoice, who actively involves cooperatives in the formulation of their future strategy; and Qurrent, who created their own cooperative. Commercial energy companies in this way shift towards the civil society sphere. The four hybrid actors can be plotted on a continuum between civil society and market (**Figure 32**).

Moreover, what is interesting is that even between these hybrid forms, new forms of cooperation are emerging. A concrete example of this is the recent partnership between DE Unie and Eneco, a cooperative and commercial energy company. This creates a new type of tripartite partnership between cooperatives, cooperative energy companies and commercial energy companies. This will further blur the boundaries between the civil society and market sphere and between the cooperative and commercial values.

The increasing interaction between the civil society and market sphere thereby also seem to cause changes in the role of the state. A concrete example of this is the increasingly active role of municipalities in advising energy companies to cooperate with the local cooperative. The reason behind this is the increasing pressure of the national government to achieve the climate targets in 2020. This results in a more active role of the state towards the market (**Figure 32**). Another example is the recent significant improvement of the postal code regulation. In fact, this seems to suggest that the state is creating a greater amount of 'institutional space' for cooperatives in the Netherlands (Oteman et al., 2014). The dynamic and rapidly changing interaction between civil society and the market in this way also has consequences for the role of the state, which will only become stronger in the future.

Figure 32: New hybrid forms between civil society and market



7.2.2 Contributing to the energy intermediary theory

A second contribution of this research has been to the energy intermediary theory. Interestingly, Moss argues that the energy intermediary framework in particular forms a valuable framework to examine the blurring boundaries between civil society and the market. He especially argues that "as traditional boundaries between actor groups are being eroded or redefined, intermediaries would appear to play an important role in communicating across cultures of compliance (state), of competition (market), and of collaboration (civil society)" (2009, p.1492). This research has in this respect identified four hybrid forms, that could be seen as energy intermediaries.

For two of these hybrid forms in particular, the cooperative energy company and commercial energy companies, the specific energy intermediary activities were examined in detail. This research project has in this way contributed to the academic evidence on Dutch energy intermediaries, which was to date only very limited. On the one hand, this research has thereby shown that the relatively young cooperative energy companies indeed play an energy intermediary role. On the other hand however, this research project has shown that also the older, more traditional commercial energy companies in fact play an energy intermediary role. Although these market parties might in first instance not seem the most obvious party to fulfil an energy intermediary role, it has shown that looking at these parties through an energy intermediary lens offers valuable new insights for energy intermediary theory.

7.3 Taking a broader view

All in all, the different partnerships between cooperatives and energy companies have a beneficial influence on the development of cooperatives. But what does this mean for the development of the cooperative sector overall? And what does it mean for the potential role of cooperatives in the energy transition? This section concludes by answering putting the research results into a broader perspective.

7.3.1 Exploring the role of partnerships in the energy transition

On the one hand, the resale partnership can help cooperatives to grow, especially when the energy company develops additional marketing activities to boost the customer acquisition. This research has however shown that the potential success of the resale partnership is limited, as the challenge of acquiring customers remains difficult. This suggests that consumers do not seem to be very receptive for purchasing energy from a cooperative. Moreover, the potential customer base of a cooperative is

geographically limited, due to the cooperatives' local nature. This means that in the end, the resale partnership does not seem likely to contribute much to a stronger cooperative energy movement in the Netherlands.

In contrast, cooperatives that focus on the realisation of production projects and subsequently acquire customers for those specific projects, seem to be more successful. Recent examples of this are the solar parks of Bergen Energie, the wind park Nijmegen-Betuwe by WindpowerNijmegen and solar project on the roof of ASV Arsenal by Zuiderlicht, who succeeded in acquiring a high number of investors and/or customers in short time. In contrast to the resale of energy, consumers thus do seem to be enthusiastic to join in concrete production projects. Recently, more and more cooperatives therefore develop production projects in this way, quickly increasing the amount of renewable electricity produced by cooperatives.

In order to strengthen their contribution to the energy transition, cooperatives are therefore recommended to prioritise production projects above the resale of energy. The realisation of production projects however requires knowledge and expertise; this is where partnerships with energy companies can be useful. These partnerships can provide cooperatives with the knowledge, expertise and finances needed to develop production projects. Partnerships with energy companies can in this way accelerate the development of cooperative production projects. Directly, by increasing the amount of renewable electricity produced by cooperatives, and indirectly, by increasing the amount of knowledge and experience among cooperatives, which can then be shared through already strong cooperative networks such as HIER Opgewekt or VEC in Gelderland. In this way, partnerships can contribute to a larger role for cooperatives in the energy transition.

7.3.2 The future of partnerships between cooperatives and energy companies

Partnerships with energy companies are however not the only way to obtain the knowledge and professionality needed for production projects. The recently emerged cooperative project development agencies also seem to take up this task, providing the knowledge and capacity to develop production projects. This movement therefore forms an alternative to partnerships with energy companies in the field of project development.

For the delivery of the electricity however, an energy company is still needed. Under the current governmental regulations the supply of energy namely still requires a supplier license, which is not easy to obtain and involves high financial risks. In this respect however, the cooperative energy companies can in fact also be regarded as an alternative to cooperation with commercial energy companies. Although the two cooperative energy companies NLD and DE Unie have been treated as energy companies in this research, in fact they are initiated and owned by the cooperatives themselves. They are therefore often regarded as 'super cooperatives' (Jonker, 2015; Prins, 2015).

A combination of the cooperative development agencies and the cooperative energy companies thus seems to result in a complete alternative for working with commercial energy companies. In this way, an entirely cooperative chain is created. Both the project development agencies and cooperative energy companies therefore form competition for energy companies, creating tension in the electricity supply chain.

The question however is: will this cooperative chain become robust enough, or is cooperation with commercial energy companies in some form still necessary? Although the desire to eventually become independent is strong, cooperatives themselves think that energy companies are still needed at this moment. This was illustrated on the cooperative day organised by Greenchoice, where the cooperatives were asked to react on the following statement: 'Energy companies: essential or a relic from the past?'. In response, the cooperatives concluded that under the current law, energy companies still play an essential role as a supplier; and besides this, play an essential role in developing large-scale projects.

Cooperation with energy companies is therefore not necessarily regarded as a negative. The same seems to go for the cooperative energy companies, as the recent partnership between DE Unie and Eneco

shows. For DE Unie in this respect, Eneco forms a valuable additional to their business model, bringing in the expertise and capacity they lack themselves.

The cooperative movement thus still seems to 'need' commercial energy companies in some respects. Conversely, commercial energy companies also seem to 'need' the cooperative movement: to organise the participation of local residents, which they cannot do themselves. The cooperative and commercial world in this way seem to complement each other well. De Windvogel thereby emphasizes that each party should play at its strengths: "you have to find out: what is our added value, what can we do, and what can the cooperatives do" (Zomer, 2016). Greenchoice thereby adds that "the cake for sustainability is large enough in the Netherlands, so let's not make it a competition, but let's focus on strengthening the entire movement" (Vanson, 2016). Summarising, this means that partnerships between the cooperative and commercial world will remain, and still more 'new energy alliances' are to emerge.

8. Discussion

This last chapter contains a reflection on the research. While the steps taken in this research were carefully considered, the applicability of the methods is constrained by various factors such as the limited amount of time and resources, the quality of the secondary data used and the willingness of people to participate in the research. This in turn also has consequences for the generalisability of the results. The first section therefore reflects on the methods and results of the research. The second section gives some recommendations for further research.

8.1 Reflecting on the methods and results of the research

This research has been built up in four phases, each phase focusing on one specific method. The first phase encompassed a literature review, which resulted in a theoretical framework for analysis. Although ample literature was available on Dutch cooperatives and the challenges and incentives they face, literature on energy intermediaries in the Netherlands was limited. As a result, a comprehensive understanding of Dutch energy intermediaries was absent, which complicated the use of this theory as a framework to examine the role of energy companies. To overcome this issue, this research has instead taken a study of energy intermediaries in the UK as a basis (Hargreaves *et al.*, 2013). This however means that the use of the energy intermediary framework in this research has a limited validity, as the activities of energy intermediaries are likely to differ between the UK and the Netherlands.

The second phase of the research encompassed exploratory interviews with six experts in the field. Due to time constraints, the number of experts consulted in this phase was limited. A larger number of expert interviews might therefore have resulted in a more critical reflection on the theoretical framework. Moreover, the experts predominantly have a background in the state, civil society and academic sphere (see Appendix). No experts from the market sphere were interviewed; instead, the market parties were included in the in-depth interviews. This means that the input from the experts is somewhat biased, and the research could have been improved by including also an expert market perspective.

Additionally, the expert interviews also resulted in an overview of partnership types, which was later refined through the data-analysis and interviews. An important reflection here is that the distinction between the different partnership types is an analytical tool and made for the specific purpose of this research. This means that in reality, undoubtedly many different variations of the partnerships could be distinguished. The created overview can therefore by no means be considered complete. Therefore, all remarks or additions to the types of partnerships are most welcome.

The third phase of the research contained an analysis of secondary data from HIER Opgewekt, complemented by desk research. An important shortcoming of using secondary data is that the quality of the data is determined by the party delivering the data. On the one hand, the data is delivered by HIER Opgewekt, the national authority in the field of community energy in the Netherlands. This means that the data has a high reliability. On the other hand however, HIER Opgewekt has collected their data through a survey among all cooperatives in the Netherlands. The data has thus been supplied by cooperatives themselves and can therefore contain errors, which in turn also affect this research. To minimise the effect of these errors, additional desk research was executed to verify and complement the data by HIER Opgewekt.

This additional desk research is however also acknowledged to have its limitations due to time constraints and the limited availability of data on the internet. This means that the data-analysis is incomplete in some respects. An example of this is that for several of the older wind projects the information about the involved energy company is missing[12].

The fourth phase of the research included the 24 in-depth interviews. In contrast to the data-analysis on all 220 cooperatives, the in-depth interviews only form a limited selection of the research population. Moreover, the selection – of both cooperatives and energy companies – is not necessarily representative of all cooperatives and energy companies. More specifically, cooperatives without production activities

[12] In the figures created from the data-analysis, these cases were marked as 'Unknown'.

seem to be underrepresented in the selection, which means that the results of the research are biased towards cooperatives with production (see Appendix). Although the data-analysis enhances the generalisability of the interview results, some chariness should therefore be taken when generalising the results. In this respect, the research could be improved by including more cooperatives without production activities.

Moreover, another important shortfall of the interview phase is that, due to time constraints, no cooperatives *without any cooperation* with energy companies were included in the research. This means that the particular motives that cooperatives might have to – consciously or not – not work with an energy company are underrepresented. Although the expectation is that most cooperatives without cooperation are relatively young and therefore not 'ready' to work with an energy company yet, their absence is an important shortcoming of this research. The research could therefore be improved by including one or more cooperatives without cooperation.

Besides these shortcomings, the interview phase was constrained by the willingness of people to participate in the research. In this respect however only Vandebron refused to participate in the research.

8.2 Recommendations for further research

Although this research has contributed to answering some important questions, it has at the same time also uncovered new questions and interesting areas to examine. Firstly, it would be very interesting to explore the range and activities of energy intermediaries in the Netherlands through further research. Doing so would create a more complete image of the parties active in the Dutch energy transition, and offer the possibility to examine the role of these parties in the development of cooperatives. The role of such parties might namely well be crucial in creating a stronger contribution of cooperatives to the energy transition.

Secondly, it would be interesting to examine to what extent the cooperatives' motives to work with energy companies found in this research coincide with the general motives of cooperatives. Does the relative dominance of motives such as financial stability, price or organisational structure also mean that cooperatives are not necessarily driven by sustainability motives in the first place? Thirdly, this research has raised many new questions concerning the role of energy companies. Although this research has provided some insight into the contribution that energy companies can make to the energy transition through working with cooperatives, it would be interesting to examine their role in more detail. What strategies and new business models are energy companies developing now, and what place do cooperatives take in these models?

Fourthly, this research also raises some interesting questions concerning the institutional space for cooperatives in the Netherlands. This research namely seems to suggest that governmental institutions are playing an increasingly active role in stimulating cooperatives in the Netherlands. An example of this is the recent improvement of the postal code regulation; does this represent a breakthrough in the amount of institutional space for cooperatives? Another example seems to be the increasingly active role that municipalities play in stimulating cooperation with cooperatives, for example by advising energy companies to contact the local cooperative. Especially given the fact that many participants still stressed the importance of institutional barriers in the Netherlands, this is an interesting area for further research. It would in this respect be valuable to for example build upon the work by Oteman *et al.* (2014), but also on the work by Elzenga & Schwencke (2014a).

Fifthly, this research has in many ways shown the importance of the spatial dimension in the energy transition. Many cooperatives for example emphasized that their main future challenge will be to find sufficient locations – fields and roofs – to develop renewable energy projects. Moreover, also energy companies run into the spatial challenge; for them the challenge to find locations might be less pressing, but instead the challenge is to obtain permission to use these locations. Organising the participation of local residents hereby forms the main obstacle. There however seems to be a considerable knowledge gap around the spatial dimension of the energy transition, which is why further research in this area is strongly recommended.

Lastly, valuable insights could be obtained through comparing the partnerships between cooperatives and energy companies in the Netherlands with other countries. Comparing the Dutch situation with the German or British situation for example could provide more insight into how the partnerships are affected by the institutional framework of a country, and which consequences this in turn has for the role of cooperatives in the energy transition. In this way, some important lessons might also be learned for the stimulation of cooperatives in the Netherlands.

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Appendices

Appendix 1: Topic list cooperatives

Naam: ……
Werkzaam bij: ……
Functie: ……

Over de coöperatie

Kun je wat vertellen over:

- Jullie ontwikkeling over de afgelopen jaren;
- Jullie doelstellingen; ambities voor de toekomst
- Jullie projecten

Kansen en obstakels

- Kun je aangeven met welke kansen en problemen jullie als coöperatie te maken hebben?

Contact met leveranciers

- Met welke leverancier(s) werken jullie samen? Met welke juist niet?
- Waarom werken jullie juist met die leverancier(s) samen? Welke motieven wegen mee in je keuze?
- Hebben jullie vroeger samengewerkt met (een) andere leverancier(s)?
- Is er volgens jullie verschil tussen commerciële en coöperatieve leveranciers?

Details van de samenwerking

Kun je wat vertellen over jullie samenwerking met de energieleverancier?

- Wie heeft de samenwerking geïnitieerd? Hoe verliep dit proces?
- Wat voor soort samenwerking is het: is er sprake van productie of niet?
- Wat is de duur van de samenwerking?
- Welke (prijs)afspraken zijn er gemaakt?
- Hoe verloopt het contact met de leverancier?

De rol van de leverancier

Kun je wat vertellen over de activiteiten van de leverancier in jullie samenwerking, en/of hun activiteiten op het gebied van coöperaties in het algemeen?

- Leveren ze bepaalde diensten of producten? Zo ja, welke?
- Ondersteunen ze jullie project(en) financieel?
- Stimuleren ze het delen van kennis met andere coöperaties? Zo ja, hoe?
- Initiëren ze ook nieuwe projecten?
- Of ondersteunen ze jullie op andere manieren?

Evaluatie van de samenwerking

Kun je vertellen hoe jullie de samenwerking met de leverancier(s) ervaren?

- Wat gaat/ging er goed? Wat gaat/ging er minder goed?
- Ervaren jullie steun van de leverancier?
- Hebben jullie doelen gesteld van tevoren? Zijn die ook behaald?
- Wat zijn volgens jullie belangrijke succesfactoren/struikelblokken in samenwerking met een leverancier?

Kun je aangeven op welke manier de samenwerking jullie beïnvloedt?

- Heeft het invloed op jullie projecten, op jullie als coöperatie? Zo ja, hoe?
- Heeft het invloed op de kansen/problemen waar jullie mee te maken hebben? Zo ja, welke en hoe?

Appendix 2: Topic list cooperative energy companies

Naam: ……
Werkzaam bij: ……
Functie: ……

Over de leverancier

Kun je wat vertellen over jullie bedrijf?

- Organisatie & ontwikkeling (grootte, organisatiestructuur, eigen productie)
- Visie en doelstellingen, ambities voor de toekomst;
- Visie op de veranderingen in de leveranciersmarkt;

Contact met coöperaties

Wat is jullie visie op de ontwikkeling van coöperaties?

- Welke problemen spelen er volgens jullie bij coöperaties, waar hebben ze behoefte aan? Welke rol kunnen/willen jullie hierin spelen?
- Werken jullie samen met coöperaties? Waarom wel/niet?
- Welke activiteiten hebben jullie op het gebied van coöperaties?
- Hebben jullie vroeger samengewerkt met (een) andere coöperatie(s)?
- Wat is jullie kijk op samenwerking met commerciële partijen/leveranciers?

Details van de samenwerking

Kun je wat vertellen over jullie samenwerking met de coöperatie(s)?

- Hoeveel van jullie coöperaties hebben productie? (PPA/wederverkoop)
- Wat voor soort samenwerking is het? (PPA/wederverkoop)
- Wie heeft de samenwerking geïnitieerd? Hoe verliep dit proces?
- Wat is de duur van de samenwerking?
- Welke (prijs)afspraken zijn er gemaakt?
- Hoe verloopt het contact met de coöperatie?

Jullie rol in de samenwerking

Kun je wat vertellen over jullie rol in de samenwerking?

- Leveren jullie bepaalde diensten of producten? Zo ja, welke?
- Ondersteunen jullie de project(en) financieel?
- Stimuleren jullie het delen van kennis met andere coöperaties? Zo ja, hoe?
- Initiëren jullie ook nieuwe projecten?
- Of ondersteunen jullie coöperaties op andere manieren?

Wat is het verschil tussen jullie en commerciële leveranciers? Werken jullie ook met commerciële leveranciers samen? Waarom wel/niet?

Evaluatie van de samenwerking

Kun je vertellen hoe jullie de samenwerking met de coöperatie(s) ervaren?

- Wat gaat/ging er goed? Wat gaat/ging er minder goed?
- Hebben jullie doelen gesteld van tevoren? Zo ja, welke? Zijn die doelen ook behaald?
- Wat zijn volgens jullie belangrijke succesfactoren in samenwerking met coöperatie(s)? Wat zijn belangrijke struikelblokken?
- Krijgen jullie feedback van de coöperatie(s)? Zo ja, welke?
- Kun je inschatten welke invloed jullie samenwerking heeft op de coöperatie(s)?

Appendix 3: Topic list commercial energy companies

Naam: ……
Werkzaam bij: ……
Functie: ……

Over de leverancier

Kun je wat vertellen over jullie bedrijf?

- Organisatie & ontwikkeling (grootte, organisatiestructuur, eigen productie)
- Visie en doelstellingen, ambities voor de toekomst;
- Visie op de veranderingen in de leveranciersmarkt; de opkomst van coöperatieve leveranciers.

Contact met coöperaties

Wat is jullie visie op de ontwikkeling van coöperaties?

- Welke problemen spelen er volgens jullie bij coöperaties? Waar hebben ze behoefte aan? Welke rol kunnen/willen jullie hierin spelen?
- Werken jullie samen met coöperaties? Waarom wel/niet?
- Welke activiteiten hebben jullie op het gebied van coöperaties?
- Hebben jullie vroeger samengewerkt met (een) andere coöperatie(s)?

Details van de samenwerking

Werken jullie samen met coöperaties? Zo nee, waarom niet? Zo ja, kun je wat vertellen over de samenwerking?

- Wie heeft de samenwerking geïnitieerd? Hoe verliep dit proces?
- Wat voor soort samenwerking is het: is er sprake van productie of niet?
- Wat is de duur van de samenwerking?
- Welke (prijs)afspraken zijn er gemaakt?
- Hoe verloopt het contact met de coöperatie?

Jullie rol in de samenwerking

Kun je wat vertellen over jullie rol in de samenwerking?

- Leveren jullie bepaalde diensten of producten? Zo ja, welke?
- Ondersteunen jullie de project(en) financieel?
- Stimuleren jullie het delen van kennis met andere coöperaties? Zo ja, hoe?
- Initiëren jullie ook nieuwe projecten?
- Of ondersteunen jullie coöperaties op andere manieren?

Wat is het verschil tussen jullie en coöperatieve leveranciers?
Werken jullie ook met coöperatieve leveranciers samen? Waarom wel/niet?

Evaluatie van de samenwerking

Kun je vertellen hoe jullie de samenwerking met de coöperatie(s) ervaren?

- Wat gaat/ging er goed? Wat gaat/ging er minder goed?
- Hebben jullie doelen gesteld van tevoren? Zo ja, welke? Zijn die doelen ook behaald?
- Wat zijn volgens jullie belangrijke succesfactoren in samenwerking met coöperatie(s)? Wat zijn belangrijke struikelblokken?
- Krijgen jullie feedback van de coöperatie(s)? Zo ja, welke?
- Kun je inschatten welke invloed jullie samenwerking heeft op de coöperatie(s)?

Appendix 4: Topic list Trianel

Vragen over het verhaal van Trianel en de gevolgen daarvan:

- Hoe zag de organisatie van Trianel eruit, wat waren de doelstellingen? Hoe is de ontwikkeling van Trianel precies verlopen?
- Wat was de motivatie om wel/niet met coöperaties samen te werken?
- Hoe zag die samenwerking er dan uit? Ging het bijvoorbeeld om productieprojecten of niet, wat was de duur en vorm van de samenwerking, welke (prijs)afspraken werden er gemaakt?
- Welke rol speelde Trianel precies in de samenwerking? Leverden jullie bijvoorbeeld bepaalde producten of diensten, ondersteunden jullie de coöperatie financieel, of op andere manieren?
- Hoe verliep de samenwerking met de coöperaties, wat ging er goed, wat ging minder goed?
- Wat zijn volgens jou belangrijke succesfactoren in samenwerking met een coöperatie? Wat zijn belangrijke struikelblokken?
- Kun je inschatten welke invloed Trianel heeft gehad op coöperatie(s) en hun projecten?
- Heeft Trianel ook gevolgen gehad voor leveranciers, en voor de wetgeving rondom leveranciers?

Algemene vragen over de samenwerking tussen coöperaties en energiebedrijven:

- Wat is jouw kijk op de veranderingen in de leveranciersmarkt?
- Wat is jouw visie op de ontwikkeling van coöperaties in Nederland? Waar hebben coöperaties volgens jou behoefte aan? En welke rol willen/kunnen leveranciers hierin spelen?
- Zijn er verschillen tussen coöperatieve leveranciers, zoals Noordelijk Lokaal Duurzaam (NLD) en DE Unie, en commerciële leveranciers?