Exploring the transition to a low-carbon economy from a bottom-up perspective

A comparative case study of implementation processes of local renewable energy initiatives in the Dutch province of Overijssel

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Preface

This thesis is the result of passion, dedication, discipline, and the everlasting desire to continue to develop myself, and the world I live in. This thesis is the crown on my career as a Public administration student and the ignition for my career in academia.
What started as an opportunity to contribute to a European research project at the end of my bachelor awakened a drive to continue in academia for a great cause; a sustainable world. The efforts during my master program resulted in a PhD-position to research my greatest academic interest. When I look back at the road I've walked, starting from primary school all the way up to this very moment, I realize that I am forever thankful for the opportunities that life has given me.

I would like to thank Hans and Cheryl for believing in me and giving me the opportunity to prove myself. You helped me whenever I was stuck in the process of writing this thesis and have been of great support.

To my girlfriend Shayeeda: I realize what I made you go through these last couple of months. Living, sleeping, and eating on 25 m^2 with me constantly 'doing my homework' wasn't easy. You had to meet friends in town instead of at home, you had to put on your headphones whilst watching TV; in short you practically lived in a library the last couple of months. However, this did not have any effect on the way you supported me. The numerous times you've told me that you were so proud of me, the times you motivated me to keep on going, the times you did the dishes and laundry, cooked dinner, cleaned the house, took care of our bird Pietje, and so on; there are simply too many things to name that you did for me to help me throughout my study. Dear Shayeeda, I love you so much for that and so many other things. I promise I will make it up to you.

To my parents: although you live in The Hague, it never felt like you left Deventer. Dear mom and dad, thank you for always being there for me, thank you for sharing my problems, and thank you for your unconditional love and support. Although you always say that you're proud of me, I'm proud that I'm a son of you.

Executive summary

Renewable energy, as only one aspect of sustainable development, involves a specific kind of steering logic, which is frequently preached by local governments in the Netherlands and can also be found in the literature. The governance for sustainable development implicates a process of '*societal self-steering*' in which society is involved in the critical review of existing practices and raises efforts to generate change, and also implicates '*an important role for public authorities at all levels'* (Meadowcroft, 2007, p. 302-303; Bulkeley & Kern, 2006). In response to this, the Dutch governments (i.e. national government, provinces, and municipalities) typically assign themselves a facilitative role.
Having said this, one has to keep in mind that the diffusion of climate related energy (CRE) not only revolves around the technical feasibility, or the cultural and social barriers that are geared to the archaic energy regimes (Sovacool, 2009), but is thusly also determined by other hurdles that involve the political and governance context. This justifies looking into the factors that impact the degree of success of the implementation of local renewable energy initiatives.

Since the body of literature typically views local renewable energy in sense of increasing the acceptation or countering opposition of renewable energy developments by means of citizen involvement and the like, the purpose of this thesis is to illuminate what factors influence the implementation process of local renewable energy initiatives from a bottom-up perspective.
The research is conducted with help of the Contextual Interaction Theory (CIT), which is capable of dealing with such factors in a comprehensive manner. CIT views implementation processes as social interaction processes ultimately driven by the actors involved. Accordingly, CIT feds the influence of the incomprehensible and infinite amount of factors via the key characteristics of the actors involved (motivations, cognitions, power and capacity). Furthermore, the governance context in specific (which is part of the array of factors) is assessed by means of the Governance Assessment Tool. Following this, the research takes a theory guided explanatory approach and its design involves a comparative case study of three local renewable energy initiatives in the province of Overijssel that are selected by means of a maximum variation sampling method.

The findings of this thesis report a lack of intensity and coherence of the Dutch governance regime to support local renewable energy development.
The insufficient intensity of instruments such as the zip-code rose, which is the main pillar for local renewable energy initiatives; incoherence as a result from these instruments that are in friction with incumbent legislation and the status quo; and insufficient allocated resources in light of a facilitative government are factors that impact on the degree of success of the implementation of local renewable energy initiatives.
The overarching facilitative role assumed by the Dutch governments arises from the general paradigm that the government has a limited capacity to effectuate the transition towards a sustainable society. In other words, the facilitative role flows from the self-effectiveness assessment of the government regarding the effort to attain targets of sustainability.
While a facilitative role as such is in correspondence with arguments made by Meadowcroft (2007) and Bulkeley & Kern (2006), the governance regime as such is insufficiently geared to translate such a role effectively and in a meaningful manner.

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1. Introduction

The European Union endeavors to stimulate renewable energy via an array of policy instruments and mechanisms. Member-States have leeway regarding the means to pursuit the stimulation of renewable energy (Council Directive 2009/28/EC). Consequently effectiveness in stimulating renewable energy may differentiate with the implementation of varying instruments and their design, as has been discussed considerably in the literature (e.g. Marques & Fuinhas, 2012; Jenner *et al.*, 2013; Söderholm & Klaassen, 2007; Held *et al.*, 2006; Butler & Neuhoff, 2008; Lüthi, 2010; Dong, 2012; Lipp, 2007; Lund, 2007; Menanteau *et al.*, 2003; Mitchell *et al.*, 2006; Fouquet & Johansson, 2008; Jacobsson *et al.*, 2009; Verbruggen, 2009; Wiser & Pickle, 1998; Jacobsson & Bergrek, 2004; Johnstone *et al.*, 2010; Lüthi & Wüstenhagen, 2012; Zhang, 2013; Mulder, 2008; Ragwitz *et al.*, 2006; Bürer & Wüstenhagen, 2009; Boomsma *et al.*, 2012; Bergrek & Jacobsson, 2003). However, the relationship between the implementation of a policy and the extent to whether the policy has indeed affected the target group, or effectuated an increase in the installed capacity of renewable energy, is one of many. Various studies have too looked into the relationship between renewable energy stimuli and reported change (e.g. Marquis & Fuinhas, 2012; Johnstone *et al.*, 2010).
Still, to assign the effectiveness of a policy to the measured increase of particular targeted behavior and the like is susceptible to myopia. Hence, one has to account for possible other venues that have affected the target group to resort to the desired behavior, such as case specific circumstances or factors such as the political context or the energy price.

The recent increase of local renewable energy initiatives and the proliferation of solar panels in the Netherlands (Central Bureau for Statistics [CBS], 2013; Energie Trends, 2013) validates exploring local initiatives and to illuminate what other venues (other than/next to policy instruments) play a role regarding the implementation of these initiatives.
The installed capacity of solar PV more than doubled in 2012 (CBS, 2013). The Central Bureau for Statistics has reported the following generated capacity by solar energy: 88 MW (2010), 145 MW (2011), and 365 MW (2012) (CBS, 2014). The Association of Energy Network Operators in the Netherlands reports that the generated capacity of solar panels was 347 MW in April 2013, and that this has increased to 651 MW in April 2014. The amount of registered capacity generated by solar energy (PV) is 762 MW in July 2014 (Association of Energy Network Operators, 2014). However, it is difficult to determine the exact installed capacity of solar panels since people are not obliged to register their installation (other than with their energy supplier) when they apply for a subsidy.

Research on local renewable energy initiatives simultaneously expanded with this trend, but is enmeshed in several conundrums.
Studies typically accumulate an array of factors that influence the realization of local initiatives but fail to fuse them into a comprehensive framework (cf. Boon, 2012). This is not uncommon in policy implementation studies (e.g. Meier, 1999; O'Toole, 2000). The literature on local renewable energy initiatives mostly looks into institutional framework conditions for community wind power, interactions between actors (in an unstructured manner), and significance of public acceptance/opposition and local ownership regarding renewable energy installations in the UK and Germany (Agterbosch *et al.*, 2004; Breukers & Wolsink, 2007; Toke *et al.*, 2008; Agterbosch *et al.*, 2009; Wolsink, 2000, 2007; Warren & Mcfayden, 2010. Rogers *et al.*, 2008; Devine-Wright, 2005; Devine-Wright, *et al.*, 2001; Seyfang *et al.*, 2013; Walker *et al.*, 2010; Hinshelwood, 2001; Wüste & Schmuck, 2012; Michalena & Angeon, 2009; Centre for Sustainable Environment [CSE], 2009; Laborgne, 2011; Walker *et al.*, 2007; Walker, 2008; Bell *et al.*, 2005; Jobert *et al.*, 2007).

But why study local initiatives? Renewable energy, as only one aspect of sustainable development, involves a specific kind of steering logic, which is frequently preached by local governments in the Netherlands and can also be found in the literature. The governance for sustainable development implicates a process of '*societal self-steering*', in which society is involved in the critical review of existing practices, and raise efforts to generate change, and '*an important role for public authorities at all levels'*

(Meadowcroft, 2007, p. 302-303; Bulkeley & Kern, 2006).

In this sense, one has to keep in mind that the diffusion of climate related energy (CRE) not only revolves around the technical feasibility, but what is equally important is to overcome the cultural and social barriers that are geared to the archaic energy regimes (Sovacool, 2009) and other hurdles that involve the political and governance context. This justifies looking into the factors that impact the degree of success of the implementation of local renewable energy initiatives.
In addition, the role of local actors is acknowledged by international conferences such as Agenda 21. Also, a report issued this year by an environmental law organization ClientEarth asserts the crucial role of community power in the transition to a low-carbon economy (Roberts, *et al.*, 2014). This development involves distributed centers of power.

Furthermore, Laborgne (2011) holds the position that a transition in the energy infrastructure can be fueled by local projects, and that a set of external developments ignited local energy strategies: (a) the attention to climate change in public discourse that requires action and responsibility at all levels, (b) increasing cost of energy effects, (c) liberalization and privatization transformed the energy sector, and (d) decentralized renewable energy systems are able to transform the centralized energy infrastructures (Laborgne, 2011).
Other authors argue that the transition to a low carbon society needs the support from the public, and that changes in the energy system cannot be fostered by traditional centralized energy governance system alone (Skea *et al.*, 2010; Eyre, 2012 in Parag *et al.*, 2013).
This statement can be confirmed by a recently published report by PwC, in which it is stated that traditional business models employed by energy utilities are under pressure as a consequence of increasing local renewable energy generation by means of solar panels and wind farms. 57% of 53 firms in 35 countries claim that local generation forces them to adapt their business model (PwC, 2013).
These upcoming developments provide opportunities and threats for the influence and role of local communities as agents of change.

Furthermore, studies winnow the role of grassroots innovations for more sustainable socio-technical regimes and conditions to the success of these grassroots innovations (i.e. transitions theory) (Smith *et al.*, 2013; Seyfang & Smith, 2007; Seyfang & Haxeltine, 2012; Ornetzeder & Rohracher, 2013, Middlemiss & Parish, 2010). This strand of research looks into the implementation of innovative technologies into a socio-technical system.

1.1 Research questions and definitions

However, the focus of this paper is the implementation process of local renewable energy initiatives. The implementation process is chosen as a focal point for this research since multiple interests and values clash and become manifest in this venue of policymaking. Thus:

- What factors impact the degree of success of the implementation of local renewable energy initiatives in the Dutch province of Overijssel?

Implementation is here defined as the process(es) that concern the realization of the local project with a collective and organized local initiative with a certain degree of installed capacity as a result. This implementation process is regarded as successful when the result is realized or in case the process is not yet concluded, when the degree and pace of the progress towards realizations is acceptable for the initiators.
A local renewable energy initiative is defined as a renewable energy installation that is established collectively by an organized group of societal actors (citizens, firms, local governments, societal organizations), and in which the actors and the renewable energy installation itself are locally embedded in geographical sense.

In order to understand how the implementation process unfolded and what factors are important in

the process, the following sub-questions are specified:

- How did the initiative evolve until now and what has the initiative achieved? (description)
- What is the structural context and case specific context for each local renewable energy initiative under scrutiny? (description)
- To what extent do the factors from these contexts explain this level of performance? (explanation)

1.2 Aim and relevancy

This study will delve into the factors that are important for the successful implementation (or realization) of local renewable energy projects by applying a theoretical framework capable of dealing with such factors in a comprehensive manner. The Governance Assessment Tool will support the analysis of these factors as a mechanism specifically geared to assessing the governance context. Additionally, this study may contribute to the development of a survey for quantitative research by providing relevant indicators for the implementation process of local renewable energy initiatives and be of help as input in land-use modeling. The outcomes of this study contribute to a Framework Programme 7 project named COMPLEX. While this study shows affiliation with the research objectives of COMPLEX, it still maintains its independence.
Furthermore, existing community energy (the concept used in British studies) literature predominantly focuses on the UK itself and initiatives involving wind energy. The United Kingdom, unlike the Netherlands, implemented specific policies and emphasized the role of communities to make the transition to a low carbon energy system possible (HM Government, 2005; HM Government, 2009).

The outcomes of this research will be relevant in twofold; bottom-up and top-down. Initiators of local renewable energy projects will become aware of the factors that influence the implementation of their projects and give an adequate response; policy makers will learn how to provide a healthy and encouraging environment for these projects to emerge.

2. Theoretical framework

Now that it has been determined that this paper focuses on the implementation, or realization processes of local renewable energy initiatives, it is crucial to use a theoretical framework that is apt for dealing with the variety of factors and contexts that could be of influence on these local renewable energy initiatives. Thus, a brief insight into implementation studies is given before introducing the adequate conceptual framework utilized in this paper.

2.1 Synthesizing generations of implementation research

When looking into implementation research one may observe different schools of thought as to how to study and describe implementation. The first camp, addressed as the top-down approach, views implementation as a linear follow-up process of the politics of policy making and believe in developing best-practice policy advice (prescriptive stance) or generalizable knowledge (Barrett, 2004; O'Toole, 2000; Matland, 1995). Policy is made at the top, and transferred down the hierarchic pyramid to the administrative bodies responsible for execution. Advocates believe that certain variables at the top (e.g. unclear policy objectives, interest differences between policymaker and implementer, multiplicity of actors) may confound successful implementation (See Pressman & Wildavsky, 1984; Mazmanian & Sabatier, 1983)

As a reaction to this the second school of thought, or bottom-up approach, held that implementation is not a linear process, but that implementation arises from the interaction of policy and setting (Berman, 1978), deeming unviable a best-practice theory or advice (Maynard-Moody *et al.*, 1990 as cited in Matland, 1995, p. 149). Proponents argue for the importance of contextual variables and taking account of the target group's and service deliver's views at the micro-implementation level (See Hjern & Hull, 1982) (Barrett, 2004; O'Toole, 2000; Matland, 1995).

O'Toole (2000) argues for the necessity of a synthetic approach of implementation that recognizes the multiplicity and variety of actors and demands cooperation and coordination of these actors to account for the complexity inherent to implementation processes in a comprehensive manner. Furthermore, research indicates the importance of both bottom and top variables (e.g. Bressers & Ringeling, 1989; Matland, 1995).

The Communications Model of Intergovernmental Policy Implementation (CMIPI) initiated by Goggin *et al.* (1990), the Contextual Interaction Theory (CIT) originally developed by Bressers (2004), and not so much about implementation but still relevant; the Institutional Analysis and Development (IAD) framework coined by Ostrom (1990) provide such parsimonious approaches.

CMIPI emphasizes the state-level and how constraints and inducements (or factors) from the top (federal level), bottom (state and local level), and state-specific factors (i.e. decisional outcomes and state capacity) may impede on state implementation. Researchers employing the CMIPI do so to analyze national level policy (e.g. Giunta, 2010). That being said, the aim of this research is to gain an understanding of the factors that play a role in the success of local energy initiatives, employing a state-level model will not be suitable.

The IAD framework analyzes to what extent groups are able to organize and govern their behavior successfully according to a set of design principles, which occurs in the action arena (i.e. actors involved that interact and make decision regarding the problem at hand). The configuration of the action situation then determines the process and outcomes (Ostrom, 1999). A central notion of the IAD framework is that it focuses on matters of collective action concerning resource dependency. This entails that the framework is not suitable for analyzing local sustainable initiatives, since this research does not attempt to understand the issues with organizing collective action in light of resource dependency, but it strives to determine what factors are important in the process and outcome of the implementation of local renewable energy initiatives.

The Contextual Interaction Theory (CIT) is then apt for the task of exploring the factors important for the successful realization of local renewable energy projects. Local renewable energy projects do not fit the traditional top-down perspective of implementation research. These projects differ with regard to ownership, actors involved, objectives envisioned, and so on. Multiple actors are involved and relations between them have changed; from citizens being passive consumers of electricity generated by utility companies to active participants in generating renewable energy, or *prosumers*. The CIT accounts for the multiplicity of actors and the dynamic nature and complexity of implementation processes as O'Toole (2000; 2004) correctly demanded.

Furthermore, systems theory also has some affiliation with CIT. The definition Agterbosch *et al.* (2004) attribute to *implementation capacity* has certain similarities with the Contextual Interaction Theory (CIT). Agterbosch and her colleagues refer to the "total of those systemic conditions (technical, economic, institutional, and social) and mutual interdependencies that influence the *behavior* (i.e. feasibility of adoption) of wind power entrepreneurs (p. 2049)". Furthermore, changes in the systemic conditions influence the implementation capacity, which gives indication to the feasibility for wind entrepreneurs to actually implement a project. While the systemic approach may seem like a suitable framework to analyze local projects, it inadequately accounts for the actual implementation process, being the interaction between actors. The link between the systemic conditions and the influence on feasibility of adoption is not clear and the framework is technology adoption focused. The systemic approach perceives its systemic conditions as factors of influence on the adoption of a certain project, which is dependent on the type of wind power entrepreneur.

While the systemic approach does recognize the influence of so-called social conditions; conditions resulting from cooperation between stakeholders, and the interests, behavior and power position of the stakeholders, it sees this as a direct condition on the implementation capacity. CIT perceives this to be the central element of implementation processes, in which all the other conditions flow through. Systemic approach is unable to comprehensively account for the array of conditions it deems likely to be influential.
The institutional conditions (direct) are obligations that pattern the behavior of stakeholders, while this can also be governmental policy. The differences between scale are hard to discern.
And ultimately, it revolves around the implementation capacity of particular actors, while CIT looks at the implementation of the project as a whole.

CIT holds a magnifying glass over the 'social conditions' conceptualized by Agterbosch *et al.* (2004), and emphasizes the importance of the interaction process in policy implementation. While the school of thought of Agterbosch *et al.* seek to determine the influence of the *totality and interdependency* of systemic conditions on the implementation capacity at once, CIT holds the influence of the countless contextual factors manageable by restricting these factors to the influence on the actors' characteristics. This justifies the appliance of CIT as a framework to analyze local incentives. CIT adequately accounts for the complexity of implementation processes and takes note of the 'social' and institutional (the 'arena') settings.

Breukers & Wolsink (2007) assert that institutional capacity building can explain the varying achievements regarding implementation. This concept seeks to explore the relations between the institutional context, actors, and implementation achievements. Institutional capacity refers to "the capacity to facilitate open policy and decision-making processes - at national and local levels - that provide access to relevant stakeholders and room for various types of knowledge resources" (p. 2738). While this framework does put actor interactions central in the process, it resides in myopia by solely assessing the influence of the (changing) institutional context (i.e. formal and informal rules on different levels of government).

2.2 Contextual Interaction Theory

The Contextual Interaction Theory as a framework for analyzing policy implementation processes knows a rich history of reassessments and developments. CIT sprung from the dissertation of Bressers (1983), and went through various phases to develop in its current comprehensive, yet comprehensible form some two decades later (Bressers, 2004). CIT took shape based on logic and a deductive approach to an array of evaluation studies of policy instruments in the Netherlands in the 70s and 80s. Key argument and focus of CIT is that policy implementation is an inherent element of policy-making, and often proves to be the stalemate in the interaction processes between actors. The theory was enhanced with various elements throughout its development (network analysis, learning and dealing with uncertainty, multiple scale issues, other governance regime aspects as context[1]), with boundary judgments (Bressers & Lulofs, 2010), strategies of actors in dynamic and complex implementation processes inherent to sustainable development policy and the consequences for the relevance of governance regime characteristics (de Boer & Bressers, 2011) being the latest adjustments. Important to note here is that CIT is apt for analyzing implementation processes not confined to policy implementation only. Implementation processes of specific projects such as the renaturalization of the Regger River (de Boer & Bressers, 2011) are viable for analysis as well. Furthermore, CIT builds on a set of assumptions, which can be found in the appendix (section 1).

The Contextual Interaction Theory offers a qualitative interpretative tool to "explain an observed degree of effectiveness based on the central circumstances as well as the characteristics of the policies and the circumstances which influence the central circumstances" (de Boer & Bressers, 2011, p. 68). The theory also allows to gain more understanding in predicting degrees of effectiveness of a certain policy given certain circumstances, comparing the predicted effectiveness of a policy using different instruments or occurring in different circumstances, and analyzing the sensitivity of predictions to variations in the design of policy instruments or in the circumstances (p. 68).

2.3 Delving into the specifics

The processes between the actors in a policy implementation process involved are in CIT termed *interaction processes*. Figure 1 illustrates how these interaction processes converse inputs into outputs. The arena ensembles the place where interactions take place. This arena embodies the rules of the game, actors, and issues in a particular space-time "envelope" (de Boer & Bressers, 2011). An arena can either be implicitly/explicitly bound by common agreement, or reside in flux. While outputs are, in the case of local renewable energy projects, rather straightforward (i.e. realized projects), inputs will be elaborated further in section 2.6.

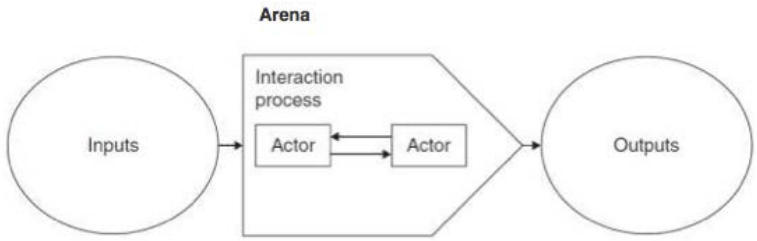

Figure 1: Model of interaction process as conversion of inputs into outputs, adopted from: Bressers & Lulofs, 2010, p. 22.

[1] See CIT-reference list in appendix (section 2) for relevant literature

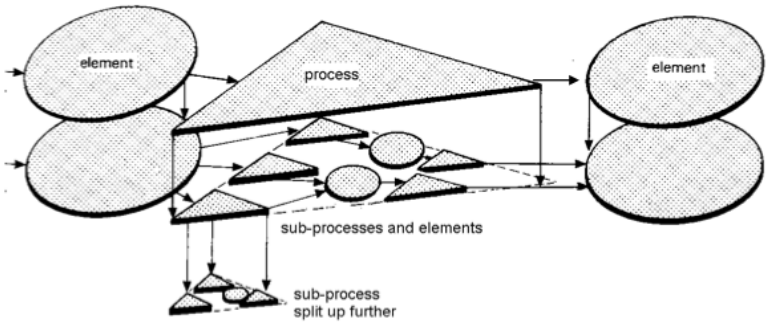

Figure 2: Zooming in into the map of a social domain, adopted from: Bressers, 1983.

When researching local initiatives one can assume different levels of abstraction regarding the processes under examination. All processes are part of an infrastructure of other processes and their inputs and outputs. For what at face value may seem that there is no opposition by a community to the general idea of a local initiative, delving into sub-processes may indicate otherwise (i.e. opposing the location of a wind turbine). The visual representation of this issue is depicted in figure 2. In order to bolster the explanatory and exploratory strength of this research, attempt is to take into account the full spectrum and detail of (sub-) processes involved that are relevant for each case under scrutiny.

2.4 Actor characteristics

As stated before, CIT views implementation processes as social interaction processes ultimately driven by the actors involved. Accordingly, CIT feds the influence of the incomprehensible and infinite amount of factors via the key characteristics of the actors involved. This principle is illustrated in figure 3. The figure demonstrates that the actors and their characteristics are central in the model. As mentioned earlier, the field of implementation research is enmeshed with theories unable to deal with the complexity of all the external factors that affect implementation (Meier, 1999; O'Toole, 2000). CIT addresses this complexity by putting up front the internal core actor-characteristics; motives (which drive their actions), cognitions (information held to be true, with which the situation is interpreted), and resources (providing capacity and power). Rather than taking, in Ostrom's terminology, the 'action situation' as an independent variable and the actor characteristics as a dependent variable, the core actor characteristics in CIT are the driving forces of the interaction process (cf. de Boer, 2012).

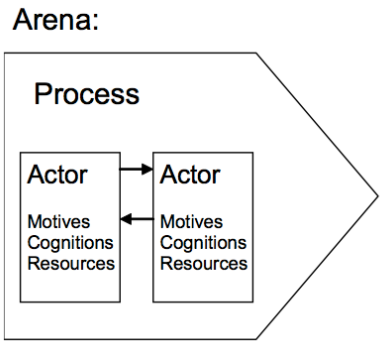

Figure 3: CIT process model with actor characteristics, adopted from: Bressers, 2009, p. 132.

2.5 Relationships between the core actor-characteristics

The model elaborates on the dynamic interaction between the core actor-characteristics. The core actor characteristics in turn interact with one another shaping the implementation process. Figure 4 shows a process model of these dynamic interaction processes. The model demonstrates which bases constitute

the core actor characteristics (blue boxes), how the actor characteristics mutually influence one another (the arrows between the blue boxes), and that eventually the interactions may take form of feedback loops informing process settings in the future (the red arrow-boxes; T1,T2,T3).

The assumptions linked to this figure are adopted from Bressers (2009, p. 133-135):

- The motivation square looks into the roots of motivation for behavior. CIT holds that motivation in interaction processes can be shaped by; internal goals and values (self-interest mentality), external pressure (i.e. societal legitimacy), and self-effectiveness assessment (the potentially demotivational effect that follows when an actor learns that its preferred behavior is beyond its capacity).
- The cognitions square embodies that cognitions are primarily interpretations of reality, and not so much factual information about reality. Filters, paradigms and interactions with other actors in turn shape these interpretations. In CIT, cognitions relate to tasks in the process (content knowledge) and relevant cognitions about the motivation, cognitions and resources of the other actors involved in the process (relational knowledge).
- The capacity and power square exemplifies the double-barreled nature of resources. On the one hand, resources as actor characteristic provide capacity to act. In turn resources determine the capacity to act. On the other hand, resources are a source of power in the relational setting of an interaction process. Power on the one hand is attributed to an actor by others, on the other hand this power has to be backed up by resources (which can be formal and informal). As such the resources of an actor it possess itself, and the dependency on resources of an other actor shapes the balance of power.

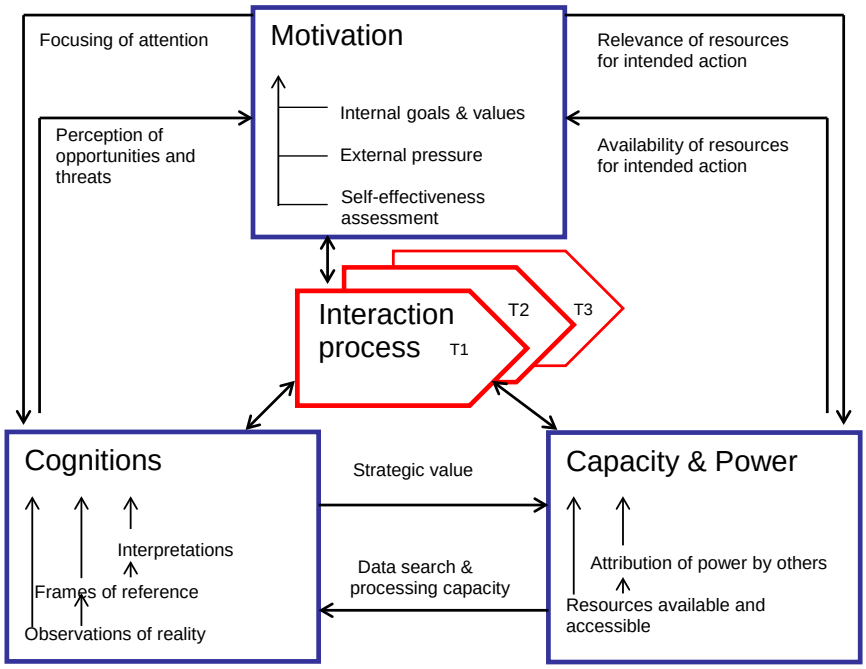

Figure 4: Dynamic interaction between the core actor-characteristics that drive social-interaction processes and in turn are reshaped by the process, adopted from: Bressers, 2009, p. 134.

2.6 The context in Contextual Interaction Theory

The core actor characteristics are not only influenced by the interaction process, but also by a variety of external factors from a multi-layered context, see figure 5. The contextual layers show resemblance with Ostrom's operational (case-specific context), collective-choice (structural context; governance), and constitutional-choice (structural context; governance) rules, that may affect or are affected by the behavioural change (IAD) or implementation (CIT) processes. However, as de Boer (2012, p. 28)

correctly points out; CIT includes a wider variety of non-political factors potentially affecting and being affected by the interaction processes.
The layers of context that are more encompassing are less likely to be changeable by actions that discern from the process under scrutiny. Both the IAD and CIT agree upon that the specific contextual layer is more susceptible to change than the structural or the wider context.

Bressers (2009) is paraphrased to discuss the different layers of context according to the CIT. Also, for assumptions regarding the interaction between the contextual layers and actor-characteristics, I refer to the appendix (section 1). The case specific context embodies factors relevant in the local environment and the case history. Such factors may involve the geographical place where the project is realized but also how the case evolved throughout time. This includes previous decisions that determine the substantial part of the issue at hand, and the limitations concerning which actors participate to what extent and with what legal resources and expectations, which touches on the notion of 'path dependency' (Mahoney, 2000).

The structural context includes the elements of governance and the relevant property and use rights (Bressers & Kuks, 2003). Governance is here comprehended as a concept embracing the broad scope of policy. That being said, this conceptualization of governance deviates from typical normative conceptualizations or statements concerning developments in the society-state relationships (cf. van Kersbergen & van Waarden, 2004 for an overview of the governance literature).
The five elements of governance and the descriptive questions used to determine the configuration are discussed below:

1. *Multiple levels of governance*. Which levels of governance dominate the policy discussion? What is the accepted role of government at various scales? Which other organizations are influential in the governance activities on these levels? Who decides or influences such issues? How is the interaction between various levels of governance organized?

2. *Multiple actors in the policy network*. How open is the policy arena? Open to whom and where, precisely? What role do experts play? How do the various governmental and other organizations relate to each other?

3. *A multiplicity of problem definitions and other policy beliefs*. What are the dominant maps of reality? To what degree do the actors accept uncertainty? Is the policy problem regarded as something individuals must deal with, or is it a problem for society in a collective sense? Where coordination is required with other fields of policy, what are the links accepted by the actors?

4. *Multiple instruments in the policy strategy*. Which (other) instruments belong to the relevant strategy or strategies? What are the target groups of the instruments, and what is the timing of their application? What are the characteristics of these instruments?

5. *Multiple responsibilities and resources for implementation*. Which organizations (including government organizations) are responsible for implementing the arrangements? What is the repertoire of standard reactions to challenges known to these organizations? What authority and other resources are made available to these organizations by the policy? With what restrictions?

The structural context will for a lesser degree be influenced back by individual cases. Also, the structural context is less susceptible to change than the case specific context. Evidently, through the course of time, the structural context will change as well. Also the different elements mutually influence one another in case of new situations. What is important to keep in mind is that the case specific context is not completely determined by the structural context, owing to a more agency approach. A lack of interconnectedness at the structural level does not *per se* mean the same for the case specific context.
The relevant property and use rights organize the possession of titles, exclusion of uses and the access

of users (de Boer & Bressers, 2011, p.76).

The layer of wider contexts is less specific and may influence the core actor characteristics and the structural context more indirectly (i.e. the economic crisis, cultural values shaping power relations between actors).

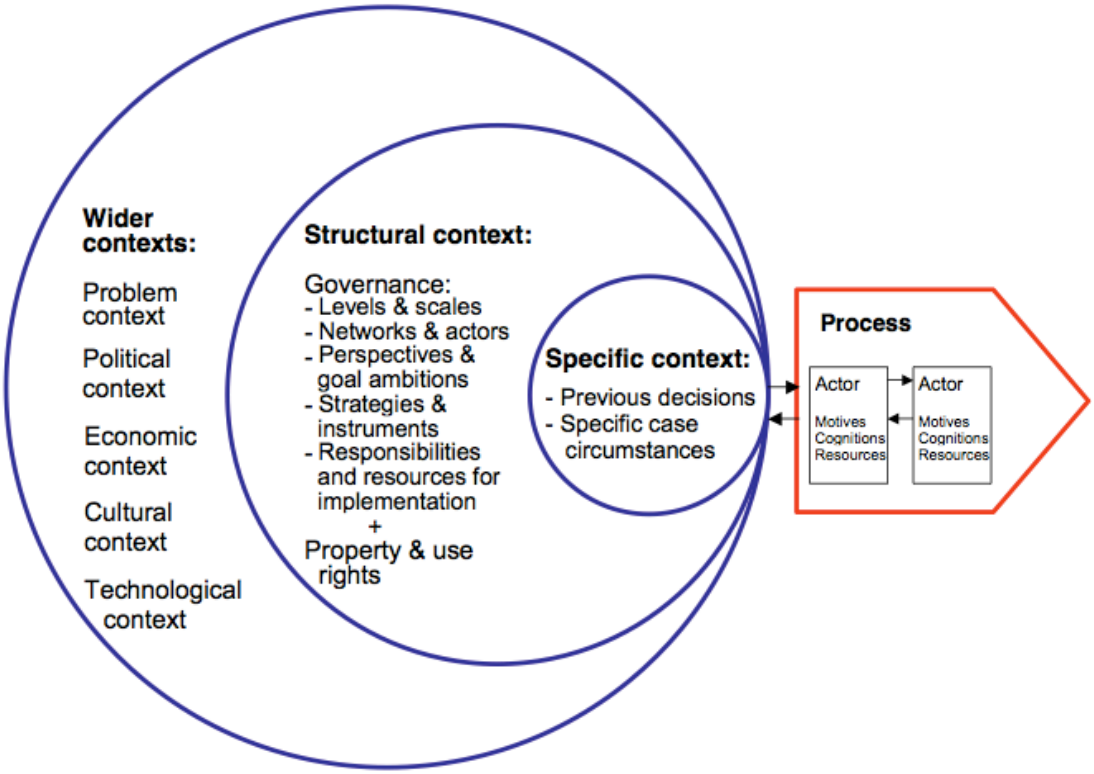

Figure 5: Contextual factors for the core actor characteristics, adopted from: Bressers, 2009, p. 138.

Although Bressers (2009) claims that in principle the structural context holds for all similar cases and not only for any specific case, the structural context will be assessed for each local renewable energy project individually. It can be expected that the governance context will vary when comparing a case with partial community ownership, or community ownership.

Furthermore, although the structural context will not be changeable by any specific case, it will gradually change in processes on a larger scale, with similar though not necessarily coherent dimensions of motivational, cognitive and resource developments in reaction to external influences and internal frictions (Bressers & Kuks, 2003, p. 74-83; Costéja, 2003) . In the same line of argumentation, the specific case context is not entirely preceded by the structural context, because there are commonly formal and informal degrees of freedom. The structural context also involves property and use rights next to public governance. Additionally, the elements of governance influence each other when there is a change in other situations. The wider layer of contexts may in turn also effectuate influence on the previously discussed contexts. However, each wider context can both influence the narrower one and directly influence the actor characteristics.

2.7 Governance regime qualities

Now that we are able to describe the governance context in a profound manner, we need to understand how this governance context may or may not impede on interaction processes. Therefore, four governance regime qualities are proposed for this endeavor, namely; extent and coherence (Bressers, Fuchs, & Kuks, 2004), and added later; flexibility and intensity (Bressers *et al.*, 2013). For assumptions regarding these regime qualities, I refer to the appendix (section 1).

Extent is comprehended as the completeness of the regime; with the domain of the regime being a key element (uses and users regulated by the regime). However, as one can imagine, as the governance elements values increase, the regime becomes more complex. It is assumed that regimes with a deficient extent underperform in guarding sustainability issues, since some relevant parts of the domain are not accounted for (de Boer & Bressers, 2011).
Coherence entails whether the different governance elements are rather reinforcing than weakening each other. Coherence materializes in the governance elements as interaction between different layers of government when these deal with the same issue at hand. It is assumed that the coherence of the structural context will less likely lead to dissonance between the actor characteristics since there will be more win-win solution creativity, less uncertainty (due to exchange of information and less distrust), and less stalemates (due to less possibilities of target groups to play off implementers against each other and standard operation procedures for solving conflict) (de Boer & Bressers, 2011, p.80).
Fragmentation of the regime on the other hand is assumed to lead to dissonance between the actors (due to diverging goals, more uncertainty (cognitions will diverge), and more logjams (power clashing).

Bressers *et al.* (2013) formulated four questions to comprehend these four qualities:

1. Extent: are all relevant aspects for the sector or project that is focused on taken into account?
2. Coherence: are the elements of the dimensions of governance reinforcing rather than contradicting each other?
3. Flexibility: are multiple roads to the goals, depending on opportunities and threats as they arise, permitted and/or supported?
4. Intensity: how strongly do the elements of the governance context urge and support changes in the status quo or in current developments?

De Boer *et al.* (2013) is paraphrased to offer an explanation of what the questions aim to assess:

1. The questions that aim to assess the degree of extent determine the degree of completeness of the aspects that are included in each of the five governance dimensions (thus, they relate to the answers to the descriptive questions regarding the governance elements).
2. The questions that aim to assess the degree of coherence include the assessment of the strength of network relationships of the actors.
3. The questions that aim to assess the degree of flexibility determine the degree to which the governance context allows and facilitates the case-specific variation and boundary spanning strategies of actors needed for adaptive management in as far as the change ambitions are served by this adaptiveness.
4. The questions that aim to assess the degree of intensity determine the degree to which the governance context strives for and supports change away from the "business as usual" governance model.

The structural, and specific context for the local initiatives will be analyzed respectively according to the context of the Netherlands and the provinces, and specific case circumstances.
The Governance Assessment Tool (GAT) then determines the extent, coherence, flexibility, and intensity of a governance context via a structured set of evaluative questions and is translated into a matrix (found in the appendix, section 3). The GAT was originally designed for assessing water governance regimes, but since the concept of governance in CIT and implicitly GAT is used in a not a normative manner, but in a neutral fashion, which is why the GAT is also apt for analyzing the governance context for local renewable energy initiatives. The GAT is further discussed in paragraph

2.12.

2.8 Boundary judgments

In many complex and dynamic processes, a variety of policies of different scales are among the inputs to the process. This requires mutual "social learning" from the actors that are involved, since interaction processes are not static, but evolve over time. Thus, actors' viewpoints, their objectives and ideas concerning the process evolve as well. This is understood as the boundary judgments of the actors involved, or definitions of problems and systems by the actors involved that delineate what actors consider as relevant. The direction of the implementation process is then also partially dependent on the boundary judgments of the actors involved in the process. Furthermore as the process unfolds it is increasingly difficult to discern the boundaries between traditional implementation phases and issue areas (de Boer, 2010, p. 47). Boundary judgments can be similar or differ from one another of actors in the process. Furthermore, boundary judgments can change due to new information or previous experiences in integrated processes. It is desired for novel projects or policies that boundary judgments of the involved actors somewhat coincide, and are still open to change. There are at least three places where boundary judgments are made, de Boer & Bressers (2011, p. 83-84) is paraphrased:

- They are part of the cognitions of action in an interaction process, in which these judgments can be conscious and unconscious.
- They are explicitly or implicitly implied in possible specific inputs (i.e. policy documents) to the interaction process.
- They are explicitly or implicitly implied in the elements of the structural context.

Furthermore, the three dimensions of sustainable development that require integration are also applied to boundary judgments (see figure 6), de Boer & Bressers (2011, p. 83-84) is paraphrased:

- One can consider a domain to fit one scale and accordingly also one level of relevant actors, or alternatively more than one scale.
- One can consider a domain as a relatively narrow bundle of relevant aspects, or alternatively a wider bundle of relevant aspects possibly encompassing several sectors that are often viewed as domains in their own right.
- One can consider a domain extending over a relatively limited period or on the other hand as a permanent evolution far into the future.

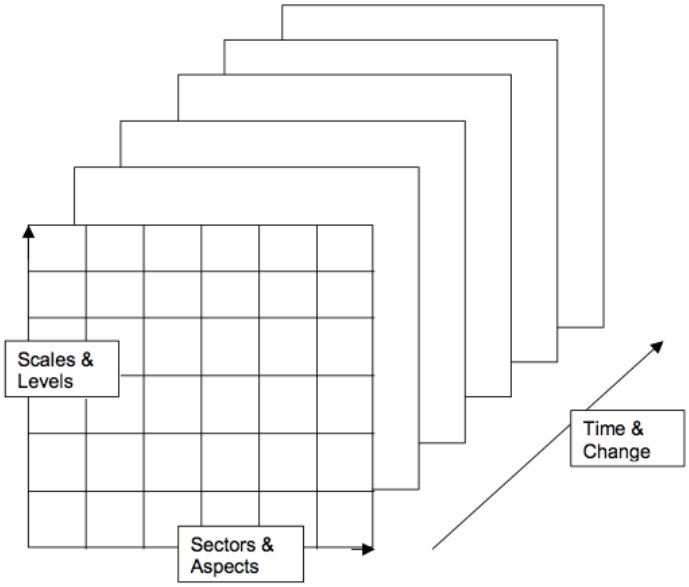

Figure 6: Three dimensions of sustainable development that require integration and are thus relevant for boundary judgments, adopted from de Boer & Bressers, 2011, p. 83.

In sum, scales and levels, sectors and aspects, time and change require integration, in which boundary judgments are the important enablers. However, a particular configuration of scales, sectors and time consists of numerous (sub-) processes. Within this configuration of the fabric of processes, possibility exists that there are different perceptions of the relevant domain and its boundaries. Dealing with these processes in the domain by integrating different sectors, scales, time, geographic space and so on presupposes adaptive boundary spanning to enable the actors involved to learn to deal with this increased complexity.

2.9 Time dimension

Projects with significant scope have the tendency to extend of a long period of time. Not only does a time consuming project add complexities, it also raises opportunities by potentially changing the settings of the process. Different sources are relevant with to this matter, de Boer & Bressers (2011, p. 83-84) is paraphrased:

- The wider, structural, and specific context may alter the process by the influence of factors unrelated to the process itself. Actors see opportunities here, or strive to adjust to the situation.
- Influences may stem from within the process. Actors that are involved with each other gain understanding of each other's behavior. Accordingly, this instance fosters learning processes that can alter motivations, cognitions and resources.
- In medium or long-term processes, results themselves may influence the process. This is understood as the imagination of the actors concerning the results. This imagination increasingly materializes into more concrete plans over time and may change the motivations, cognitions, and resources of the actors creating feedback loops for the progress of the project.
- Deliberate action of the actors involved also influences the context. The rules of the game, the actors and their characteristics are the main process characteristics and thus crucial for the decision making on the projects. The rules of the game (the institutional arena) is part of the direct context of the process, the specific context (previous decisions) and to some degree determined by the structural context. In long-term processes, rules of the game are altered because of the interactions in the process and often by deliberate interventions of actors (strategies). This implies that a part of the interaction (which is termed adaptive management and consists of various strategies) is engaged with altering motivations, cognitions and

resources of actors, the involvement of actors in the process, or the specific case context.

2.10 Internal and external strategies

This adaptive management occurs through internal and/or external strategies. External strategies may involve for instance; the inclusion of new actors, creating new cognitions by introducing new information, creating new motivations, adding other resources (i.e. exchanging a flexible resource (money) with a relatively fixed resource (land ownership)), setting up new arenas (i.e. new meeting points) (de Boer & Bressers, 2011, p. 88).
External strategies are understood as when actors deliberately or unconsciously intervene and alter the rules of the game, involved actors or their characteristics.
Another part of the strategies concerns the actors themselves internally, and ensues when actors prepare themselves better for dynamic interactions in a complex context. These internal strategies aim to increase the receptivity (the term originates from Jeffrey & Seaton, 2003; 2004) of the actors involved. This receptivity entangles an active stance of openness towards new knowledge and contexts. Receptivity enables inventive and adaptive action by self-confident people and organizations. Receptivity should be seen as a prospective quality of people and organizations. Furthermore, receptivity is not a rigid characteristic and may alter as a consequence of external factors and internal strategies under the cloak of time.

De Boer & Bressers (2011) increase the coverage of the concept receptivity (originally solely referred to the cognitive system) to "the ability to combine new information with existing cognitions, to recognize new goals as matching existing motivations or the values behind them and to recognize the opportunities of new resources or combinations with existing resources to optimize their capacity and power" (p. 90). Further assumptions regarding internal and external strategies are found in the appendix (section 1).

2.11 Governance flexibility and intensity

Adaptive strategies influence the progress of the process itself and consequently its setting impedes on the relevant regime qualities. The regime qualities extent and coherence are mostly relevant in stable situations, whereas dynamic process situations require a flexible regime quality. Flexibility holds that "the degree to which the regime elements support and facilitate adaptive actions and strategies in as far as the integrated ambitions (integrated multi-functionality of land use) are served by this adaptiveness" (de Boer & Bressers, 2011, p. 92). This also concerns the avoidance of barriers for this adaptive behavior.
Another requirement for adaptive management is intensity. Intensity is conceptualized as 'the degree to which the regime elements urge changes in the status quo or in current developments' (de Boer & Bressers, 2011, p. 93). Intensity relates to the magnitude of the task to produce new dynamics by creative cooperation, or conflict. This implies that with more intensity the urge to use adaptive strategies increases. Assumptions regarding these regime qualities are found in the appendix (section 1).

2.12 The Governance Assessment Tool

The Governance Assessment Tool (GAT) is the subsequent step following the descriptive questions concerning the five elements of governance, which are listed in paragraph 2.6. As discussed above, the governance context is part of the structural context and comprises of five elements. The GAT assesses the governance context by evaluating each governance element according to the four governance regime qualities. This is done by a set of evaluative questions and which are placed in a matrix that can be found in the appendix (section 3).
The actual assessment of the governance context also materializes in a matrix that (in this paper) holds three values for each combination of the governance elements and qualities: high, medium, and low. Since the judgments concerning the governance context are made by one researcher - which is not advised by the developer's of this tool (Bressers *et al.*, 2013) - I will adhere to the usage of broad values to account for possible informed judgments. The values found in the resulting matrix are explained in text on the basis of verbal (i.e. interviews) and written (i.e. policy documents) statements. A missing

value indicates the absence of written or verbal statements on the basis of which a judgment can be made.

The governance context influences the actor-characteristics of the stakeholders in the implementation process and accordingly has an impact on the course and effects of the process. This is visualized in figure 7. That being said, the GAT is evidently part of the CIT and concludes the theoretical framework utilized in this paper.

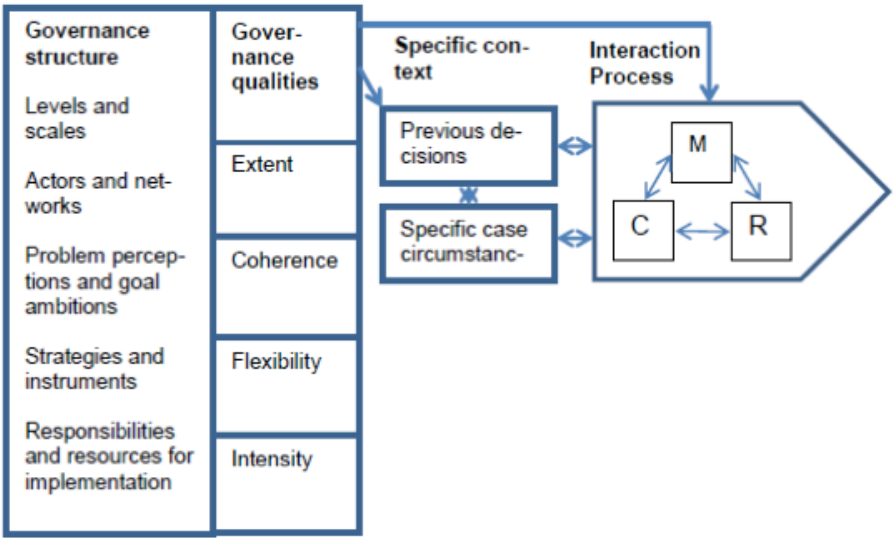

Figure 7: Relation between the governance context and the interaction process, adopted from Bressers *et al.*, 2013

Having discussed the theoretical framework, the following chapter will outline the appropriate research design and methodologies that augment this theoretical framework and that will attain the research objectives of this paper.

3. Research design and methodology

3.1 Research design

The research design suited for this analysis is a multiple cases study. Since local renewable energy initiatives come in different shapes and sizes, a single case study will not suffice. A comparative case study delving into different kinds of local projects will contribute to distillate factors that support or restrict these local projects.

The goal is to analyze 4 cases in the Province of Overijssel through the lens of the CIT and with help of the GAT. Accordingly; this study takes a theory guided explanatory research approach.
The first step is to describe how the initiative has evolved and what it has achieved. The second step outlines the structural context and the case specific context for each local renewable energy initiative. Since the national and provincial governance context are relatively similar for the cases under discussion (they are all local renewable energy initiatives), the national and provincial governance contexts will be assessed for all the four cases in general instead of doing so for each case separately. The third step is used to distillate the factors that explain the performance of the local initiatives via the application of CIT. This step not only looks at the influence of the structural and case specific context, but also at the social interaction processes between the relevant actors.

CIT provides an explanatory model that can be employed for both within case and case comparative analysis. The within case analysis may be conducted via various methods. The first is to confront the various attributions by the participants in the initiative by the researcher or directly in group meetings. The second method is to analyze the case by reconstructing the specific case history and the interactions of its evolution with (changes in) the context factors. Finally, a *modus operandi* approach can be employed to examine the relevance of such factors by assessing the occurrence of side effects and intermediate effects that would have implications for the efficacy of such factors.
Next to this, I will explore the possibilities to gain additional information from the comparisons of the limited number of cases studied. Although the amount of cases might be too small and the opportunities to purposefully select cases too limited for profound case comparison methods (i.e. pattern recognition), studying multiple cases will account for misconceptions of overlooking the impact of very specific individual case circumstances on the influence of context factors.

3.2 Defining a local renewable energy initiative

The literature widely reports about community initiatives for renewable energy or other similar concepts. It is crucial to understand what is meant by a local renewable energy initiative in this paper, and to provide a clear definition. This paragraph will offer conceptual clarity with regard to the varying terminology utilized in the literature for describing local renewable energy initiatives and to demarcate what this thesis holds as a local renewable energy initiative.

Seyfang *et al.* (2013) performed a quantitative study regarding the objectives, origins and development of community groups in the UK, and their activities and networking undertakings as a sector. The authors used a sample size of 190 community energy groups and projects. It needs to be mentioned that the research focuses on both energy supply and energy demand side, while this thesis solely concentrates on the energy supply side.
When the respondents were asked which type of community they represented, 89% voted for communities of place. Furthermore a large share of the community projects established in the UK were initiated by individuals (59%) or by pre-existing community groups (34%). This gives indication to the significance of civil society in such projects. When asked what types of actors are involved, 60% answered local actors, 53% answered other community groups, and 36% answered business (followed by other actors with less-significant percentages).

Taking account of these findings, the question arises of what constitutes a community renewable energy initiative? Who are involved? And what is the goal of such an initiative? Who initiates the

imitative, and who is in control?
A substantial part of the literature does not discuss how local energy projects are conceptualized and with what attributes. Some authors did strive to attribute a coherent and encompassing definition to community renewable energy initiatives.
Walker *et al.* (2007) studied various community renewable energy initiatives and noted that the concept 'community energy' is tensile, with some initiatives pursuing great citizen involvement, and others perceiving community as a group of buildings (p. 77). It deserves to be mentioned that Walker and colleagues commonly confer these so-called community renewable energy projects in light of UK energy policy, which specifically addressed the role of the community in renewable energy. In this sense, Aitken (2010a) noted that developers face complex decisions concerning who the relevant community is for involvement.
Consequently, Walker & Devine-Wright (2008) embarked on the path to formulate a holistic definition and on this account claim that two dimensions are central in conceptualizing community renewable energy projects. The process dimension concerns who has developed the project and who runs it, who is involved and has influence (p. 498). The outcome dimension concerns how the outcomes of an initiative are spatially and socially distributed, or who the project is for and who benefits (p. 498). The authors disclose that community renewable energy initiatives may revolve around the open process dimension on the side of 'open and participatory (A), around the outcome dimension on the side of 'local and collective' outcomes (B), and some can be find somewhere in between and are concerned with whether progress is made (C) (see figure 8).

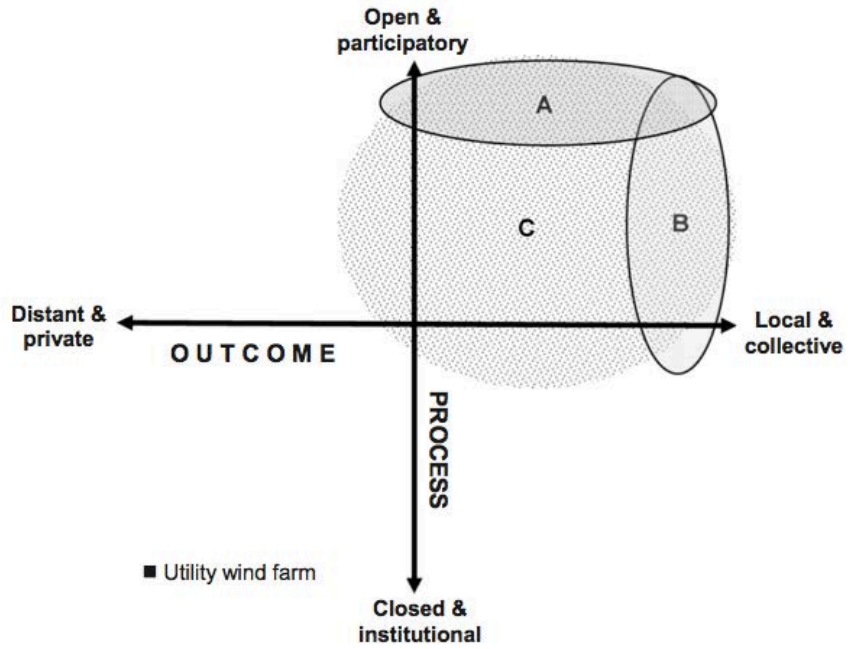

Figure 8: The two dimensions of community renewable energy, adopted from Walker & Devine-Wright 2008, p. 498.

However, Devine-Wright & Walker (2008) do not foster any clarity concerning what they conceptualize as a community. And hence using 'community' as a holistic concept with different potential aspects of community boundaries inherent to it does not provide any clarity. Walker (2011) also raises this issue himself by providing an overview of different meanings the concept community may encompass. These are; community as actor, community as scale, community as place, community as network, community as process, and community as identity.
The type of community boundary has implications for the interaction process between the involved actors. For instance, a community who shares the same interests will logically face less opposition than a community conceptualized as a localized group of people.

Walker & Cas (2007) provide a framework in which the different measures of scale of a project (i.e.

'hardware'; macro, meso, micro, picro), are placed vis-à-vis the different arrangements of social organization (i.e. *'software'*: function and service, ownership and return, management and operation, infrastructure and networking). Walker & Cas (2007, p. 462) outline five commonly understood 'modes' of renewable energy implementation (i.e. business, household, community, private supplier, public utility). A variety of configurations can be found concerning the hardware, software and type of renewable energy source within each mode of implementation. This also applies to the mode of community. For instance, as Walker (2008) also outlined, different types of ownership can be found in community renewable energy initiatives (e.g. partnerships, cooperatives, development trusts). This implies that 'community' is understood in these studies as a container-concept lacking precision.

Taking into consideration what this thesis attempts to illuminate, namely contextual factors that potentially influence the degree of success of local renewable energy initiatives, I will employ a conceptualization that emphasizes the local geographical aspect as a boundary, and not the community of interest as a boundary. The conceptualization of community linked to geography is appropriate for the goal of this research since it will yield 'a rich composite of descriptive information, including natural boundaries, a recognized history, and demographic patterns, as well as the industries and organizations located in the community' (Chaskin *et al.*, 2001 cited by Mancini *et al.,* 2005, p. 571). Mancini *et al.* (2005) argue in line with the axiom of Contextual Interaction Theory (CIT) when they state that 'processes most often occur at the local level, even though they are influenced by nonlocal forces' (p. 571). Furthermore, renewable energy has a spatial impact, which has been widely discussed in the literature (predominantly wind energy). This spatial impact will solely be experienced by people in the vicinity of the renewable energy installation.
Thus I will utilize the term; 'local renewable energy initiative', but without presupposing the existence of a community, since this research is not limited to initiatives that are initiated by citizens only. Additionally, communities may actually emerge (in shape of enhanced cohesion) as a result of a local renewable energy initiative, which is not unlikely when one consults the literature (e.g. Rogers *et al.*, 2008; Walker *et al.*, 2010; Khan *et al.*, 2007).

A local renewable energy initiative is defined as, and presupposes the following criteria:

(A) renewable energy installation(s) that is/are established collectively by an organized group of actors (citizens, firms, local governments, societal organizations), and in which the actors and the renewable energy installation(s) itself/themselves are locally embedded in a geographical sense.

Lastly, this thesis will use the terms 'renewable energy source', 'sustainable energy', and 'climate related energy' interchangeably. These all refer to energy generated by means of wind or solar power. Whenever the terms solar power or solar energy occur in this thesis, they solely refer to solar PV installations.

3.3 Case selection

The cases that will be selected for this study are local solar or wind energy initiatives in the province of Overijssel. The literature provides the spectrum of different types of local initiatives in terms of ownership and actors involved (e.g. Walker, 2008). Thus the criterion - next to the abovementioned definition of a local renewable energy initiative - for constructing the sample also involves differentiation in what actor(s) initiated the initiative; whether the project is initiated by citizens, initiated by the municipality, initiated by a combination of the two, or is initiated by entrepreneurs. Furthermore, another criterion that is employed involves a differentiation with regard to the scope of the project; whether it involves a neighborhood/hamlet, a town/city, or has a municipal scope. Lastly, the cases that are selected will have to differentiate regarding the type of CRE involved: solar or wind energy.
As already indicated by the selection criteria, the cases will be selected by means of a maximum variation sampling method. Since small samples have to deal with cases that are most likely to be very different from one another, maximum variation sampling may turn this into a strength by illuminating

common patterns in a sample with great variation (Patton, 2002, p. 235).
In doing so, it is important to map out the renewable energy (wind and solar) initiatives in the provinces of the last 5 years. This overview can be found in the appendix (section 4). It is important to take into account that the cases are not independent; it is expected that the performance and realization of one initiative influences other cases, which makes this an interesting phenomenon to study.

The cases that have been selected are:

- **Escozon** – the cooperative Escozon is established by two entrepreneurs that strive to realize a 2.6 acres solarpark containing 6000 solar panels in Heeten, a rural village in Overijssel. In light of the abovementioned definition, this case is suitable since two initiators, which are organized in a cooperative, pursuit to realize a renewable energy installation in their hometown (selection criteria: initiated by entrepreneurs (cooperative), town scope, land-based solar panels).
- **Foundation Sustainable Ommerkanaal** – this foundation is established by four of initiators from the hamlet Ommerkanaal. The foundation realized an energy neutral community center and organized a collective purchase of solar panels that resulted in around 700 solar panels. In light of the abovementioned definition, this case is suitable since four initiators, which are organized in a foundation, realized multiple renewable energy installations in their hamlet (selection criteria: a group of citizens (foundation), hamlet scope, solar panels).
- **Deventer Energy Cooperative** – the concept of a cooperative was brought forward by the municipality of Deventer. A group of volunteers established the Deventer Energy Cooperative (DEC) with support from the municipality. From the startup phase on, the municipality dubbed DEC as a vehicle to grant participations for citizens in two wind turbines that are currently under construction. In light of the abovementioned definition, this case is suitable since a group of initiators and the municipality collaborated to establish the cooperative, which would have the function to distribute participations in the two wind turbines, realized by the municipality (selection criteria: municipality and initiators (cooperative), municipal scope, wind turbines).

Initially, another case was selected for this thesis, but unfortunately did not meet the criteria of the definition of local renewable energy initiatives used in this paper**.** The case involved the municipality of Olst-Wijhe's efforts to encourage bottom-up activities involving sustainability in light of its transition towards the national 2020 targets. However, in light of the abovementioned definition, this case **does not** meet the criteria, which was discovered on the basis of two expert-interviews. The municipality of Olst-Wijhe does not strive to realize a clearly confined renewable energy installation.

3.4 Data collection method

A total of 16 in-depth interviews were conducted as the primary data collection method. The advantage of in-depth interviews is that the "discussion is focused on the areas of the interviewee, rather than the interviewer, believe to be most important" (Oppenheim, 1992). Next to the interview transcripts, secondary documents such as policy papers, websites, articles and the like will be analyzed to bolster the validity of the interviews. Thirdly, a literature review is conducted to mirror the findings of this thesis to that of the existing body of literature regarding local implementation of renewable energy.
The structural context relevant for the local initiatives will be determined by in-depth interviews, and by looking into policy documents and other publications. In-depth interviews allow for exploring the case-specific context and process characteristics of each of the initiatives.

The data will be analyzed by means of a contents analysis. The interview transcripts and additional policy documents will be led back to the core concepts of the CIT (which are the indicators to identify relevant statements) (Dente, Fareri & Ligteringen, 1998). Accordingly the focus of the research by means of in-depth interviews (Taylor and Bogden, 1984) and document analysis is validity. Nonetheless, scrutinizing multiple cases, and collecting data from multiple sources will reduce to a certain extent the loss of reliability.
The boundaries of this research are twofold; the study has a small scope in terms of the number of

cases under scrutiny, but a large scope in exploring each individual case. Accordingly, the study remains reasonable in scope (Baxter & Jack, 2008).

Limitations to this research are that the research method is susceptible to researcher bias due to restricted resources (ideally, the interviews would be performed with another colleague).

4. State of art of literature into local implementation of renewable energy

This literature review sheds light on the various factors that may influence the processes involved in the implementation of a local renewable energy project. This review is not limited to local renewable energy initiatives as such, but generally sheds light into the issues involved in renewable energy installations (wind and solar) that are realized on the local scale. Various articles emphasize the role of public acceptance or opposition concerning a renewable energy scheme. Others focus on the actual planning process and stress the importance of citizen involvement in decision-making. Furthermore, the renowned visual aspects inherent to renewable energy will be addressed as well. Additionally, wider contextual factors and case specific factors are discussed as well.

This literature review has no intention of being exhaustive with regard to what the literature reports about local renewable energy initiatives. It is used as a point of reference for how the findings of this thesis and CIT relate to the literature. As mentioned above, the literature discussed in this review touches upon other fields of study rather than local renewable initiatives alone, still this literature is relevant to the topic being researched in this thesis.

Firstly, the influences of the different contextual layers will be discusses in section 4.1. Section 4.2 provides insights into the influences the configuration of the arena on public perceptions about a local renewable energy initiative. The following section sheds light onto literature touching the core actor-characteristics of relevant actors in the interaction process (section 4.3). Section 4.4 is devoted to literature solely discussing factors of influence related to solar energy development since the majority of articles focuses on wind energy. Section 4.5 provides a conclusion on the basis of the literature reviewed.

4.1 Contextual layers

4.1.1 The wider context

With concern to the wider context, Cowell (2006) points out that the socio-political context in which an implementation process is positioned influences the degree of space orchestration. For example, if acceptable space is in abundance, and where the technology is socially accepted, and the government is not specifically branded to achieve targets of reducing GHG emissions, governments are not likely to reside to coercive means to orchestrate space. However, in opposite instances, the pressure for orchestration increases (p. 22). Accordingly, the intensity of the levels and scale regime element is dependent on the intensity of policy instruments and the wider context.
Toke's (2005) findings also recognize the significant influence of the national political environment (e.g. debates about nuclear power) concerning wind power on the attitude of local citizens vis-à-vis a proposed project.
In addition, Walker (2008) also reported some wider contextual factors impeding on the performance of local renewable energy initiatives, such as: the determination of a project's economic and technical viability (Dunning & Turner, 2005; in Walker, 2008, p. 4402), the struggle to achieve income-generating potential because of barriers to market entry and network connection and therefore higher risks and longer return periods to recover investments (Hain *et al.*, 2005; in Walker, 2008, p. 4402-4403).
Strachan *et al.* (2006) also mentions that technical barriers and cost issues in shape of connecting to the grid and energy storage can hamper community energy development.

4.1.2 The structural context

The contents of the literature showing resemblance with the governance elements of the structural context will be placed under the appropriate heading. The three elements 'levels and scales', 'actors and networks', and 'policy instruments and strategies' are discussed in this paragraph. The residual two

governance elements are not discussed in this paragraph because the literature reviewed does not elaborate on these elements.

Levels and scales

Bomberg & McEwen (2012) discovered that because of closed and entrenched policymaking systems, which exclude citizens, people were incentivized to mobilize locally. Which is why the authors argue that the government should resort to more open decision-making processes engaging community actors to bolster the development of community renewable energy projects.
Nevertheless, while structural barriers may prevent mobilization, it may also be an incentive for mobilization (Bomberg & McEwen, 2012, p. 440). So-called symbolic resources are required to overcome these barriers and for mobilization to occur. Hence, adaptive strategies can be used to overcome rigid governance regimes.

On the other hand, results from the study of the CSE and CDX (2007) show that a supportive national context can directly influence the formation and support for local initiatives (not limited to energy initiatives). However, this supportive context will not be sufficient to foster change and (legal) interpretation at the local level (p.5) (thus not enough intensity to bring about a regime change). Thus, while high intensity and coherence are desirable, these are not sufficient conditions. In this sense, Walker (2007) mentions the potential importance of local supportive institutions.

In this sense, municipalities need to play a mediating and facilitating role to achieve long-term (Del Rio & Burguillo, 2009; Agentschap NL, 2012). Long-term sustainability not only involves championing the three dimensions; which is the substantive aspect of sustainability, but also procedural sustainability by taking account of interest and opinions of all stakeholders (Del Rio & Burguillo, 2009), the local government then facilitates the conditions for giving leeway to local initiatives and involving stakeholders (Agentschap NL, 2012).
The involvement of local authorities in the implementation process spurs a successful outcome. Thus, planning processes should be configured as a cooperation between communities and operating companies (Zoellner *et al.* 2008, p. 4140). In other words, the structural context ought to have a high extent and coherence with regard to involving actors and networks and problems and perspectives.

Toke *et al.* (2008) note that planning regimes positive to wind power projects and policies are crucial for the success in such projects. In the same line of reasoning, Khan (2003) notes that municipal planning regimes determine whether or not they enable local economic involvement in wind power projects, which is crucial for wind power being an accepted technology.
The study performed by Allen and colleagues (2012) interviewed community stakeholders in the Lake District National Park (UK). The participants depicted that institutional barriers in the public sector, impede on the success of RES projects. With regard to this barrier, Wolsink (2000) conveys to build institutional capital (or capacity) to yield public support and promote successful implementation. Wolsink (2000) and Breukers & Wolsink (2007) convey that this is specifically necessary in local planning practices, at the implementation level. Institutional capacity entails the capacity to facilitate open policy and decision making processes, on all governmental levels (extent of levels), providing access for relevant stakeholders and diverging knowledge resources (extent of problem perspectives) (Breukers & Wolsink, 2007, p. 2738). Wolsink (2000) argues that institutional constraints are more of a hindrance than barriers erected by a lack of public acceptance. Rationale behind this is that institutional arrangements within the physical planning and energy policy domains matter in wind power implementation (i.e. how the decision-making process is set up, what actors are dominant (such as utility companies which see the siting of turbines as merely a market imperfection)). Institutional capital has three dimensions; knowledge resources, relational resources, and capacity for mobilization, which are each bolstered by collaborative approaches to planning.

Actors and networks

Local negative attitudes as such will not impede on the implementation of wind power projects, but

more whether these attitudes are represented in a stable network (McLaren Loring, 2007); and is this network of objectors balanced with pro-wind attitudes? (Toke *et al.*, 2008). Aitken *et al.* (2008) show that the power of local objectors extends as far as delaying a wind implementation outcome. Thus, the intensity, or influence of an actor group objecting to local renewable energy development is key.

Policy instruments
Furthermore, consistent and reliable subsidies are important for the support and anticipation of wind power projects. Toke *et al.* (2008), Khan (2003), Strachan & Lal (2004), and CSE (2009) agree that national level policy measures ought to be appropriate and synchronized with the demands at the local level (i.e. participation, local ownership).
Another strand of authors assert that raising awareness expectedly reduces public opposition for RES technology *per se* and enhances public acceptance for the technology (Strachan & Lal, 2004, p. 567; Strachan *et al.*, 2006, p. 14; Denis & Parker, 2009, p. 2092).

Walker (2008) identified a number of barriers to community renewable energy. Among them are complexities regarding: legal conditions under which organizations or projects can operate, and the difficulty to source funding (competition for funds can be high, instability of funding programs). Similarly, the outcomes of the study performed by Seyfang and colleagues (2013) show that funding and grants were also deemed an important success factor (24%) (p. 984).
Parallel to the latter barrier noted by Walker (2008) and Seyfang *et al.*, Toke *et al.* (2008) and Denis & Parker (2009) diagnose the importance of financial support for the development of local initiatives. However, the consistency and reliability of support conditions this relationship. The Netherlands has a history of stop-and-go policy with regard to the environmental policy domain.
Wüste & Schmuck's (2012) study also point out the importance of financial certainty, source of funding, and institutional and political support (i.e. institutionalized advisory or authorizing bodies, local mayor and council) for the success of a bioenergy village.
In terms of policy instruments, these ought to be coherent, sufficiently intense, and have a sufficient extent.

4.1.3 Dynamics between the structural and case-specific contexts
Michalena & Angeon (2009) studied the island Crete to identify fundamental components and drivers of local dynamics that spur the development of renewable energy projects. Findings indicate that internal (i.e. local acceptance) and external (i.e. macrostructure) elements are decisive factors in successful implementation of renewable energy. The authors observe that social norms are entrenched in a dense and cohesive social network, but are enabled by a coordinating structure sustained by a favorable national and European legislative context that acknowledges the significant role of the local municipality level (p. 2023).
Filling the gap of innovation systems approaches, Michalena & Angeon (2009) argue that, "the sustainable diffusion of RETs is mainly related to the local societal context" (p. 2018). According to Michalena & Angeon (2009), to understand local co-ordination mechanisms, one has to look into the structure of networks (quality and density of social relationships, or coherence and extent of actors and networks), the institutional thickness (informal norms that supports the development of a collective identity, or social capital as a resource), and geographical closeness that links the members of a community (case-specific context). The social and institutional thickness is understood as a governance context with multiple actors, -levels of decisions, and -perceptions. Michalena & Angeon (2009, p. 2023) attribute the success of implementation of renewable energy to the particular form of social organization regarding renewable energy technologies' acceptance that has emerged (relates to cognitions), the familiarity of local actors with renewable energy (relates to cognitions), and the presence of realized positive benefits of renewable energy (relates to motives).

4.1.4 The case-specific context
Although it is difficult to generalize findings with concern to the influence of specific case

circumstances, some studies accumulated the literature with useful findings.

The Create Acceptance study that was conducted by the Energy research Centre of the Netherlands involved a meta-analysis of recent European projects to identify factors influencing the societal acceptance of new energy technologies (Energy research Centre of the Netherlands [ECN], 2008). One of the key findings of the study indicates that societal acceptance crystallizes through historical and accrued experiences of individual new energy projects (p. 11) (case-specific context). Accordingly, the social networks emanating from such projects may transcend the local level to the regional and national level. Experiences, both negative and positive, of individual projects may incur a feedback loop able to surpass to the regional level or affect national policies. This dynamic is in CIT translated as experiences in the interaction processes having affecting the structural context.
Taking this into account, one of the conclusions of the report is that societal acceptance narrates the way in which the technology is introduced in a new context (p. 11), thus the cognitions narrate the way a technology is introduced in a new context. New technology projects have to adequately interact with their local historical, cultural, institutional, social, economic, material and geographical context (p. 11). This process is influenced by contextual factors that connote the policy, economic, social, cultural and infrastructural conditions present in different locations (wider and structural context influencing the interaction process). Also, the timing of projects concerning changing framework conditions is a key feature, which is in CIT's terms understood as adaptive strategies used in flexible regimes.
Projects that foster societal acceptance, or are properly introduced to a new context, possess or conduct many of the characteristics mentioned in the literature, i.e. local embeddedness, provision of local benefits, credible communication and participation procedures, establishing continuity with extant physical, social and cognitive configurations (i.e. using current infrastructure, environmental problem awareness, familiarity with the technology).

Managers that strive to introduce new energy technologies in way of enhancing the likeliness of societal acceptance encounter a set of challenges identified in the report (ECN, 2008, p. 12):
1. Introducing appropriate projects in appropriate contexts (i.e. importance of case-specific context)
2. Identifying critical issues and stakeholders for evolving technologies (extent of problem perspectives and actors and networks)
3. Reflecting on action at appropriate stages
4. Interacting with the 'right people' in the 'right way'
5. Combining successful processes with successful outcomes.

Furthermore, Devine-Wright *et al.* (2007) confirmed the influence of various case-specific factors related to the acceptance of community renewable energy projects. These factors include: 'the nature of the organization or collection of individuals leading the project; the type and scale of technologies deployed; ways in which projects evolve over time, and the history of local social relations, particularly whether boundaries are perceived to exist between newcomers and others previously resident in that place' (p. 14).

4.2 The interaction process: arena configurations

The literature provides extensive insights concerning the most desirable configuration of the institutional arena in which planning and implementation processes for local renewable energy initiatives take place to effectuate public support, acceptance or to counter opposition.
In general, the settings of the arena revolve around the procedural justice of the implementation and planning processes, which entail; **participation or involvement** (Walker *et al.*, 2010; Agterbosch *et al.*, 2009; Zoellner *et al.*, 2008; Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001; Wolsink, 2007a; 2007b; Li *et al.*, 2013; Devine-Wright *et al.*, 2001; Breukers & Wolsink, 2007; Devine-Wright, 2005a; 2005b; Wüste & Schmuck, 2012; Khan, 2003), **transparency of the implementation and planning processes and accurate information dissemination** (Walker *et al.*, 2010; CSE & CDX 2007, Agterbosch *et al.*, 2009; Gross, 2007; Zoellner *et al.*, 2008; Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001), **trust** (Walker *et al.*, 2010; Wolsink, 2007b; Hinshelwood & McCallum, 2001),

integration of the local context and engagement of the community during and after the planning or implementation process (e.g. local knowledge, establishing a network of local actors)(Zoellner *et al.*, 2008; Walker *et al.*, 2010; CSE & CDX, 2007; Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001), and **ownership** (CSE, 2007; Hinshelwood, 2001; Warren & McFadyen, 2010; Devine-Wright, 2005a; 2005b; Li *et al.*, 2013; Jobert *et al.*, 2007; Strachan *et al.*, 2006; Strachan & Lal, 2004; Cas *et al.*, 2010; Sovacool & Ratan, 2012; Barry & Chapman, 2009).

These values - indicated in bold lettering - for the configuration of the interaction process relate to the origins of the motivation for the position taken in the interaction process. Whether the project is opposed or accepted is influenced by the extent that these values are safeguarded in the interaction process. The motives discussed in this paragraph relate to why certain projects are opposed, supported or accepted by actors.
In this sense, Ellis *et al.* (2007) contend that the roots of support and opposition for a project need to be understood and explained by means of deliberative policy analysis (which is able to deal with subjectivity and value-basis of public acceptance), instead of the positivistic stance of the majority of the literature by providing descriptive insights. The results of their case study indicate the reasons supporters and objectors have for supporting or opposing a project are complex. "This confirms the view of previous commentators (e.g. Walker, 1995; Wolsink, 2000; Bell *et al.*, 2005) that for many support is not absolute, but qualified" (Ellis *et al.*, 2007, p. 537). However, the qualified nature of support does imply that project characteristics that yield opposition may be reconciled by means of collaborative processes (Toke *et al.*, 2008, p. 1142), but indeed such processes are complex and in which cognitions, motives and resources configure the undetermined process outcome (cf. Ellis et al., 2007, p. 538). Thus taking account of the context in which the participation process is placed is important for exploring the origins of public acceptance and opposition (Ellis *et al.*, 2007).

4.2.1 Participation

Thus participation in the planning process of renewable energy development is likely to foster acceptance and project success, according to several authors (Strachan & Lal, 2004; Strachan *et al.*, 2006; Khan, 2003; McLaren Loring, 2007). Sovacool & Ratan (2012) identify that participatory project siting (relevant people and communities are involved in the decisions concerning the spatial integration and planning of renewable energy systems) is a condition for community acceptance to ensue. Zoellner *et al.* (2008) add to this that the degree of engagement in local affairs (e.g. community events) of the operating company is also important for social acceptance, after the implementation process (cf. Toke, 2005). Essentially, wind turbines have a direct and visible impact and accordingly participation is key for local acceptance (Khan, 2003, p. 575).

But, what kind of participation? Devine-Wright *et al.* (2001) speak of genuine consultation and participation. But what is genuine consultation and participation? Results of Khan (2003) indeed show that different kinds of participation could have varying outcomes. Moreover, Ellis *et al.* (2007) and Wolsink (2000) argue that public engagement should not be a one-way process, but an interactive process; changing attitudes of the developers as well as the target group. Hoffman & High-Pippert (2005) also recognize that the literature does not delve into the extent of public participation in planning processes and the various forms it may take. It appears that the single act of raising awareness and increasing consultation practices will not suffice. Several authors argue in this sense for the necessity of a contextual approach. This, for instance, is found in Toke *et al.*'s (2008) argument, which states that landscape-value-based opposition is not expected to be resolved by means of a collaborative approach (p. 1142).
Additionally, a study of Aitken (2010b) shows that public participation in a planning process may potentially entail participations as mere 'tokenism' (see Arnstein, 1969) for legitimizing decisions. However, Aitken nuances this statement; his study shows that public participants are not 'power*less*' (p. 262). Public participants have to some extent the power to set the agenda in the initial planning application and the public inquiry phase.

On a related note, the concepts planning and siting in light of wind power development seem to be used interchangeably in the literature. However, Nadaï (2007) holds that both the concepts hold different logics, which in turn has implications for their effectiveness. Planning is generally referred to as an integrated approach towards the territory, in which planners make decisions regarding land uses in time and space (Nadaï, 2007, p. 2716). The traditional rational planning (i.e. top-down, hierarchical approach) has made place in the last couple of decades for communicative approaches (i.e. with participatory aspects) which pay attention to the social dimension of the planning process. Tapping onto the relevant insights the literature provides, the participatory approach is more apt for dealing with matters of local acceptance, and Nadaï (2007) holds that this approach is close to what is often referred to as 'siting' (p. 2716). Rational planning is expected to yield more local opposition. In similar vein, Khan *et al.* (2007) hold that the traditional top-down approach of the energy sector insufficiently adheres to local contextual factors.

4.2.2 Involvement

So, while the type of participation ought follow the specific local context, what is then meant by the involvement of citizens in renewable energy projects?

Many scholars advocate the importance of institutionalizing or systemizing community involvement and procedural fairness in the implementation or planning process of local renewable energy projects based on their findings. Involvement of stakeholders contributes to fostering local acceptance, decreasing local opposition (Walker *et al.*, 2010; Agterbosch *et al.*, 2009; Zoellner *et al.*, 2008; Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001; Wolsink, 2007a; 2007b; Li *et al.*, 2013; Devine-Wright *et al.*, 2001; Breukers & Wolsink, 2007; Devine-Wright, 2005a; 2005b; Wüste & Schmuck, 2012; Khan, 2003) and representing the multiplicity of local values and interests (Breukers & Wolsink, 2007) or support trust (Hinshelwood & McCallum, 2001). Authors also point out the importance of keeping objectives open to safeguard higher levels of local support (Devine-Wright *et al.*, 2001).

Conceptually and practically, stakeholder involvement contributes to the procedural justice/fairness of the implementation or planning process (e.g. Aitken, 2010a). However, doesn't participation of stakeholders in the process effectuate the same procedural justice or fairness?

Agterbosch *et al.* (2009) argue that small private investors that resort to establishing authoritative relations, local social relations and relations of trust (or local social coherence) and collaborative arrangements bolster a sense of procedural justice. Jobert *et al.* (2007) understand the creation of such relations as the integration of the developer in the local context (knowledge of case-specific context, contact with authorities, local actors). Jobert *et al.* (2007) hold that these so-called institutional conditions, that also involve participation in the planning process, direct benefits and access to shares, are essential for successful implementation.
To this matter, Toke *et al.* (2008) note that problems may occur when decisions concerning the planning of a wind project are made at a different governance level than the actual implementation. Collaborative practices are important in the planning regimes to safeguard the linkage between policy intentions and the implementation outcome.

Also, Zoellner *et al.* (2005) found out that perceived procedural justice influences the attitude of residents towards wind energy projects. Residents in Germany perceived the planning, zoning, and licensing procedures as unjust. The result of this perception of unfairness is the increase of opposition and residents perceive the motivation of local politicians and wind energy plant operators to be linked to economic interests and not environmental aspirations. This results in a lack of trust in this 'elite coalition' itself and the information it disseminates.
In addition to community participation in decision making processes regarding a proposed scheme, Aitken (2010a) argues that early community involvement in discussing the design of community benefits is key in alleviating uncertainty and perceived unfairness with regard to the benefits, and fostering a sense of ownership.

On the basis of this, it seems that involvement is a step higher on Arnstein's ladder compared to participation. Involvement encompasses a more extensively integrated type of participation, which not only encompasses participation in the planning process itself, but also in related procedures and events before and after this process. Involvement also comprises the economic involvement of citizens or actors. Various studies give an indication of the significant role local benefits play in acceptance or oppositions regarding a renewable energy project.

4.2.3 Local benefits

The literature reports plentiful about benefits flowing from a local scheme that play a role in countering opposition, fostering acceptance, or contributing to successful implementation of local renewable energy projects (Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001; Li *et al.*, 2013; Zoellner *et al.*, 2008; Walker, 2007; 2008; Agterbosch *et al.*, 2009; Cas *et al.*, 2010; Seyfang *et al.*, 2013; Wüste & Schmuck, 2012; Rogers *et al.*, 2008). Benefits come in various shapes, among others; lower energy bills, use of generated energy, reliable energy supply, community regeneration, and social cohesion.

According to Toke (2005), the motives of local citizens primarily originate from the perception they have with regard to the economic impact of the project). This is economic impact is understood for example that wind farmers see wind turbines as a source of income, while other residents may see the siting of a wind turbine as eradicating their valued view and negatively affecting the housing prices (p. 1539). In similar vein, Zoellner *et al.* (2008) conducted a multi-modal study to explore the factors influencing local public acceptance of certain RES (grid-connected larger PV ground installed systems, biomass plants, wind turbines). The quantitative analysis of the questionnaire shows that a positive cost-benefit calculation made by the individual is the strongest predictor for a reported acceptance. Likewise, Cas *et al.* (2010) discovered that the perception about the personal impacts or benefits of the project is of utmost importance in explaining overall support for the project (p. 267). This factor ended up being more important than beliefs about the technology sector, beliefs about the developer's engagement practices, trust in the developer, or beliefs about procedural fairness of planning processes (Cas *et al.*, 2010, p. 267).

Walker and Devine-wright (2008, p. 499) note that renewable energy projects become more contentious when benefits are not generally shared. Breukers & Wolsink (2007) and Devine-Wright (2005a) also reported local community regeneration as a driver for community involvement in renewable energy initiatives.

Aitken (2010a) researched to what extent community benefits are perceived as contributing to fairness or equity, or as bribes to nip in the bud local objectors. The results of his case study point out that the decisions developers take concerning who the relevant local community is, and what form the benefits should have are conflict laden. Thus, voluntary proposals from the developers concerning community benefits are likely to be perceived as bribes. Aitken (2010a) argues for institutionalized procedures to deal with community benefits to solve this issue.

4.2.4 Ownership

A substantive amount of literature also declares the relevance of ownership relating to fostering public support, acceptance or countering opposition in local renewable energy schemes.
Devine-Wright (2005a) signified that 'locally *embedded* wind energy development can receive high and stable levels of public support' (p. 67). Local embedding reduces potential for local opposition and delay. The local embedding of energy projects should be understood in terms of models of community involvement that are commonly applied in land-use planning analyses, which classify different degrees of embedding, or involvement (cf. Arnstein's ladder of citizen participation, 1969). Between information-led (no embedding) and ownership-led (full embedding) are varying degrees of partnership between the different stakeholders. Ownership-led embedding then yields the most public support and reduces public opposition impeding on wind power development.

Ownership is crucial for the success of community initiatives (CSE, 2007; Hinshelwood, 2001), yields a positive public attitude (Warren & McFadyen, 2010), public support (Devine-Wright, 2005a; 2005b; Li *et al.*, 2013), fosters acceptance or overcomes opposition (Jobert *et al.*, 2007; Strachan *et al.*, 2006; Strachan & Lal, 2004; Cas *et al.*, 2010; Sovacool & Ratan, 2012; Barry & Chapman, 2009), and enhances motivation (Li *et al.*, 2013).

Some studies convey that not a restricted ownership in legal terms is important, but a 'sense of ownership' is important for local acceptance and success of community initiatives (Warren & Macfayden, 2010; CSE, 2009; Maruyama *et al.*, 2007). Outcomes of the study conducted by Mussal & Kuik (2011) show that community ownership has a significant effect on the acceptance of the local population towards renewable energy (also Li *et al.*, 2013). Furthermore, they provide evidence that community co-ownership models are also a means to reconcile local acceptance. This specific type of community initiative is relevant to research since larger initiatives often surpass the possibilities of most communities in terms of funds, expertise, time, pushing them towards co-ownership constructions.

Toke *et al.* (2008) also note that local ownership is more able to foster wind power deployment than corporate ownership. Furthermore other studies indicate that local involvement in ownership of turbines reduces public opposition (Strachan & Lal, 2004, Strachan *et al.*, 2006, p. 13), or is an important factor for mobilizing community energy (Bomberg & McEwen, 2012). In this sense, Warren & Birnie (2009) mention that 'community ownership defuses much of the antagonism which attends wind farm development proposals' (p. 115).

4.2.5 Information and knowledge

Next to this participation and involvement, authors agree that timely diffusion of accurate, independent sources of information, and transparency of the implementation process also augments to a sense of procedural justice, is a condition for successful implementation, or fosters local acceptance (Walker *et al.*, 2010; CSE & CDX, 2007; Agterbosch *et al.*, 2009; Gross, 2007; Zoellner *et al.*, 2008; Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001; Wüste & Schmuck, 2012; Beddoe & Chamberlin, 2003).

4.2.6 Visual impact

Furthermore, various accounts of the literature stress the potential impeding role of the visual impact of wind-energy parks on the implementation process (e.g. Wolsink 2007a; 2007b; Li *et al.*, 2013; Warren *et al.*, 2005; Aitken *et al.*, 2008; ECN, 2008; Strachan & Lal, 2004; Jobert *et al.*, 2007; Jones & Eiser, 2010).

Warren *et al.* (2005) uncover in their research that individuals' perceptions of aesthetics, irrespective of its positive or negative grounding, is predominant in influencing individuals' attitudes vis-à-vis wind power schemes (p. 867) (see also Wolsink, 2000, p. 51). Furthermore, opposition for wind power schemes predominantly root from the preservation of valued landscapes (Warren *et al.*, 2005; Toke *et al.*, 2008; Khan, 2003). Bergmann *et al.*'s (2006) study points to the importance of valued landscapes (see also, Jones & Eiser, 2010), since their findings give indication of people willing to pay to reduce high landscape impact of a proposed project. However, when comparing rural and urban responses; rural respondents are not willing to pay to reduce landscape impacts.
Rogers *et al.* (2008) also discern in their case study that a significant amount of the concerns about the energy scheme under scrutiny stemmed from the visual impact of the project on the local landscape (p. 4222). Especially the size, or scale of the technology seems to be an important factor (Burton & Hubacek, 2007; Barry & Chapman, 2009). On the other hand, personal experience with a wind farm in an individual's immediate vicinity spurs a positive attitude towards wind power schemes (Warren *et al.*, 2005, p.872).

Evaluations concerning the siting of a wind turbine in a particular landscape are not straightforward according to some authors. To this matter, Warren & Birnie (2009) point out that perspectives on landscape values, community empowerment and the relative importance of global and local factors are

intangible and molded by personal paradigms. In other words, the perception and valuation of the quality of a landscape is linked to cultural and historical factors, which vary among individuals (Wolsink, 2009, p. 540; Burton & Hubacek, 2007, p. 407). Furthermore, Wolsink (2009) notes that, instead of cognitions, emotions and values are prominent in shaping attitudes to wind power projects, compared to other local issues (p. 539). He correctly points out that the findings of the study conducted by Ellis *et al.* (2007) derive from this experience. Devine-Wright (2005b) has illuminated the complexity of how wind farms are perceived and accepted. Aspects that shape perceptions include physical, contextual, political, socio-economic, social, local and personal aspects (p. 134).
In same vein, Bidwell (2013) argues that underlying values have a significant indirect effect on attitudes towards wind energy via general environmental beliefs and beliefs concerning the probable economic outcomes of commercial wind farm development (p. 198). His study also pointed out that values such as a concern for community underlie the support towards wind energy. Findings indicate that altruistic values have a positive effect on wind energy attitudes, and values of traditionalism (or conservatism) are negatively related to support for wind energy.

Jobert *et al.* (2007) specifically mentioned the function of former utilization of the site (i.e. set-aside land or appealing natural scenery) in fostering acceptance. Also, Wolsink (2000) found that the type of landscape, or characteristics of a selected site are crucial for the development of attitudes vis-à-vis wind projects (p.55). And a combination of free-rider behavior and positive attitudes towards wind power in general (or NIMBY) does not explain the resistance to wind power development (Wolsink, 2000, p. 54). Considering the infamous notion of NIMBY with regard to wind turbine siting, nimby-issues are determined by feelings regarding equity (in burden and benefits) and fairness in decision-making to siting (or procedural and distributive justice), instead of egotistic tendencies (Wolsink, 2007a; 2007b; Gross, 2007).

4.3 The interaction process: core actor-characteristics

Motivations
The motivations for different actors to become involved in local renewable energy projects are discussed in this section.

Walker *et al.* (2007) argue that the emergence of community energy approach in UK national government policy emanates from a mingling of instrumental policy needs and objectives within and outside the energy policy domain (p. 77). From the government's point of view, the motivation behind the community approach was that is was able to deal with local opposition through employing adequate consultation processes, taking account of the local context (i.e. landscape), and persuading people of the worth of such initiatives by providing more direct benefits (e.g. ownership) (Walker *et al.*, 2007, p. 72). The issue of increasing public acceptance by means of public involvement as a motive for policy makers is elaborately discussed above in section 4.2.2.
Secondly, the government supported the community approach in light of stimulating the market of renewable energy (technology diffusion) to achieve carbon reduction targets.
Lastly, the UK government recognized the potential socio-economic benefits arising from community initiatives (i.e. new sources of income and employment, rural regeneration) (see also Walker, 2008), as a last motivation to support the community approach. Li *et al.* (2013) note that various stakeholders (including the local government) see that a community initiative boosts regional development.

Kellet (2007) holds that community renewable energy projects are more apt for solving carbon reduction problem than top-down policies. Top-down policies are inapt to foster rapid change since the local government and utility companies are typically reluctant or incapable to effectuate change (2007, p. 391) (cf. Betsill, 2001).

Wüste & Schmuck (2012) find that the motives for the initiators' commitment in the renewable energy projects are "*multifaceted and mostly determined by a motivation mix*" (p. 249). Ecological motives dominated

(i.e. climate protection, natural resources conservation), but were often linked with economic and social motives (community-feeling, make village life more attractive). Respondents also raised a motivation category defined as "tackle problem with verve" (p.249). This group of motives involves "the endurance and constant efforts toward the creation of a sustainable and local energy supply associated with the improvement of living conditions in the village, culminating in the transformation of the society" (p. 249). In this sense, Denis & Parker (2009) argue that the shift from centralized energy systems towards community level energy generation originates from an aspiration of the community to reduce GHG emissions and to become energy self-sufficient.
Three cases studied by Hoffman & High-Pippert (2005) also show a motivation mix as to what incentivizes community energy initiatives. All three cases show values of social gratification (enjoyment and excitement of working together and politics as a reward for participation), civic gratification (fulfilling a perceived duty or desire to contribute to the welfare of the community), and the desire to influence policy outcomes. A factor vastly mentioned as a driver for participation was not recognized in the study of Hoffman and High-Pippert (2005) namely; personal financial gain (p. 20).

Furthermore, Rogers *et al.* (2008) find out that people who were interviewed concerning a proposed local renewable energy initiative formulated various expected benefits (or motives) to occur because of participation in a sustainable energy project, which were predominantly; 'increased community spirit' (p. 4223), conservation of natural resources, and money saving. Other authors note that 'community cohesion' (Walker *et al.*, 2010, p., 2662) is a necessary condition for project to develop, or argue that 'social harmony' in the community is strengthened as a result of a locally owned project (Khan *et al.*, 2007, p. 354). Allen *et al.* (2012) notes that community groups see the social advantages (RES projects unify communities, bring about long lasting behavioral change, self-sufficiency, and energy-efficiency) as drivers for RES projects (p. 272).

Khan *et al.* (2007) shed light onto the various benefits of alternative energy development and a locally owned production model. Benefits such as employment, health, income generation, improving the local environmental quality, money-savings, enhances security of supply of energy (self-reliance, self-sufficiency). Khan *et al.* (2007) notes that locally owned projects raise money that stays in the community and circulates, providing economic benefits (p. 354).

Additionally, Walker (2008) postulates incentives for different actors to become involved in a renewable energy project. These incentives differ with regard to the context and form of a project. The following incentives are noted (p. 4402): local income and regeneration, local approval and planning permission (ownership), local control (determine particular characteristics of the scheme), lower energy costs and reliable supply, ethical and environmental commitment, load management (small-scale project to avoid grid connection and storage problems).

Seyfang *et al.* (2013) distillated various objectives individuals mention to become involved in local renewable energy projects from their survey results. The objective mainly mentioned by the projects was saving money on energy bills (83%). But, other objectives received also a significant amount of attention (carbon emission reduction (80%), improving local energy independence (60%), community empowerment (57%), and generating income for the community (52%) (Seyfang *et al.*, 2013, p. 982). Li *et al.* (2013) discovered that economic (personal, financial benefit) and regional (community interest, influences on local landscape/environment) motives were dominant amongst the relevant stakeholders, instead of motives related to awareness of climate change. Walker (2007) and Agterbosch *et al.* (2009) report that collective benefits or shared economic interests are crucial motivators. Agterbosch *et al.* (2009) attribute the concept 'distributive justice' to this.

Maruyama *et al.* (2007) disclose three aspects that incentivize engagement as well; an environmental movement factor (desire to contribute to the environment and community) (see also Agterbosch *et al.*, 2004), an economic incentive factor (expectation of dividend), and a commitment factor (support for the idea of community ownership/involvement, and a sense of ownership) (p. 2766).

Another interesting finding concerns the recruitment procedure for people to participate in a voluntary, community-based initiative for renewable energy. A research conducted by Hoffman & High-Pippert (2010, p. 7572) indicated that people are recruited for such initiatives in majority of the cases by personal appeal (people are recruited by individuals already in the program), on the basis of personal contacts and neighborly relations. Additionally, people who participate continue to do so because of benefits they perceive to flow back to the community, not to themselves. Accordingly; "*those people likely to participate in a voluntary, community-based initiative are motivated by an appeal to the notion of community, rather than personal benefit*" (Hoffman & High-Pippert, 2010, p. 7572).

Cognitions

4.3.1 Overarching barriers

Sovacool (2009) brings to light a factor of influence that related to the cognitions of people. The results of his study conceive that the opposition towards RES originates from people not comprehending why such technologies may be needed. Barriers that are not affiliated with technological competences prove to be the predominant impediment on RE diffusion. The players in the game wish to stick to their original positions, with consumers used to energy abundance, energy utility companies being in control by distributing electricity, and politicians maintaining low energy prices (Sovacool, 2009). This demands speaking to underlying values that evidently clash with the new sustainable paradigm.

In similar vein, a case studied by Ellis *et al.* (2007) revealed that supporters and objectors reside in very different discourses concerning the implementation of a wind power scheme. The use of different metaphors, values, and language strengthens the division between them and leads to miscommunication.

Aitken (2009) discovered that expert knowledge thrives in the appeal process (the process that comes after local objectors influenced the early planning application, with the appeal process as a result). The appeal process is beyond the influence of lay people, and lay knowledge is not considered relevant. Both developers and objectors wield expert knowledge and neglect the relevance of lay knowledge. Furthermore, public participants limit themselves with regard to their contribution in the decision-making process by distinguishing what constitutes expert, lay, and legitimate knowledge (Aitken, 2010b; 2009).

Capacity and power

4.3.2 Resources of trust and social capital

Researchers discovered that trust between the involved actors in community renewable energy projects functions as one of the essential conditions for the development and implementation process of these projects (Walker *et al.*, 2010; Wolsink, 2007b; Hinshelwood & McCallum, 2001; Gross, 2007; Jobert *et al.*, 2007, p. 2754; Beddoe & Chamberlin, 2003; Bomberg & McEwen, 2012; Warren & McFayden, 2010; Mussall & Kuik, 2011, p. 3259; Li & Yu, 2013, p. 994; Michalena & Angeon, 2009; Aitken, 2010a). But this role of trust is not unconditional. Walker *et al.* (2010) and the Centre for Sustainable Energy and Community Development Xchange (CSE & CDX, 2007) argue that the presence of different contexts (i.e. previous conflicts), conditions (i.e. procedural and distributive justice) and arrangements may distort trust, implying that a community approach as such is not sufficient in building trust. Also, trustworthiness of the developer of the local community project is crucial for the community's perception of fairness of the decision-making processes (Aitken, 2010a, p. 6074).
This result highlights the difficulties inherent to the generalization of findings with regard to local initiatives (cf. Walker, 2007), since contexts in which the initiatives are located are different from one another.
Denis & Parker (2009) mention in their study that social capital was relevant for communities in sense of using local professional networks of local governments in order to achieve locally designed goals (p.

2093). Next to this, Agterbosch *et al.* (2009) also hold that positive local social conditions may compensate for a negative policy framework (p. 404).

Peters *et al.* (2010) more generally see suitable support structures in the community as important (in combination with awareness-raising) for transforming indifference towards community energy action in enthusiasm. A suitable support structure is one that entails high social capital (i.e. social trust, social network, shared social norms (preferably geared to the essentials of sustainability), and sanctions (lets members obey the rules)). Social capital can be enhanced by modeling behavior through social learning practices and persuasion cues (e.g. aligning behavior with role models). Adams & Berry (2008) note that in specific the strong social capital manifest in rural communities provides for opportunities for local action against climate change. In their study, Devine-Wright *et al.* (2007) conclude that local social relations are important for the acceptance of renewable energy projects by local people. This is understood as community responsibility and involvement being important for project acceptance.
In same line of reasoning, Bomberg & McEwen (2012) suggest that next to financial and structural resources (government access and engagement), symbolic resources help to sustain mobilization for community energy action (p. 443). Symbolic resources understood as a strong community identity that can triumph collective action problems (see also Hinshelwood, 2001, p. 107), and the quest for local autonomy and community sustainability (p. 440).

The CSE (2009) confirms the importance of a trusted resource base for the success of community initiatives. A trusted resource base not only involves funding, a physical workplace, and technical expertise, but also professional skills entailing engaging a community to build confidence, capacity, and social networks to address its own needs (see also Hinshelwood, 2001, p. 108), and to motivate. Denis & Parker (2009) specifically point to the necessity of a transfer of knowledge for the proliferation of local initiatives.

4.3.3 Capacity and power

Several studies devoted attention to important factors found within communities initiating a local renewable energy installation as well (e.g. Devine-Wright *et al.*, 2007).
To this cause, Seyfang *et al.* (2013) distillated a set of factors inducing the development of community energy. Qualities of the group (p. 984) itself as a critical strength was mentioned by 48% of the respondents. Characteristics of the group, such as a key committed individual are important drivers for the development of the group (named by 37% within the 'group factor'), However, it deserves to be mentioned that the survey solely invited successful groups. Like Parag *et al.* (2013), findings also indicate the important function of intermediary organizations. The results of the case study conducted by Allen *et al.* (2012) show three key 'enablers' (i.e. actors or institutions) for RES projects which are; experts who are able to offer specialist advice and services, funders who are able to offer financial resources, doers who are able to devote time and effort. When asked about external factors that provide opportunities for the projects, 42% of the respondents named the important role of supportive partnerships.
With regard to the latter 'enabler', Wüste & Schmuck (2012, p. 249), Walker (2008, p. 4403) also uncover the potential of a persevering and well-known individual as the driving force for community action. However, the report of the CSE and CDX (2007) note that a willful individual may also be of hindrance when his or her view differs from the group and is certainly not a necessary condition for success (p. 31). Findings of a handful of cases, which the CSE and CDX (2007) examined, argue for the prominence of willful organizations that wield clear objectives for pragmatic change. Moreover, the research project conducted by Walker (2007) that was devoted to explore the role of communities in implementation and embedding of RES in the UK shows that the probability of a successful outcome for a project is likely to be enhanced where local people or existing community groups take lead, where social cohesion is already apparent, and lastly where involvement and benefits are distributed collectively (p. 9).

4.3.4 Lack of capacity and power

Rogers *et al.* (2008) show that overall desire for active involvement in community-based renewable energy projects was relatively low, and residents view themselves participating as consultees rather than project leaders. Devine-Wright (2005a) also signified that local ownership received a lower degree of support in comparison with ownership constructions such as; partnerships with local communities, local use of generated energy, and profits put back into local community. Rogers *et al.*'s (2008) study shows that the disincentive of locals to opt for community-controlled projects is explained by the presence of structural barriers and a lack of resources understood as funding, experience and institutional support. Institutional support is necessary to ease these structural barriers (i.e. lack of knowledge skills and time, perceived difficulty of establishing an energy project (technical aspects, community size/capacity)) and bolster the diffusion of community renewable energy projects. However, what kind of institutional support is required is cannot be discerned from the study of Rogers *et al.* (2008). The findings of Rogers *et al.* (2008) relate to the role of self-effectiveness assessment of the initiators.

Hinshelwood (2001) stated that community-led initiatives face a variety of obstacles. Obstacles concerning time, skills, resources, access to information, establishing extensive relationships with organizations, and funding form impede on the feasibility of a community-led initiative. Seyfang *et al.* (2013) show that with regard to obstacles internal to community energy, 71% mentioned project factors to be of a hindrance, and within that group, 31% mentioned the difficulty inherent to the need of funding and access to finance, 18% cited the lack of time and volunteers (p. 984).

4.4 In specific: solar energy

When looking into the literature concerning solar energy, it becomes apparent that the visual impact of solar energy systems is often of far less influence than it is the case with wind energy schemes (ECN, 2008). Tsousos *et al.* (2005, p. 291) to this end provide a set of technological solutions and techniques to mitigate potential visual intrusions of solar energy technologies.

The literature offers also conclusions with regard to the dissemination of PV. Shih & Chou (2011) discover that uncertainties concerning government subsidies (structural context), product lifetime, reliability, release of new models, and electricity price (wider context) influence the willingness-to-pay for a shorter leasing period of solar power systems. Rai & Robinson (2013) learn that the length of the decision period to adopt a PV system depends on the type of ownership (bought or leased), and on learning opportunities; i.e. influence of other PV owners in the neighborhood. PV owners in the neighborhood influence the adoption period by passive peer effects (witnessing other PV systems), which enhance confidence and motivation, and active peer effects by means of word of mouth with neighbors, friends, and family (social learning). Individuals typically reside to such trusted information networks since the credibility, or trustworthiness of the information is crucial in decisions concerning high-capital investments (p. 7). Leasing reduces uncertainties and upfront capital costs. In sum, peer-effects enhance PV adoption rates. The presence of peer effects in the adoption of PV panels was already confirmed by a study of Bollinger & Gillingham (2012).

Jager (2006, p. 1935) asserts that fundamental motives for PV system adoption are financial support (related to capacity and power core actor-characteristic) and general environmental problem awareness (related to cognition core-actor characteristic). In addition to these two factors, positive effects of information meetings, technical support meetings, and social networks are also important drivers. Sovacool & Ratan (2012) convey the significance of the recognition of externalities or positive public image (community members are aware of consequences of conventional energy sources and see the benefits of RES, which fosters a positive public image) to foster community acceptance (p. 5272) (thus importance of cognitions).

In their literature review, Margolis & Zuboy (2006) identify an elaborate set of non-technical barriers related to solar energy use and other energy efficiency (EE) or renewable energy (RE) technologies (p.

6):

- Lack of government policy supporting EE/RE, and presence of hindering policies. (governance)
- Lack of information dissemination and consumer awareness about energy and EE/RE (governance)
- High cost of solar and other EE/RE technologies compared with conventional energy (wider/ governance)
- Difficulty overcoming established energy systems (wider/ e.g. market entry)
- Inadequate financing options for EE/RE projects (governance)
- Failure to internalize all costs and benefits of energy choices (wider/governance)
- Inadequate workforce skills and training for EE/RE develo education (wider)
- Lack of adequate codes, standards, and interconnection and net-metering guidelines (governance)
- Poor perception by public of renewable energy system aesthetics (cognitions)
- Lack of stakeholder/community participation in energy choices and EE/RE projects (governance)

Kwan's study (2012) showed that solar insolation, cost of electricity, and available financial incentives are significant factors influencing adoption of residential solar PV schemes.

An interesting finalizing statement made by Wolsink (2007b) postulates that the public acceptability of sites is going to play a similarly significant role in the development of solar PV systems as well compared to wind energy development. Wolsink (2007b) argues that factors impeding successful implementation of wind energy (e.g. closed and top down policy making, visual impact) are applicable to other renewables as well.

Furthermore, in another study Wolsink (2000) conveyed that the influence of institutional factors is not solely contingent on wind energy, but also on other RES. To bolster his argument, he mentions the findings of Walker (1995). Next to reviewing research into public attitudes to renewable energy in general, Walker looked into the public attitudes to hydroelectric power, geothermal, wind, and tidal. Walker (1995) concluded that common reasons lie at the base of opposition and conflict vis-à-vis RE projects, such as; the scale of the projects (larger projects spur more opposition); a deficiency of benefits flowing from the projects for local communities; a deficiency of sensitivity to environmental and social impacts in project design and implementation, landscape values, and skepticism regarding scientific assessment and prediction of impacts and the novel character of RES technologies (p. 57).

4.5 Conclusion

This literature study gives insights into the possible factors that influence the interaction processes relating to local renewable energy projects, factors of importance in the interaction process itself, and other useful insights about the core actor-characteristics involved in such interaction processes. As can be seen from the structure of the literature review CIT is able to position the array of factors potentially having an effect on the implementation process, that are reported in the literature, in a comprehensive conceptual framework.

This literature study discussed 79 articles involving certain aspects of local renewable energy developments. 39 articles solely discussed wind energy, 6 studies solely focused on solar energy, while 28 articles discuss both (see appendix section 5 for overview of articles and what type of CRE they discuss). Some articles discussing wind energy predominantly strive to gain insights into the issues related to this specific CRE, while other articles use wind energy to draw conclusions about renewable energy in general. While one could certainly make an argument against Wolsink's statement that factors impeding on the successful implementation of wind energy are applicable to other CRE's as well, I will follow his assertion for now for the sake of drawing a comprehensive conclusion.

The wider context influences the development of local renewable energy in sense of difficulties regarding issues with entering the market, technical and economic viabilities, and the socio-political

context.
The structural context is discussed in light of the governance elements and accordingly the regime qualities. The most important findings involve the role of a national supportive context geared to local demands and involving local authorities, open decision-making embracing conflicting interests and perspectives, and adequate and coherent policy instruments geared to local needs.
The findings regarding the case-specific context can be summarized in one sentence; introducing appropriate projects in appropriate contexts.

A significant share of the articles reviewed discusses the issue of local acceptance and public support, hinting at renewable energy projects implemented in a top-down fashion. Still, conclusions from these studies do offer useful guidance in how to deal with actors that are not part of the group of initiators of local renewable energy initiatives, but still experience any form of impact due to the initiative.

The factors related to the interaction process as such typically revolve around **participation** (which ought to follow the local context and typically involves only participation in decision-making); **involvement** (a more extensive form of participation which is more inclined to the integration of the project in its local context); the transparency, frequency, and quality of **information and knowledge**; **ownership**; **local benefits**; and **visual impacts**.
These factors influence the way a project typically is perceived, and how these factors are in place in the interaction process relate to the degree of public acceptance, public support, or public opposition vis-à-vis a local renewable energy installation. Values related to these factors involve procedural fairness and justice, believes about equity regarding benefits and burdens, and personal interests (e.g. economic).

Furthermore, with respect to the actor-characteristics, motivations for governments to become involved in local renewable energy initiatives typically revolve around issues with public acceptance and opposition. Motives for initiators range from saving money to more altruistic values related to environmental awareness and community sustainability.
With regard to cognitions, underlying perceptions and values influence the way people perceive renewable energy, which are not always addressed in interaction processes.
The capacity and power of initiators stem from a variety of sources, inter alia: social capital, social cohesion, devoted individuals, skills, expertise, funds, trust, and pursuing a common goal.
A bottleneck frequently mentioned is the lack of financial support or funds, expertise, and also a negative self-effectiveness assessment.

The findings from this literature will be applied to the explanatory subquestions for each case under scrutiny. Of course, the CIT will be used as primary conceptual lens but still, the results from the case analysis will be compared to the literature reviewed to reflect on the findings flowing out of this thesis. For instance, if an initiative has trouble to find financial support, this finding relates positively to the literature and thus will be mentioned accordingly. Whenever the findings of the case analysis diverge from the literature, this will be stated as well.

5. National governance context

This chapter provides an overview of Dutch policy instruments directed at stimulating renewable energy (with a focus on wind and solar) from 2010 to 2014. The synopsis offers insight into the Dutch policy and governance context, and will conclude with an analysis with use of the Governance Assessment Tool (GAT).

The Netherlands employs a number of financial and fiscal policy instruments to stimulate the development of renewable energy, which will be discussed in paragraph 5.1.
The Dutch government concluded an Energy-covenant in 2013 that involves a number of agreements with societal, private, and public actors in light of sustainability ambitions. The various ambitions and agreements stated in the covenant will be examined in paragraph 5.2.
Furthermore, the implementation of renewable energy projects impacts the physical landscape, regardless of the type of renewable energy. The Dutch government strives to alleviate the administrative bottlenecks related to spatial planning procedures, specifically directed at wind energy development. The spatial planning aspect of renewable energy is considered in paragraph 5.3.
Furthermore, the national government aims to collaborate with the decentralized governments in their collective quest to achieve the sustainability goals by providing a helping hand. This is discussed in paragraph 5.4. Section 5.5 offers the results of a brief analysis of the national governance context with use of the GAT.

The European context: national Action Plan Directive 2009/28/EG
The Council Directive 2009/28/EC stipulates a 14.5% target for the share of renewable energy in gross final energy consumption in the Netherlands in 2020. The Dutch government propositioned a national action plan in light of this directive for the European Commission. Back in 2010, the Netherlands still had the ambition to champion a 20% share of renewables in 2020 (Rijksoverheid, 2010).
The main policy instruments listed by the Dutch government in the national action plan were the SDE (SDE+ since 2011), the National Government Coordination Regulation (RCR) which coordinates and strives to speed up procedures concerning permits for large-scale renewable energy projects, and the Act general terms environment law (Wabo) which strives to increase the transparency of and speed up permit procedures for small-scale renewable energy installations (Rijksoverheid, 2010, p. 11).

5.1 Fiscal and financial instruments

5.1.1 The Green Funds Scheme
This tax incentive scheme allows individuals to invest in green projects via shares in a green investment fund or green obligations. This incentive scheme has entered into force in 1995 and has enabled the development of thousands of projects (NL Agency, 2010a). The lower interest rate that comes with investments in green projects is reimbursed by the tax incentive.
This scheme comprises of three aspects. One of them concerns Green Projects, in which the government designates projects that meet the requirements for the green project status. The underlying condition is that the project ought to deliver direct environmental benefit, along with few technical and financial requirements. The Green Institutions form the second aspect of the scheme, which are banks that have a green fund or green bank that meet the strict requirements of the scheme. The role these banks have is regulated by the scheme. These banks issue the bonds and shares. An additional effect of the scheme is that project initiators are able to borrow money with lower interest rate at these green banks. The last aspect is the tax incentive discussed above. The Green Funds Scheme is financed from government budget.
Renewable energy projects represent almost 20% of the green certificates issued by the Dutch government between 1995 and 2009 (NL Agency, 2010a).

5.1.2 Green Deals

The policy 'Green Deals', which entered into force in 2011, is coordinated by the Ministry of Economic Affairs. Green Deals are concrete arrangements on project-scale to support citizens, firms, organizations or other governing bodies to realize bottom-up sustainable initiatives that struggle to take off. The goal of this policy is to alleviate bottlenecks faced by initiators (Rijksoverheid, 2014a). Also, recently the Green Deal scheme emphasizes to scale-up successful deals.
Four types of frequently made requests from initiators underlie the role of the national government in this policy (Rijksoverheid , 2014b):

- *Grant access to the capital market*: to this matter, the government has instigated an Innovation fund for SME's, and a tax reduction for R&D costs (for labour related to R&D). Furthermore, the government will look into whether existing fiscal stimulation regulations can be improved such as the Energy-investment reduction, the Climate-investment reduction and the Arbitrary write-off environmental-investments (VAMIL).
- *Adjust and direct*: the government in shape of a mediator, and the government that links organizations with each other.
- *Support markets for new green technology*: the government helps firms to mine niche-markets for sustainable technology.
- *Alter regulations and legislation*: the government can alter regulations and legislation to alleviate some of the administrative burdens faced by firms.

The terminus a quo for the appreciation of the Green Deal proposals are (KplusV, 2012a, p. 31; Kwink Groep, 2013, p. 23 cited from Agenschap NL, 2013):

- The initiator has to have an active role in executing the initiative;
- the initiative has to be tangible and has to address at least one of the following themes; sustainable usage of raw materials and water, sustainable mobility, sustainable energy and energy savings;
- the initiative has a significant impact on sustainability and economic growth (so-called 'green growth');
- the initiative has to be profitable or has the potential to become profitable;
- the initiative is inspiring and is has potential to be adopted on a larger scale or in other regions as well.
- the initiative has to achieve results fast (preferably within three years);
- the initiative has to result in new economic activities or cost savings for firms and citizens;
- the initiative faces hindrances and the government is able to take part in relieving these;
- the initiative is technically realistic.

The national government has 'sealed' around 160 Green Deals with firms, societal organizations and decentralized governments since the implementation of the Green deals policy framework in 2011 (Rijksoverheid, 2014a). 679 parties participate in the Green Deals. Around 67% are firms and branch-organizations, 19% are decentralized governments, 7% are societal organizations, 5% are knowledge institutions, and 2% are financial institutions (Rijksoverheid, 2013, p. 5).
Almost all provinces and municipalities brought in proposals for Green Deals and closed the deal.

Green Deal Province of Overijssel

The Provincial Executive of Overijssel agreed upon a Green Deal with the national government. The Green Deal between the Province of Overijssel and the national government comprises of six initiatives (PEO *et al.*, 2011):

- The Energy Fund (which will be discussed elaborately in section 6.2.1)

- Energy-efficiency measures in 10 000 residential houses in 2012-2014

- Energy-efficiency measures in SME's.
- Usage of surplus heat AkzoNobel Hengelo, and expanding heat-grid.
- Production of innovative biofuels
- Stimulating geothermic horticulture

5.1.3 SDE+

One of the pillars of Dutch renewable energy policy is the SDE+ (Stimulering Duurzame Energie, or Stimulation Renewable Energy) scheme, which entered into force in 2011 under coordination of the Ministry of Economic Affairs and Ministry of Infrastructure and Environment. The target groups for this feed-in tariff are primarily firms, institutions, and non-profit institutions (Rijksdienst voor Ondernemend Nederland [RVO], 2014). This so-called 'exploitation-subsidy' amounting to €3.5 billion in 2014 (€1.5 billion in 2011, €1.7 billion in 2012, and €3.0 billion in 2013) compensates producers of renewable energy for their generated green energy, and does not cover the costs of investment related to production installations. This policy bridges the gap between the production costs of grey and green energy over a period of 5, 12, or 15 years. The size of the subsidy allocated to a firm is dependent on the type of CRE technology, and how much renewable energy is generated. This policy scheme benefits the cheapest technologies producing CRE. Least costly technologies can apply for subsidy in the first place, costly technologies may apply for higher subsidies, but are only granted these subsidies if the annual budget meets their demand (IEA, 2012). So the market decides, on a first come first serve basis, the portfolio of CRE technologies for the Netherlands, not the government. SDE+'s financial resources stem from an increased energy bill for citizens and firms.

5.1.4 Countervailing self-generated sustainable electricity with used electricity

The Electriticy Act (1998) explicitly allows small consumers (individually or collectively) to supply their own electricity with an installation that is maintained operable with their own risk and own account (Electricity Act 1998, article 95a, s2-a). Self-supply of electricity by means of your own installation goes by the name of electricity that is generated 'behind the meter'.

The Electricity Act 1998 (article 31c, s1) enables consumers to countervail sustainable energy that is delivered back to the grid with the electricity used by the consumer. Countervailing is only possible in case of transactions between the same consumer and energy-supplier. No energy-tax is levied on the energy that is generated in a sustainable (small-scale) manner by the consumer and subsequently used. The energy-supplier has to pay a reasonable price for the power that is fed back into the grid that exceeds the consumer's own use (Electrity Act 1998, article 31c). This mechanism applies to consumers with a grid connection of a maximum of 3*80 Ampere, implying that large consumers are not eligible for this instrument.

The current state of the countervail-mechanism knows a rich history of amendments. These amendments had mostly to do with the maximum amount of kWh that had to be countervailed by the energy-supplier for the same price as the consumer would have paid for the energy if it were to come from the energy-supplier. The countervail-limit was firstly increased from 3 000 kWh annually, to 5 000 kWh. The costs of transportation would have to be paid for power delivered back to the grid that exceeded this limit. The limit of 5 000 kWh was abandoned from the first of July, 2013 on.

However, it is not possible for citizens to self-supply and countervail sustainable energy that is generated by (for instance) solar panels installed on the roof of a local school and transported via the grid, or a housing-corporation that installs solar panels on the roofs of its houses and lets tenants for the solar panels and the generated electricity. The issue at hand is that it is technically and administratively not possible to have two suppliers and one connection to the grid (NL Agency, 2012), and the sustainable energy that one generates 'in front of the meter' (i.e. not on your own

roof) cannot be countervailed with the consumer's own used energy because they lack the legal provision 'for their own risk and own account' (Electricity Act 1998, article 95a, s2-a). More explicitly, citizens who invest in solar-parks receive a tax reduction of 7.5 ct/kWh, while citizens who invest in a solar panel installation on their own (suitable) roof are allowed to countervail their generated and used energy and receive a tax exemption (VAT) for the costs of the installation. This suggests an inequality between small consumers with their own roof who can generate solar energy relatively inexpensively, and small consumers who do not have their own roof, or not a suitable roof (NL Agency, 2012).

5.1.5 National subsidies and fiscal measures for solar panels

The Ministry of Economic Affairs stimulated the diffusion of solar panels for individual households in 2012 and 2013 with a subsidy mechanism amounting to a total budget of €50 882 000. The regulation allowed individual households to apply for a subsidy of 15% of the purchase price of a solar PV installation (concerning an installation with a minimum of 0.6 kWp, and a maximum of 3.5 kWp) (MEAAI, 2012).

While this scheme has ended, individual households can still restitute the VAT paid over the purchase price of a solar PV installation, however the owner has to register himself as an entrepreneur first at the tax authorities, which brings along with it some paperwork. However, the Small Entrepreneur Regulation applies to solar panel owners that deliver power back to the grid since the total amount of VAT does not reach the threshold of €1 345 a year. This means that solar panel owners who feed power back into the grid do not have to register themselves as an entrepreneur. Owners who do decide to register themselves as entrepreneurs for this activity as well, have to file a tax return quarterly. A consequence of this structure, was that over 3 000 solar panel owners received a substantial tax bill since they were not aware that they were in default by not filing the tax returns (Vereniging Eigen Huis, 2014)

5.1.6 Topsector energy

The Dutch government pursuits to strengthen a number of sectors that are considered to excel globally. A total of 9 sectors are dubbed 'topsectors', inter alia water, life sciences & health, chemistry, logistics, and energy. The Dutch government engages in a collaborative manner with the business sector, universities, and research centers to make progress in terms of knowledge and innovation. Agreements made between the different parties are ratified in so-called 'innovation-contracts' (Rijksoverheid, 2014d).

The topsector energy also agreed upon an innovation-contract that was announced in 2012. The innovation-contract discusses 7 themes that are appointed as (potentially) top-level in terms of innovations and therefor apt for investment (Rijksoverheid, 2012). These themes address energy-efficiency in the industry and built environment, natural gas, smart grids, offshore wind energy, solar energy, and bio-energy. Extra attention is devoted to the social acceptation and of energy-innovations and the role of the user.

5.2 Energy-covenant

The Energy-covenant was formulated in 2013, in which the Social and Economic Council of the Netherlands (SER) facilitated the process and currently monitors progress of the agreements made in the covenant. The SER is an advisory and consultative platform, which aims to establish social consensus on (inter) national socio-economic issues.
The covenant is the result of a consensus between more than 40 organizations regarding 'new energy' and sustainable growth. The signatory parties comprise employers, trade unions, nature- and environment organizations, government and societal organizations and financial institutions (Social and Economic Council of the Netherlands [SER], 2013, p. 14). The Energy-covenant states that its long-term perspective and short- and medium-term agreements create trust and reduces uncertainties related to investment among firms and citizens (SER, 2013).

The signatory parties of the covenant raise the effort to realize the following goals (p. 13):

- A reduction of final energy usage with an annual average of 1.5%.
- An energy saving amounting to 100 Petajoules in the final energy usage of the Netherlands in 2020.
- An increase in the share of renewable energy generation to 14% (currently over 4%) in 2020.
- An additional increase of this share to 16% in 2023.
- At least 15 000 fulltime jobs, which are created for a significant part in the first couple of years.

While the Energy-covenant consists of ten pillars, among them energy-efficiency, built environment, mobility and transport, the focus of this analysis is on the four pillars addressing the topic renewable energy (wind and solar energy): (1) scaling up renewable energy generation, (2) decentralized generation, (3) grids, (4) and a financing program.

5.2.1 Scaling up renewable energy generation

The renewable energy portfolio of the Netherlands to achieve the stated ambitions of the Energy-covenant comprises of onshore and offshore wind energy, various types of local generation such as solar energy, and biomass.

Some key features of the large-scale energy generation are:

→ Scaling up operational offshore wind energy to 4 450 MW in 2023. The current installed capacity amounts to 1 000 MW. To install the additional 3 450 MW of wind generate energy, the Energy-covenant anticipates an approach in which the additional capacity is installed in phases: 450 MW (2015), 600 MW (2016), 700 MW (2017), 800 MW (2018), 900 MW (2019). In this light, the national government will employ a rigid legislative framework to make this development possible. The basic assumption is that a wind farm becomes operational within 4 years after the subsidy permit has been granted.

→ A second feature is to reach an installed capacity of 6 000 MW of onshore wind energy within the scope what has been agreed upon with the provinces in 2020. To this end, the covenant argues that it is essential to speed up spatial integration planning procedures for areas that are prearranged in the national level spatial development strategy 'Onshore Wind' and the provincial spatial development strategies. It is of a necessity to alleviate bottlenecks for a multi-functional usage of marginal space, for example next to infrastructural constructions of Public Works and Water Management (p. 32)
Furthermore, the Energy-covenant discusses the importance of creating public support for wind farm proposals (of at least 15 MW) by incorporating compensatory and participatory mechanisms for residents in the vicinity of the wind farms only (no other CRE's). A participatory plan is collectively constructed with the involved local governments before the project is initiated. This will be secured in the Environmental Act that will enter into force in 2018[2] (p. 32). Furthermore the institution that grants the permits for the wind farm is allowed to make demands concerning the means to organize public support, which is ought to be taken care of by the project-developers. This mechanism is also anchored in the Environmental Act (p. 32). Investors in wind farms will introduce participation-schemes to residents in the vicinity of the project to allow citizens to participate in the planning as well as the exploitation phase. Ambitions after 2020 have

[2] The Environmental Act was created to simplify the procedures related to spatial developments and the impact these developments may have on the environment. The Environmental Act still has to be ratified by the House of Representatives and the Senate, and is expected to enter into force in 2018.

yet to be filled in, but are within the confines of agreements made with the IPO.

→ The Energy-covenant notes that there are non-financial barriers for other types of renewable energy that impede on the effort to expand the share of renewable energy. The relevant parties will have to alleviate these hindrances in the short-term.

→ The anticipated raise of the energy bill of citizens and firms as a result of the SDE+ will be downgraded substantially in comparison as to what the coalition agreement initially envisaged. As part of the SDE+ subsidy, €375 million is made available to secure realizing the goal of 14% renewable energy till 2020. The €375 million will be primarily used for speeding up off shore wind energy, unless better options for accelerating other types of renewable energy sources are available. The SDE+ is the most important instrument to financially support the 'unprofitable top' in rolling out renewable energy generation (p. 35).

→ An offshore grid for wind farms will be constructed if this proves to be more efficient than a connection to the grid that is installed onshore. TenneT carries the responsibility for this project.

→ In order for the legislation to adapt to the developments decentralized renewable energy generation brings along with it (i.e. intermittent generation of electricity), a legislative agenda CURRENT (STROOM) is initiated to achieve this end.

→ An evaluation of the progression with regard to the 14% and 16% targets will take place in 2016 on the basis of a set of clearly defined criteria, after which the path after these targets will be discussed.

5.2.2 Stimulating decentralized generation of renewable energy

This pillar encompasses the role of bottom-up initiatives related to renewable energy. The Energy-covenant mentions that the decentralized generation is to occur 'in shape of cooperative initiatives.' The covenant strives to give all the legroom this development needs (p. 14).
Parties from the private sector and societal organizations endeavor that at least 1 million households and/or SME's are able to meet their own electricity-demands by means of decentralized sustainable energy (DSE) and employ other forms of sustainable generation for own use (p. 37). The ambition is to realize an installed capacity of decentralized renewable energy of 40 PJ in 2020, of which the majority will be achieved by means of bio-energy applications.

The Energy-covenant specifically mentions the necessity and urgency of alleviating non-financial barriers (e.g. issues with spatial integration, revising permit-procedures, grid integration issues) for this pillar as well (p. 37). Solutions for these barriers will have to be postulated before the first of July 2014.

With regard to this deadline, the Social Economic Council provides a so-called dashboard containing whether the agreements made in the Energy-covenant are started yet. The SER considers the following criteria that have to be met in order for an agreement to become a 'started agreement' (SER, 2014a):

- The name of the person responsible for the agreement is known.
- An implementation team as been established.
- Steps of process are determined to achieve the stated goals.

The significant majority of the agreements in the Energy-covenant have started (139 started agreements vis-à-vis 159 total amount of agreements), in which most of the agreements that have not been started yet are found in energy-efficiency (in built environment, industry and agro) and mobility and transport (SER, 2014a).

Thus, the solutions for these abovementioned barriers likely came in shape of 'started agreements',

since the evaluative report of the Energy covenant in 2014 does not explicitly mention any progress on this issue thus far (SER, 2014b).

A) Solutions for organizational bottlenecks
The Energy-covenant states that decentralized initiatives require support in shape of information, knowledge and knowledge-exchange during the first phases of these bottom-up initiatives (conceptual and planning phases).

The Energy-covenant outlines the following measures to solve the organizational hindrances faced by these initiatives (p. 38)

- → The facilities concerning information dissemination and knowledge exchange will be reinforced and expanded via local support mechanisms and the involvement of the VNG.
- → The establishment of a quality and certification system for suppliers of DSE to support consumers in making the right choice.
- → Municipalities and provinces will make spatial policy regarding DSE. This applies to (not exhaustive); wind farms smaller than 100 Mw (as agreed upon in the spatial development strategy 'Onshore Wind'), sustainable thermal storage, and bio-energy. However, solar energy is not included. The provinces and municipalities determine where these developments are situated in close collaboration with civil society.
- → Involved developers and decentralized governments conduct the 'Elverding'-approach (timely involvement of stakeholders) when developing projects that impact the residential environment.

B) Adequate legislation and regulation
The Gas- and Electricity law will be modernized to adjust to developments related to local generation of sustainable energy. Thus, the Energy-covenant argues that these pieces of legislation have to be clear and flexible. To achieve said objective, parties work together on a legislative agenda dubbed 'CURRENT' ('STROOM').
Legislative issues currently pending on the agenda are;
- Research will be done on the consequences of introducing a single national electricity-transport tariff for users on the same grid, since the current system has regional fluctuating transportation costs, and how this will effect areas with relatively many decentralized generated renewable energy.
- Research on the necessity of giving grid operators the task to expand the infrastructure of the grid towards areas appointed for realizing DSE in the spatial development strategy.
- Grid operators will make information available on energy usage on zip code-level, and other information contributing to the transition.
- The procedure for issuing permits for decentralized sustainable energy-projects in light of the Environmental Act will be simplified. This means that the application for the permit solely involves the sustainable energy installation, the applicant is not obliged to conduct a renewed permit procedure that involves the installation in relation to the entire firm.

Local projects that have uncertainties regarding societal benefits and effects but could possibly support the energy-transition are incorporated as an experiment in an Order in Council under the Gas Act (article 1i) and the Electricity Act 1998 (article 7a). The idea is to select and start 10 'large' and 10 'small' experiments via annual tenders. The intention of this measure is to illuminate legislative and regulative hindrances via a feedback-loop. Successful projects are used as input for structural changes in the legislation. This incentive is part of the legislative agenda STROOM.

C) Fiscal measures
A tax reduction of 7,5 ct/kWh (9,0 ct/kWh VAT included) is implemented[3] on the first of January 2014 for sustainable energy that is generated in a cooperative understanding or in shape of an

[3] The total energy-tax levied is 14.34 ct/kWh in 2014 (for usage between 1-10.000 kWh)

Association of Owners (VvE), is exploited by 'small users' (a maximum connection of 3*80 Ampere), and in which the members of the cooperatives/VvE's and the installations are situated in the so-called 'zip-code rose' (4-digit zip code and adjacent zip codes) (p. 40). This fiscal measure makes it possible for citizens who do not own a proper roof for installing solar PV panels, or who are settled in apartment buildings, to still contribute to a sustainable future and reap benefits in the process.
This mechanism fills the legislative void that existed for a couple of years. A number of initiatives strived to provoke this indistinctness into a legal trail but failed. Additionally, numerous resolutions by the Dutch House of Representatives also addressed this issue in the past[4].
The coalition parties already decided in the coalition agreement that they would stimulate the local production of energy by means of a fiscal benefit. The parties agree that the costs the suppliers will have to make to implement this reduction-scheme can be filed on the energy cooperatives, the VvE's, or the adjoined members since these groups receive the benefits from this scheme.
If the tax reduction is to be adjusted in the future, a transition-scheme will secure the continuity of existing users, in light of certainty of investment. The tax reduction is balanced with an increase of the energy tax. The business (small users) and rental sector are not included in this measure.

5.2.3 Making the grid ready for a sustainable future

The Energy-covenant states that this pillar will ensure that the grid is ready for a sustainable future. Parties agree that they will prepare for the changing future to adapt swiftly to developments if necessary and desirable. Developments related to this topic involve the introduction of 'smart grids, 'demand side management', and energy storage facilities to cope with the issues concerning decentralized sustainable energy generation (p. 41).

5.2.4 Financing investments in sustainability

Another pillar entails a program for the financial means to render the tremendous investments required for the transition as envisioned in the covenant. Financial parties have reached consensus with regard to a strategy that makes investing in energy-efficiency and renewable energy worth it in financial terms. The program's focus is on small, and mostly decentralized projects that often struggle to erect a feasible financial base. Banks still carry the primary responsibility for large-scale investment projects. However, the involved financial institutions and the national government still have to elaborate further under which preconditions bank financing for large-scale sustainable energy projects can be optimally transformed into capital market financing by domestic and foreign institutional investors.
Given the relatively high costs of investment in the initial phase of sustainable energy projects and the overall long investment periods, a longstanding, consistent, coherent, and widely supported policy is crucial (p. 57). Bolstering the financial measures is the effort of the government to relieve non-financial barriers such as delays in the develop and building phases. A profitable project is the precondition for possibilities concerning financial support.

The Energy-covenant asserts that an important factor in successfully securing the energy-transition is policy consistency (SER, 2013, p. 11). While the national government is responsible for elaborating, implementing, executing and evaluating the abovementioned policies, the covenant itself ensures, according to the involved parties, to secure the goals, measures and other additions in the right way. The covenant enlists a number of principles for good governance and adequately safeguarding stated goals:

- Parties are responsible for the components assigned to them, no extra supervision or monitoring is desired to this end.

[4] e.g. Resolution of the member Spies c.s. (no. 78), proposed December 10th 2009, Resolution of the members Van der Werf and Wiegman-van Meppelen Scheppink (no. 69), proposed during legislative consultation of December 5th 2011.

- Parties want to be collectively responsible for the successful implementation and elaboration of the covenant, including the societal involvement. Parties therefore aspire to continue their collaboration.
- Securing the goals.

A commission is erected within the SER to achieve the previously specified goal, and to update on the progression of the covenant and possible adjustments. The parties involved in the covenant will take seat in this commission. Underlying fundamental principles are long-term consistency in light of certainty of investment, and limiting possible burdens for citizens and firms.

The Energy-covenant professes that the pillars display coherence and reinforce each other in terms of effectiveness (SER, 2013, p. 11). An additional point of departure conveyed by the Energy-covenant is the responsibility and involvement of citizens, firms and societal organizations (p. 12). Furthermore, the Energy-covenant endeavors to provide for a longstanding, consistent, coherent, and widely supported policy.

5.3 Spatial aspects of renewable energy

The Dutch government acknowledges the array of permits each having its own terms, procedures, criteria, responsible public authorities, that are necessary for implementing a renewable energy project (Rijksoverheid, 2010, p. 33). For instance, different governmental layers (national, provincial, municipal) may have the competence to grant a permit in different situations. Accordingly, how these levels are coordinated is found in the Act environmental management (Wet milieubeheer). The Environmental Act, different from the one mentioned above is supposed to simplify this labyrinth of regulations and procedures, but is expected to enter into force in 2018.
The current situation is that different types of renewable energy technologies face different permit procedures or criteria (e.g. wind, solar). However, solar panels on roofs face no permit procedures at all (Rijksoverheid, 2011, p. 35), which is atypical for Dutch spatial planning standards. While the province and municipalities are commonly responsible for spatial planning, this paragraph delves into the spatial planning issues that arise on the national level.

5.3.1 Legislative background

The national coordination regulation (RCR) gives the national government the possibility to coordinate decision-making in projects that are of national interest. The legal foundation of this article is found in the Spatial Planning Act (Wro) (§3.6.3, article 3.35). When this legal procedure is followed, the national government also takes responsibility for the integration-plan (§3.5.2., article 3.28).
The Electricity Act 1998 (article 9b, s1-a) determines that wind farms with an installed capacity of over 100 MW are put under the heading of the RCR. This legal provision was amended in the Electricity Law in 2009. The same article also contains a provision enabling the government to employ the RCR for projects of over 50 MW installed capacity not generated by wind energy (i.e. solar, biomass), but an other renewable energy source,(Electricity Act, article 9b, s1-b).

The Crisis and Recovery Act (Chw), which entered into force in 2010, adopted various legal provisions of the Electricity Act 1998. The Chw entered into force to make a focused effort by means of swift and profound procedures on employment, sustainable energy, and governmental goals in the short term (Ministry of Housing, Spatial Planning and the Environment, 2010).
The legacy of the Chw resulted in the amended Electricity Law 1998, that authorizes provinces to indicate areas and determine an integration-plan for projects generating sustainable energy by means of wind energy with an installed capacity of at least 5 MW and not over 100 MW (Electricity Act, article 9e, s1). The province is allowed to establish an integration-plan if a producer of a wind energy-project makes the request and a request made by the producer for a change in the zoning-plan of the municipality is denied by the municipality (Electricity Act, article 9e, s2), or in case of provincial interest (article 9e, s1).

The Chw obliges the province to initiate this procedure. The legal provision for such a procedure is found in the Spatial Planning Act (§3.6.2, article 3.33), and goes under the heading 'Provincial Coordination Regulation' (PCR). The only option for provinces to refrain from the obligation of initiating the PCR is to request an exemption to the Ministry of Economy, Agriculture and Innovation. The exemption is solely granted if; it is expected that the procedures will not be accelerated (Electricity Act, article 9f, s6-a), or in case the province already contributes to the national targets regarding renewable energy (Electricity Act, article 9f, s6-b).
In case that the municipality decides to commence the zoning-plan procedure in favor of the wind farm, it will request the province to refrain from the PCR, and if the province does, the municipality is authorized to grant the necessary permits.
The opportunity to object against decisions of the RCR and PCR procedures are limited, since all the decisions are made simultaneously and in deliberation. The only instance of public participation is when all the decisions are offered and one can file a 'viewpoint' ('zienswijze'). However, the only institution that is authorized for initiating an appeals procedure regarding the definitive decisions is the Council of State.

The implementation of a wind farm or wind turbine also requires an array of permits and exemptions. Building permits, Environmental Impact Assessment, specific safety requirements for wind turbines, design-requirements, certificates, permits relating to soil, regulation related to nature-protection, and so on. Discussing these surpasses the goal of this policy analysis. However, the magnitude of relevant permits and regulations deserves to be mentioned.

5.3.2 Spatial development strategy: onshore wind

The Dutch government developed a specific spatial strategy for onshore wind energy. The concept 'onshore' also embraces large surfaces of water, with exception of the North Sea. The goal of the strategy is to create conditions to operationalize at least 6 000 MW generated capacity of onshore wind energy in 2020 (MIM, 2014). Spatial planning is an important factor in the pursuit towards this objective. The government has a specific vision on the principles for locating wind energy. These principles are: pooling the turbines (i.e. large-scale wind farms) in areas that are suitable for locating large wind turbines, and adapting the spatial design of the wind turbine projects to the key features of the landscape at hand. The government designates these specific areas (MIM, 2014). This way, the government foresees to create a new landscape with its own spatial quality, which makes the spatial development strategy for wind energy surpass the stage of the archaic 'fitting in' new spatial developments.
In the effort to achieve an installed capacity of 6 000 MW wind energy, provinces have to locate small wind farms next to these specific areas for large wind energy projects (MIM, 2014). It is for the responsibility of the provinces to appoint suitable areas for these developments.

The government appointed a number of areas capable for housing large-scale wind energy in the general spatial development strategy 'Infrastructure and Space'. Areas dubbed promising by the government have a relatively low population density, areas with relatively often high wind speeds, and large-scale cultivated landscapes such as harbor- or industrialized areas.
The government deliberated with the provinces, taking account of their policy, to appoint specific areas within these 'capable areas' to enable an Environmental Impact Study (MER). Large-scale projects that will be operationalized in these areas still have to regard the various regulations, legislation and other provisions drawn on by the MER.

The government has appointed a total of 11 areas that are suitable for constructing a wind farms with at least 100 MW generated capacity. The mechanisms the government uses to stimulate and enable the development of wind energy consists of the SDE+ regulation, and relieving regulative hindrances.

5.3.3 Spatial integration of wind farms

The Dutch government formulated three principles for integrating wind farms in the landscape (p. 17):

- Fit in the landscape: this entails that the location of the wind farms suits the structure of the landscape. This could mean for instance the border between land and large open water.
- Recognizable internal structure: this involves the preference to position the wind turbines in a structured manner (e.g. in a straight or slightly curbed line).
- Distance between wind farms: a certain distance is desirable to prevent the perception of mega wind farms.

The national government requests the provinces to adopt the abovementioned spatial principles and appointed areas in their spatial development strategies as well. Furthermore, in accordance with administrative agreements, provinces indicate potential areas for small-scale wind energy development to bolster their objectives, which cannot be realized in the zones designated by the national government. The objective for the province of Overijssel is 85.5 MW installed wind energy capacity for 2020 (MIM, 2014, p. 19).

Furthermore, the national government and provinces have formulated four agreements to guarantee performance and progress towards the national and provincial objectives (MIM, 2014, p. 19):

- Provinces are obliged to enclose their share of the 6 000 MW objective concerning spatial planning in the provincial spatial development strategy.
- The government and provinces will actively put effort in to develop wind energy initiatives that contribute to the objectives by timely commencing the necessary procedures.
- That both the government and provinces aim to alleviate administrative bottlenecks that impede on wind energy projects in areas that are appointed by the provinces.
- The national government will employ the Government Coordination Regulation if provinces fail to meet their obligations. This regulation is enables the national government to promptly implement the planned wind energy farms in light of national interest.

5.3.4 Participative approach to wind energy

The government pursuits to develop the projects in a manner that yields the most public support. Thus, in the early stages of the process, stakeholders will be invited. The government employs the so-called 'Elverding' method.

The government embraces societal initiatives developing wind energy projects and understands that several conditions are important for societal actors to participate in wind energy: a decent investment climate, proper regulation to harness other interests, integration of generated electricity in the national and regional grid, and governmental effort to effectuate local support.

5.4 Decentralized collaboration

5.4.1 Local Climate Agenda 2011-2014

The Local Climate Agenda 2011-2014 (LCA), coordinated by the Ministry of Infrastructure and Environment, focuses on executing tangible climate-projects in a collaborative manner. Municipalities, waterboards, provinces, regions and the national government all have their own ambitions with regard to sustainability and climate mitigation. This agenda outlines with what actions these parties want to achieve those goals jointly with the national government (Ministry of Infrastructure and Environment [MIM], 2011). The agenda is inspired by input of municipalities or other regional governing bodies that are so-called 'leaders' in the realm of climate mitigation.
The goal of the agenda is not only directed at realizing climate and sustainability related initiatives, but has a primary focus to scale up and broaden these initiatives via a network of municipalities, provinces, and water boards. The LCA and Green Deal are supposed to reinforce each other (MIM, 2011, p. 4), which will likely contribute to a strong interaction between the national government and decentralized

governments (KplusV, 2012a, p. 33).

The introductory document of the LCA mentions that modern sustainability policy presupposes a realistic and business-like approach. This approach suits where the locus of the initiative is placed; in citizens, firms, research and educational institutions and societal organizations who collaborate with decentralized governing bodies to initiate projects that are feasible, payable, and upscale-able (MIM, 2011). The facilitative role of the national government enables these projects in shape of linking parties, disseminating information and alleviating barriers. In other words, the national government strives to create the ideal playing field from which these initiatives sprout.
Additionally, the LCA states that sustainability is not something that is confined to administrative borders, but often transcends municipal borders an the like and applies to a region or area. With this background, MIM argues that this necessitates intensive collaboration between city, environment and region, between municipality, province and waterboard, and of course the private sector. The motto is collaboration, and the agenda's underlying function is to establish a knowledge- and collaboration network (MIM, 2011).

The agenda consists of five themes and ten focal points that can be found in table 1. Actions for both the national government and decentralized governments are articulated on the basis of these themes and points of attention.

Table 1: Themes and focal points of the LCA, adopted from MIM, 2011

Theme	**Focal point**
Sustainable built environment	Making existing buildings and houses energy-efficient
	Towards energy neutrality when building new premises
Sustainable mobility	Towards better chain mobility
	Sustainable freight transport
	Green gas and electric transport
Sustainable firms	Local sustainable economy
	Energy-efficient firms via enforcement
Sustainable e-production	Local sustainable energy production
	Smart grids
Climate-neutral city/region	Transition towards the 'Climate neutral city and region'

Municipalities and provinces endorse the LCA on a voluntary basis, which makes the LCA a fairly non-committal policy instrument. Implicitly, the overarching Association of Dutch Municipalities (VNG), or Interprovincial Deliberation (IPO) do not sign the agenda, but individual provinces and municipalities do. There is no contribution with regard to the costs of capacity or hiring of third parties for local or regional climate related initiatives (KplusV, 2012a).
There are 135 signatory parties comprising of 105 municipalities, 25 waterboards, 5 regions and additional parties (MIM, 2013).

The national government bolsters the continuity of the ambitions, collaborative networks, and dynamics of environmental policy underlying the agenda by sustaining support for the structure for exchanging knowledge, in order to contribute to scaling up successful projects (KplusV, 2012a, p. 33).

However, there are no tangible fiscal or financial measures or capacity or knowledge related instruments employed to support the agenda and counter the threat of dwindling municipal environmental policy (KplusV, 2012a, p. 33).

5.4.2 Guideline 'role of the local government in local energy initiatives'

Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland), the Department of Public Works and Water Management (RWS), HIER climate agency, and the Provincial Nature and Environment-federations have developed the Guideline 'role of the local government in local energy initiatives' in 2013.

The guideline responds to the interaction between local energy initiatives that require a high degree of technical, financial, and organizations professionalism, and the municipalities who are often approached by these groups in the start-up phase (RWS, 2013). The guideline supports civil servants in their quest for establishing a constructive relation with these initiatives.
The main message of the guideline is that there is no concrete roadmap as to what role the local government should assume concerning these initiatives, but that the various shapes and sizes in which these initiatives come ask for a learning approach of both the local government and initiative in finding a relationship that meets both demands.

The Department of Public Works and Water Management does make a distinction in the roles that may develop over time: coach, facilitator, service provider, participant, co-producer (see figure 9). The bars overlap and change in color since RWS perceives that the different roles are not mutually exclusive, and that the arrows more positioned to the right, with darker colors, illustrate that the relationship between the municipality and initiative becomes more intensive and formal, see figure 1 (RWS, 2013, p. 16). Each phase has its own dynamics and instruments.

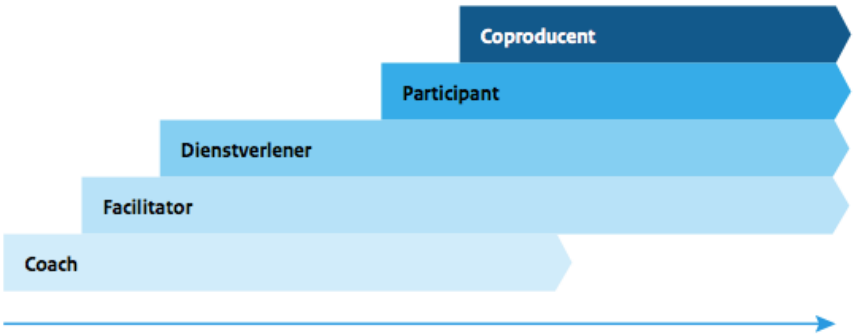

Figure 9: The different roles a local government can choose over time, adopted from RWS, 2013, p. 15

The guideline mentions concrete examples and provides tips for civil servants dealing with local renewable energy initiatives, but does not discuss the role of local governments in the spatial planning issues involving local renewable energy initiatives.

5.4.3 Guide support for sustainable energy

NL agency also developed an instrument for local governments to support the creation of sustainable energy initiatives. Municipalities that are involved before the creation of the initiative can make use of the instrument. The instrument distinguishes four phases; exploration phase, feasibility phase, preparation/planning phase, and the realization phase (NL Agency, 2013). Again, each phase comes with its own dynamics and instruments. The instrument provides hands-on advise for civil servants to help sustainable energy initiatives in establishing societal support.

5.4.4 Support program Association of Dutch Municipalities

In the effort to bolster the agreements made in the Energy-covenant, the Association of Dutch Municipalities (VNG) in 2014 prepared a program that is primarily directed at sustainability issues concerning the built environment. The underlying theme of the program is regional support. Regions may apply for support for establishing regional alliances. These regional alliances, which are consortia of municipalities, firms, societal organizations, research institutions, and the like, are bolstered by the three pillars of the program: the development of knowledge, expertise, and subsequently monitoring. The main instruments employed by the program involve soft-policy measures, inter alia: linking actors in society, establishing regional alliances of collaborating municipalities and diverse actors from society, developing networks, disseminating and exchanging knowledge and expertise, and monitoring (VNG, 2014).

5.5 Assessment of the Dutch governance context

The matrix below provides the results of a quickscan conducted with use of the Governance Assessment Tool (figure 10). The governance assessment tool is utilized in light of to what extent the governance context enables the development of local renewable energy initiatives. While the current analysis of the governance regime in the situation of local renewable energy initiatives is not complete since the provincial and municipal contexts are still absent, the GAT will be used to analyze the national context and consequently provide some preliminary conclusions for the sake of providing initial insights before continuing to discuss the provincial governance context (chapter 6).

The following conclusions regarding the national governance context can be drawn (see figure 10):

- *High involvement*: the governance context includes a variety of societal and governmental actors, and if necessary new actors (high extent levels and scales, high extent and flexibility actors and networks. The Netherlands with its neo-corporatist orientated socio-political context, is used to making negotiated agreements with actors outside of the government (high coherence networks and actors), the different levels of government do cooperate and acknowledge their dependencies on one another (high coherence levels and scales). Furthermore, various initiatives have been employed to enhance the collaboration between the administrative levels (guidelines, LCA, guide sustainable energy).
  In terms of flexibility of levels and scales (medium), an initiative can appeal for support of different governmental levels, but if national interest is at stake and the province or municipality is unwilling to implement wind energy, the national government is in control. For solar energy this is less straightforward because of the immense threshold for a solar project to become applicable to this regulation (at least 50 MW, which is a solarpark of over 80 acres).
- *Low extent and intensity, high flexibility, medium coherence of problem and goals*: issues impeding on wind energy are elaborately discussed, while solar energy receives less attention (low extent). The restated target of 14% renewable energy in 2020 is less ambitious than the previous 20% (high flexibility). This reassessment relates to the low intensity of actors and networks: the attitude of the government does not involve a strong pressure for behavioral change. The goals and perspectives have a medium coherence because although the different actors face the same direction towards sustainability, but the province of Overijssel and the municipalities in concern typically have higher ambitions. Additionally, the national government mentions economic growth and sustainability in the same phrase. With concern to the coherence, the national government pursuits an increase of sustainability, and economic growth, which are two goals that are potentially difficult to combine (medium coherence).
- *Low coherence, intensity, and flexibility of instruments:* legislation and technicalities hamper renewable energy development (low coherence). This also becomes apparent in the spatial planning strategy of on shore wind energy, and in the RCR and PCR. While the RCR and PCR support the intensity of the governance context, they do so practically for wind power only. The reasons for this is that the threshold of a minimum of 50 MW worth of solar energy in one project, one would need a

surface amounting to over 80 Acres, or 0.8 km2, while the threshold for a wind farm is reached more easily (either 5-100 MW for PCR, or over 100 MW for RCR).
Furthermore, policies are insufficient in countervailing the disadvantages of renewable energy and are often complex (low intensity). For instance, the SDE+ subsidy does not finance the high investment costs for installing renewable energy. The evaluation report of KplusV (2012a) concludes that the Green Deal performs well in light of delineating content, and interaction between partners, but fails to harvest a wide and integrated effort from the decentralized governments (p. 35).
In addition, the application of policy instruments typically mutually exclude one another (low flexibility). The instruments and strategy are qualified with a medium extent because a variety of instruments is applied, but there is an absence of regulatory and intervening mechanisms. Furthermore, the Green deal instrument is incoherent in its conditions that it wields for supporting initiatives; the initiative has to contribute to sustainability and economic growth; and the initiative has to achieve short-term results, while renewable energy investments typically have a long-term return of investment (this also adds to the medium coherence of problem perspective). Moreover, the Local Climate Agenda is a voluntary platform, which does not contribute to the intensity of the governance regime. Especially since the municipalities in which the initiatives are located are not signatory parties of the agenda. Furthermore, complexities impede on the procedures for VAT refunds for citizens who bought solar panels.

- *Medium intensity of resources and responsibilities*: given the tremendous task at hand, the SDE+ subsidy (which is only relevant to firms and organizations), and a 4 year countervail regulation will likely be not enough (low intensity of resources). Also there are little resources available for initiators to cover the high investment costs. Some policy instruments have little to no financial backing. The parties responsible for certain components are clearly assigned to their tasks, which is the most important function of an environmental voluntary agreement; sharing responsibilities with target groups (Bressers & Bruijn, 2004, p. 15). However, any clarity with regard to their resources is not observed (medium extent). Furthermore, while the Energy-covenant has a significant amount of 'started agreements' the success of the actual implementation process is still difficult to determine since the agreements are not yet implemented. Furthermore, because of the RCR and PCR, municipalities or provinces are likely to experience this as illegitimate because their viewpoints are overruled, something that is not common in the Dutch consensus democracy. However, different societal actors do cooperate with the government in light of the national targets (medium coherence).

Governance dimension	*Extent*	*Coherence*	*Flexibility*	*Intensity*
Levels and scales	High	High	Medium	/
Actors and networks	High	High	High	Low
Problem perspectives and goal ambitions	Low	Medium	High	Low
Strategies and instruments	Medium	Low	Low	Low
Responsibilities and resources	Medium	Medium	/	Low

Figure 10: Governance Assessment Tool quickscan of national governance context

6. Provincial governance context

This chapter provides an overview of the policy instruments of the Province of Overijssel that are directed at stimulating renewable energy (wind and solar) from 2010 to 2014. This synopsis offers insights into the provincial policy and governance context, and will conclude with an analysis with use of the Governance Assessment Tool (GAT).

Overijssel strives to achieve its climate ambitions by means of an array of instruments. The overarching strategic policy document is the so-called Energy-pact, which was later replaced by the program New Energy. These strategic documents are discussed in section 6.1. The fiscal and financial instruments employed by the province are discussed in paragraph 6.2.
The province generally outlines the conditions and framework with concern to the spatial aspects involved in renewable energy development. Accordingly, the province's policies for spatial planning are discussed in section 6.3. The last section, 6.4, provides the results of a quickscan of the provincial governance context with use of the GAT.

6.1 Energy-pact

The province of Overijssel endorsed its ambitions vis-à-vis climate mitigation in the so-called Energy-pact in 2008 (Provincial Executive of Overijssel [PEO], 2008). The initial goal was to reduce CO2 emissions that were benchmarked at 1990 levels with 30% in 2020. The Energy-pact discusses the means to achieve the goal, but initially does not set a target specifically for the share of renewable energy in the total energy usage. The composition of the energy-portfolio of Overijssel emphasizes the primary role of biomass given the rural nature of the province, placing wind and solar energy respectively on the second and third place. The ambition for wind energy, 80 MW in 2020, primarily stems from administrative agreements with the national government. The potential of solar energy is solely discussed in light of installed capacity gained from residential solar PV installations. Additionally, Overijssel states that a significant part of the CO2-reduction is potentially gained in energy-efficiency measures in the built environment and the business sector.

The underlying strategy of the Energy-pact comes in threefold. The first aspect is a variety of policy instruments to stimulate CO2-reduction; feasibility studies, government investments in CO2-reduction projects, and educational and informational campaigns. The second dimension emphasizes communication; the province conveys the importance of disseminating knowledge and establishing a network of relevant actors in the field. The last aspect underlines the importance of organizational sustainability.

The province assigns itself five roles in the effort to achieve the stated objective:

- *Set up framework:* clear objectives, policy certainty and continuity with regard to making environmental policy and communicating sustainability. Also, enabling the energy transition; integrating the objectives relating to climate mitigation in the spatial development strategy.

- *Inform and communicate:* clear language about the desirability, possibilities, and limitations for realizing the renewable energy mix in Overijssel.

- *Connect*: Establishing networks of relevant actors on specific themes related to sustainability (e.g. firms, social organizations, municipalities).

- *Accelerate*: grant subsidies to accelerate developments to achieve the objective.

- *Regulate*: integrating energy-measures in environmental permits, and monitor compliance.

The Energy-pact has a budget of €12 million, which is insufficient to achieve the aforementioned

objective, according to the province itself. Therefore, the province integrates sustainability aspects in other administrative fields to make up for this deficiency. Other fields are inter alia: agriculture, innovation, and air quality.

6.1.1 Accelerating the transition

Up until the beginning of 2009, various Dutch provinces and municipalities were still shareholders of an energy-supplier named Essent. The provinces and municipalities sold their shares because Essent merged with a German energy-supplier, RWE. This development made the province reconsider its CO2-reduction objective. The Resolution Kolkman-Kerkdijk acknowledged the societal task of the government to ensure energy-security (PEO, 2009). The two members of the Provincial Executive argued that the enhancement of energy sustainability ought to complement the aforementioned traditional task. This new development logically accelerates the progress towards achieving the CO2-reduction goals in 2020, they argued. That being said, the Resolution Kolkman-Kerkdijk proposed to change the deadline from 2020 to 2017.

The province states that it is most apt in influencing the following factors to accelerate the transition (PEO, 2010, p. 5):

- Amount of available locations.
- Speeding up permit procedures (e.g. removing administrative bottlenecks).
- Financing (e.g. subsidies).
- Knowledge and information dissemination.
- Adaptability of the energy-infrastructure.

The province's emphasis is on decentralized forms of sustainable energy, and situations in which the province has influence on the abovementioned factors.

The province aims to accelerate the CO2 reduction with the following strategy (p. 6):

- Five program's for decentralized sustainable energy (Energy-efficiency for firms and housing with the energy-efficiency fund 'built environment', wind energy (land), bio-energy (decentralized), thermal energy, regional energy infrastructure). These programs are chosen since the province has influence on the success of implementing these measures.
- The focus in terms of financing is on bio-energy, energy-efficiency, and energy-infrastructure.
- Every program operates its own approach and emphasis, see table 2.
- A strategy that incrementally develops and learns from own experience and that of other decentralized governments.

As is shown in table 2, the province employs a variety of financial instruments. The province puts emphasis on other forms of financial support instead of the regular subsidies in the reconsidered Energy-pact. Financial support will be limited to energy-efficiency, bio-energy, and energy-infrastructure.

The province incentivizes a number of pilot and projects to also contribute to the target, in addition to five programs mentioned above. Among these are projects to stimulate sustainable mobility (e.g. encourage traveling by bike, public transport), measures in pursuit of an energy-neutral organization (e.g. solar panels), large projects involving solar energy via a tender-regulation or 'asbestos from roof, energy in the company', and a pilot named Sustainable Village.

Emphasis in approach province a program	**Locations, spatial development**	**Permits, Environment and Water-act**	**Financing with return (loans, participations)**	**Subsidies**	**Energy-infra**	**Organizing projects**	**Knowledge center**	**Gaining experience, value for communication, exemplary function**
Energy-efficiency firms and housing			X	X		X	X	
Wind-energy (SDE)	X	X					X	
Bio-energy	X		X		X		X	
a) Thermal-energy (heat and cold storage	X	X					X	
b) thermal-energy (geothermic)	X		X			X	X	
Energy-infrastructure: biogas, electricity, surplus-heat, heat-grids			X		X	X	X	
No program								
Own energy-neutral organization			X			X	X	X
Project sustainable village				X	X	X	X	X
Solar-energy				X			X	X
Construction of 'climate-forest'				X				X
Energy-efficiency Traffic and transport				X			X	X

Table 2: Program's Energypact and emphases in approaches, adopted from Provincial Executive, 2010, p. 7.

6.1.2 Pilot Sustainable Village

The pilot Sustainable Village commenced in 2010 with a budget of €3.5 million (PCO, 2011) as a collaborative project of the province of Overijssel, Saxion University of Applied Sciences, and Nature Environment Overijssel.

The goal of the program is to stimulate and facilitate communities, in shape of villages in rural areas and in the urban environment (neighborhoods), to come up with initiatives and ideas to enhance sustainability in their community (PCO, 2011, p. 13). Enhancing sustainability is in light of the Energy-pact conceptualized as reducing the share of CO2-emissions.

Ten communities were recruited who subsequently started developing their ideas and concepts. Their contributions were then ranked on the basis a public vote and the verdict of an expert committee. The winner of the first contest in 2010, the village Hoonhorst, received €1.5 million to realize their ideas. Fleringen, Heeten and Ommerkanaal, who ended respectively on the second, third and fourth place received €200 000 to implement their plans. The remaining contesters received €50 000 to achieve and elaborate their ideas (PCO, 2011).
The second, and thereby last contest took place in 2011. This version put more emphasis on the 'Planet-targets' (less and cleaner energy), next to the People-conditions (cohesive community) and Profit-conditions (viability of the plans) (PCO, 2011, p. 19). Furthermore, the 2011-version reduced its budget and granted the winner that was appointed by the expert committee €200 000. The winner of the public award received €50 000. The winner of the contest was Aardehuizen, in the village of Olst. The public award was handed out to the village of Vasse.
The deadline for the initiatives to invest their prize money is till 2015. The province of Overijssel and Agency Stimuland instruct the initiators in achieving their goals by providing knowledge and the relevant partners. One of the conditions for these projects is to share experience and knowledge with other communities.

6.1.3 A new focus and strategy

The Provincial Council agreed upon changing the ambition from 30% CO2-reduction in 2020 to a share of 20% renewable energy in 2020 during the term of office of 2008 (Provincial Council Overijssel [PCO], 2013a). This development is solidified in the covenant 2011-2015 'The Strength of Overijssel'. The covenant lists a set of core tasks in which the province invests its public budget. The core task Environment and Energy has a budget of €29 million (Sanitation- soil and asbestos, healthy and safe living environment, program sustainable development, climate and drought). The program sustainable development amounts to €2 million in the period of 2011 to 2015 on a total provincial budget of €981 million (OP, 2011, p. 7). The covenant states that the province assumes a reserved stance vis-à-vis wind energy.

The Provincial Executive commissioned an evaluative study (conducted with both quantitative and qualitative methods) to research the effectiveness of the policy instruments implemented to achieve the 2020 target. The results of the study indicate that the province's policy matters, but will not be sufficient in achieving the objectives; if the province would not intervene by adjusting its policies, the share of renewables would be 11% in 2020.
The study reports that the emphasis on communication, collaboration, networking, and linking sustainability to other themes is a strong and effective pillar in the province's policies.
Subsidies and other types of financial support are effective in stimulating the targets for 2020 (PCO, 2013a).

Still, the provincial government decided to improve and redefine the programs that are currently in effect on the basis of the conclusions of the evaluation report. The reassessment of the program New Energy (which was the new name for the old Energy-pact) on the basis of the evaluative report took the advise of the SER into account. The rationale behind this decision was that negotiations concerning Energy-covenant that were led by the SER, were still in full swing at the time of the

reassessment.
Furthermore since the program New Energy expires in 2015, the Provincial Executive proposed to develop alternative scenarios in light of continuing the program to 2020 and further.

The following themes and instruments of the program are amplified and intensified on the basis of the evaluative study and various resolutions in 2014 (PEO, 2014, p. 7-8):

- Support for local initiatives (stimulate local approach with possibilities for participation; collaborating with municipalities, financial and knowledge support, lobbying to alleviate bottlenecks).
- Balance between carrot and stick (combine accessible advise with supervision).
- Initiators are center of attention (adjusting knowledge, contact, and resources to what the desire of the specific investor-group).
- Pilots for innovation.
- Stimulate other methods for energy generation (residual heat, solar-heat, energy from (waste) water).
- Stage for the pioneers of energy (expanding the platform New Energy Overijssel).
- Additional external financing (European programs) and offering resources in a more all-embracing manner.
- Reinforcing links with other provincial programs.
- Continue to make the transition to sustainability in government organizations (sharing knowledge, making agreements with municipalities and waterboards, integrating energy into internal business processes).

The province outlined factors that limit renewable energy and possibilities for the province to influence these factors. These factors and opportunities are found in table 3.

Table 3: Possibilities for influencing renewable energy, adopted from PEO, 2014, p. 6.

Type of renewable energy	**Dominant limiting factor**	**Possibilities for the province to influence these factors**
Solar-energy PV	Return of investment for a number of groups (firms or citizens without their own suitable roof) Rate of energy-tax	Promotion for profitable situations Lobbying for different structure of energy-tax Pilot large-scale PV-park Policy spatial integration
Wind-energy	Locations Public support residents in vicinity of a wind energy project Financing (for local initiatives)	Indicate locations in spatial development strategy Possibilities for financing Policy spatial integration
Bio-energy	Array of factors: Financing Availability and pricing sustainable biomass	Possibilities for financing Pilots with innovative techniques Lobbying regulation NL and EU

	Return of investment of installations Locations Image Regulation turnover of residual product of fermented manure.	Sustainability-criteria biomass Policy spatial integration
Thermal energy	Competition heat and cold storages (HCS) in one area Managing existing HCS Return of investment (geothermic) Financing geothermic	Granting permits HCS's Educating managers HCS's Geothermic: organize pilots and financing Policy spatial integration
Hydropower Rio thermic Small wind turbines Solar-thermic	Limited descent in rivers Lack of knowledge in Overijssel (all 4 of them) Low return of investment (small wind turbines)	Pilots and activities to stimulate these four.

However, the province omits one factor concerning wind energy: the political climate. The Resolution Mulder contained the following ascertaining statements: 'the installation of wind turbines as such is not a goal', and 'wind energy has not enough support in Overijssel', and the following statements of appeal to the Provincial Council: 'the province will support all shapes and sizes of wind energy if and only if this contributes to existing obligations or no other alternative is at hand', 'the province will take into account the emotions and preferences of the majority of the citizens', and 'the Energy-fund will neither directly, nor indirectly participate in wind turbine projects' was adopted with 29 yeas and 16 nays (PEO, 2011a).

The province wields a specific paradigm in the effort to further adjust the program to achieve a larger share of renewable energy in 2020:

- Entrepreneurs, homeowners, and societal groups (investors) realize the projects.
- Investors have different motives (financial gain, increasing independency, awareness of climate change, convenience and comfort, positive image)
- Willingness to invest can be influenced by the government by an array of facilities:
    - Hard: regulation, finances, constructing energy-infrastructure
    - Soft: communication, knowledge, organization
    - Applying stimulating (carrot) and regulating (stick) instruments in a balanced fashion.

6.2 Fiscal and financial instruments

6.2.1 Energy Fund

One of the pillars of policy instruments used in Overijssel to stimulate renewable energy and energy-efficiency developments is the Energy fund, established in 2013. The energy fund is supposed to support the effort to achieve the 20% share of renewable energy in 2020, and to initiate employment

and innovation by commissioning additional resources. The energy fund's capacity amounts to €250 million, is organized at arms-length of the provincial government in shape of a private company. The financial support stemming from the fund will be utilized for renewable energy projects (i.e. bio-energy, solar, geothermic, energy-infrastructure, residual heat), and energy efficiency in the built environment (PEO, 2011b).
Initiatives have to meet a certain set of requirements before they can be granted a loan, participation or guarantee from the Energy-fund, among these conditions is that the initiative has to have a feasible and robust business case. The entities that can apply for a loan are firms, housing corporations, foundations and associations.

The provincial government listed various reasons for the decision to establish the Energy-fund as a separate legal entity. The all-encompassing motivation is that the fund is occupied with activities involving private law and has to operate as a market player. In this line of argumentation, the province is convinced of the necessity of assigning an external steward since they lack the expertise regarding financing and accounting. The ASN bank inaugurated as the aforementioned steward. Thus, the ASN bank is responsible for verifying an initiative against the agreed upon criteria set up by the provincial government.
The responsibility of the province is to guide the energy fund as a policy instrument with respect to its content and limits.

6.2.2 Tender Sustainable energy generation and energy-efficiency

This subsidy scheme is directed at investments in sustainable energy generation and energy-efficiency and had its first round in 2012. The budget for the two rounds initiated in 2014 amounts to €2.2 million, in which individual projects can receive a maximum of €199 000 (an individual solar-energy project can receive €100 000 in total). The only exceptions to the target group of this policy are housing-corporations and energy-efficiency in existing houses.
The subsidy can be used for: investments concerning energy-efficiency measures that apply to a building, investments concerning the generation of renewable energy (i.e. bio-energy, thermal energy, hydropower), investments concerning energy-efficiency by means of distributing surplus heat to the end-user, investments concerning optimizing business processes in which energy-efficiency occurs, investments in solar-energy in combination of at least one of the aforementioned investments (Overijssel province [OP], 2014a).
The applications are priority-ranked according to how the initiative scores on a number of components, such as: avoided amount of primary energy usage, avoided amount of primary energy usage relative to the amount of subsidy requested, feasibility of the project, and potential for scaling-up.

6.2.3 Feasibility studies and Energy scans

This policy instrument subsidizes feasibility studies for renewable energy and energy scans (OP, 2014b). The target group for this policy is broad, such as municipalities or branch organizations. However, households and advise and engineering agencies are not included in the subsidy scheme. This scheme preconditions that the feasibility is at least co-financed for 10% by resources aside from government subsidies. The budget of this scheme amounts to €300 000 in 2014, in which the maximum amount of subsidy granted to an individual project is €15 000.

6.2.4 Sustainability loan homeowners

This policy instrument, which was implemented in 2012, enables homeowners to apply for a loan with a low interest rate for generating sustainable energy and insulation (OP, 2014c). Municipal energy desks settle the application procedure for the loan. The financial capacity of this policy instrument amounts to €750 000 in 2014, in which individual loans vary from €2 500 to €20 000. This type of instrument (loan with a low interest rate) and a so-called 'sustainability premium' are both available for Association for Homeowners as well, in which homeowners can collectively apply for a loan for energy-efficiency measures with a higher amount of subsidy for individual projects. The premium

increases with €150 for each additional neighboring house.

6.2.5 Energy desks

The concept energy desk is an initiative of the province, municipalities and More with Less (an initiative of construction- installation- and energy-firms to guide homeowners in the process of insulating their homes and installing measures of energy-efficiency). Each municipality has its energy desk, which informs and advises homeowners about available subsidies, relevant firms and other useful information related to energy-efficiency measures. The costs involved in these energy desks are financed for about 75% by the province. Before 2011 only 8 municipalities had an energy desk, the goal for after 2011 was to establish an energy desk in all municipalities (PCO, 2011, p. 16).

6.2.6 Regulation replacing asbestos with solar panels

The province of Overijssel introduced a subsidy scheme to stimulate agricultural firms to remove asbestos from their roofs and install solar panels in the process. While in 2013 only agricultural entrepreneurs were eligible for the scheme, in 2014 the scheme was extended to include former agricultural enterprises and owners of former agricultural parcels (OP, 2014d). The scheme was extended in the effort to achieve the goal of 400 000 m^2 asbestos abatement. €1.9 million is available to achieve this objective, of which €691 520 is earmarked for the regulation replacing asbestos with solar panels in 2014. The national government granted €1 million to Overijssel to reward its stimulating strategy in removing asbestos from roofs in business areas (OP, 2014e). Individual applicants can receive a maximum of €15 000 for their project.

6.2.7 Living lab energy-neutral renovation private residential houses Overijssel

Homeowners living in the municipality Dalfsen, Deventer, Hardenberg, Kampen, Ommen, or Zwolle are eligible to apply for the subsidy energy-neutral renovation. Not only does the applicant have to meet the various criteria related to practical issues, the homeowner also has to participate in the living lab to become eligible for the subsidy. This means that he/she has to devote time and effort to the project itself, take part in promotional activities, exchange knowledge and experience concerning the living lab pilot and its evaluation (OP, 2014f). Before applying for the subsidy, applicants first have to consult the energy desk. The maximum amount of subsidy an applicant can receive is €8 000, the subsidy limit for 2014 is €350 000 which has to effectuate the renovation of approximately 50 residential houses (OP, 2014g).
This pilot in turn contributes to the knowledge base of the province, which it can utilize to inform more homeowners (OP, 2014g). The Living lab scheme ends in 2015.

6.2.8 Spatial quality cities, villages, peripheries and sustainable development Overijssel

The regulation spatial quality cities, villages, and peripheries allows municipalities and waterboards to subsidize physical measures that reinforce the spatial quality and livability in the aforementioned areas (OP, 2014h). Among the criteria is the obligation of the measure to contribute to the spatial quality, in coherence with strengthening sustainability and enhancing the social quality in the city, village, or periphery. Municipalities can receive a subsidy amounting to a maximum of €250 000. The budget of 2014 offers a total amount of €1 000 000.

In a similar vein, the subsidy scheme Sustainable Development Overijssel helps municipalities and waterboards to develop spatial tasks in a sustainable manner. The subsidy is earmarked for "additional measures in existing spatial tasks that significantly contribute to the balance between People, Planet and Profit and that reduce or prevent negative effects on the quality of life in 'here and now' and 'then and there" (OP, 2014i), and for drawing up an implementation-plan.
The maximum amount of subsidy granted for an individual implementation-plan is €15 000. The subsidy for implementing measures that contribute to sustainable development can reach €100 000. The province made €630 000 available for this scheme in 2014 (OP, 2014i).

6.3 Spatial aspects of renewable energy

6.3.1 Spatial Development Strategy Overijssel

The Spatial Development Strategy of Overijssel (SDS) dates from 2009, and has been reassessed on some issues in 2013, which is why the latest document will be used. The province mentions, next to other issues (e.g. mobility, economy, housing), the tasks and opportunities related to 'climate and energy' in the strategy document. The province's main motto, 'a vital society in a beautiful landscape' also expresses their objective regarding sustainability (Overijssel Province, 2013, p. 16). The ambitions of the SDS follow the three pillars of sustainability (see table 4), in which renewable energy is placed under the 'Profit' heading. The ambitions concerning energy are to stimulate renewable energy generation and energy-efficiency.

Table 4: Central themes of the Spatial Development Strategy of Overijssel. Adopted from OP, 2013, p. 16.

Wellbeing	**Welfare**	**Natural resources**
Living environment	Economy and business climate	Nature
Cities and landscape	Accessibility	Watersystem and climate
Safety and health	Energy	(sub)soil

The province has a directing role when it comes to spatial planning, and is responsible for an integral approach. The interest of the province resides in the public interests that are influenced most effectively on the provincial layer. The strategy document is flexible in a way that future developments, if in the interest of the province, can be incorporated when necessary.

The province sees itself as the implementing body in terms of the ambitions set by the national government concerning renewable energy and energy-efficiency (OP, 2013, p. 18). The province also mentions the importance of local effort in accomplishing goals.

The province expresses three pivotal mechanisms in terms of governance to achieve societal progress (OP, 2013, p. 69)

- To tackle complex societal challenges in an integral (integral assessment of ambitions, policies, and interests) and collaborative manner adopting so-called 'vital coalitions' of public, private, and social partners. Vital coalitions are networks that tackle societal issues in a collaborate fashion.

- Apply the principle of subsidiarity in sense of giving administrative partners leeway to take action on their relevant scale.

- Limit administrative and bureaucratic turmoil with simple and clear regulations.

The spatial development strategy comes with its own implementation model which gives answer to the questions; If, where, and how developments may take place (OP, 2013, p. 74-75):

- *If*: general choice of policy: policy made by the EU, national government or province determines if developments are possible or necessary. These policy choices include:
    - Supra-local adjustment: the province requests municipalities to mutually adjust there plans.
    - Coherence: the province requests municipalities to adopt the central policy

ambitions and their elaborations in developing plans.
  - SER-ladder: The SER-ladder has to be applied for spatial developments concerning public facilities, business terrains or residential construction. This ladder hierarchically ranks spatial decisions to first use land that is made available for a specific function or that can be used for restructuring purposes, and then resort to expanding land that connects with existing land-use.
- *Where*: perspectives for development: the province has made a spectrum that indicates the type of development perspective for a specific area. The development in question has to fit the perspective indicated for the concerning area.
- *How*: area characteristics: This shows how a development takes place with regard to area characteristics that are of provincial interest (e.g. nature, recreation, environmental aspects, cultural history).

This implementation model has consequences for the theme renewable energy. Initially, renewable energy generation is reserved for locations with existing land-use and in correspondence with the characteristics of the area (p. 79).

The Spatial Development Regulation Overijssel 2009 safeguards the visions and policies outlined in the spatial development strategy; in which the latter is resembles a soft-policy mechanism to make agreements with administrative, private, or societal partners.

Sustainability and renewable energy in the spatial development strategy
The province states that the red threads of the spatial development strategy are sustainability and spatial quality (OP, 2013, p. 20). The province conveys that sustainability demands a 'transparent assessment of ecological, economic, and social-cultural policy ambitions' (p. 20). The province wields the same definition for sustainable development as coined by the Brundtland Commission in 1987: 'a development, which meets the needs of the present without compromising the ability of future generations to meet their needs'.
This sustainability objective materializes in goals regarding: a robust nature, maintaining landscape values, water safety, efficient land-use, realizing a strong infrastructure, stimulating sustainable mobility and transport, transition to renewable energy and reducing CO2-emissions, stimulating a healthy and safe environment, maintaining a balance between usage and protection of subsoil.

The province contends that information and education is important since these objectives have to deal with competing interests. In this sense, n environmental impact assessment (EIA) is helpful in integrating and harnessing environmental interests in policy decision-making processes, which is why the EIA is included in the spatial development strategy.

The red thread of the policy is to stimulate fermentation of biomass close to the firms who produce it themselves, have an installed capacity of 80MW wind-energy in 2020, and stimulate thermal energy.

A) Renewable energy rural area

Wind energy
The province made an agreement with the national government (i.e. Energy-covenant) to achieve 85.5 MW worth of wind energy in 2020. The province reassessed its role and policy with regard to wind energy as a consequence of this agreement.

The province has indicated (and aims to develop) viable locations for wind energy, as well as areas not eligible for wind energy (e.g. nature, national parks), and remaining areas (large business terrains and near infrastructural constructions) that are viable in case of proper spatial design in compliance with the characteristics of the area. These areas are designated in figure 11.
The province will only collaborate on requests for a spatial integration-plan on the basis of the Crisis

and Recovery Law if the project is positioned in one of the locations designated viable for wind energy development.

Wind energy initiatives that are situated in the category 'remaining areas' will have to be assessed locally. The province will make performance-agreements for supra-local wind energy development with municipalities concerning the locations that are indicated as viable for wind energy (p. 136). In case that bottom-up and municipal initiatives do not generate enough capacity to achieve the ambitions, the province will employ the available instruments discussed in paragraph 5.3.1.

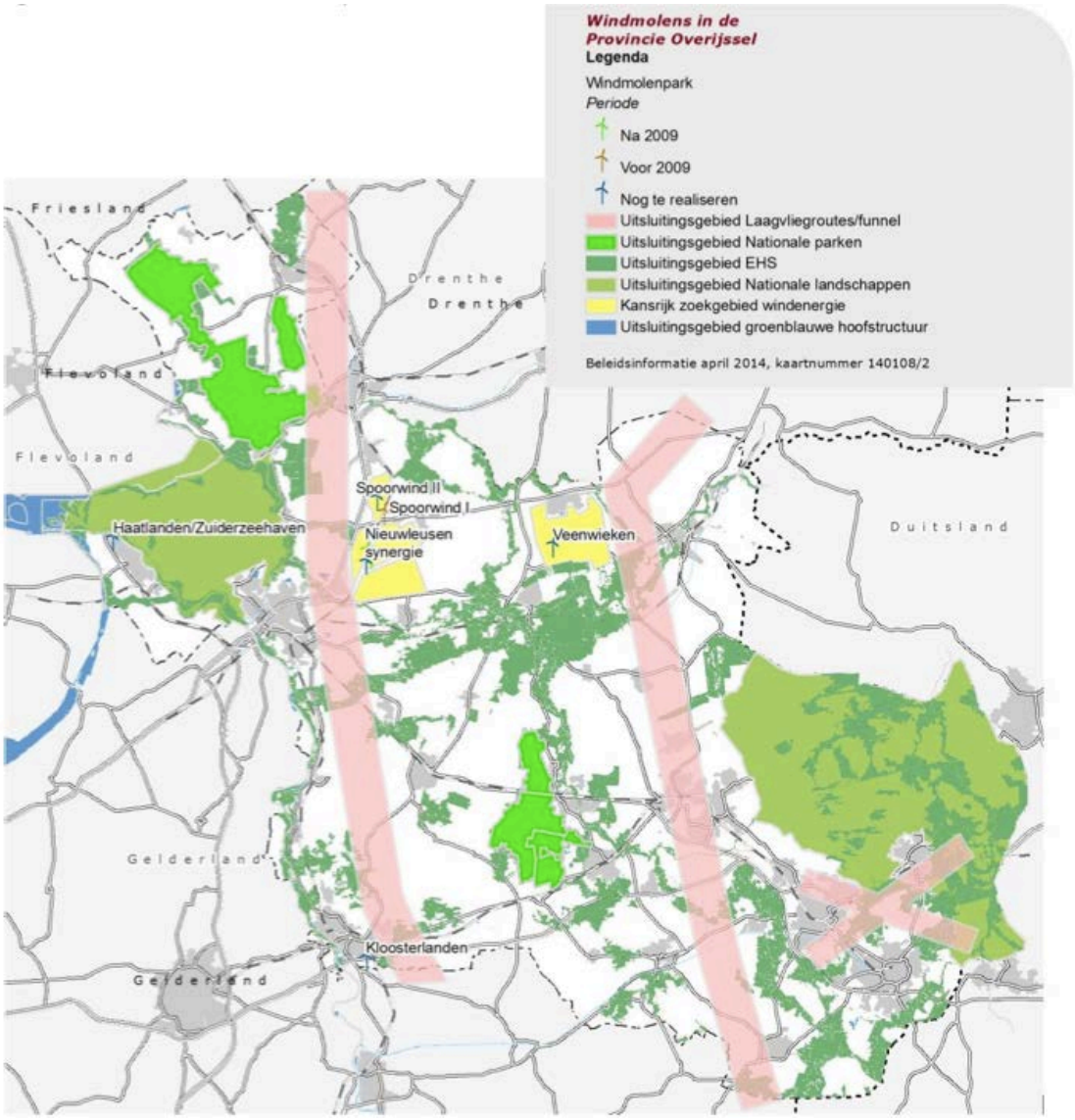

Figure 11: Implementation wind farms, adopted from Provincial Council Overijssel, 2014, p. 90.

Solar energy

Solar energy is primarily discussed in combination with the built environment (installing panels on roofs). However, the strategy document does mention the following: 'we foresee innovative possibilities for the application of solar panels on agricultural purposes taking account of the characteristics of the area' (OP, 2013, p. 137).

The province currently researches its possibilities and approach regarding land-based solar panels (H. Spiertz, personal communication, July 29, 2014). Since the spatial development strategy remains silent on this issue, the 'ladder sustainable urbanization' and the 'quality impulse green environment apply in

case of large-scale land-based solar panels. These instruments entail respectively: when and where one situates urban land-uses, and if one develops a project that impacts the landscape in rural areas, one has to countervail this by investing in integrating the project in the landscape.

Efforts of the province to realize renewable energy are mostly expressed in the Energy-pact (which is also where the spatial development strategy refers to when discussing policy mechanisms for renewable energy), but also involve concrete projects and area-development.

Spatial Development Regulation Overijssel 2009
This regulation bolsters some of the visions and policy measures described in the spatial development strategy (Provincial Council Overijssel, 2013b). The regulation conveys that wind energy initiatives in the rural area ought to be situated in wind farms with individual wind turbines having at least a generation capacity of 2MW. These conditions do not apply for wind turbines with a maximum height of 25 meters.
The Spatial Development Regulation Overijssel has no legislation concerning solar energy.

B) Renewable energy urban environment
The CRE perceived to have the most potential in the built environment according to the province is heat and cold storage. Still, small-scale solar energy and wind energy are also possibilities.
Solar energy is primarily placed in the built environment according to the province. Technological developments will enable an improved integration of solar energy in buildings to facilitate large-scale appliance in the built environment. The possibilities for wind energy in the built environment are discussed in the sub-paragraph above: large business terrains and in the vicinity of infrastructural constructions.

Instances of actualization and amendments
Since some of the efforts for realizing the ambitions of the spatial development strategy are in shape of concrete projects, the province argues that especially when dealing with a long-term policy document such as the strategy document at hand, flexibility in implementation is of absolute necessity. Therefore, the implementation programs will be updated every budgetary cycle.

The intention of the development perspectives indicated in the provincial spatial development strategy is not to steer on the scale of parcels. Municipalities have the position to give their own interpretation in the municipal spatial development strategy. The Provincial Executive makes agreements with municipalities upon provincial interests indicated in the strategy document via the municipal spatial development strategy.
In case that developments surface that do not correspond with the development perspectives indicated by the province and in case that this development requires an EIA, the Provincial Council decides on a proposal to amend the strategy document and development perspectives.

Review
The Provincial Council decided to execute a review of the spatial development strategy, researching the period from 2009 till 2014 in terms of policy effectiveness, influence of factors, and to what extent the formulated implementation model was used by partners in implementing the strategy (PCO, 2014). The review reports a number of findings related to the renewable energy ambitions of the provincial strategy document. The outcomes involve; an increase in generated renewable energy, an increase of sustainable generation from biomass, usage of groundwater for HCS almost doubled, usage of thermal heat source in initiated, and the majority of wind energy projects is realized in the indicated areas. And concerning energy-efficiency: the total energy use remained the same, but the share of renewable energy increased which implies that the provincial policies have effect (table 5).

Table 5: Renewable energy generation in 2007, 2011, and 2013 (PetaJoule/year). Adopted from Provincial Council Overijssel, 2014, p. 87.

	2007	**2011**	**2011**	**2013**
		Without provincial policy	*With* provincial policy	*With* provincial policy
Bio-energy	2.7	3.2	4.5	5.5
Thermal energy (HCS and geothermic)	0.1	0.4	0.4	2.0
Wind energy	0.0	0.0	0.1	0.7
Solar energy	0.0	0.0	0.0	0.1
Total	**2.8**	**3.6**	**5.0**	**6.4**

6.3.2 Energy landscapes Overijssel

The subsidy mechanism Energy Landscapes applies to all parties from society that (want to) realize renewable energy in Overijssel. The subsidy is employed for supporting the process of preparing a plan for renewable energy generation in shape of a workshop, or for additional measures or activities to integrate renewable energy generation spatially that reinforce the integral quality of the environment (OP, 2014j). An important policy for the integral quality of the environment is the 'quality green impulse'. This policy entails that next to the usual spatial integration of the project, the initiators have to invest in spatial quality of the area. Moreover, the initiators can apply for support from the Energy-fund.

Not all types of renewable energy are eligible for application; wind energy is excluded. Wind energy only qualifies for the mechanism if it is part of an integral project that combines other types of renewable energy and if it corresponds with the existing provincial obligations for wind energy.

One of the criteria of the workshop is that residents, firms, municipality and waterboard in the area in concern are involved in the workshop.

The maximum amount of subsidy that supports the process of preparing a plan for renewable energy generation in shape of a workshop for an individual application is €15 000. The maximum amount of financial support for the additional activities to integrate an individual project is €100 000. The province set a limit for the subsidy of €500 000 in 2014. (OP, 2014j).

6.3.3 The sustainability-matrix Overijssel

The sustainability-matrix developed by the province is a tool that strengthens and enhances the sustainability aspects of projects by illuminating the sustainability ambitions that could be of interest for the project in an early stage (OP, 2014k). The instrument is best used for projects that have a spatial impact and which are in the exploration or orientation phase.

The matrix itself offers an overview of the sustainability themes and the corresponding ambitions. These ambitions take root in the Spatial Development Strategy Overijssel (figure 12). The goal of the matrix is to produce projects that equally represent the three pillars of sustainability and take into account the impact of the project in the environment and future ('here and now, then and there').

	Wellbeing (People)	Welfare (Profit)	Natural Resources (Planet)
Themes SDS	Living environment	Economy and business climate	Nature
	Cities, villages, and landscape	Accessibility	Watersystem and climate
	Safety and health	Energy	(sub)soil
Additional themes	Social domain	Local economy	Circular economy
Extra			

Figure 12: Sustainability Matrix Overijssel

6.4 Assessment of the governance context of Overijssel

The matrix below provides the results of a quickscan conducted with use of the Governance Assessment Tool (figure 13). Three values are used to determine the regime qualities related to the various governance elements; high, medium, and low. The governance assessment tool is utilized to find out to what extent the governance context enables local renewable energy development.

The matrix found below contains the analysis of the provincial regime context, while generally omitting the national and municipal regime contexts. Once more, this initial synopsis is used to gain some insights before continuing to the actual case analysis involving a variety of municipal regimes.

The following conclusions regarding the national governance context can be drawn (see figure 13):

- *High involvement*: relevant societal actors and administrative levels are included in the governance regime (high extent levels and scales and actors and networks). The energy desks are the institutionalization of the relationship between the province and municipalities concerning household-level energy-efficiency and renewable energy. Furthermore, initiators of the cases under scrutiny are in contact frequently with the province (i.e. Deventer Energy Cooperative (DEC), Foundation Sustainable Ommerkanaal (SDO), Escozon), municipalities mention fruitful collaboration with the province (Raalte, Deventer, Ommen) (high coherence actors and networks and levels and scales). Furthermore, the provincial documents do not explicitly exclude new actors, and initiators are able to apply for support on municipal level and provincial level (i.e. DEC, SDO, Escozon) (high flexibility actors and networks and levels and scales). There is no particular strong impact from the province for behavioral change (medium intensity levels and scales)
- *High problem extent and flexibility, medium coherence*: the province recognizes issues hindering local renewable energy initiatives on the basis of an evaluative report of its Energy-pact. Furthermore, different instruments and visionary documents use the concept sustainability in light of the three pillars. (high extent). In addition, the province changed its ambitions in a positive sense a number of times (high flexibility). However, there is unwillingness to support wind energy (medium coherence).
- *Medium extent policy instruments, high coherence:* Overijssel employs an array of different instruments, including informational and educational campaigns, but no regulatory or intervening instruments. However, Overijssel does not avoid granting startup subsidies (medium extent). The province embodies sustainability in its spatial development strategy and strives to implement sustainability in other policy themes, but solar energy has no separate program and is until now not represented in the SDS (medium coherence). Instruments typically mutually exclude one another (low flexibility), but the province does recognize the importance of reassessing its instruments. While the instruments help in pursuing the ambitions of Overijssel, but the

instruments are of a voluntary nature (medium intensity).

- *Medium extent and low intensity on responsibilities and resources*: as mentioned above: wind energy is not stimulated more than the assigned 85.5 MW (medium extent). Furthermore, solar energy does not have its own program or provisions for spatial integration. While provincial and municipal interests can clash as crystallized in the situation of the province of Drenthe and municipality of Emmen regarding the implementation of a wind farm[5], the assigned energy desks for municipality creates cooperation between the two (medium coherence). In addition, the amount of resources is insufficient in achieving the targets, but the province strives to integrate sustainability in other policy themes to gain resources (medium intensity).

Governance dimension	*Extent*	*Coherence*	*Flexibility*	*Intensity*
Levels and scales	High	High	High	Medium
Actors and networks	High	High	High	Medium
Problem perspectives and goal ambitions	High	Medium	High	Medium
Strategies and instruments	Medium	High	Low	Medium
Responsibilities and resources	Medium	Medium	/	Medium

Figure 13: Governance Assessment Tool quickscan provincial governance context

[5] Recently, the province of Drenthe decided to install 95,5 MW worth of wind energy in the municipality of Emmen, which amounts to 32 wind turbines. Initially, the municipality of Emmen agreed to install 60 MW of wind energy on its territory, but later retracted that statement because a new municipal council took seat. The province made use of the PCR and overruled the municipality's desires.

7. Escozon Solarpark

Escozon is a cooperative of two initiators that pursuit to build a 2.6 acres solarpark containing 6000 solar panels at the periphery of the village Heeten, in the municipality of Raalte.

7.1 How did the initiative evolve until now and what has the initiative achieved?

In 2010, the village of Heeten became third and received the public award in the provincial contest Sustainable Villages (PCO, 2011). The initiators of the Sustainable Village received €200 000 as a subsidy to realize their plans. One of the initiators that later proposed the idea of a solarpark helped to establish the Association Sustainable Heeten (SDH) in 2011 because subsidies can only be granted to legal entities. One of the initiatives of SDH involved the collective purchase of solar panels: 'Solarpower Heeten' ('Zonnekracht Heeten'). This initiative was granted a separate subsidy by the province (back then, the province still had tenders for collective solar panel initiatives), and effectuated around 750 panels on the roofs of residential homes, private firms, and public buildings. A total of approximately 2 000 panels is realized in Heeten, partly resulting from spillover effects of the association. The initiators comprehended on the basis of this experience that a significant amount of roofs is not suitable for installing solar panels[6], which incentivized the idea of initiating a project with land-based solar panels (or, a solarpark) in shape of an energy-cooperative.
Consequently, the first questions about the viability of a solarpark of 6 000 panels, or 2.6 acres were asked to the municipality of Raalte in 2011.

With the reassessment of the Climate program 2009-2013, that achieved the stated ambitions insufficiently, in the background and the 'Vision Raalte sustainable in 2050' as a response to this, the municipality had to give clarity as to what this new strategy in terms of renewable energy entailed for the spatial development of Raalte. The 'green paper for large-scale sustainable energy sources' bridged this gap.

This green paper provided an incentive for the municipal council to discuss the possibilities for land-based solar panels within the confines of Raalte. In the council-proposal that introduced the green paper concerning large-scale renewable energy, the municipal executive proposed to utilize the 'Ladder of the Sun'. This 'ladder' entails that roofs and unused lots are the primary options for solar energy development, before resorting to lots in the countryside (Municipal Executive Raalte [MER], 2013). However, the municipal executive made an exception in the council-proposal by excluding agricultural land at the peripheries of villages from this ladder. The municipal executive proposed that decisions concerning the suitability of a specific village-periphery for land-based solar energy developments are best made in an ad-hoc manner instead of designating areas beforehand. Additionally, the municipal executive requested the council to assume a 'positive attitude' regarding such initiatives to give the municipal executive leeway in adjusting zoning plans and investigating the possibilities when such initiatives emerge (p. 4).

In this sense, the municipal executive asserted that the proposal for a solarpark on the periphery of Heeten was a viable initiative. The initiators already introduced the solar park in a conference organized by the municipality in which societal actors deliberated about how they envision a sustainable Raalte in 2050, and come up with projects to achieve those 'dreams'. Escozon jumped on the bandwagon by joining the conference and introducing the concept of a solarpark in Heeten.

An interesting instance in light of the progression of the initiative was that the solarpark in Heeten was mentioned as a separate issue on the agenda of the council-proposal. It is exceptional in municipal politics to embed concrete projects in a council-proposal. The public officials, who were involved with

[6] Whether a roof is suitable for installing solar panels depends on the carrying capacity, the angle, and the position of the roof. Furthermore, crucial factors are also the type of material used to construct the roof, and the presence of shading.

the initiators of the solarpark, adopted the topic in the council-proposal concerning large-scale sustainable energy in Raalte. The location in Heeten is a principal example of what the municipal executive considers as 'an acceptable situation' given the limited impact on the landscape (MER, 2013, p. 3). The municipal executive proposed to dub the solarpark in Heeten as a pilot. This entailed that the municipality facilitates the pilot by: 'guiding the necessary procedures related to spatial planning and offer input for the initiators in elaborating the plans' (p. 4). The initiators will have to pay the costs involved for the procedures.

In 2014, the municipal council formally agreed with the proposal of the municipal executive involving large-scale sustainable energy sources, the Heeten solarpark initiative, and assumed a positive attitude with respect to the development of solarparks in the indicated areas (i.e. unused lots in urban area, unused lots on business terrains, agricultural land at village-peripheries)(Municipal Council Raalte (MCR), 2014a).

However, with concern to the solarpark, the procedures related to spatial planning and altering the zoning plan still have to be completed. These procedures are susceptible to objection. The initiators will establish a cooperative for the solarpark to recruit members, but first require more certainty with regard to the outcome of these procedures and the land price for the solarpark (D. Doedens & F. Middelkoop, personal communication, July 2, 2014).

The initiators established the cooperative Escozon with a purpose not limited to developing the solarpark in Heeten. In addition, Escozon wants to disseminate the experience gained from their own initiative and thereby advise other similar projects. Another activity Escozon is employed with, is guiding projects in installing solar panels. Escozon requests subsidies, advises, and guides non-profit organizations for installing solar panels. Escozon recently expanded this activity by providing the same services for large consumers, and accordingly requesting SDE+ subsidies. Thus the cooperative Escozon is not the cooperative that will comprise the investors in the solarpark.

While the municipality does collaborate on the initiative, the process is painstakingly time consuming (Doedens & Middelkoop, 2014). The initiators pointed to the recent municipal council elections that caused the project to stall for another 3 to 4 months. Additionally, the initiators mentioned that once the initiative became more concrete with help of a blueprint and publicity in the local newspaper, the project got momentum and excited enthusiasm (Doedens & Middelkoop, 2014).

The current state of affairs involves negotiations about the leasehold price for the parcels that are appointed by the municipality as viable locations. The municipality owns these parcels, and designated these parcels to be the most suitable due to arguments related to the spatial quality of the area (Municipality of Raalte [MR], 2014b). However, the municipality is reserved in making significant progress in these negotiations because of the entrepreneurial disposition of Escozon (J. Arends, personal communication, July 8, 2014; V. Breen, personal communication, July 10, 2014). Where it that Escozon was a cooperative of e.g. 2 000 Heeten residents, then the municipality would have a different stance vis-à-vis the initiative.

Another element hampering the progression of the solarpark is the business case that is not yet profitable or feasible. The initiators appeal to the municipality and the province for financial support for that reason. Inter alia infrastructural costs have a significant share in the total cost of investment. In response, the initiators could decide to phase in the installation of the solar panels (e.g. first 2 000 panels, then another 2 000, and then the last 2 000). However, it is still unsure whether the initiative will make it or not (Doedens & Middelkoop, 2014).

According to the municipal executive, the ball is on the initiators' court after the decision concerning a subsidy in shape of compensating a maximum of €10.000 for the planning costs and decisions regarding the leasehold prices (MR, 2014d). The initiators have to provide an integration-plan, a

zoning plan reassessment, and gain public support in Heeten for the solarpark.

However, negotiations are still ongoing regarding the leasehold prices. This is an issue that is impeding on further progress in the project. One of the preliminary results of these negotiations was that the initiators extended the lease contract from 10 to 25 years (D. Doedens, personal communication, September 11, 2014). In order for the initiators to invoke the provincial workshop used for spatially integrating the solarpark (i.e. energy landscapes), first an agreement has to be reached with concern to the lease price.

The initiators and province of Overijssel currently look into the possibility for Escozon to apply for an 'experiment-position' in the CURRENT agenda.

7.2 What is the structural context and case specific context for each local renewable energy initiative under scrutiny?

A) The structural context

7.2.1 Municipality of Raalte

Climate Program 2009-2013
The municipal council of Raalte in 2009 concluded the Climate Program 2009-2013 as an explicit effort to mitigate climate change. The ambition of Raalte was similar to the ambition adopted in the national Climate Agreement of 2007; increasingly reducing CO2-emissions and a 20% share of renewable energy in 2020.
The execution of the program was done in a flexible manner to respond to societal developments. The program focused on effectuating concrete projects, and communicating (or raising awareness for) the possibilities and necessity of energy-efficiency and renewable energy (MR, 2014a). Also, bottom-up initiatives were facilitated in light of the changing role of the government. Municipal support crystallized in the dissemination of knowledge, financial support and technical support. The total budget of the program amounts to €650 000.
The program comprised of different themes, inter alia renewable energy. The municipality exclusively converged to stimulating biomass.

In the same period, the administrative agreement 2010-2014 set the target for a climate-neutral Raalte in 2025, with cradle-to-cradle thinking as a key feature of their policy (MR, 2010, p. 7). In other words, the municipality put up an even more ambitious target. However, since CO2-emissions increased by 2% at the end of the Climate Program, the municipality acknowledges that these targets were expected not be achieved (MR, 2012). After discussing this outcome, the municipality developed a framework policy document that describes the choices and confines for policies concerning sustainability and climate mitigation in 2011.

A bumpy road
The municipality enlisted various reasons for not achieving their objectives. One reason for this shortcoming is that the municipal's benchmarked CO2-emmissions in 2008 were far less than what statistics later showed (due to outdated methods). Initially, the municipal's CO2-emissions were benchmarked in 2008 at 180 Kton, while new data showed 268 Kton CO2 emissions in 2008 (MR, 2012, p. 11). Another reason the municipality mentions is their dependency on its citizens and business sector in tackling large-scale CO2-emmissions reduction. The municipality also mentions an organizational aspect; sustainability ought to be strongly embedded and integrated internally, which in turn asks for leadership and collaboration. Furthermore, it is mentioned that the processes to implement the projects are complex and time consuming, the inevitably high investment costs related to energy-efficiency and renewable energy, and the long-term return of investment. Underlying all of this is the changing role of the municipality, and the proliferation of bottom-up initiatives that

demands a municipality that no longer directs but facilitates and stimulates (MR, 2012). Moreover, policy is not always accustomed to these developments and requests innovation.

The municipality offered three scenarios to cope with its inability to achieve the 2025 objective. The first scenario abolishes the climate objectives and rounds up the Climate Program, the second one maintains the 2025 target in which the municipality assumes a directing role and invests greatly in its objective. The third scenario asserts the goal of sustainable Raalte in 2050 in which the municipality assumes a facilitative role and collaborates with society to achieve their objective.
The last scenario has the municipality's preference since it broadens the objectives in sense of the time-period and scope (CO2-reduction to sustainability), and embraces civil society and the private sector, which are important for successful environmental policy and as sources of financial capital (MR, 2012). Additionally, this scenario allows for adaptive policymaking to respond to developments concerning bottom-up initiatives. This scenario also entails a share of 20% renewable energy in 2020.

Vision and Implementation-program Raalte Sustainable 2050 (2014-2018)
'The Vision and Implementation-program Raalte Sustainable 2050', which substantiated in 2013, elaborates on the findings and arguments stated in the framework policy document concerning sustainability and provides a roadmap. The vision is realized by means of implementation programs with a duration of 5 years. This set up allows for a flexible approach to adapt to developments and dynamics in society. The municipality refers to the Brundtland Commission's conceptualization of sustainability to explain and define the concept.
As was mentioned earlier the role of the municipality, in its quest for achieving the objective of sustainable Raalte in 2050, is changing. The municipality emphasizes the following roles and aspects: *facilitator*, *accelerator* (the municipality provides policy that stimulates sustainability, *mediator* (brings together parties, knowledge, experience and resources), *initiator* (the municipality initiates project internally), *own organization* (the municipality directs its projects when necessary in collaboration with other parties from society). The municipality acknowledges the importance of integrating sustainability in all of its departments, instead of assuming a project-based and ad-hoc approach. Sustainability ought to be one of the 'leading principles' in policymaking (p. 22).
The vision and implementation-program Raalte sustainable 2050 was drafted in a collaborative manner by including various societal stakeholders in the process. The program utilizes the concept 'vision' in light of transitions theory (MR, 2013a, p. 6). This entails that the traditional incremental steps will not suffice in achieving the objectives for sustainability. Instead, visionary thinking of how the future is visualized is necessary to effectuate a fundamental change; a transition. The municipality has an annual budget of €100 000 to fulfill its mediating and facilitating role (p. 24).

The municipality of Raalte additionally set out its possible energy portfolio for achieving the 2050 objective. The energy portfolio distinguishes various options for installing solar-PV panels (on farm-sheds, firms and organizations, existing and new residential buildings). The municipality mentions that land-based solar parks are only sustainable to a limited extent because of their land-use; multiple land-use has been the status quo in building in a sustainable manner (MR, 2013a, p. 12). Furthermore, the possible energy portfolio also comprises; large- and small-scale wind turbines, biomass, solar-thermal, and burning wood.

The means to achieve the objectives are to connect the relevant actors, disseminate information, raise awareness, and to facilitate villages, initiatives, firms, schools and education in their efforts for sustainability. Additionally the municipality has to integrate sustainability in the mentality of its employees, enhancing sustainability of business processes, and initiating a project for sustainability among the employees.

The municipality may assume different roles dependent on the extent of ownership:
- If an initiative requests support from the municipality, the municipality is able to facilitate, accelerate and mediate. This support comes in shape of offering knowledge and resources, organizing processes,

connecting and stimulating parties. Furthermore, the municipality has the responsibility to create suitable conditions and alleviate barriers.
- If an initiative aims for collaboration with other parties, the municipality responds by facilitating and stimulating the initiative while assuming a more directive approach.

In addition, the municipality can support bottom-up initiatives that emerge and possibly contribute to the objectives. These initiatives are evaluated according to a set of criteria:

- Synergy with the program
- Return of investment
- 'Financiability' and risks
- Opposition of stakeholders
- Exemplary function

A research report that is included in the appendix of the program offers insights into the energy-portfolio of Raalte in 2050. The report estimates for each renewable energy source the necessary installed capacity to compensate the primary energy usage. The energy scenarios are found in table 6.

Table 6: Required installed capacity for each renewable energy source, adopted from Infinitus, 2013.

Technology	Required quantity
Solar PV panels	4.3[7] km²
Solar boilers	647 709
Wind turbines (3MW)	80
Wind turbines (20 kW)	47833
Biomass digesters	26
Biomass wood burning	27116 acres fast-growing forest

With regard to the solar-panel scenario, the report mentions that there is 0.4 km² roof available stemming from residential houses, another 0.4 km² stemming from the roofs of firms, and another 0.8 km² is derived from barns on agricultural property. The report mentions the additional necessity of land-based solar panels to fill the gap (a total of 2.7 km²)[8].

Green paper large-scale sustainable energy sources
In 2013, the municipal council requested the municipal executive to develop a green paper containing the pro's and con's of the various renewable energy sources in light of the recently determined Vision and Implementation-program Raalte sustainable 2050. The green paper discusses the relevant characteristics (e.g. impact on landscape, energy production, noise) of three renewable energy sources that are viable for large-scale development in Raalte, and the required amount of installed capacity for each energy source.

The common issues related to wind energy are mentioned along with concerns specifically related to

[7] According to the Green paper large-scale sustainable energy sources, 367 Acres is required to meet the energy demand of Raalte.
[8] According to the Green paper large-scale sustainable energy sources, 157 Acres of land-based solar panels is needed to meet the energy demand of Raalte.

Raalte (valued landscapes, cultural and historical landscapes, housing density in the outskirts, low-fly zone) (MR, 2013b).
The negative issues mentioned for solar energy are solely related to land-based solar energy (i.e. solarparks), since solar panels installed on roofs do no require any decision-making from the municipality or permits. This concerns: sustainability versus food production, spatial impact, impact on the landscape, feasibility of solarparks dependent on legislation, relatively large surface is required for a significant contribution, solarparks are susceptible to theft and vandalism (MR, 2013b, p. 10). The impact on the landscape of solarparks is relatively local, compared to wind turbines. Additionally solarparks can be integrated in the landscape by planting greenery and flora on the borders of the park.

The document mentions the absence of municipal policy concerning solarparks. It is not permitted by account of the zoning-plan to use agricultural land for solarparks. The question of 'where' both wind and solarpark installations are best situated is a question that can be answered by adequate policymaking the document mentions (MR, 2013b, p. 12). The question of 'if' however, is one that prerequisites an integral approach to consider the relevant interests (sustainability vis-à-vis other interests).

Another aspect mentioned with regard to solarparks is the type of land-use. Solarparks typically occupy a relatively large amount of land (in Dutch standards), with little possibility for multiple land-use (low incentive to cultivate the land since the solar panels block the sun, and the land is difficult to harvest because of the presence of the panels). In that sense, the discussion is whether or not to utilize agricultural land for energy-production. The 'Ladder of the Sun', developed by Nature and Environment Overijssel (NMO) puts the placement of solar panels in order concerning the desirable usage of space (NMO, 2012, cited by MR, 2013, p. 12):
1. Solar panels on own roof.
2. Solar panels on roofs of firms.
3. Solar panels on public buildings.
4. Solar panels on infrastructural constructions.
5. Solar energy on unused plots on business terrains.
6. Solar on plots in rural areas.

The green paper was initially prepared to provide the municipal council with information to assess the case-specific context of Raalte in order for the municipality to opt for the most suitable energy-portfolio. The green paper coveys that the influence of the municipality on its energy portfolio solely resorts in its spatial planning competencies; entrepreneurs and citizens decide themselves whether to utilize the space (MR, 2013, p. 16).
Furthermore, the green paper states two possibilities for the municipality to go about the process of permitting renewable energy development: conduct research (i.e. a spatial strategy document specific for renewable energy and an environmental impact assessment) and make policies, or assume a more ad-hoc approach and respond to initiatives that emerge.

Political context

Table 7: Results municipal council elections 2010 and 2014.

Political parties	**Number of seats in council**	
	2010	**2014**
CDA (Christian democrats)	9	7
Gemeentebelangen (Municipal interest)	7	7
VVD (conservative liberals)	3	4
SP (social party)	2	2
Lokaal Alternatief (Local Alternative)	1	2
D66 (social liberals)	1	2
PvdA (social democrats)	2	1
Total	**25**	**25**

7.2.2 Province of Overijssel

The province has a subsidy in shape of a workshop that is specifically designed to integrate projects such as in Heeten in the landscape. This program is discussed elaborately in the analysis of the policy context of the province, paragraph 6.3.2. Furthermore, the provincial policy 'Quality Impulse Green Environment' is applicable with concern to the spatial integration of the solarpark.

7.2.3 National level

The national policy mechanisms relevant for the solarpark are the zip code-rose (see paragraph 5.2.2 under C) and the possibly the legislative CURRENT agenda (See paragraph 5.2.2 under B). These instruments are discussed elaborately in chapter 5.

7.2.4 Property and use rights

The parcels that are designated for the solarpark are currently cultivated with corn and are municipal property. The contemporary zoning plan indicates that land-use of the lots is a so-called 'green strip', which is typically a rectangular piece of land with vegetation, grass, and the like. In order for a solarpark to be realized on these lots, the current zoning plan has to be altered to permit the construction of a solarpark. Additionally, the municipality has to grant an environmental permit that takes into account the integration of the solarpark in the surrounding landscape. These procedures are susceptible to objection.

The municipality and initiators are currently negotiating a lease contract for the parcels. The land price for a lease contract for more than 6 years has to be assessed by an authorized institution ("Grondkamer"), which has to verify whether the price and the agreement itself are conform regulations. Lease contracts that take no longer than 6 years are susceptible to fewer obligations and regulations. These short-term contracts allow the two involved parties to determine the land price for the lease without permission of the Grondkamer (Civil code 7, articles 396; 397). Prices vary according to the duration of the lease contract.

B) The case specific context

7.2.5 Village of Heeten, Raalte municipality

This case is situated in Heeten, in the municipality of Raalte. The municipality of Raalte is a fusion of the two previous separate municipalities; Heino and Raalte as a result of the municipal reorganization in 2001. The current population of Raalte comes close to 37 000 residents, Heeten houses about 4 000 residents. The municipal's territorial jurisdiction amounts to just over 17 000 acres and houses 9 villages. Raalte is a characteristic Dutch rural municipality that accommodates many agricultural businesses. Its landscape is characterized by a combination of agricultural land-usage and vast natural reserves.

7.2.6 Foundation Sustainable Heeten

Heeten houses the Foundation Sustainable Heeten (SDH), which sprung from the provincial pilot initiative 'Sustainable Village'. Heeten competed in the 2010-version of the contest and won the public award. Heeten received €25 000, and was to receive another €100 000 – 150 000 depending on the quality of the submitted action plan. SDH was established as a result of this contest. Among the different projects of SDH was a collective purchase of solar panels that achieved a total of 750 panels installed on roofs throughout the village. The first idea was to have a land-based solar park in which each household could have one solar panel (Doedens & Middelkoop, 2014). This was not yet possible because of lacking municipal policy on this issue, and the impossibility of selling generated electricity from the park to households who invested in the park. Which is why the initiators resorted to roof-installed solar panels. The idea of land-based solar panels remained in the minds of the initiators of Escozon.

7.2.7 Bankruptcy of manure fertilizer in Heeten

A cooperative of fifty pig-farmers installed a €6 million manure fertilizer to collectively progress manure of their businesses in Heeten, 2007. Different factors caused the bankruptcy of the fertilizer: (a) The cooperative applied for an MEP-subsidy, which in hindsight was less attractive than its successor; the SDE-regulation. The manure fertilizer had to compete with other fertilizer installations that did make use of the SDE-regulation. (b) Furthermore, the residual substance that remains after the fertilizing process was not recognized as artificial fertilizer by the government, which was something the fertilizer industry hoped for, but was instead another deathblow for the manure fertilizer in Heeten. (c) In addition to this, co-products, such as grain and corn, that are used in the process of fertilizing manure increased in price, which was another significant impeding factor. All these conditions caused the manure fertilizer to go bankrupt twice: in 2010 and in 2012. This lengthy and unconstructive experience troubles the municipality and its residents.

7.2.8 Construction of N332

An important event that is responsible for spurring a part of the opposition to the solarpark was the construction of a provincial highway, the N332, around the periphery of Heeten. While this highway subtracts traffic from passing through the village center of Heeten, it does have an impact on the landscape of Heeten, and in particular the people living in the vicinity of the highway.

7.3 To what extent do the factors from these contexts explain this level of performance?

This question is answered by firstly conducting an analysis of the implementation process with help of CIT to illuminate the core actor-characteristics of the relevant actors and their strategies if present. The analysis of the core actor-characteristics is then used to determine the influence of the contextual layers and vice versa.

7.3.1. Core actor-characteristics of the initiators

A) Motivation of the initiators
The motivation to initiate the project stems from the desire of the initiators to generate their own energy locally, improve the livability of their environment and reduce dependency on archaic incumbents of the traditional energy system: the transition towards a new energy system is imminent. Furthermore, the initiators desire to establish this project in order for them to disseminate their experiences and contribute to policymaking. In addition, the province, which informed him that resources would become available for solar panels projects, approached one of the initiators and with the question of whether the initiators would like to step in.

B) Cognitions of the initiators
The initiators comprehend on the basis of the experience they had with the collective solar panel purchase of SDH, that a significant amount of roofs is not suitable for installing solar panels, which incentivized the idea of land-based solar panels in shape of an energy-cooperative. Furthermore, they argue that the total amount of appropriate roof surface in Heeten will not be enough to significantly contribute to the energy-demand of Heeten.

The initiators perceive the parcels - that were indicated as appropriate by the municipality and chosen by the initiators themselves because of the availability in the short-term - as surplus-land that can be used for the solarpark and implicitly contribute to the local generation of renewable energy.
Escozon desires to make agreements concerning the lease of the parcels first, before the initiators continue to commence the procedures related to the zoning plan alteration and the environment-permits (i.e. relates to the solarpark and how it is situated in the landscape). Escozon desires a price related to a regular lease, which is a long-term lease contract. The initiators hold that whether the view on Heeten will be interrupted depends on the spatial integration plan, which has yet to be made. The zoning plan procedure can potentially be a bottleneck, according to the initiators (Doedens & Middelkoop, 2014).
The initiators will establish a cooperative, or an organization when these procedures are completed and the solarpark can be constructed. The type of judicial entity appropriate for the solarpark depends on how the project develops. The zip code-rose prerequisites a cooperative.

Escozon conveys that the project should not be susceptible to high expenses such as a costly lease contract or expensive infrastructural costs 'at the front' of the project. The other side of the medal is that when mark-up is made, it should be equally divided among its shareholders 'at the rear', in light of what the initiators name 'a new style of working' (Doedens & Middelkoop, 2014).
Along the same line, the initiators conceive that the production of renewable energy is an activity that ought to be a business matter because of the risks involved, and not something that assigned to citizens to do (Doedens, 2014).

C) Capacity and power of the initiators
The initiators decided to formally disconnect from SDH to establish a cooperative with excluded liability named; 'Escozon'. While SDH approves and knows of the concept of a solarpark in Heeten, the initiators decided to erect a separate entity developing the solar-park initiative because SDH would lack the knowledge and resources to accomplish such a time-consuming and innovative project (Doedens & Middelkoop, 2014). Furthermore, volunteers often collaborate on a project such as SDH in the evening hours, while the solarpark necessitates undertakings during the day (Doedens & Middelkoop, 2014). Since both initiators are entrepreneurs, they are able to devote time due to their flexible schedule, which is of great importance (Doedens & Middelkoop, 2014).

Furthermore, motivated individuals that pull the cart and who are the driving force behind an initiative are important. This is especially important since a project such as the solarpark does not yield short-term results, but is a stagnant process that accomplishes concrete results in the long-term. This

implementation-process itself is characterized by a learning-while-doing approach, because of its innovative and pioneering character: provincial, and until recently, municipal policy does not apply to such initiatives. The required information concerning how to go about a project such as a solarpark was retrieved via Internet searching, consulting similar initiatives, and contacting producers of construction materials and transistors for solar panels. Information and knowledge is a resource that is exchanged between the relevant actors.
The initiators have connections with municipal and provincial public officials; it is important to maintain these connections, the initiators say, since the initiators and public officials may collectively search for solutions when a problem arises. There are still many uncertainties with regard to the feasibility and knowledge about projects such as this solarpark (Doedens & Middelkoop, 2014). When the initiators were asked about the role of social cohesion in this project, they pointed to the potential ambiguous role of social cohesion. On the one hand it may strengthen initiatives because of increased support. On the other hand, one that initiates such a project may be disparaged because of their idea and plans. The initiators argue that whenever social cohesion is lacking, the financial incentive has to prevail, and vice versa. Figure 14 visualizes the initiators' core actor-characteristics and the dynamics.

Adaptive strategy of Escozon

The initiators consciously employ external strategies to cope with the opposition. Escozon keeps the actors who oppose the project informed about current developments related to the project. The purpose of this strategy is to prevent the opposition from framing certain developments in a different way (Doedens & Middelkoop, 2014). Escozon involves the residents in the vicinity of the parcels in the process and keeps them updated. Escozon also disseminates their initiative in every possible way (e.g. gatherings, conferences) to boost public support, as another external strategy.
Also Escozon strives to introduce the solarpark to the experimental program of the CURRENT agenda to alter the administrative setting (taking the initiative to the national level).

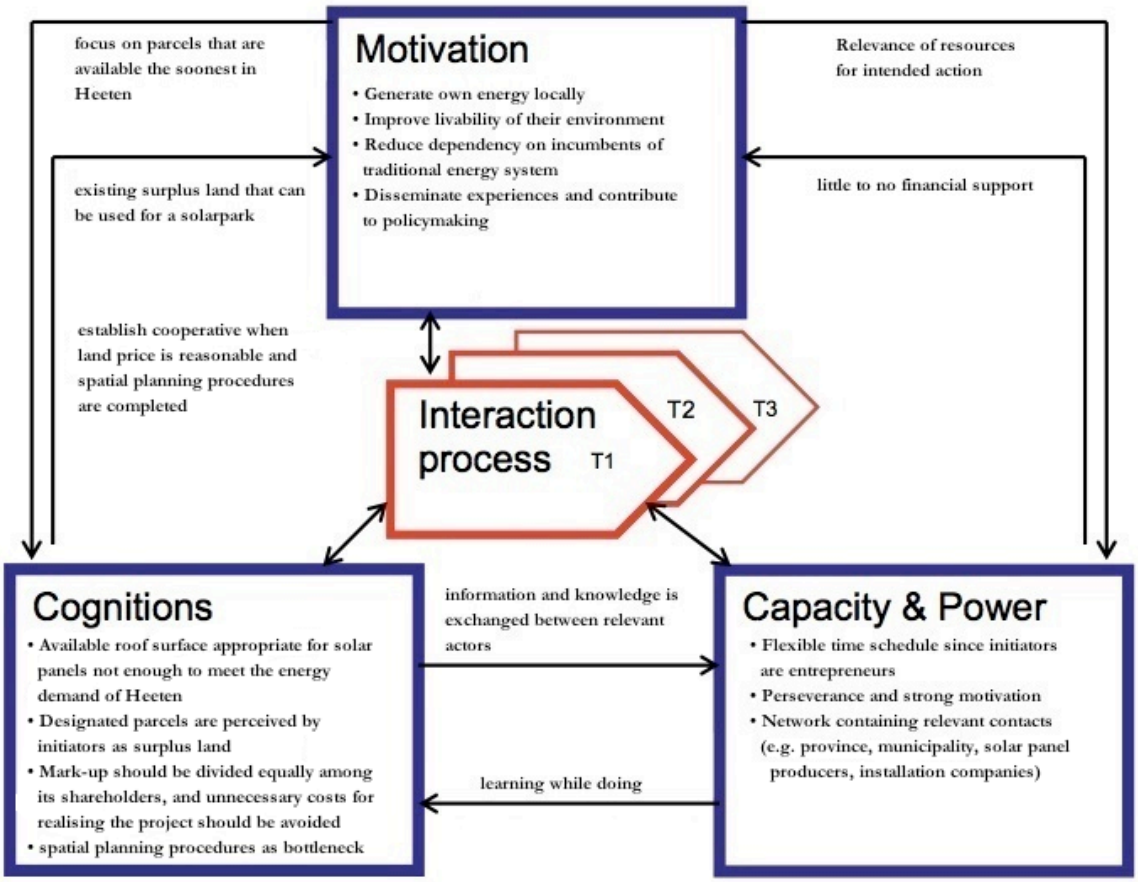

Figure 14: Visualization of the initiators' core actor-characteristics and interactions between the characteristics.

7.3.2. Core actor-characteristics of the municipality

A) Motivation of the municipality
A factor that encourages the municipality to collaborate with Escozon is that the project effectuates a relatively significant contribution to the objectives of the Vision Raalte sustainable in 2050 (Arends, 2014). This is despite the fact that the solarpark only supplies 0.5% of Raalte's total energy supply, which is why the municipality embraces such projects. In addition, another important driver is the project's exemplary function for other villages.

B) Cognitions of the municipality
An aspect hampering collaboration is the entrepreneurial identity of Escozon regarding the initiative; the current situation displays two entrepreneurs, or commercial developers, who have an infeasible business case that depends largely on public funding, according the municipality (Arends, 2014). The municipality would have a different stance if the entrepreneurs had list of signatures of 2000 residents from Heeten, and the executive board of a cooperative with a significant amount of members was at the table to negotiate about the leaseholds. Raalte wishes to confer with the cooperative that comprises the end-users and the households that will invest in this initiative, since this is the cooperative the municipality will ratify the leasehold with. Still, the municipality trusts the idealistic disposition of Escozon, and is aware of the marginal turnover if the project is implemented, but the municipality currently confers with a firm and not with the actual end-users in shape of a cooperative (Arends, 2014).

The municipality is willing to provide incentives to encourage the project, if the 'right' party is at the table. These incentives crystallize in: covering a part of the costs for the spatial development procedure, and negotiating about a reasonable price of land. The municipality is willing to support the initiative in its planning-phase with €10 000.
Still, the municipality is concerned about the feasibility and the financial gap of the initiative, which is why the procedures for altering the land-use and environmental permits are not initiated yet. In similar vein, the municipality does not grant exploitation-subsidies since it conceives that sustainability has to be feasible and profitable.
The municipality takes the definite decision with regard to the €10 000 subsidy on the basis of a request for subsidy made by the initiators that has a solid financial basis, speaking for the financial feasibility of the project and also the feasibility in light of public support for the solarpark in Heeten.

Spatial integration
The municipality conceives the two parcels (indicated by C and D in figure 15) most appropriate for the solarpark for a number of reasons, these are the parcels that the initiators designate viable for phase 1 of the solarpark (the 6 000 panels). Firstly, surrounding properties, trees, and the Veldereggerweg visually circumscribe these parcels. Secondly, the solarpark interrupts the view on the village of Heeten, but is the least 'negative' with regard to these two parcels, since they are situated in front of a business terrain (MR, 2014b). Lastly, similar as the initiators, the municipality mentions that these parcels are soon available. However, this cannot be a decisive factor (MR, 2014b). The arguments listed that speak against these parcels relate to the spatial integration of the solarpark and its potential negative impact on valued landscape and interrupting the view on Heeten.

The municipality mentions various arguments for parcels A & B, which are locations potentially viable for phase 2 . These parcels have the least elements of value with regard to the landscape. In addition, developments in the vicinity of these parcels already gave indication for urban land-uses on these parcels for urban development, so this land-use 'just' changes in its disposition.
However, a determining argument against these parcels, on basis of which it is advised to refrain from cooperating for the second phase of the solarpark, revolves around the significant impact on the view on Heeten. The second phase involve ideas about expanding the solarpark in the future.

Figure 15: Overview available municipal owned parcels, adopted from MR, 2014b.

The problem for the municipality is to determine the value of land on which solarparks are installed, since the yield is still uncertain. Because of those reasons and in light of the 'pilot-status' of the solarpark (MR, 2014c):

- First 5 years a leasehold price according to the agricultural price for land: €2600 an acre, annually.
- After five years, reassess the value of the land on basis of a taxation of the price of land.
- Give out parcels for 10 years in a leasehold construction with the possibility for extension. The negotiations between the initiators and Raalte extended this period to 25 years.

The municipality refrains from the role of investor, because of potential risks involved and since it is not the task of the municipality to realize installations for generating energy, or invest in such projects. According to the municipality, the feasibility of exploiting the solarpark should not depend on municipal subsidies. Otherwise, the municipality contends that the initiative would not be sustainable in a financial sense (MR, 2014c). The municipality does not grant a subsidy in the exploitation, or investment phase, but instead assumes a facilitating role. This is translated as municipal support in the planning phase of the project, which has a maximum of €10 000, and on the condition that this subsidy does not exceed 50% of the planning costs.

While there is opposition to the solarpark for a number of reasons, the municipal council still decided in favor of the solarpark while also being aware of the opposition. The arguments raised by the residents in the vicinity of the solarpark that are relevant for spatial planning are the obstruction of the view of residents and using agricultural land for the solarpark. The provincial executive understands these objections, but notes that these objections will occur in other village-peripheries as well. After all, the whole idea behind a village-periphery is the connection between the countryside and the urban area. Thus, the municipality has no reason to suspend the plan development. The letter does make clear that public support and spatial integration of the project are important points of attention (MR, 2014c). The solarpark has to be integrated adequately in light of the provincial Quality Impulse Green Environment and relevant municipal policy.

C) Capacity and power of the municipality

Leasehold for the parcels
The municipality notes that the price of land will be higher in comparison with agricultural land-use, but still offers a reasonable price. Reason for this is that a solarpark requires more certainty (e.g. infrastructural costs, return of investment), and this certainty comes at a price. Normally, parcels with agricultural land have a lease-contract that can be terminated annually, or a cultivation lease.
The municipality offers a liberalized lease contract (Civil Code 7, article 397), with an agricultural land price (MR, 2014d). A liberalized lease contract lasts for a maximum of 6 years.

Sustainability in the municipality's organizational context
The organizational context of the municipality has an impact on their capacities and resources.
In this line of thinking, a public official in Raalte mentioned that the concept of sustainability is too abstract; people within the municipality do not realize what is required to achieve a sustainable Raalte in 2050. The consequences of the Sustainability Vision's objectives will not be accepted if they were realized. Furthermore, extending the deadline to 2050 is too far in the future which causes people to lay back. It takes time before sustainability becomes a problem for all of us, it takes time for people to become aware (Arends, 2014).
Furthermore, if a manager, administrator, or a public official is devoted and enthusiastic for a specific issue, it determines for a large part where the municipality is going on that specific topic if that individual has enough influence (Arends, 2014). Thus, the character of that individual can be a factor; whether this person is target-oriented, pursuits power, and so on.

Another important factor involves how the theme sustainability is integrated in the municipality's organization. In Raalte, there is one specialist working full-time on the sustainability theme. All knowledge regarding sustainability comes from this specialist. This specialist is situated in the team Sustainable Living Environment, of which the program-manager has 4 hours a week to devote to sustainability. The municipality does not have the capacity to grant a substantial subsidy to the solarpark since the annual budget for the Vision Raalte sustainable in 2050 is €100 000.

Tensions between sustainability and spatial planning
Tensions exist between sustainability and spatial development in Raalte (Arends, 2014). One of the reasons the municipality is somewhat reserved towards the solarpark concerns the spatial dimension of the project: opinions remain divided concerning the question of how the solarpark is best integrated in the landscape. Decisions related to spatial planning of initiatives such as Escozon are ad-hoc, as was explicitly indicated in the council decision regarding large-scale renewable energy (discussed below). Additionally, it is still politically sensitive to swap agricultural land for a solarpark (Arends, 2014).

Political decisions
In the formal decision of the Municipal Council regarding large-scale renewable energy, the council chose for a responsive and facilitating role, instead of making policy related to spatial planning issues for renewable energy development in advance. Furthermore, the council adopted an amendment that abolished a statement for the council to refrain from collaboration on developing solarparks in areas not belonging to the appointed areas (Municipal Council, 2014b). The signatory political parties involved; Municipal Interest (GB), Local Alternative (LA), D66, CDA, and VVD. The amendment contains the statement that possibilities exist in the countryside of Raalte in which solarparks can be integrated adequately without working to the detriment of the landscape. However, the municipality does not support the development of (large-scale) wind turbines. Wind turbines with a maximum height of 25 meters are allowed according to the zoning plans.
The municipality's core actor-characteristics and interactions between the characteristics is visualized in figure 16.

External strategy Municipality
Given the innovative character of the solarpark, the municipality comprehends the importance to sustain communication during the planning process with, and when possible involve in particular the stakeholders in the vicinity of the area (MR, 2014c)

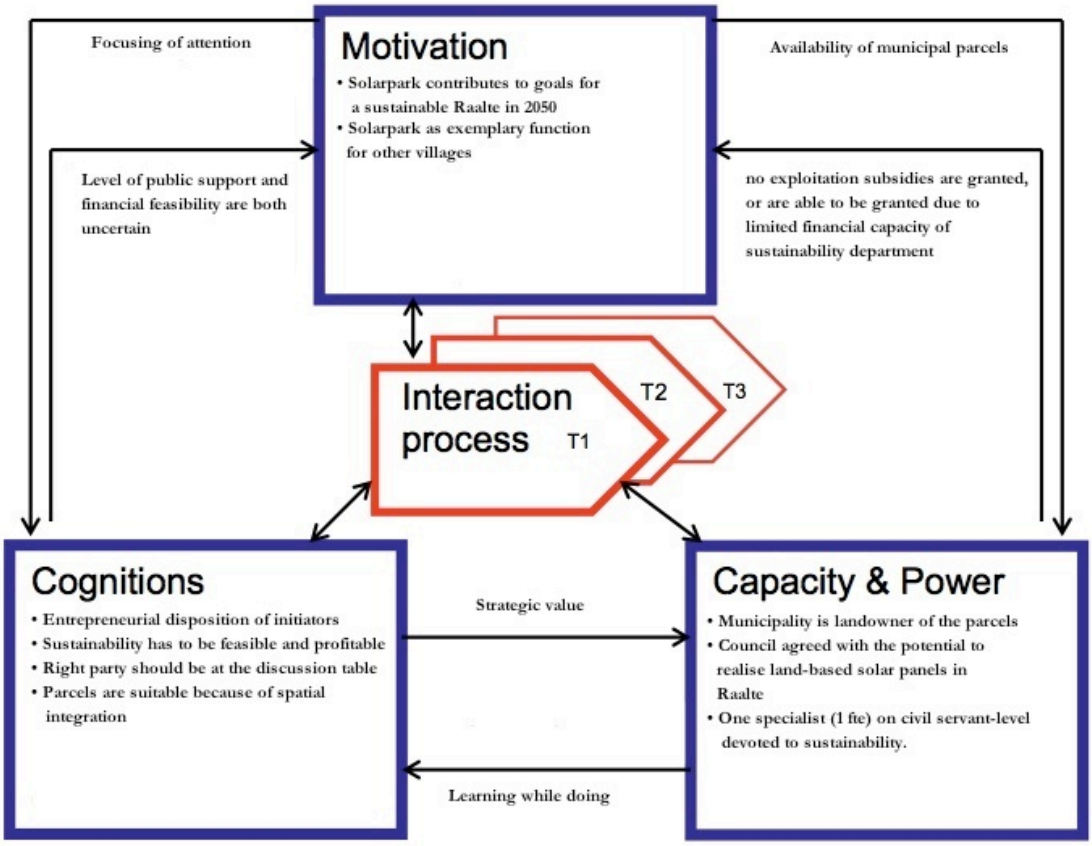

Figure 16: Visualization of the municipality's core actor-characteristics and interactions between the characteristics.

7.3.3. Core actor-characteristics of the Province of Overijssel

A) Motivation of the Province of Overijssel
The province has a positive attitude vis-à-vis solarparks, but acknowledges that there are certain limits as to what extent meadows are used for land-based solar panels. Similar to the municipality, the province also values the exemplary role of Escozon and its contribution to the sustainability ambitions, but stresses that if it were to fulfill this role the project ought to be financially feasible (Spiertz, 2014). The possibilities and the province's approach towards land-based solar panels are currently researched to include in the revised spatial development strategy.

B) Cognitions of the Province of Overijssel
The public official that is involved in the program energy-landscapes and frequently confers with the initiators argues that the reason why only few solarparks are in operation is not because of restrictions related to spatial planning impeding on the implementation process of the initiative, but because of the limited financial feasibility (Spiertz, 2014). Furthermore, a public official involved in the program of New Energy states that the current legislation (i.e. Electricity Act) and policy instruments (i.e. zip-code rose) hamper the development of bottom-up initiatives for renewable energy in general and for solarparks in specific (R. Migchelsen, personal communication, July 22, 2014).

The province is still researching what the possibilities are for land-based solar panels in Overijssel, and the province's stance on this (Spiertz, 2014), because the rationale of the province is to place solar panels in the built environment (K. Komdeur, personal communication, July 22, 2014). In line with this argumentation, the spatial development strategy solely discusses the potential of solar energy in light of the built environment, and mentions the innovative potential of solar energy on agricultural land-uses on the margins. The spatial development strategy remains silent on the subject of solarparks or land-based solar panels. Moreover, the province desires multiple land-uses (K. Komdeur & R. Migchelsen, personal communication, July 22, 2014; Spiertz, 2014). The province currently assumes a learning-while-doing approach with regard to land-based solar panel initiatives, and strives to gain experience that feeds into policymaking.
The province's view with regard to spatial planning is not top-down, but to collectively search for a suitable function for an appropriate area, with a well-defined and reasonable motivation (Spiertz, 2014).

C) Capacity and power of the Province of Overijssel
The province supports the initiative by means of a so-called workshop, which assists the initiators with the integration of the project in the landscape. Experts in the workshop research and determine the best way to integrated the solarpark in the landscape. In addition, the workshop can support the initiators with providing knowledge about provincial policy related to renewable energy.

However, while the Province of Overijssel supports initiatives such as the solarpark by granting said workshop for spatially integrating renewable energy, the initiators can only invoke this type of subsidy if the initiative has no further obstacles in shape of permits that are not present and other issues (Spiertz, personal communication, July 29, 2014). This workshop is a voluntary subsidy, which the initiators can apply for. Thus, the province's competences are not obligatory for spatially integrating the project, but can support this procedure.

Furthermore, the provincial tender sustainable energy generation can be used to apply for a subsidy of a maximum of €100 000 (for solar-energy projects). However, several preconditions have to be met. These include the feasibility of the project, and the project has to be combined with other energy-efficiency measures or energy generated by other types of renewable energy (i.e. bio-energy, thermal energy, hydropower). However, energy efficiency measures are impossible to combine with the realization of a solarpark. *Au contraire*, the Energy-fund could function as a financial source for Escozon, but also prerequisites the financial feasibility of an initiative.
Figure 17 visualizes the province's core-actor characteristics and interactions between the characteristics.

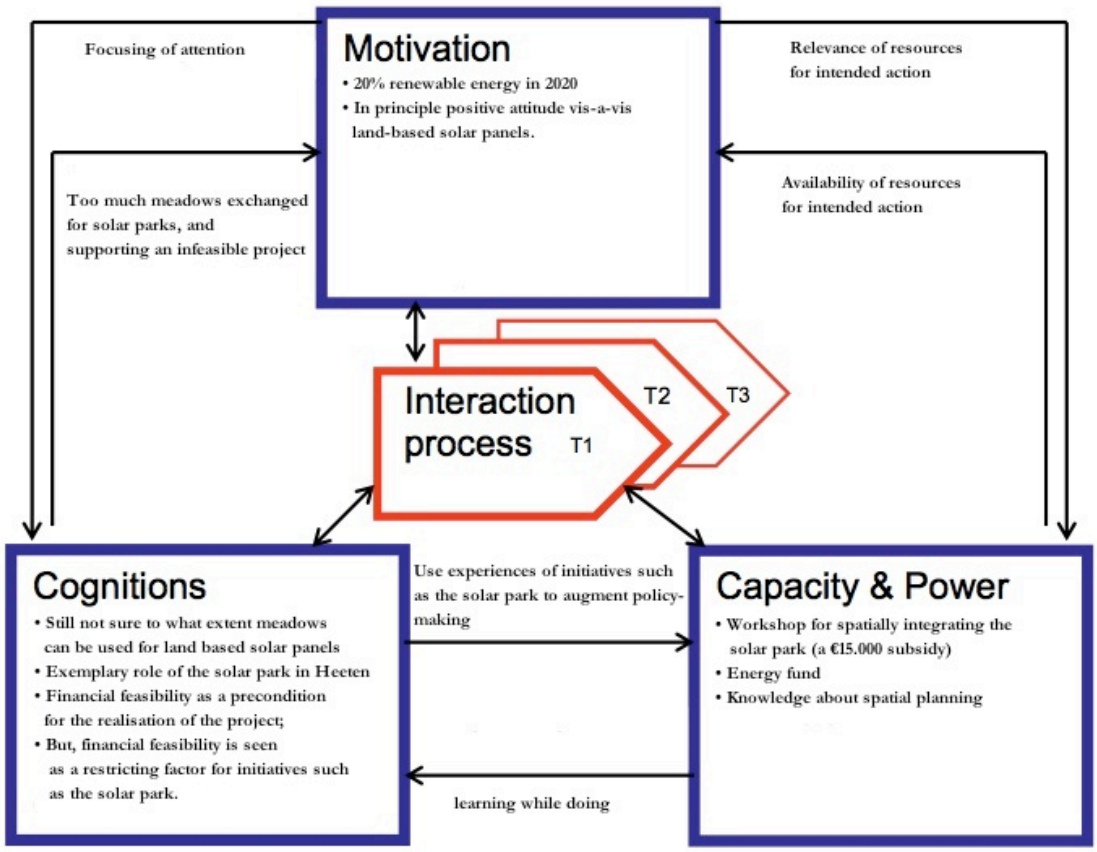

Figure 17: Visualization of the province's core actor-characteristics and interactions between the characteristics.

7.3.4. Core actor-characteristics of the opposition

Two actor groups oppose the solarpark-initiative: the Agriculture and Horticulture Organization, department Salland (LTO), and residents living in the direct vicinity of the solarpark.

LTO

A) Motivation of LTO

LTO does not oppose the idea of a solarpark as such, but opposes that agricultural, fertile land is used for solar panels and not for what it is originally intended (B. Haarman, personal communication, July 24, 2014). In addition, LTO worries what a pilot such as the solarpark in Heeten will bring about; whether more agricultural land is used for such initiatives in the near future.

B) Cognitions of LTO

LTO argues that sustainability is often considered on a local scale, while one should take into consideration the global context. Thus, LTO is of the opinion that one should view sustainability in its total circulation, and not on such a small scale. One should not think in terms of what can be achieved in your own jurisdiction, but how to best do it (Haarman, 2014). LTO raises the question whether it is truly sustainable if solar panels are used on agricultural land, which can be used for cultivation. First utilize the roofs before one resorts to land-based solar panels.

C) Capacity and power of LTO

The political influence of LTO in local politics is sufficiently present (Haarman, 2014). In this line of thinking, Raalte is a rural municipality with a relatively large share of agricultural firms.

Opposing residents

A) Motivation of the opposing residents

The residents living in the vicinity of the solarpark became aware of the proposal to construct a solarpark via the local newspaper. The residents wrote a letter to the municipality in which they ventilated their objections. Similar as LTO, the residents oppose that agricultural land is used for land-based solar panels (E. Meyerink, personal communication, August 19, 2014).

Moreover, the residents mention the negative impact on the rural landscape of Heeten. This argument partially roots in a provincial highway (N332) that was constructed in 2006 (Meyerink *et al.*, 2013). The N332 already had a negative impact on the landscape, the solarpark would only add to this negative impact and distort the view even more. Figure 18 shows a picture taken from one of the houses facing the solarpark. Not only does the solarpark have an emotional impact for the residents, they also expect a depreciation of their house as a result of the solarpark (Meyerink, 2014).

Another reason that incited opposition against the solarpark is the recent bankruptcy of the biomass fertilizer in Heeten in 2012. The residents question who will be responsible if the solarpark goes bankrupt as well (Meyerink, 2014).

Figure 18: Picture taken from one of the houses facing the site of the proposed solarpark, which is approximately 60 meters from the façade of the house. The red arrows give an indication of the solarpark's position: right where the cornfield is located. (Source: Beau Warbroek).

B) Cognitions of the opposing residents

The residents argue that the initiative is driven by entrepreneurship, instead of the motivation that the solarpark will contribute to a sustainable solution for the municipality's energy demand (Meyerink *et al.* 2013). The residents are convinced of the expected lack of efficiency of the solarpark, because of the geographical location of the Netherlands and the related insufficient amount of solar insolation.

Furthermore, the opposing residents stress to first utilize the available roofs before resorting to land-based solar panels.

C) Capacity and Power the opposing residents
Also, since the opposition lacks the legislative and administrative knowledge of how to object to the proposal, they had to hire support. Objecting to this proposal costs money, takes time and energy. Their power vested in the residents stems from their ability to object during the spatial planning procedures. However, the municipal council still decided in favor of realizing the solarpark on this location, despite the fact that they took into account the letter of objection sent by the residents.

Figure 19 shows the core actor-characteristics and interactions between the characteristics of both the LTO and opposing residents.

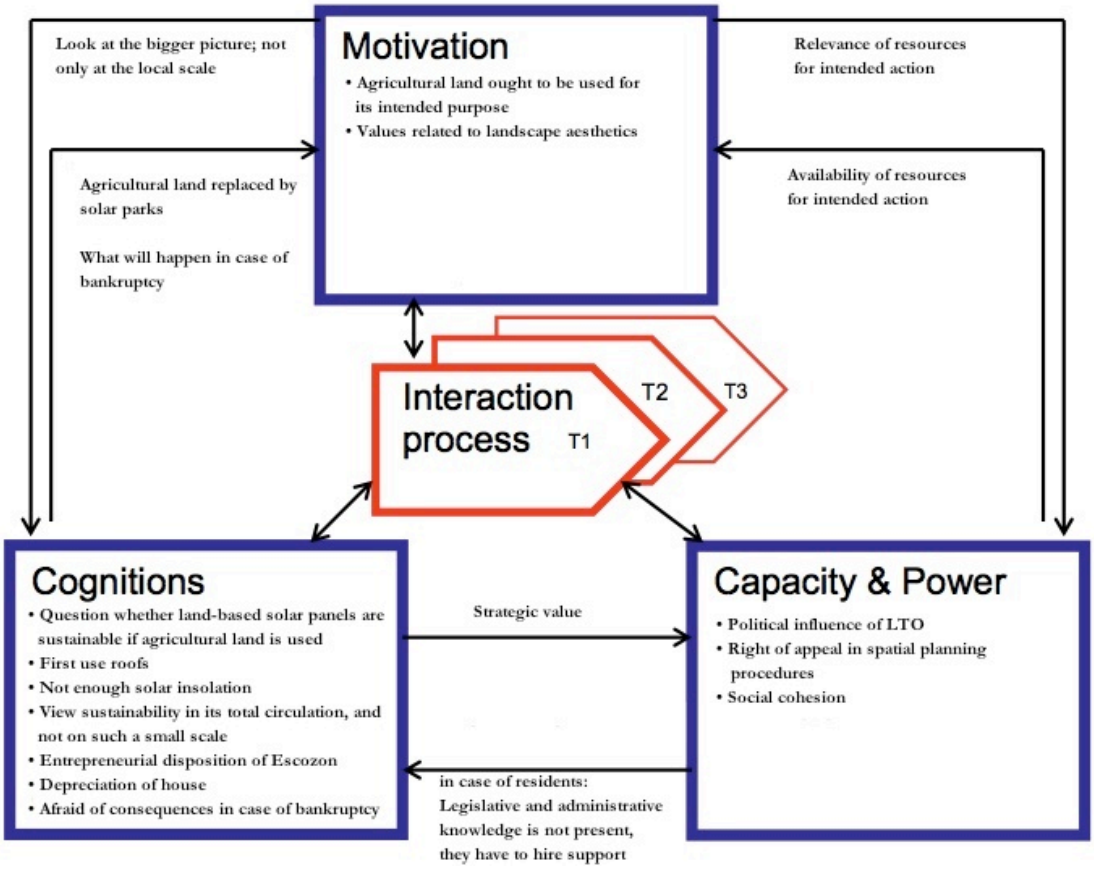

Figure 19: Visualization of opposition's core actor-characteristics and interactions between the characteristics.

7.3.5. Conclusion
The magnitude of influences and interactions at play in the solarpark are the ingredients for a complex and dynamic implementation process. The key factors influencing the progression of the implementation process involve the lack of intensity and coherence of the governance regime, the lack of trust and certainty between the actors, and diverging cognitions.

Actor interaction gridlock
As became clear in the description of the case and the analysis of the core actors'-characteristics, the initiators and the municipality find themselves in a gridlock that revolves around the establishment of a cooperative consisting of the investors for the solar park and the negotiations concerning the land price. Both parties require certainty, which is in this case translated as cognitions and capacity and power having an effect on their motivation. While both actor-groups are motivated and endeavor to

make progress with regard to the solarpark, they perceive a threat. This becomes apparent for the municipality in its cognition, or frame, of the still entrepreneurial spirit of Escozon, the deficient financial feasibility of the project, and absence of explicit public support. For Escozon, this gridlock crystallizes in uncertainty regarding the land price and whether the initiative will attain the required permits and successfully go through the required procedures. Uncertainty impedes on the process, which is characteristic for a governance regime lacking coherence (de Boer & Bressers, 2012). Furthermore, the municipality attributes significant value to public support for the project is, which is next to the financial feasibility, a decisive factor for the municipality to stand by the realization of this project by subsidizing the planning process.
Accordingly, Escozon finds itself in a gap; the initiators struggle with establishing a feasible business case without external financial support, and hesitant to establish a cooperative to gain public support because of this uncertainty. Also, as long as the business case is infeasible and has no public support, the municipality is reluctant to support the initiative since the municipality wields criteria for supporting bottom-up initiatives involving the 'financiability', risks and return of investments (MR, 2013a).

While a facilitative role of the municipality ought to bridge this gap, the strategy and instruments utilized by Raalte are insufficient in their intensity. This facilitative role entails that the municipality has the responsibility to create suitable conditions and alleviate barriers for initiatives that request municipal support (MR, 2013a). Suitable conditions and alleviating barriers are, however, broad notions. Does that mean that the municipality ought to excite public support for the project, or agree on a land price that helps the initiators in their business case?

While the climate program and sustainability vision of Raalte in 2050 designates the responsibilities regarding the stimulation of bottom-up initiatives to the municipality, the actual content of those responsibilities and what resources can be used are not clear, indicating a low extent of the governance element resources and responsibilities, and incoherence as well. In other words, while visionary and strategic documents exist that discuss the municipality's responsibilities, insufficient instruments or resources bolster this vision, causing the actual implementation process to stagnate.
This also arises from the willingness of the municipality to solely support the initiative by financing a part of the planning costs. This is in turn explained by their facilitative role, and their cognition that renewable energy projects ought to be financially feasible. The existing body of literature stresses the crucial role of financial support for local renewable energy development (e.g. Toke *et al.*, 2008; Dunning & Turner, 2005; in Walker, 2008, p. 4402; Walker, 2008; Seyfang *et al.*, 2013; Denis & Parker, 2009; Wüste & Schmuck, 2012; Allen *et al.*, 2012; Margolis & Zuboy, 2006).
In same vein, while the Province of Overijssel actually supports initiatives such as the solarpark by granting a so-called workshop for spatially integrating renewable energy, the initiators can only a invoke this type of subsidy if the initiative has no further obstacles in shape of absent permits or other issues such as disagreements with concern to the lease price (Spiertz, 2014). Many initiatives have not reached that point yet (Spiertz, 2014), including Escozon.

Boundary judgments and cognitions
The boundary judgments are sufficiently flexible among the municipality, province and initiators; these actors explicitly mentioned that the implementation process is characterized by 'learning while doing'. The boundary judgments of the initiators, opposition, and municipality regarding the scale of the project are flexible, but the arguments for this flexibility diverge implying a lack of consensus. The municipality, province and initiators themselves perceive the solarpark as a contribution to the energy neutrality of Heeten, Raalte and the province and as a pilot that can be used for gaining experience and providing lessons for other villages and initiatives on a regional and national scale.
However, the opposition perceives the project on different scales for other reasons; the national scale on account of where it is situated; on agricultural land, and at the local scale; at a village-periphery potentially obstructing the view on Heeten. The relevant actors' boundary judgments are flexible in that sense, but not in consensus. In this sense, the study of the Energy research Centre of the

Netherlands (ECN, 2008) raises a relevant argument: managers that strive to introduce new energy technologies in way of enhancing the likeliness of societal acceptance encounter a set of challenges. Which is in Escozon's case: introducing appropriate projects in appropriate contexts (i.e. importance of case-specific context).

Boundary judgments related to the multiple aspects of the project are also sufficiently flexible. The realization of a solarpark on agricultural land is by definition a project that addresses a variety of aspects and is recognized by all actor-groups; sustainability, energy security, boosting the local economy, land-use planning, etcetera. However, there is no consensus regarding the cognitions because of diverging conceptualizations of sustainability (i.e. local renewable energy – local food production).

Furthermore, there is incoherence with regard to a cognition of the municipality which became apparent in the way they view firms in general – as partners in their effort to attain sustainability goals – and the entrepreneurial disposition of Escozon in specific.

Spatial planning and renewable energy

The national evaluation report concerning the Climate Agreements between the national government and municipalities (2007-2011) mentioned that municipalities insufficiently utilize their competences in adopting large-scale renewable energy in spatial planning and subsequently implement this in light of societal interest (KplusV, 2012b, p. 19). Spatial and landscape related factors, political support, willpower, and bottlenecks in the municipal organization play a role in this shortcoming, according to the evaluation of the Climate Agreements (2007-2011) (KplusV, 2012b, p. 19).
While this report does not apply to the Climate-program 2009-2013 initiated by the municipality, and does not take into account the recent developments, it does give insights into the context in which renewable energy develops.

In this line of argumentation, the tension between spatial development and sustainability is still present in Raalte: spatial development slows sustainable development down (Arends, 2014). The municipality omitted to include wind energy, or any type of renewable energy in its spatial development strategy that went into effect in 2009. The municipality most likely wanted to avoid discussion about integrating renewable energy (in specific wind energy) into the rural landscape of Raalte (Breen, 2014) (lack of intensity).
Furthermore, the Vision and Implementation-program Raalte Sustainable 2050 mentions that the municipality recognizes the importance of integrating sustainability in all of its departments, instead of assuming a project-based and ad-hoc approach and that sustainability ought to be one of the 'leading principles' in its policymaking. Yet, Raalte has only one specialist working full-time on the sustainability theme with an annual budget of €100 000. Municipalities that develop relatively fast in terms of sustainability typically have a public official responsible for sustainability on the level of management or the executive (Arends, 2014).

Furthermore, while the municipal council assumes a positive attitude with respect to the development of solarparks in the indicated areas, (i.e. unused lots in urban area, unused lots on business terrains, agricultural land at village-peripheries)(Municipal Council Raalte, 2014a), the municipal council specifically omitted to take point in designating viable areas for renewable energy exploitation in shape of a spatial planning strategy and chose for a responsive and facilitative role making ad hoc decisions on the development of large-scale renewable energy such as solarparks.
The moderately coercive approach of the municipal council in designating the viability of village-peripheries but avoiding to develop a spatial strategy for renewable energy appointing viable locations beforehand stems, according to Cowell (2006), from the socio-political context that influences the degree of space orchestration. The influence of the context is in this case explained as the lack of intensity that the targets related to the sustainability vision 2050 effectuate because these have to be achieved in the long-term.

Also, the council's positive stance towards solarparks in village-peripheries does not offer enough intensity to overcome the dominant cognitions of the residents, LTO and implicitly farmers in general, with concern to the rural character of Raalte and how rural interests are represented in the local politics (i.e. LTO). Ad-hoc decision-making regarding the use of agricultural land for solar panels faces the incumbent and organized agricultural interests of the farmers in shape of LTO. If the municipal council designated viable locations, the intensity of the regime context would have been more geared towards overcoming the dominant cognitions.

Another reason why the municipality has a rather reserved stance vis-à-vis the solarpark concerns the spatial dimension of the project: opinions remain divided concerning the question of how the solarpark is best integrated in the landscape, and also if a solarpark can be integrated at all. This becomes apparent in the municipality's cognition that although parcels A&B (figure 15) could be used for a second phase of the solarpark, and are designated for urban development (i.e. residential housing), the municipal executive advises the council to refrain from using these lots because of the significant impact on the view of Heeten. While urban development is considered to be not a development that obstructs the view towards Heeten, a solarpark does. Also the opposition mentioned that their view would be obstructed if the solarpark would be realized. Wolsink (2007b) claims that the public acceptability of sites is going to play a similarly significant role in the development of solar PV systems as compared to wind energy development.

Oppostion

Municipal spatial planning procedures still take place in a top-down fashion, and does not allow for equal participation: people are consulted in a later stage (Arends, 2014). However, is citizen participation in spatial planning the answer to solving the problem of opposition for the solarpark? Toke *et al.*'s (2008) argument is relevant here. They convey that collaborative approaches are not a guarantee for eradicating landscape-value-based opposition (p. 1142). Such processes are complex and require a certain degree of nuance. These interaction processes involve cognitions, motives and resources that configure the process outcome (cf. Ellis et al., 2007, p. 538). Thus, taking account of the context in which the participation process is placed is important for exploring the origins of public acceptance and opposition (Ellis *et al.*, 2007), which is exactly the axiom of CIT.

While the literature widely reports about citizen participation and involvement in spatial planning procedures and its subsequent positive effects on local acceptance of the development (e.g. Walker *et al.*, 2010; Agterbosch *et al.*, 2009; Zoellner *et al.*, 2008; Jobert *et al.*, 2007; Hinshelwood & McCallum, 2001; Wolsink, 2007a; 2007b; Li et al. 2013; Devine-Wright *et al.*, 2001; Breukers & Wolsink, 2007; Devine-Wright, 2005a; 2005b; Wüste & Schmuck, 2012; Khan, 2003), the opposing residents stated it would have made no difference if they had been involved earlier in the process (Meyerink, 2014). The same goes for a sense of ownership, or actual ownership (cf. Warren & Macfayden, 2010; CSE, 2007; Maruyama *et al.*, 2007; Jobert *et al.*, 2007; Strachan *et al.*, 2006; Strachan & Lal, 2004; Cas et al., 2010; Sovacool & Ratan, 2012; Barry & Chapman, 2009).

Additionally, while residential ownership of the park is one of its key elements, this aspect does not seem to have an effect on the opposition, unlike what the literature reports (cf. Jobert *et al.*, 2007; Strachan *et al.*, 2006; Strachan & Lal, 2004; Cas et al., 2010; Sovacool & Ratan, 2012; Barry & Chapman, 2009).

In similar vein, the literature hints at the importance of integrating of the developer in the local context (by means of knowledge about the case-specific context, contact with authorities, local actors) and embedding the project in terms of ownership, participation and involvement (e.g. Jobert *et al.*, 2007; Devine-Wright, 2005a; Strachan & Lal, 2004; Strachan et al., 2006; Khan, 2003; McLaren Loring, 2007; Sovacool & Ratan, 2012) for successful implementation and reducing opposition. Still, Escozon is not an external developer but consists of two locals, and establishes the solarpark for Heeten residents to invest in and also strives to involve the opposing residents.

How do the cognitions of the opposition then explain their attitude vis-à-vis the solarpark? The literature reports that the trustworthiness of the developer of the local community project is crucial for the community's perception of fairness of the decision-making processes (Aitken, 2010a, p. 6074). The opposition believes that the initiative is driven by entrepreneurship, instead of altruistic motives, indicating a lack of trust between the initiators and opposing residents. As a result, the spokesperson of the opposing residents also believed that the municipality is pursuing the project because of prestige (Meyerink, 2014). This gives indication of a perceived lack of fairness in the decision-making processes on the opposing residents' account.
Furthermore, the lack of trust also arises from the case specific context, which is also noted by the paper written by the Centre for Sustainable Energy and Community Development Xchange, which indicated the influence of contextual factors on trust (CSE & CDX, 2007). Devine-Wright *et al.* (2007) report a similar finding that applies to the acceptance of the community energy project, which is influenced by the nature of the organization or collection of individuals leading the project; the opposing residents perceive the entrepreneurial disposition of Escozon, and the scale and type of renewable energy; a 6 000 panel solarpark in the backyard of the opposing residents.

In wind energy projects, residents' lack of perceived justice of planning, zoning and licensing procedures of residents results in an increase of opposition and the perception that the motivation of local politicians and wind energy plant operators (or Escozon in this case) is solely linked to economic interests and not environmental aspirations. This leads to a lack of trust in these actors and the information they disseminate (Zoellner *et al.*, 2005).
Toke (2005) also indicated that the perceptions regarding the economic impact of wind energy development are crucial in forming the attitude vis-à-vis the project, which is in Escozon's case the municipal economic impact if the solarpark goes bankrupt and the personal economic impact of depreciating housing prices.

Land price and land use
Another element explaining the performance of the initiative are the complications with regard to the land price for a solarpark as primary land-use. The municipality struggles with determining the value of the parcels, because the solarpark's yield is uncertain. The price of land is typically based on the yield on that particular strip of land (e.g. whether it concerns cultivated land, or a business terrain). This points to a lack of structure, or extent, in the lease system for including solarparks. Difficulties arise when the type of land-use (in the countryside or on agricultural land) involves a 'solarpark', especially in a rural municipality such as Raalte.

The incoherence of the regime also becomes apparent in the statement of the municipality mentions that solarparks are only sustainable to a limited extent because of their land-use; multiple land-use in this sense has been the status quo in building in a sustainable manner (MR, 2013a, p. 12).
Thus, multiple problem perspectives are taken into account, but are in competition, hinting to an incoherence of problem perspectives and goal ambitions. Also, land-based solar panels on agricultural land remain a political sensitive topic in Raalte (Arends, 2014). In this line of thinking, Jobert *et al.* (2007) and Wolsink (2000) both mentioned the crucial role of former land-use or characteristics of the selected site in fostering acceptance and developing attitudes vis-à-vis wind energy projects. These findings support the reason for why the solarpark is objected against.

National policy instruments
A restricting factor impeding on the success of the project that is frequently mentioned by the initiators, municipality, and the province, is the inability of national policy instruments to sufficiently incentivize and support local renewable energy initiatives such as the solarpark in Heeten.

The initiators, municipality and province agree that the zip-code rose is too parsimonious and insufficient in stimulating initiatives such as the solarpark. Not only do the initiators argue that the zip-

code rose is too small for a rural area, both the municipality and Escozon convey that 9 ct/kWh is not sufficient for bolstering this project. The province recognizes the red tape impeding on the zip-code rose. The initial idea is to install 6000 panels, but how many panels will be installed, depends on various factors; such as the energy price, the zip-code rose, and the lease price.
The literature supports the argument regarding the necessity of national level policy instruments that are appropriate for the demands at the local level (Toke *et al.*, 2008; Khan, 2003; Strachan & Lal, 2004; CSE, 2009). In this sense, the SDE+ is only a feed-in tariff, and the capital intensive investments in the short run are not countervailed by SDE+.

Energy price
Both the municipality and the initiators agree that another factor impeding on the successful realization of the project is the electricity price. If the electricity price would increase, initiatives such as this solarpark would be more feasible and profitable.

Recapitulation
There are three key factors influencing the implementation process of the solarpark, which involve the lack of intensity of the regime, the lack of coherence in the regime and related to this; the diverging cognitions of the relevant actors.
The lack of intensity of the governance regime becomes apparent in the facilitative role that is inadequately supported by appropriate resources for the initiators (i.e. sole financial support in shape of €10 000 for the planning costs); the long-term horizon of the sustainability targets, which lacks the pressure for change; the insufficiently stimulating national policy instruments (i.e. zip-code rose); and insufficient embedding of renewable energy in spatial planning policy (i.e. ad hoc approach instead of spatial planning strategy specifically for renewable energy).
The second factor, the lack of coherence in the regime becomes apparent in the different problem perspectives of the relevant actors that are in competition (land-uses); the tension between sustainability and spatial planning; and the reluctant attitude of the municipality vis-à-vis Escozon while the policy documents emphasize that firms are partners of the municipality to achieve its targets. This already gives indication of the diverging cognitions that are at play in the interaction process that explain the performance of the initiative as well, which is the third factor. The cognitions of the municipality and initiators diverge with regard to land-use; to the spatial integration of the solarpark; to other actors (entrepreneurial disposition); and to project characteristics (feasibility of project,
The attitude of the opposition is explained by their cognitions concerning the process (perceived unfairness of interaction process), other actors (perception of economic interests and prestige at play, lack of trust), and project characteristics (unfeasibility of the project, and location of the project). This also relates to the absence of apparent public support according to the municipality. Public support for the project is a necessary factor for the continuation of the solarpark.

The lack of intensity and presence of incoherence and diverging cognitions are together insufficient to overcome the regime's status quo and dominant cognitions of actor coalitions (i.e. in the municipal organization itself and amongst the opposition). While the municipal council does assume a positive attitude regarding the solarpark, which functions as a stick behind the door, sustainability is insufficiently integrated in the municipal organization and its policy instruments.

8. Deventer Energy Cooperative

The Deventer Energy Cooperative (DEC) is an initiative by the municipality of Deventer, and established by a group of volunteers in 2012. The municipality dubbed DEC as a vehicle to grant participations in two wind turbines that are currently under construction and will generate the first kWh's of renewable energy in 2015.

8.1 How did the initiative evolve until now and what has the initiative achieved?

The cooperative

The introduction of the Vision Sustainable Deventer in 2009 planted the seed to generate renewable energy within the confines of the municipality by means of an energy cooperative. This idea was further elaborated in the Implementation Agenda Sustainability, which was issued in 2011.
The municipality commenced the process of establishing the energy cooperative by inviting around 20 people to a meeting in a local restaurant in February 2012. This group of people comprised of project developers, housing corporations, people with an affinity for sustainability, a transition town member, and one of the nascent initiators of the cooperative; a retired Philips executive. The municipality invited the former director because of a case specific situation. The former director had frequently interacted with the municipality to obtain a subsidy to realize an energy-neutral renovation. The troublesome process and the former director's characteristics (his motivation, involvement, acts and urges; R. Sint Nicolaas, personal communication, July 17, 2014) that became apparent from this experience, made the municipality decide to let him chair the meeting.

The municipality gave the group of volunteers a head start by handing out a fiscal and financial report to bolster the business case. The fiscal research investigated the fiscal context in which an initiative such as an energy cooperative operates, and the type of business most apt to this context. The financial research offered insights into the possibilities for financial resources in the investment market for renewable energy.

The group of initiators held a conference to introduce the idea of a Deventer energy cooperative and to recruit more volunteers in may 2012. The meeting resulted in an additional 60 volunteers that were willing to spend time and effort to establish the Deventer Energy Cooperative.

In order for the municipality to be able to grant a subsidy to the initiative, the initiative had to be registered as an foundation. Consequently, the first step towards a cooperative was the erection of the Deventer Energy Foundation in 2012, in pursuit of becoming a cooperative. The municipality granted €50 000 as a means to organize the initiative in such a way as to make it viable for a cooperative. The 2011 covenant with the province of Overijssel regarding sustainability gave leeway for the municipality to grant the subsidy for establishing the energy cooperative. The financial resources of the covenant stemmed from a co-financial construction in which the province pitched in €125 000, as well as the municipality, amounting to a budget of €250 000.

The next step in the process of establishing a cooperative was the activity of organizing the 60 volunteers in 8 work packages (e.g. workpackage organization, workpackage communication, and so on). The subsidy that was granted to the foundation directly effectuated a paid position to manage the cash flow.

The amount of volunteers involved in the initiative fluctuated in the transition period from the association to the cooperative. This was partially caused by workpackages that were elevated due to the completion of their task (i.e. organization). Another reason mentioned by the current director of DEC, was that during the transition towards a cooperative, ideas and visions had to converge in order to establish a coherent and rigid cooperative (J. de Vries, personal communication, July 4, 2014). This implied that the chaotic and enthusiastic start-up phase in which the sky was the limit, was replaced by

a phase in which the executive board and advisory council could determine the direction the cooperative was headed, and tiresome chores had to be done as well (de Vries, 2014).

The DEC (excluded liability) was established in October 2012. The cooperative's statute outlines the cooperative's objectives, which are to encourage effective and efficient energy usage, and to incite the usage of renewable energy. The cooperative strives to achieve these goals by improving the energy efficiency of buildings (residential, public, private), realize and/or recruit and exploit renewable energy sources, providing information for more effective, efficient and sustainable use of energy, and encouraging collaboration between its members and other parties sharing the same interests as the cooperative (Deventer Energy Cooperative, 2012).

The initiative of the province to establish so-called energy-desks in every municipality in Overijssel evidently implicated the realization of an energy-desk in Deventer as well. The DEC proposed to take the responsibility for establishing this service-center, to which residents or firms can resort to with questions concerning smart usage of energy. The DEC received an additional €50 000 to launch the energy-desk dubbed; ENERGY in Deventer.
The spillover effects of the energy-desk were directly experienced by the DEC: the municipality arranged an office building that houses both the energy-desk and the cooperative. This contributed to the continuation of the cooperative.

While the statute was clear in its objectives and means, in practice DEC struggled with its business model. The initial idea was to resell green energy, but DEC soon discovered that the marginal revenue and the whole idea of a local energy cooperative was not translated in this product. The cooperative consisted of around 100 members in 2013. In July 2014, only 20 members purchased the resold energy.
Thus, while the energy-desk was a blessing for the continuation of DEC, the cooperative still struggled with a successful business model. The two wind turbines that were still on the agenda of the municipality were another factor contributing to the continuation of DEC.

From the start of the cooperative, it was clear that it would be the designated entity to manage and distribute the 25% worth of shares in the wind turbines, a message that arose from the sustainability agenda and sustainability vision and was also explicitly mentioned by the alderman in office in that period (Pierey, 2014). Precondition for citizens to purchase shares in the wind turbines was to become a member of the Deventer Energy Cooperative. All of the shares were sold by the DEC, and led to an additional 70 members. The total amount of DEC members currently amounts to approximately 170. The wind turbines are constructed in 2014, and are expected to generate renewable energy in 2015.

Wind turbines
The first explicit ambition to install wind turbines within the confines of the municipality was adopted in the Policy Plan Wind Energy 2004. The initial ambition entailed a wind energy capacity of 6 MW, or 4 wind turbines. However, no administrative action was taken in the period after the explicitly stated intention of the municipality towards wind energy development.

The wind energy issue was broached again in a resolution by the CDA, which urged the municipal executive to take up the wind energy issue and realize the stated ambition (Municipal council of Deventer [MCD], 2008a). When the resolution was introduced in the council meeting, various council members raised different reasons as to why the ambition did not crystallize into concrete steps, which were: a lack of priority of both the municipal council and executive, disparate opinions concerning the locations for the wind turbines, uncertainty regarding the financing of the turbines, and the intention to realize the A1 business park simultaneously with the turbines (MCD, 2008a). As a result, the

municipal council rejected the resolution with 14 yeas and 21 nays[9] (MCD, 2008b). However, the municipal executive agreed to come up with an implementation plan.

During the coalition negotiations in 2010, the municipal executive agreed to designate the wind turbines as a 'free proposition'. The municipal executive consisted of a social democrat (PvdA), a liberal (VVD), and an alderman representing General Deventer Interest. The two latter aldermen ventilated their opposing disposition vis-à-vis the plans to realize the wind turbines in Deventer, while there seemed to be a majority in the council (J. Pierey, personal communication, July 29, 2014). This made the municipal executive to agree upon designating the wind turbine issue as a 'free proposition', which entailed that the wind turbines would not be adopted in the coalition agreement, and that this issue must be proposed to the council in a separate statement.
The process evolved further because the possibility to realize wind turbines on one of the designated locations, a business terrain next to the A1 highway, was still safeguarded in the Deventer zoning plan for business terrains, which was adopted by the municipal council in 2010 (MD, 2010), and also because of a number of studies that were completed in 2010 which looked into the localization of the wind turbines and the spatial and environmental impacts. The study involving the localization of the turbines reassessed the designated locations of the policy plan of 2004. The study into the spatial and environmental impacts looked into the optimal emplacement of the wind turbines. Additional research was conducted to explore viable emplacement variations.

Subsequently, the municipal executive issued a council-proposal in 2011 (Municipal Executive of Deventer [MED], 2011) as a next step in realizing the wind turbines. The municipal executive proposed to reaffirm the realization of the wind turbines and to agree with the search-zone Kloosterlanden (the business terrain) as a preferable location to give sense to the council decision concerning the 6 MW of wind energy. Other elements of the proposal were for the council to assign the municipal executive to prepare the spatial planning procedures, and to elaborate on the exploitation and participation of the wind turbines. In addition, the executive proposed 3 locations for the wind turbines.

The municipal executive revised one of the initial locations (stemming from the 2004 policy plan) for the wind turbines. The municipal executive deliberated with residents that would find their homes located within a 400-meter radius of the wind turbine. After consulting these citizens, the municipal executive proposed to relocate the wind turbine to increase the distance between the turbine and the district (to 720 meters) in concern as can be seen in the picture below (Figure 20).

During a public hearing on March 23rd 2011, in which citizens can attend the council meeting and participate in the debate, various citizens and stakeholders articulated their opposing beliefs with concern to the wind turbines. The opposition raised various arguments such as the negative impact on the landscape, cast shadow, noise, and health impacts.

[9] Yeas (14): CDA (4), Green Left (GL) (6), D66 (2), Christian party (CU)(1), SP (1)
Nays (21): PvdA (10), General Local Interest (APB)(5), VVD (4), General Deventer Interest (ADB)(2)

Figure 20: Wind turbine locations, adopted from MED, 2011.

Despite the opposition, the council decided in favor of the proposal made by the municipal executive, but made the amendment to realize two wind turbines, instead of three. The wind turbine on location 3a (far right) was abolished. The council decision including the amendment was adopted with 21 yeas and 15 nays[10] (MCD, 2011). However, a resolution was adopted[11] that ordered the municipal executive to research possibilities for locating one or more wind turbines and to present these results to the council in 2012.

The next step in the process was to proceed with the necessary spatial planning procedures. The municipal executive proposed to apply the coordination regulation to streamline and coordinate the required procedures (article 3.30 Wro). The municipal council adopted this proposal in July 2012.
After the zoning plan had been prepared, which discussed the spatial impacts in light of wind turbines with a tip height of 135 meters, the project developers advocated a wind turbine with a tip height of 144 meters since this would accumulate the rate of generated renewable energy with 30% without having an increased impact on the landscape or environment (Cofely *et al.* 2013). The zoning plan for the wind turbines allowed for a deviation of not more than 10% from the size, measures or percentages related to the wind turbines (MD, 2013a). This does not apply for the hub height of the wind turbine. Thus, in accordance with the zoning plan, the project developers were allowed to increase the length of the impeller.
Following, the zoning plan was made available for actors in society to respond to the proposal and express their perspectives and arguments, which is a standard procedure in the Netherlands. Inter alia representative bodies (i.e. Foundation IJssel landscape, Association Living Environment Epse), the municipalities of Lochem en Voorst, citizens on personal account, firms, and an airport in Teuge expressed their concerns. Issues and questions were mostly directed to landscape impact, the environmental impact, and health impacts of noise (MD, 2012). Another issue mentioned frequently is that the residents from a village located on the same distance as the district in Deventer with regard to the wind turbines feel that they were not consulted and did not participate in the sense the citizens of Deventer did (MD, 2012).
The proposal to increase the tip height of the wind turbines was not so much an issue in the deposit

10 Yeas (21): PvdA (7), D66 (5), GL (4), CDA (4), CU (1)
Nays (15): VVD (5), General Rural Interest (APB) (4), ADB (2), SP (2), Proud on the Netherlands (ToN) (1), D66 (1)

11 Yeas (23): PvdA (7), D66 (5), GL (4), CDA (4), SP (2), CU (1)
Nays (13): VVD (5), APB (4), ADB (2), ToN (1), D66 (1)

for public consideration of the zoning plan (only one claimant), as it was an issue in the municipal council. The liberal party (VVD) issued a resolution to amend the zoning plan with a proposition that would prohibit increasing the length of the impellers. However, 11 yeas and 23 nays rejected this resolution[12].

Four council members proposed a resolution of 'regret', in light of the actions of the municipal executive involving the wind turbines incident (MCD, 2013a). The resolution highlighted a number of issues, not limited to: inadequate communication with citizens from Epse, unclear criteria regarding the distance of residential property to the wind turbines, deviation of the tip height of the turbines that caused disharmony with the results of the conducted studies, and failure of the municipal to comply with its statement that the wind turbines would not cost the municipality any public money. This resolution was rejected as well; by 9 yeas and 25 nays[13]

The exploitation costs (e.g. costs for the parcels, planning costs, research costs, costs for preparing the site) that can be charged to the project developer for constructing the two turbines amount to €934 285 000 (PurpleBlue, 2013). Still, the municipality is still left with approximately €126 133 worth of costs that cannot be charged. These costs are an effect of the standards (which are determined by law) that are applied for a municipality to charge the costs it made for developing plans and conducting activities for a project (MED, 2012). These standards are not sufficient given the extent of effort and activities related to the preparation of the project on part of the municipality (MED, 2012).
While determining the exploitation costs, the municipality came to an anterior agreement with the project developer concerning the possibility for citizens to participate in the wind turbines. On the basis of the agreement, the project developer guarantees to offer at least 25% of all shares in both wind turbines to citizens from Deventer and other localities (MD & Cofely, 2013, p. 8).

On February 27th 2013, the municipal council decided in favor of the exploitation plan, zoning plan, and environmental permit (MCD, 2013b). In addition, the council explicitly agreed with the possibility for the project developers to deviate within a 10% margin from the standards, measures and percentages.
A group of actors appealed against the council decision of February 27th 2013 (Council of State, 2013). This group consisted of the airport in Teuge, the Board of Mayor and Aldermen of Lochem, the Association Housing Environment Epse (VWE) and others, and two firms: Deventrade, and Bergweide OG.
The Board of Lochem, the VWE and others, and Deventrade and Bergweide OG plead for the incorrect application of the Crisis and Recovery Law. However, the Council of State rejected this plea. The airport Teuge plead against the decisions because the wind turbines would allegedly have consequences for the safety of aviation in the vicinity of the turbines. Also, the turbines would negatively affect the airport because of a loss of accessibility. The Council of State rejected both claims. The VWE and others raised a claim concerning the aforementioned lack of consultation from the municipality's part vis-à-vis citizens from Epse. The Council of State determined that these types of consultation instances are not obligated according to the Wro and to make a decision for spatial development. Another argument made by VWE and others involved the distance of the wind turbines to residential properties in Epse. The group argued that the wind turbines are closer to their property than is the case in the district 'Het Bramelt' in Deventer. The State of Council decided in favor of the municipal council of Deventer. This entailed that the situations mentioned above are not similar: 'Het Bramelt' is a residential district, while the situation in Epse involves solitaire residential properties instead of a residential district. Other arguments involved the cast shadow on properties of Deventrade and Bergweide OG, and impact on the landscape and environment. However, al pleas

12 Yeas (11): Deventer Interest (DB) (3), VVD (4), Municipal Interest (GB) (3), ToN (1)
Nays (23): GL (4), D66 (6), CDA (3), SP (2), PvdA (7), CU (1)

13 Yeas (9): GB (3), CDA (3), SP (2), ToN (1)
Nays (25): PvdA (7), D66 (6), VVD (4), GL (4), DB (3), CU (1)

were rejected and the Council of State decided in favor of the municipality of Deventer.

8.2 What is the structural context and case specific context for each local renewable energy initiative under scrutiny?

A) Structural context

8.2.1. Municipality of Deventer

8.2.1.1. Vision sustainable Deventer

The vision for sustainable Deventer provides a roadmap for the municipality's Environmental Policy Plan for the period 2009-2014. In this strategic paper, the municipality recognizes the importance of consistent and effective policy (Municipality of Deventer [MD], 2009). The municipality involves societal partners such as the business sector, educational and knowledge institutions, and citizens in their effort to achieve the objectives for sustainability. The municipality is aware in the variation of potential roles it can play in the process towards a climate neutral Deventer in 2030: facilitating, stimulating, directing, and authorizing roles.
The underlying themes of the vision sustainable Deventer are; cradle-to-cradle, renewable energy generation (if possible in shape of energy cooperatives), sustainable mobility, and collaborating with the business sector to effectuate a sustainable Deventer and surrounding region.

The municipality explicitly mentions that it will not limit itself to its legal tasks in the effort to improve the environment. Focal points of the vision sustainable Deventer are: climate, ecology, and waste. The roadmap is meant to clarify which frameworks and decisions are required for the effectiveness of the environmental policy. However, this roadmap is also a vehicle for incentivizing the discussion about the road that is set out by the municipal executive.

The municipality contemplates several courses of action to achieve its ambitions regarding renewable energy. Large-scale or collective wind energy, solar energy, or biomass belong to the strategy of the municipality, as well as the goal to establish a sustainable energy-company which buys all the sustainable gas, electricity and heat that is generated within the municipality's borders, and sells it to Deventer consumers.
The municipality conveys a handful of strategies in which these themes are represented: Deventer wants to increase its green environment, it focuses on specific areas; since it is more difficult to plant vegetation in downtown than in a suburb, a strategy for raising awareness among Deventer citizens, and one directed at participation and collaboration.

8.2.1.2 Implementation Agenda Sustainability

The document substantiating the sustainability vision of Deventer is the Implementation Agenda Sustainability (IAS). The policies stimulating sustainability that are included in the IAS root in a total of five policy documents: the Future Vision of Deventer 2030, the mid-long-term policy agenda, the coalition agreement 2010-2014, the Vision Sustainable Deventer 2009-2014, and the covenant with the province (MD, 2011).

Policy framework
With regard to renewable energy, the Future Vision of Deventer 2030 mentions the goal to perform a feasibility study to establish a Deventer energy cooperative, to develop a broad sustainability vision which is not limited to renewable energy, and to ratify an energy pact with companies and institutions which contains agreements and collaborative measures in the field of sustainable development. The municipality specifically mentions the local energy cooperative in light of the participation of citizens in the quest to achieve the sustainability objectives. The municipality envisions this initiative to be a cooperative without excessive governmental interference.

The mid-long-term policy agenda (2011, reassessed in 2013) mentions, in light of renewable energy, the municipal's priority concerning the application of solar energy and sustainable area development (e.g. climate neutral business park A1 and residential district Steenbrugge, sustainable renovation of existing business terrains and residential districts).

The coalition agreement 2010-2014 states the municipal ambition to install collective large-scale solar collectors on roofs, in which individuals can invest in a share of the project (MCD, 2010, p. 7).

The covenant with the province comprised of obligations for municipal effort concerning sustainability, without concrete agreements regarding the end results. The covenant includes, among others, agreements concerning the application of wind energy.

The agenda's strategy

A pivotal pillar of the agenda to achieve the stated goals involves municipal collaboration on three levels: participation of citizens and firms, partners in the implementation phase (i.e. energy firms, University of Applied sciences Saxion, advising agencies, banks, nature and agriculture organizations), and administrative collaboration (i.e. province of Overijssel, national government and Europe, water boards, Salland, and the Stedendriehoek). The municipality foresees its facilitative role in this strategy, but also recognizes its task to pick up societal issues that are not covered by the market.
The municipality catalogues a number of 'facts and taboos', related to its strategy such as (MD, 2011, p.18)

- There are many (good) examples of pilots, but these are rarely total solutions.
- Most sustainable solutions are cost-effective in the longer term, but require investments in the short-term. This leads to unnecessary application of subsidies.
- Citizens are left in disarray because of the abundance of energy advises and possibilities.
- Returns of investment periods are often far too long and financing bodies are skeptical in granting loans. Besides, return of investment is a faulty criterion to use.
- Fiscal regulations are not clear and sometimes contra-productive.
- The municipality employs multiple roles (policy and implementation) simultaneously, which sometimes causes uncertainties vis-à-vis other parties and citizens.

The municipality's sustainability policy can be distinguished in six facets: buildings, commodity management, mobility, water management, biodiversity, and renewable energy generation. The annual budget for the sustainability theme amounts to €300.000.

The mid-long-term policy agenda introduces a set of policy agenda's to govern the coherence and mutual connections in municipal policies. The sustainability agenda closely concurs with other policy agenda's. Thus, the municipality's spatial, social, economic, and cultural agenda's all exhibit aspects of sustainability. However, these agenda's typically address the sustainability facet 'buildings'. The municipality endeavors to address, with help of the agenda's, all the facets in an equal manner.

The agenda employs a set of questions as criteria for re-activating existing, or opting new implementation activities. In other words, the agenda's flexibility is gauged according to a set of criteria (MD, 2011, p. 22):

- Does the activity sufficiently contribute to the climate objective?
- Is the activity in coherence with the sustainability agenda?
- The activity emerges in a bottom-up manner, or in a collective (societal) manner.
- Are there (financial) resources and capacity available?

The IAS's objectives
The agenda discloses the objective of a climate neutral Deventer in 2030. However, both climate neutrality and energy neutrality of Deventer in 2030 are used interchangeably. While energy neutrality is a lower objective in a societal sense, the objective is more ambitious in the sense that the municipality has to generate the required sustainable energy within the confines of the municipality, instead of buying sustainable energy outside of its territory, which is allowed in the objective pursuing climate neutrality (Sint Nicolaas, 2014). A climate neutral Deventer in 2030 is mentioned explicitly in official documents, and municipality further has the ambition and strives for an energy neutral Deventer in 2030.
The IAS covers the following topics:

- Policy priorities (a)
- Other activities that are effectuated (b)
- Roadmap Sustainable Deventer (discussed above)

(a) Policy priorities:

- Effectuate the production and application of biogas and enhance sustainability and expand the heat-grid in Deventer.
- Initiate a renewable energy cooperative
- Apply solutions for solar-energy without subsidies
- Enhance sustainability for the existing house supply
- Realize two wind turbines next to the A1 highway
- Realize a climate-neutral Steenbrugge
- Realize a climate-neutral city hall
- Reduce energy usage of municipal activities

(b) Other activities that are effectuated:

- Reduce waste streams and improve recycling in light of the Waste Plan
- Use renewable energy in site-planning of the business park A1
- Continue and maintain employment
- Apply energy scans to SME's
- Apply subsidy Small Climate ("Kleintje Klimaat")
- Innovate in society with a role for renewable energy
- Maintain partnerships
- Secure environmental policy in work processes and during preparation of policy

Since this chapter examines the processes involved with the realization of the wind energy installations and the cooperative, this section will solely discuss the second and fifth policy priorities.

Initiate a renewable energy cooperative
The municipality wants to establish a renewable energy cooperative and attempts to do so by exploring the possibilities with the local housing corporation. The incentive is to involve local stakeholders in the cooperative. The municipality expects that approximately 15 to 20% of the households and organizations in Deventer will subscribe for the cooperative, which provides a secure and 100% sustainable energy-flow till 2030.
The cooperative will also serve as a vehicle to financially shape the transition to renewable energy, which entails solutions for the exploitation of solar energy and wind energy. In addition, the municipality sees possibilities for the cooperative such as: collective purchase of the municipality's energy supply, and the cooperative as a basis to connect the local production of solar and wind energy. The municipality explicitly states that it will both financially and organizationally facilitate the start-up of the cooperative. The municipality expects support from the province for establishing the cooperative on the basis of the covenant both parties signed.

Realize two wind turbines next to the A1 highway
The municipal council authorized the realization of two wind turbines, instead of the proposed 3 on July 20th, 2011. Still, the municipal council did order the municipal executive to investigate potential locations for a third turbine and it had to arrange the division of ownership of the two wind turbines that would secure the participation of citizens. Furthermore, the municipality strives to connect this objective with two other policy priorities: the intention to establish a cooperative and solutions for solar energy without subsidies.

The municipality opts for a facilitating role of collaboration and co-creation: give leeway whenever possible and active policy whenever required (MD, 2011, p. 38). The municipality notes that the largest share of the task is found within citizens and firms.

Financing
The municipality wields similar conditions for financing an initiative as the Energy-pact from the province:

- The activity can be placed under one of the 8 policy priorities of the municipality
- The business case is feasible and robust
- The municipality's contribution is required to realize the activity.

The municipality can support such initiatives with resources in different shapes: subsidies, guarantees (lowering risks of an activity, making possible financing), granting loans, participate with own capital.

The municipality also devotes a separate section concerning communication. The municipality focuses to improve its communication, by means of ventilating clear red threads/ core messages in all communications. In this line, the municipality mentions other arguments instead of the altruistic ones why people could opt for taking sustainable measures, such as increased comfort and financial benefits. Thus, the municipality also hints at marketing approaches in this end. The municipality asserts that financial arguments play a role for society to invest in sustainability (MD, 2013b, p. 41).

8.2.1.3 Spatial development strategy
In the municipal-wide spatial development strategy, the municipality recognizes its role in regulating and stimulating the daunting task of becoming climate neutral in 2030. One of the instruments the municipality raises is the make possible wind turbines and solarpark in terms of spatial planning (MD, 2013b, p. 41). The municipality explicitly raises the dilemma involving the spatial integration and planning of renewable energy on municipal soil, and tensions with other spatial qualities or land-uses. Since the availability of suitable land is limited (Deventer points to the rural outskirts, but these areas also have limited possibilities), Deventer stresses the importance of innovating firms and citizens aware of their energy use. The municipality stresses the central feature in its approach: that the cycle has to be closed.

8.2.1.4 Policy-plan Wind energy 2004
In 2004, the municipality of Deventer issued a white paper that provided insights into the possibilities for wind energy on two future business terrains: business park A1 and Colmschate North (or, Linderveld), and an assessment framework for situating wind turbines on existing business terrains. The assessment framework offers a list of criteria relating to spatial integration of wind turbines, environmental aspects, and public support. The white paper sprouted from a national agreement to install a total of 1500 MW in the Netherlands in 2010. Deventer pursuits to install 6 MW worth of wind energy on municipal territory in 2010.

The municipality designated two viable locations as 'search areas' for wind energy development. This entails that the potential for wind energy on those locations still depends on local societal support, presence of market parties willing to invest, and other considerations regarding the specific location of the wind energy site (i.e. spatial, environmental-technical, and economic concerns). One of the

locations is the future business park A1, next to the highway A1 as a viable option and suggests a maximum installed capacity of 4.5 MW (or 3 wind turbines) on this site (MD, 2004). The appropriateness of the location is based on the presence of large infrastructure (i.e. the highway) and sufficient wind speed. The second option involves existing business terrains in Deventer, which have the potential to house a maximum of 2 MW.

The zoning plan for the business terrains states that in the process of attaining an environmental permit, one can deviate form the planning rules to build wind turbines with a maximum height of 40 meters and a maximum impeller surface of 40 m^2 (MD, 2010).

Not only does the municipality look at public support concerning the realization of the wind turbines as such, it also seeks to explore the extent to which citizens and other stakeholders can participate in the planning procedures and the exploitation of the wind turbines.

Political context

Table 8: Results municipal council election 2010 and 2014

Political parties	**Number of seats in council**	
	2010	**2014**
Municipal Interest Deventer	-	7
PvdA (social democrats)	7	6
D66 (social liberals)	6	6
VVD (conservative liberals)	5	4
SP (social party)	2	4
Green Left	4	3
CDA (Christian democrats)	4	3
Christian Union	1	2
Deventer Interest	-	2
General Rural Interest	4	-
General Interest Deventer	3	-
Proud on the Netherlands	1	-
Total	**37**	**37**

B) Case specific context

8.2.2 The city of Deventer, Deventer municipality

This project is situated in Deventer, in the municipality of Deventer. The municipality of Deventer fused with the municipality of Diepenveen (in 1999) and the municipality of Bathmen (in 2005). The latter two municipalities enriched the relatively urban municipality of Deventer with rural countryside. The current population of the municipality of Deventer comes close to 100 000 residents, of which the city Deventer houses just over 80 000 residents. The municipal's territorial jurisdiction amounts to little over 13 000 acres and houses one city and 5 villages. A historical inner city, the countryside, and the river the Ijssel characterize Deventer. Deventer has a University of Applied Sciences (Saxion), several Intermediate Vocational Education institutions, a significant share of low-tech industries, a growing ICT sector, and renowned engineering and advising agencies.

8.2.3 First encounter

One of the initiators, a retired executive, got in contact with the municipal executive not because of the initiative itself, but because this person desired to make his house energy neutral. The initiator requested a provincial subsidy, in which the municipality was the intermediary organization that in the end had to grant the subsidy. The initiator requested the whole sum of money for his renovation, while the province reserved this amount of money for a number of houses to be renovated energy neutral (section 6.2.7).
In first instance, the civil servants granted the whole sum of money to the initiator. However, the municipal executive was unaware of this decision, and as soon as they discovered this, they reversed this decision. This process was lengthy and bothersome, in which the municipal executive and initiator frequently corresponded. This process illuminated the initiator's traits that would fit a person that could pull the cart of the cooperative (Sint Nicolaas, 2014).

8.3 To what extent do the factors from these contexts explain this level of performance?

This question is answered by firstly conducting an analysis of the implementation process with help of CIT to illuminate the core actor-characteristics of the relevant actors and their strategies if present. The analysis of the core actor-characteristics is then used to determine the influence of the contextual layers and vice versa.

8.3.1. Core actor-characteristics of the municipality

A) Motivation of the municipality

The motive of the municipality to support the realization of the DEC should be regarded in light of the pursuit for Deventer to become energy/climate neutral in 2030.
In addition, the municipality asserts that the sustainability mission and achieving its targets is not something that can be championed by the municipality alone, but which demands partnership. This is a cognitive prerequisite for the municipality's motivation. Citizens and firms, or the Deventer society, pull the cart (MD, 2011). The municipal's sustainability targets ask for a facilitative role on part of the local government (MD, 2011), which speaks to the motive of the municipality to facilitate the creation of a Deventer Energy Cooperative.

Also, the energy cooperative was established in light of what the alderman noted as; a general lack of trust from citizens in the local government (Pierey, 2014). The cooperative would have to bridge this gap, to make sure that the citizens would have a sense of ownership, which is important in fostering public support for wind and (large-scale) solar energy (Pierey, 2014). The alderman thought it was important for the citizens to have ownership to make sure that the benefits would be experienced

locally.

A common message ventilated frequently for municipalities pursuing to facilitate local initiatives, was that one should not interfere with such developments, and do not let develop as a project of the government, and for the government (Pierey, 2014).
But the alderman learned from the Lochem initiative (also a local renewable energy cooperative) that a certain amount of turnover is needed because an cooperative needs to be staffed. So on the one hand, the government should not interfere with such developments. But on the other hand, the organization requires funding in shape of a startup subsidy and instructions in order for it to become viable. This is translated in the conceptual model of CIT as the municipal's motivation having a problematic relation with its resources available to support the initiative. While the municipality desires to foster and support such local renewable energy initiatives as the cooperative, the available resources the municipality can employ (e.g. taking seat in the organization's executive board to maintain control) will not accumulate to the actual intention of the initiative: that the cooperative is from the citizens and for the citizens.

B) Cognitions of the municipality
The sustainability agenda Deventer initially listed the priority for the municipality to establish an energy service company (ESCO). This ESCO would bear the investments costs necessary for an other policy priority specified in the agenda, namely to construct a climate neutral residential district; Steenbrugge. The initial idea was to achieve the latter policy priority by installing individual heat and cold storage (HCS) installations and establish a third party that would bear the installation costs. However, the municipality recognized the complexity and high investment costs involved in realizing such a project, and it also learned from other HCS projects that failed (Pierey, 2014). Also, the experience with one of the initiators that desired to renovate his house in an energy neutral sense, made the municipality realize that going about these projects individually would not contribute significantly to the immense task that has to be achieved. Thus, not an ad hoc and individual approach was needed, but one of collectivity.
As a response to this insight, one of the aldermen proposed to initiate a cooperative energy company for all citizens (Pierey, 2014): this is a perception of opportunity for the municipality, or cognitions influencing the motivation.
From the beginning on, the underlying intention for establishing the cooperative was to use it as a vehicle to develop local generation of renewable energy by means of collective ownership, which were in this case the two wind turbines (Pierey, 2014). During the decision-making and planning processes involving the wind turbines, the alderman strived to push through that a share of the wind turbines would be reserved for collective ownership for the citizens of Deventer. This element in the wind turbine project was crucial to foster public support, according to the alderman. This ambition was also embedded in the Implementation Agenda Sustaianbility.

In the effort to initiate the cooperative, the municipality visited and conversed with other energy cooperatives in the Netherlands (i.e. one the first energy cooperative in the Netherlands on Texel and the cooperative in Lochem) to learn from their experiences (Pierey, 2014).

Initially, the sustainability vision was formulated with view on the environment, and climate mitigation, a more or less altruistic stance, pointing citizens to the desired behavior (Sint Nicolaas, 2014). Thus environmental policy flowed from the environment pillar. However, according to a sustainability specialist, the municipality needs to take into account that local governments are not the right sender for these messages (Sint Nicolaas, 2014). Thus, the municipality assumes a different viewpoint vis-à-vis the task to bring sustainability to the citizens by not implementing policies in a top-down and traditional administrative fashion, but utilizing marketing and communication principles (Sint Nicolaas, 2014).

The local government put the project in motion and facilitated, but then pulled back and assumed a

distance vis-à-vis the initiative (Sint Nicolaas, 2014).

C) Capacity and power of the municipality

An important municipal resource that spurred the process of establishing the cooperative was a motivated alderman with a vision on sustainability in Deventer. The alderman stated that he reopened the wind turbine file during his term of office since the previous municipal executive left the topic untouched (Pierey, 2014). The wind turbines relate to the energy cooperative since the alderman strived to include a participation clause for citizens in the wind turbines. The distribution of these participations was a task that would be assigned to the cooperative. Furthermore, the alderman conveyed that he proposed to establish an energy cooperative instead of an ESCO.
This gives indication of the importance of a persevering individual with an influential position.

The alderman indicated that while he did revive the wind turbine issue, the rest of the board seemed to oppose the realization of the wind turbines. Yet the council did seem to exhibit a majority in favor of the turbines (Pierey, 2014). The presence of a certain extent of consensus is another important resource. This context contributed to the decision of dubbing the construction of the wind turbines a 'free proposition'. In other words, this situation illuminates the effects of the internal political divide of the Deventer municipality with regard to the wind turbines, and hints at the dynamic interdependencies within the municipal executive.

Two resources that greatly influenced how the DEC unfolded were the two startup subsidies. The municipal government was able to grant the first subsidy because of a covenant with the province. The second subsidy was derived from the incentive of the province to establish an energy-desk in each municipality.

Still, facilitating initiatives as a cooperative must be done within narrow margins, since formal boundaries apply to the municipality: the facilitative role inherent to sustainability is a whole different story than the role civil servants have for a core municipal task: these civil servants have more interfering instruments at their disposal compared to the theme of sustainability, according to a local government specialist (Sint Nicolaas, 2014). Thus, the person active in the field of sustainability has to fulfill an other role, and untraditional instruments have to be used (Sint Nicolaas, 2014).
The municipality states that in light of the tremendous task to achieve energy neutrality in 2030, it does not make sense to subsidize initiatives with lumps of money since the annual budget for sustainability is €200 000 (Sint Nicolaas, 2014). Thus, the municipality takes a facilitative stance and does not grant subsidies. Facilitating is linking different societal partners and supporting initiatives in shape of, for instance, fiscal studies (Sint Nicolaas, 2014).

Another important resource the municipality made use of is its network: a retired executive chaired the first meeting and various key actors in the field of sustainability in Deventer and the municipal's economy attended this meeting, in which the initial idea of a cooperative was discussed.
The visualization of the municipality's core actor-characteristics outline above is found in figure 21.

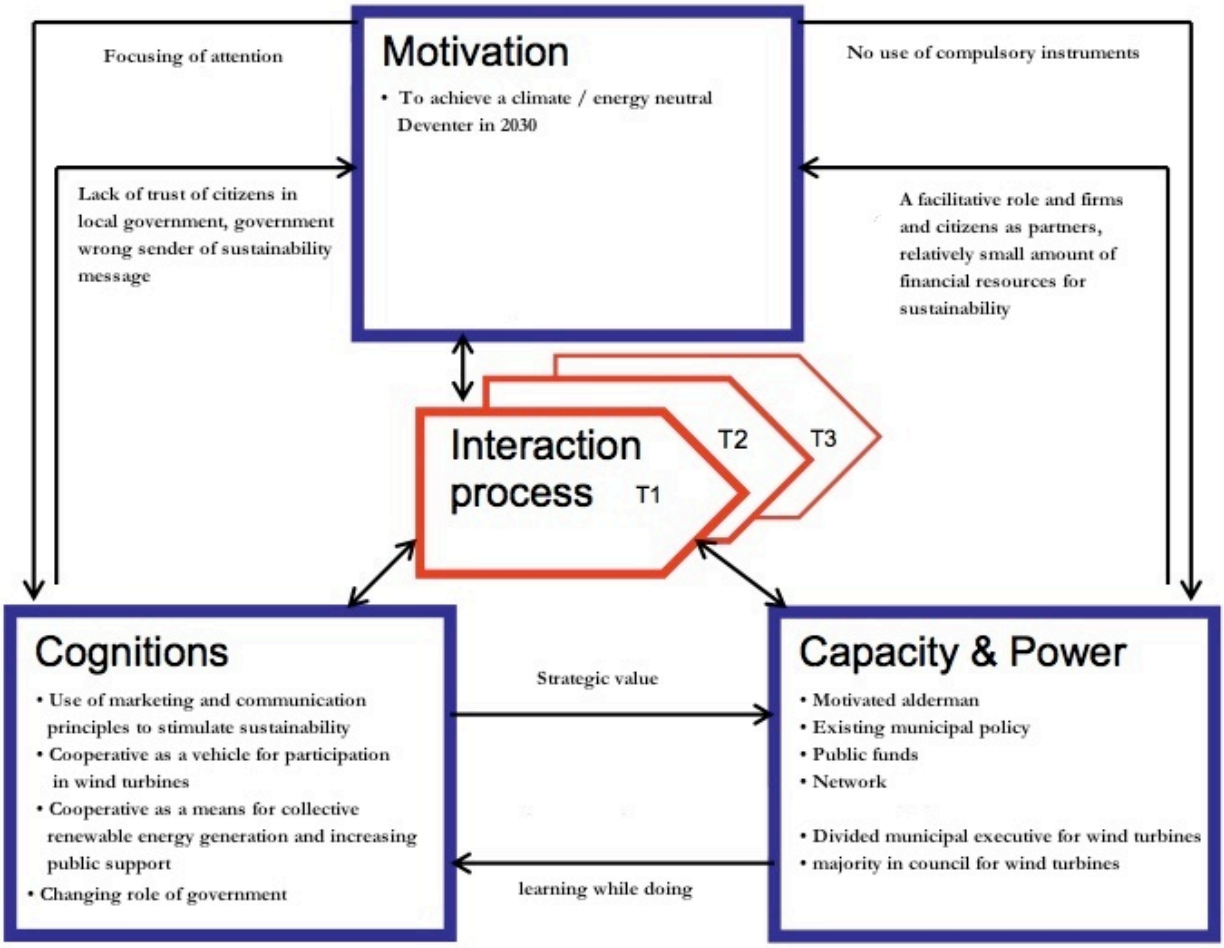

Figure 21: Visualization of municipality's core actor-characteristics and interactions between the characteristics.

8.3.2. Core actor-characteristics of the initiators

A) Motivation of the initiators

Primary motive of the initiators was to achieve an energy neutral Deventer by the year of 2030 (D. Glaser, personal communication, July 11, 2014). This goal had to be achieved by means of a cooperative that would have to be established by the citizens of Deventer and give the opportunity to all people in Deventer to save energy and costs.

One of the plans when the cooperative was established was to recruit 4 000 members in 2013, when Glaser was still president of the cooperative. However, the current board of the cooperative sets the target at 500 (Glaser, 2014). This is caused by a lack of skills concerning marketing and communication (Glaser, 2014) (mutual relation motivation and resources).

B) Cognitions of the initiators

One of the initiators argued that the individuals that the municipality invited for the meeting discussing the idea of a cooperative got involved in the initiative with a wrong disposition, namely; individual gain and profit (Glaser, 2014). Accordingly, the initiator argued that motivated citizens had to become involved in the initiative, and not large firms or corporations.
An important aspect was that the cooperative had to be established with the Deventer citizens, and not as a municipal project. The initiators wanted complete independence, and energy savings made possible for all citizens in Deventer because of the rising energy price.

After Glaser, one of the key initiators of the cooperative, resigned as the president of the cooperative and took seat in the council of advice, he observed how sustainability was increasingly communicated to the citizens in technical terms (Glaser, 2014). During his presidency, Glaser had the opportunity to pull the initiative by motivating people, marketing and communication strategies, skills he has because of his professional carreer (mutual relation cognitions and resources).
The current administration focuses on the technical aspect, which attractive for customers (Glaser, 2014) (mutual relation motivation and cognitions).
The former Philips executive notes that communication and commerce are crucial in the continuation of the cooperative.
During the process of establishing the cooperative, the initiators looked at other cooperatives as well, and learned from their mistakes and achievements.

C) Capacity and power of the initiators

A significant part of the board members of the cooperative exhibits a technical disposition because of their professional background or general interest. These board members are knowledgeable with concern to sustainability, perform well in a structured context, and function well under the lead of the former director, according to one of the initiators (Glaser, 2014).
These board members where designated as chairs of the work packages that encompassed the foundation. However, the board members did not posses the right traits to function as a manager of a work package (Glaser, 2014). Thus, the present human capital does not adequately suit the organizational tasks: while there is a high quality of technical knowledge available, these individuals did not possess the right traits to exercise leadership, motivate people and communicate well. This is an issue troubling the cooperative (Glaser, 2014) (mutual relation motivation and resources)

During Glaser's presidency of the cooperative, the initiative had a well-established and fruitful relationship with the municipality. However, now that Glaser resigned and the cooperative took a more technical stance vis-à-vis their goals, this relationship became too formal (Glaser, 2014). And in this light, the former president mentioned that a network containing relevant actors is important in projects such as the one in concern. Another aspect that shows the relational difficulty between the initiative and the municipality crystallizes in the issue that extensive involvement of the municipality in the cooperative would impede on the agility of the cooperative: since firms would become involved in the cooperative as well, the cooperative desired complete independence (Glaser, 2014).

The basic idea of the cooperative was to involve local firms, which is what the first batch of initiators worked hard for to accomplish. The cooperative in its early phase contacted various key actors in the municipality such as: housing corporations, the municipal waste company (Cambio), and residential district associations. However, the current board conveys that the cooperative desires to involve the business sector but that it is unable to do so because it lacks the capacity. This is a typical example of self-effectiveness assessment; a limited capacity having an effect on the motivation.

Other resources that supported the initiative are the municipality's financial support in shape of the fiscal and financial feasibility reports and the startup subsidies. These resources can also be perceived as an intangible resource in general that has been granted to the initiators: the support of the municipality for the project as such.

Another important resource is the amount of volunteers that was involved during the startup phase of the foundation and cooperative. The meeting that was scheduled to introduce the idea of a Deventer energy cooperative and gain public support recruited 60 volunteers, that augmented the executive board of 15 members recruited by Glaser via LinkedIn. In similar vein, the cooperative's resources stem from the motivation of the volunteers to become involved in such an initiative.

Furthermore, a factor contributing to the continuation of the cooperative, and contributing to the capacity of the initiative was the introduction of the energy-desk, on which the cooperative could jump

the bandwagon (Glaser, 2014; de Vries, 2014). This effectuated a physical front office, which was settled by the alderman who had sustainability and real estate in his portfolio.
The second factor augmenting the continuation and capacity of the cooperative were the wind turbines (Glaser, 2014; de Vries, 2014). The wind turbines had an initiating role in the foundation phase, and an executive role in the cooperative phase (Glaser, 2014). The wind turbines enabled the cooperative to genuinely sell locally generated renewable energy, instead of solely resell green energy (de Vries, 2014).
Figure 22 presents a visualization of the core actor-characteristics of the initiators, and interactions between the characteristics.

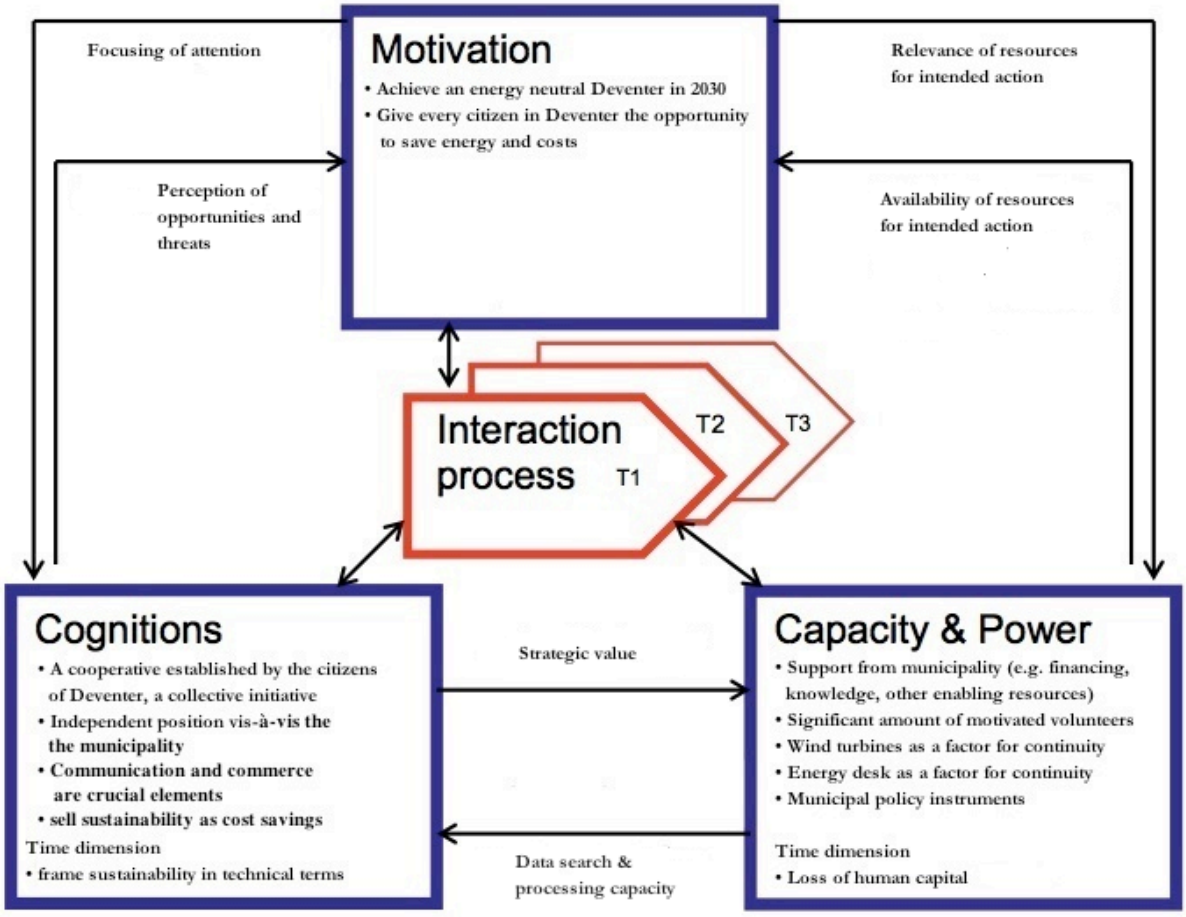

Figure 22: Visualization of initiators' core actor-characteristics and interactions between the characteristics.

Time dimension
The cooperative exists in the formal sense, but the initiators still have to demonstrate its continuation and public support. Thus, establishing a cooperative is one thing, keeping the cooperative in business is another (de Vries, 2014). This is what the current batch of initiators in the cooperative is dealing with now; they have put more emphasis on communication and marketing (Glaser, 2014; Sint Nicolaas, 2014).

8.3.3. Conclusion
The intensity and the flexibility of the governance regime in general allowed for adaptive strategies to timely and swiftly connect certain aspects and domains, which explains the level of performance of the Deventer Energy Cooperative.

This materialized in the planned ESCO cooperative that was replaced by the Deventer energy

cooperative and used as an investment vehicle for the wind turbines, and the continuation of the cooperative not only harnessed by the wind turbines but also by the energy desk. The intensity materialized in the various supportive policy documents, influential actors and allocated resources.

With regard to the intensity, the initial idea to establish the energy cooperative commenced with the Vision Sustainable Deventer introduced in 2009, and was further elaborated in the Implementation Agenda Sustainability in 2011. Walker (2007) confirms the potential importance of local supportive institutions in local renewable energy initiatives.
The Deventer municipality took into account the general lack of trust from citizens in the local government (Pierey, 2014). The cooperative would have to bridge this gap to make sure that the citizens would have a sense of ownership, which is important in fostering public support for wind and (large-scale) solar energy, according to the alderman that was involved in the interaction process. This augments the extent of problem perspectives of the governance regime.
Increasing public acceptance is a widely reported motive for policymakers to commence initiatives with public involvement (e.g. Breukers & Wolsink 2007; Wolsink 2007a; Agterbosch *et al.*, 2009; Toke *et al.*, 2008; Warren & McFayden 2010; Khan, 2003; Walker *et al.*, 2007). In this line of argumentation, ownership, or a sense of ownership are important for the public support of a renewable energy initiative (e.g. Devine-Wright, 2005a; 2005b; Li *et al.*, 2013; Warren & Macfayden, 2010; CSE, 2007; Maruyama *et al.*, 2007).

Inherently the cooperative - that would have to be, and was established by citizens and for all Deventer citizens - presupposes the importance of the social element in this collaborative initiative of the municipality and citizens, which adds to the extent of the regime in terms of involved actors. In this sense, Walker (2007) and Agterbosch *et al.* (2009) report that collective benefits or shared economic interests are crucial motivators.

Both the municipality and initiators have the same motivation for realizing the energy cooperative, and are also in consensus in terms of their boundary judgments in the sense that local renewable energy ought to go hand in hand with opportunities to benefit from cost savings for all. Also, both the municipality and initiators assumed a learning-while doing approach for establishing an energy cooperative, indicating flexibility in their boundary judgments. This way, the alderman discovered that the municipality would have to save its distance vis-à-vis the initiative, but still support the cooperative with funds.

The creation of the energy cooperative was further supported by various resources allocated to the initiators in the startup phase, namely a startup-subsidy and fiscal and financial reports relevant for the business model of the energy cooperative. Several studies point out the influence of absent financial resources or support on the success of community renewable energy (Seyfang *et al.*, 2013; Hinshelwood, 2001; Walker, 2008; Toke *et al.*, 2008; Denis & Parker, 2009; Wüste & Schmuck, 2012; CSE, 2007), which was not an issue for DEC because of the start-up subsidies.
Another important resource was the significant amount of volunteers involved in the project, who brought along skills and knowledge. This supported the initiative during the startup phase as well. While Seyfang *et al.* (2013) and Hinshelwood (2001) noted that obstacles internal to community energy can be the lack of volunteers and skills; this was not the case in DEC.

While the municipality does necessitate the feasibility and robustness of the initiative in order for it to financially pitch in, the local government does not exclude the possibility of granting a subsidy to a private party to achieve public goals (MD, 2011, p. 39). In addition, the municipality can support initiatives with resources in different shapes: subsidies, guarantees (lowering risks of an activity, making possible financing), granting loans, participate with own capital. In same line, while the municipality recognizes its facilitative role, it also accepts its task to pick up societal issues that are not covered by the market.

Yet, the sufficient intensity of the regime only concerned the initial creation of the energy cooperative. The continuation of the energy cooperative was safeguarded by other measures.
The continuation of the Deventer Energy Cooperative would have been unsure if certain instances would not have unfolded. DEC lacked a robust business case, because its turnover from reselling generated renewable energy to approximately 20 members hardly effectuated any revenue.
The energy desk and wind turbines were an answer to this and helped to preserve the continuation of the energy cooperative. The energy desk brought about spillover effects for the energy cooperative. Furthermore, not only did the DEC receive an additional €50 000 from the province to establish the energy desk, the building that was made available for the energy desk could also be used as office space for the cooperative.
With regard to the continuation of the cooperative, during the development of an initiative such as the cooperative, people typically jump in, or decide to leave the initiative. In the case of the DEC, the loss of specific human capital in sense of individuals who are expert in leadership, motivating people, and communication, has an impact on the way the initiative further develops. A quantitative study conducted by Seyfang *et al.* (2013) shows that 48% of the respondents mention that the qualities of the group itself are a critical strength. In addition, characteristics of the group, such as a key committed individual are important drivers for the development of the group (indicated by 37%).
In this sense, the continuation of the cooperative remains an issue, because an initiator, the involved alderman, and a public official all mentioned the lack of communicative and motivating skills of the DEC (Dick, 2014; Pierey; 2014; Sint Nicolaas, 2014). While one of the initiators stressed that it is important to sell sustainability as a product that saves money (Dick, 2014), the alderman noted that it is important for DEC to maintain its altruistic values while also strengthening its marketing efforts. Skills for engaging and motivating the community are important for the success of the community renewable energy (CSE, 2007).

The wind turbines as such not only supplemented the intensity of the governance regime for continuing the energy cooperative, but also contributed to DEC's creation. The alderman noted that the municipality had the intention to enable Deventer citizens to participate in the wind turbines and accordingly exploit the cooperative as a vehicle that would take care of the participation clause. This intention coincided with the creation of the cooperative. The alderman made use of the flexibility of the policy instruments (adaptive strategy), by linking the idea of an external cooperative, which was intended to be an ESCO as mentioned in the sustainability agenda (but was abandoned because it turned out to be infeasible), to the wind turbines.

However, the governance regime itself lacked the intensity to swiftly overcome the hurdles for implementing the wind turbines in concern. The deficiency of intensity for realizing the wind turbines occurred because of, according to the alderman that took seat during the wind turbines implementation, the lack of motivation of his precursor that was in office after the 2004 wind energy policy plan was adopted by the council. Thus, while the insufficient intensity did not arise from the intentions embraced in the 2004 policy plan, it arose from a lack of pressure from the responsible alderman. The responsible aldermen had to overthrow a number of obstacles in order for the wind turbines to be actually realized. These hurdles were mentioned in the council meeting in 2008; disparate opinions concerning the locations for the wind turbines, uncertainty regarding the financing of the turbines, and the intention to realize the A1 business park simultaneously with the turbines (MCD, 2008a).

While a part of the motivation of the municipality for establishing the cooperative was to bring about citizen involvement and ownership in the wind turbines, only 25% of the total investment costs was distributed as participations for the Deventer citizens. Moreover, since the parcels on which the wind turbines are constructed are not municipal property, economic benefits flowing from the wind turbines are not earmarked for municipal use but for the project developer. As such, a significant part of the wind turbines is still reserved for corporate ownership. As Devine-Wright (2005a) stated in this sense, there are different degrees of locally embedding energy projects. The lack of local

embeddedness of the wind turbines likely ignited more opposition than if Deventer citizens and the municipality owned 100% of the wind turbines. Toke *et al.* (2008) also note that local ownership is more able to foster wind power deployment than corporate ownership. Furthermore other studies indicate that local involvement in ownership of turbines reduces public opposition (e.g. Strachan & Lal, 2004, Strachan *et al.*, 2006, p. 13).

Still, the responsible alderman employed strong pressure to make sure his mission, to implement the wind turbines during his term of office, was accomplished. The necessary energy to overcome the status quo arose from his motivation.
An adaptive strategy of the alderman was to dub the wind turbines implementation plan as a 'free proposition', to keep the issue on the political agenda and thereby changed the setting of the process. Additionally, another adaptive strategy used by the municipality was to speed up the realization process of the wind turbines by employing the municipal coordination regulation, which implicitly had as a consequence that objections were only possible against all of the permits and procedures take together, instead of the possibility of objecting against these plans and permits separately. The Crisis and Recovery Act enables this procedure and accrues to the flexibility of the regime.
As a stick behind the door, the municipal executive proposed a zoning plan for business terrains that enabled the wind turbines, which was adopted by the municipal council. The majority in the council that adopted the zoning plan is also an important factor in the implementation process. In this sense, Toke *et al.* (2008) note that planning regimes positive to wind power projects and policies are crucial for the success in such projects. And while various residents, organizations, firms, and municipalities ventilated their negative stance vis-à-vis the plans, these objections did not hold. McLaren-Loring (2007) reports that local negative attitudes as such will not impede on the implementation of wind power projects, but more whether these attitudes are represented in a stable network. Toke *et al.* (2008) adds to this by pointing to whether this network of objectors is balanced with pro-wind attitudes (Toke *et al.*, 2008), which was definitely the case in Deventer; the alderman defended its cause, DEC ventilated their support for the wind turbines frequently, and there was a majority in the council.

Recapitulation

The balance between the intensity and flexibility of the regime is an important factor that contributed to the level of performance of the initiative. The sufficient intensity becomes apparent in the policy documents pursuing the creation of a cooperative and implementation of the wind turbines. The regime's flexibility arises from the different objectives and instruments that were combined. This balance allowed for adaptive strategies that linked various aspects that safeguarded DEC's continuation (i.e. energy desk, wind turbines). The alderman that was involved effectuated the necessary energy to make progress in the interaction processes.
Furthermore, another important factor that explains the progress of DEC is the extensive financial support that was granted to the cooperative. This support was crucial in the startup phase since the initiators struggled to establish a profitable business case (i.e. reselling green energy with a small markup).
Still, a factor limiting further progression of the cooperative is the deficiency of communicative and marketing skills of the current batch of volunteers that take seat in the cooperative (Sint Nicolaas, 2014; Glaser, 2014). The DEC still has a relatively small amount of members.

9. Chapter Foundation Sustainable Ommerkanaal

The Foundation Sustainable Ommerkanaal is an initiative by a hamlet[14], Ommerkanaal in the municipality of Ommen. The foundation realized an energy neutral community center and incentivized a collective purchase of solar panels.

9.1 How did the initiative evolve until now and what has the initiative achieved?

With in the background a provincial initiative to realize a wind farm in close proximity of Ommerkanaal and the recent construction of a provincial freeway passing through the municipality of Ommen, the association Local Interest Hamlet Ommerkanaal (PBBO) began to consider how it could maintain and safeguard the livability of Ommerkanaal in the future. Instead of directing their attention to the developments the hamlet did not desire in their neighborhood, the citizens asked themselves what developments could be considered desirable (M. den Hoedt, personal communication, July 16, 2014). As a result, the hamlet started to envision what they would regard the best way to generate renewable energy.

The initial idea of PBBO was to subscribe for a provincial tender that subsidized the collective purchase of solar panels. Upon a subsidy-request by PBBO that was filed incorrectly (e.g. missing information), the province proposed Ommerkanaal to subscribe to the Sustainable Village contest (den Hoedt, 2014) in 2011.
The four-headed association accepted the invitation. Before further plans were made, the PBBO considered that they would need the support of the Ommerkanaal residents to continue their efforts. To gauge the level of public support in Ommerkanaal for joining the contest, PBBO sent around a survey to the residents asking people's opinion about solar collectors, solar panels and so on. Within two weeks time, the initiators received half of the questionnaires back enclosing positive answers. The initiators drafted a project plan on the basis of the outcome of that questionnaire and submitted it to the Sustainable Villages contest. The project plan consisted of plans to renovate the existing community center, constructing a new section, and other initiatives for all the residents in Ommerkanaal (e.g. insulation plans).

Financing the renovation

The in the mean time established Foundation Sustainable Ommerkanaal (SDO), became fourth in the Sustainable Villages contest and accordingly received €200 000 to accomplish their plans. The PBBO created a number of work packages, of which the renovation of the community center was the top priority. In the attempt to recruit people and organizations that could support their project, the initiators got in contact with Stimuland; an advisory agency supporting rural initiators with their (sustainable) projects.

Stimuland pointed on the possibility of an additional subsidy that could be used for renovating the community center. This provincial subsidy, specifically for establishing and maintaining community centers in rural areas, granted the initiators an additional €100 000. The community center itself could also provide another €40 000.
The municipality pitched in with the provincial subsidy by granting €35 000 to renovate the community center. Their support was crucial in the sense that the provincial agreement prerequisites a co-financing construction of both the province and the municipality. The total costs for the renovation were an estimated €255 000. Around €100 000 was used for renovating the existing community center, and between €200 000 and €250 000 was spent to expand the community center. The initiators created a playgroup and a childcare in the community center.

[14] A hamlet is in this paper defined as a small community of people that live close to each other (in this case along a canal) and that are incorporated in a municipality

However, before the actual renovation and construction of the community center commenced in October 2012, SDO organized a collective purchase of solar panels.

Collective purchase solar panels
The Foundation Sustainable Ommerkanaal submitted a proposal to the provincial tender for a collective purchase of solar panels initiative. The Province of Overijssel granted €124 200 to the initiators to realize their plans in October 2011. The initiative consisted of 18 households (which is roughly 20% of the Ommerkanaal households) and two firms that would all install around 700 solar panels amounting to 165.000 KwPh.

Additional initiatives
Since the solar panel project did not use any funds from the Sustainable Villages portfolio, the initiators still had funds left to utilize for other initiatives. In this line, the initiators decided to use a part of the subsidy to issue custom recommendations reports for 35 households in Ommerkanaal concerning energy-efficiency and insulation measures.
The initial idea was to collectively start working on insulating the houses and installing energy-efficiency measures.
However, because no house in Ommerkanaal is similar this task was impossible to achieve. Another factor hampering this initiative was the inapplicability of a provincial subsidy in Ommerkanaal. This subsidy is granted to neighbors that collectively apply energy-efficiency measures. The province did not grant this subsidy since in Ommerkanaal, neighbors commonly have dissimilar zip codes. Still, around 10-15 households began to insulate their walls and installing the energy-efficiency measures on the basis of the recommendation reports.

Another idea was the purchase of a 'neighborhood car'. Since Ommerkanaal lacks an adequate public transportation connection, the initiators decided to purchase a neighborhood car that runs on green gas and which can be shared among the residents.

Another initiative of SDO is to insulate the existing elementary school. Also, the initiators hope to expand the school with an additional classroom. This plan is still under construction.

People, planet, and profit
The progress that Ommerkanaal has made since 2011 is a classroom example of the three sustainability pillars in balance: 'People' because of a community center that was expanded and renovated; 'Planet' because of the energy neutral renovation, insulation measures, and the solar panel project, 'Profit' because local companies were addressed to accomplish these initiatives (local companies installed the solar panels and helped with the energy neutral renovation) and the childcare employs two people.

9.2 What is the structural context and case specific context for each local renewable energy initiative under scrutiny?

A) Structural context

9.2.1 Province of Overijssel

Provincial Long-term Plan Rural Area 2007-2013
The province of Overijssel developed the Long-term plan Rural Area (2007-2013) to safeguard the quality of the rural area present in Overijssel. The program assumes an integral approach and strives to maintain the quality of the rural area by focusing on five pillars: promising agriculture, maintaining and strengthening the quality of nature and culture landscape, economic vitality, social vitality and livability,

and a resilient water system.
The second last pillar, social vitality and livability, is relevant for the case in Ommerkanaal. This pillar specifically strives to maintain and strengthen the social vitality and livability in the rural area by assuring the availability and accessibility of certain (basic) facilities (OP, 2006). In this line of reasoning, the province mentions the importance of community centers to safeguard the livability of the rural area.
An already existing or future community center could apply for a variety of subsidies stemming from the provincial long-term plan. The subsidy utilized by the community center in Ommerkanaal was used for expanding the community center with an energy-neutral section. However, a precondition to these subsidies was a co-financing design in which the municipality had to pitch in with their funds as well.

Sustainable Villages
This policy can be found in chapter 6, paragraph 6.1.2
Ommerkanaal received €200 000 from the provincial pilot Sustainable Villages to realize their plans. The contest Ommerkanaal submitted to in 2010 put emphasis on the balance of the three pillars of sustainability, unlike the contest in 2011 that focused more on the planet pillar.

Solar panel tender
The province of Overijssel issues a tender for sustainable energy generation and energy efficiency in 2012 with a maximum budget of €1.7 million. SDO applied for this subsidy with success. This regulation subsidizes investments in solar panels made by households and firms, among other sorts of renewable energy and energy efficiency investments. The most relevant requirements that have to be met in order for applicants to receive the subsidy are;

- A minimum installed capacity of 100 000 kWph
- A minimum of 25 house owners or 15 firms participate in the projects
- The participants have to be located within a 12 km radius from one another.

9.2.2. Municipality of Ommen

Ommer-Motive
Ommen developed a central strategic document containing its vision and mission towards 2020 and beyond. In light of future developments, Ommen focuses on its set of core qualities: green and hospitable and inspired; or Ommen where one pleasantly stays or lives. These core qualities are the foundation for the roadmap for recognizable and distinctive development for Ommen.
While the document is a point of reference for the municipality to determine its policy, it leaves room for the municipality to respond to societal developments.

The Ommer Motive further mentions the importance of reciprocity in terms of utilizing the core qualities; Ommen understands this as acting in a sustainable manner.
Ommen comprehends sustainability in shape of the three familiar pillars. The visionary document perceives sustainability as source of reflection and innovation. Ommen explicitly emphasizes the societal dimension of sustainability with values such as collectivity, accessibility, participation, distribution, freedom of choice and safety. The vision incorporates the important role of societal initiatives and self-steering.
As a means to achieve this vision, the municipality assumes the role of an assertive networking actor (Municipality of Ommen [MO], 2008a), and recognizes the development of society as a network with complex relations between private, public and societal parties.

Municipal programs
The municipality arranges its annual budget by means of determining the contents of 8 municipal programs: Interactive Ommen, Sustainable Ommen, Safe Ommen, Accessible Ommen, Juvenile

Ommen, Livable Ommen, Caring Ommen, and Recreational Ommen.
Each program has its own relevant policies and instruments on municipal, provincial, or national level. The three programs relevant for SDO are; Sustainable Ommen, Livable Ommen, and Caring Ommen, which will be discussed below.

A) Program Sustainable Ommen: Environmental Plan Ommen
The program Sustainable Ommen discusses sustainability in light of the Brundtland Commission's definition. The municipality puts great emphasis on spatial, air, water, soil quality and pollution of the latter three. The policy document directed at climate issues, thus implicitly renewable energy is the core of Ommen's environmental ambitions and policy.

'The Environmental Plan Ommen' was adopted by the municipal council in 2009, and was established as a framework for the municipality's environmental policy in the four years thereafter. The framework assumed a total budget of €400 000 for environmental policy, of which more than half was to be drawn from the province and national government by means of regulations that were in effect at that time (e.g. the Stimulate Local Climate Initiatives regulation) (MO, 2008b). The municipality of Ommen adopted the same targets as the national government (20% renewable energy in 2020, 2% annual energy savings, 30% reduction of GHG in 2020).
Ommen recognizes the importance of concrete measures as well as the necessity of a shift in terms of thinking (i.e. transition). The municipality desires to inspire, initiate, facilitate and to promote.

The municipality's strategy to achieve their targets involves joining existing initiatives, plans and ambitions related to energy efficiency and sustainability targets. Also the municipality wants to present itself as an active societal partner that communicates in all kinds of networks, and enhance the sustainability of their own organization. In addition, Ommen strives to integrate environmental and energy aspects in policy development and implementation. The municipality emphasizes the potential of fulfilling an exemplary role with regard to sustainability, and desires to communicate and inspire citizens with their experiences.

With concern to large-scale or collective generation of renewable energy, the municipality wind, biomass, hydropower, HCS, and residual heat, but no solar energy.

A theme the municipality pays attention to is to improve the energetic quality of utility buildings; a community center is regarded as a utility building. The municipality desires to put effort in monitoring and controlling the Energy Performance Standards-plus (EPN+) during construction activities to safeguard relevant energy aspects. The EPN is a legal standard concerning energy performance of existing and new buildings, Ommen wishes to exert a more ambitious EPN; EPN+.

B) Program Caring Ommen: Act Societal Support (Wmo)
The program 'Caring Ommen' addresses societal issues in the municipality. The Act Societal Support, which is national-level legislation, obliges the municipality to flesh out 9 fields of performance in the theme of care and wellbeing. This legal act is one of the cornerstones in the program 'Caring Ommen'. The field of performance that is relevant for SDO's situation involved the improvement of social cohesion and livability. The confirmed municipality's budgetary of the years 2012-2015 specifically mentioned the plans of SDO to renovate the community center, and that the municipality took into account an incidental municipal contribution of €35 000 (Municipal council of Ommen [MCO], 2011a).

C) Program Livable Ommen: Provincial Long-term Plan Rural Area
Ommen explicitly mentions that it attributes great value to a vital and livable countryside, including small towns and villages (MCO, 2011a). Not so much the spatial planning aspect of this program applies to SDO's situation, but the Provincial Long-term Plan Rural Area does. Thus, only provincial policy applies in this sense, which has been already discussed above.

Municipal Environment Plan
Ommen was one of the first municipalities who implemented the Municipal Environmental Plan (GOP) in 2012. The GOP provides a comprehensive and integrated overview of all the plans related to spatial developments in Ommen. Plans for inter alia housing, recreation, natural environment, education and sustainability are discussed in one coherent policy document, which includes societal and economic plans, next to plans related to spatial planning.
This reduces the complexity of municipal policy to a great extent. Thus, the abovementioned programs are to a certain extent also embodied in the GOP.

Aspects of the GOP that are relevant in the policy context for the realization of the community center are the ambitions to maintain and improve social cohesion and livability in the neighborhoods and villages, and to maintain and strengthen the quality of the living environment (MO, 2012).

(Foundation) Millennium Municipality
Ommen received the title 'Millennium Municipality' in 2009. Millennium municipalities strive to accomplish the millennium targets that were set by the UN in 2000. Ommen has as focal point to combat poverty and enhance sustainability. In order for Ommen to structurally make efforts to achieve their targets, the council decided to issue a foundation in 2011 that would further elaborate on the millennium ambitions.
The goal of the foundation is to raise awareness among Ommen citizens regarding the activities of the foundation, to stimulate and encourage organizations to execute millennium activities, and to raise funds for their activities (Foundation Ommen Millennium Municipality, 2012).

Political context

Table 9: Results municipal council elections 2010 and 2014.

Political parties	**Number of seats in council**	
	2010	**2014**
CDA (Christian democrats)	5	5
Christian Union	2	3
VVD (conservative liberals)	3	2
VOV (Peoples Party Ommen Forward)	-	2
LPO (Local Party Ommen)	4	2
D66 (social liberals)	2	2
PvdA (social democrats)	1	1
Total	**17**	**17**

B) Case specific context

9.2.3. The hamlet of Ommerkanaal, municipality of Ommen

Ommerkanaal emerged because of a canal that was excavated between two villages; Ariën and Windharen. The hamlet consists of approximately 80-100 households consisting of around 200 residents. Ommerkanaal does not have its own zip code, the zip codes stem from surrounding villages (i.e. Ommen, Dedemsvaart, and Arriën). The hamlet has its own elementary school and a playgroup for toddlers. The municipality of Ommen houses little over 17 000 residents on 182 km^2. The rural municipality is known for its recreational and touristic character, green environment and agriculture.

9.2.4. Wind turbines

A report issued by the Province of Overijssel in 2003 discussing the variety of criteria for placing wind turbines in northeast Overijssel already designated Dedemsvaart-South (near Ommerkanaal) as one of the promising areas for large-scale wind energy. A complementary study conducted by the province in 2005 elaborated on these promising areas by setting up specific rules concerning the design of the wind farms in light of spatial planning. The proposal for a wind farm in Dedemsvaart-South locates 5 wind turbines on the territory of Ommen, and 5 on the territory of neighboring municipality Hardenberg.

While the municipality of Hardenberg supports the realization of the wind farm, the municipality of Ommen already ventilated their disapproval regarding these plans in 2006 (PEO, 2013). With various administrative talks amongst Ommen and Overijssel in between, the discussion currently revolves around a proposal for a Provincial Spatial Integration Plan, which was suggested by the Provincial Executive in 2013 (PEO, 2013).
The municipality of Ommen primarily opposes the realization of the wind turbines on municipal soil because of the potential health risks involved (e.g. caused by low-frequency sound), and also because of their limited economic performance (K. Scheele, personal communication, July 28, 2014). The spatial aspect is perceived not to be the biggest problem and is only of little importance, according to the municipal executive (Scheele, 2014).

9.2.5 The N36

The N36 is a provincial freeway that was constructed in 2008 and completed in 2010. At the time the idea of a freeway - that would cross right through Ommen - was proposed by the province, citizens articulated disapproval with regard to this development (den Hoedt, 2014).

9.2.6 Local Interest Hamlet Ommerkanaal

Out of discontent with the developments in their vicinity, the citizens of Ommerkanaal became aware of their lack of contact with the (local) government (den Hoedt, 2014). They decided to establish the association: Local Interest Hamlet Ommerkanaal in 2007. The idea was to create a platform that was able to speak up to these developments that were commonly decided in a top-down fashion. The association endeavors to maintain and increase the livability of Ommerkanaal and stimulate social cohesion.

9.2.7 Community center

The building in which the community center is located was handed to the Foundation Community Center Ommerkanaal for a symbolic price (MCO, 2011b; Scheele, 2014; den Hoedt, 2014). With regard to its exploitation, the Foundation Community Center Ommerkanaal organizes various social activities (e.g. parties, events, garage sales), has a bar, and picks up used paper as one form of income.

9.3 To what extent do the factors from these contexts explain this level of performance?

This question is answered by firstly conducting an analysis of the implementation process with help of CIT to illuminate the core actor-characteristics of the relevant actors and their strategies if present. The analysis of the core actor-characteristics is then used to determine the influence of the contextual layers and vice versa.

9.3.1. Core actor-characteristics of the initiators

A) Motivation of the initiators
The case specific context relevant for Ommerkanaal ignited a handful of citizens to collaborate in order to maintain the livability of Ommerkanaal in the future. The recent construction of a provincial freeway and provincial plans concerning a wind farm made the citizens realize that they had to make their voice heard in an organized fashion and to start working on a sustainable future for their hamlet.

B) Cognitions of the initiators
The initiators conceptualize the livability of the hamlet in accordance with the three pillars of sustainability. The key aspects underlying the people and profit pillars in Ommerkanaal was their effort to keep the elementary school, that is located in the hamlet, in operation and to renovate the community center. If the elementary school remained in operation, it would mean that Ommerkanaal would have to have a childcare. The school and childcare will make sure that Ommerkanaal will also house young families. The community center will contribute to the social cohesion.
The planet pillar is represented by the perception the initiators have of the best way to locally generate renewable energy; solar energy and biomass. According to the initiators, wind energy comes with health risks (because of low-frequency sound), which is unacceptable to tolerate in the view of Ommerkanaal's livability. The initiators recognize the necessity of change in terms of utilizing energy, and desire to define what they perceive is the best way to go about this change.
The underlying theme is the social cohesion that exists in the community, and this is what the initiators articulated from the beginning of their initiatives on.

The initiators also mentioned the significance of how (local and regional) governments look at their citizens in case of projects such as the one in concern. This entails that the initiators find it important that the governments perceive them as partners with whom they can collaborate with and who they have faith in. While this was the case during their initiatives, it was a world apart from the period of the wind farm proposals and provincial freeway, according to the initiators.

C) Capacity and power of the initiators
Ommerkanaal consists of around 100 households that constitute a community. The initiators mention the social cohesion present in the hamlet as a necessary condition for the projects they have realized. If Ommerkanaal consisted of residents without any bonds, they would probably have not achieved what they have done thus far, according to the initiators.

However, social cohesion is a necessary condition, but not sufficient. The initiators furthermore argue for the importance and experience of public support. The presence of public support crystallized in the survey the initiators sent around, which gave the green light for SDO to execute their plans. The importance of experiencing public support contributes to preserving the motivation of the initiators during the process of realization.

The economic recession resulted in the unemployment of one the initiators. He grasped this opportunity to take point and manage the initiatives because of his spare time.
Furthermore, the initiators also mentioned the importance of the capacity to maintain ones vision and mission even when fellow citizens are indifferent; a strong motivation and perseverance is important

(den Hoedt, 2014). However, such enthusiasm and character is not found in all members in the community, but in a few individuals (den Hoedt, 2014).

Whereas a community can be useful as a network for sharing resources, the initiators mentioned the importance of a network outside of the community. This network partially arose out of the Sustainable Village project, because of monthly meetings that were held to disseminate information and exchange experiences. The province facilitated these meetings.

Another important resource that contributed to the achievements made by the SDO was the support of the municipality, province, and Stimuland. This support took shape as subsidies, funds, advice, and facilitative activities.
The initiators mentioned that without the financial support, they could not have achieved the same as they did now. However, the SDO does sympathize with the expression 'all roads lead to Rome'; perhaps they could have achieved the same in a different manner.

Figure 23 shows the core actor-characteristics of the initiators, and interaction between the characteristics.

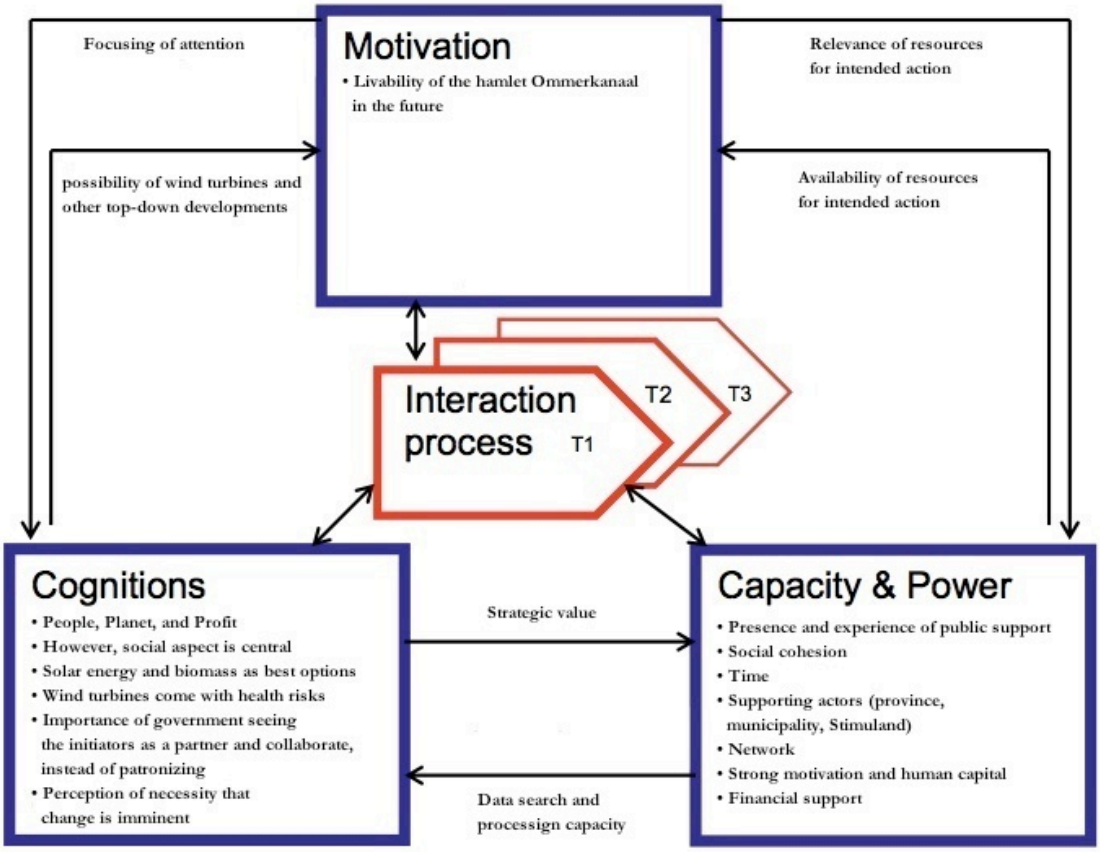

Figure 23: Visualization of initiators' core actor-characteristics and interactions between the characteristics.

9.3.2. Core actor-characteristics of the municipality

A) Motivation of the municipality
The primary motive of the municipality to support the SDO involves the initiative's social character. The municipality has an interest in facilitating, supporting - and if necessary - expanding social cohesion in communities such as Ommerkanaal. Furthermore, sustainability is intertwined with the direct interest of Ommen because of its recreational values and accommodations. In this line of thinking, Ommen desires to maintain its green environment and valued natural landscape.

B) Cognitions of the municipality
One of the preconditions for the municipality to support initiatives such as those of SDO, is the extent of public support for the project. Public support speaks to the administrative sustainability of the project, or in other words; its continuation.
Furthermore, the municipality argues that it is important to be a role model.

The municipality is willing to support bottom-up initiatives that address all pillars of sustainability. Underlying the sustainability theme is the direct economic interest of Ommen to maintain its green environment and to prevent the installation of a wind farm that may impede on the natural scenery and subsequently on the turnover of the tourism sector (Scheele, 2014).

The municipality also holds that the extent to which it is able to achieve its sustainability targets depends on the mindset of the citizens. If the Ommen residents do not have any affiliation with sustainability and do not initiate anything, it will greatly affect the capacity of the municipality to accomplish its targets.
Not only does the mindset of the citizens matter, but of course, the mindset of the municipality matters: the municipality argues that it is important to not only conceptualize sustainability in shape of a number of sub-targets, but to also look into adequate policy instruments to tackle the problems related to sustainability (Scheele, 2014). The municipality is convinced of the adequateness of their instruments.
In same line of thinking, the municipality treated the renovation of the community center in an integrated manner by linking all permits and procedures to speed up the realization process.

However, the municipality does mention that while it certainly does have some capacity to address the problem of sustainability on its own, the possibilities are limited. The daunting task that rests on the municipality's shoulders demands the municipality to team up with partners.

C) Capacity and power of the municipality
As mentioned above, sustainability is anchored in Ommen's policies because of the direct economic interest stemming from the green environment of Ommen.
In the period of 2009 to 2013, the municipality earmarked an annual budget of €100 000 for stimulating sustainability in Ommen. Furthermore, one civil servant is appointed to implement sustainability in the municipality, he has a direct link with the aldermen (Scheele, 2014). This enhances his influence in the municipal organization.

Furthermore, the municipality mentions the presence of human capital in its citizenry, since if SDO would not have initiated their ideas and plans, the municipality would have had to take up all of the work to reflect their exemplary role to the citizens (Scheele, 2014).

Another aspect that is also mentioned under the cognitions heading, is the municipality's ability to speed up the procedures, because in initiatives such as the one in concern, it could be crucial to strike while the iron is still hot.

A visualization of the municipality's core actor-characteristics and interaction between the characteristics is offered in figure 24.

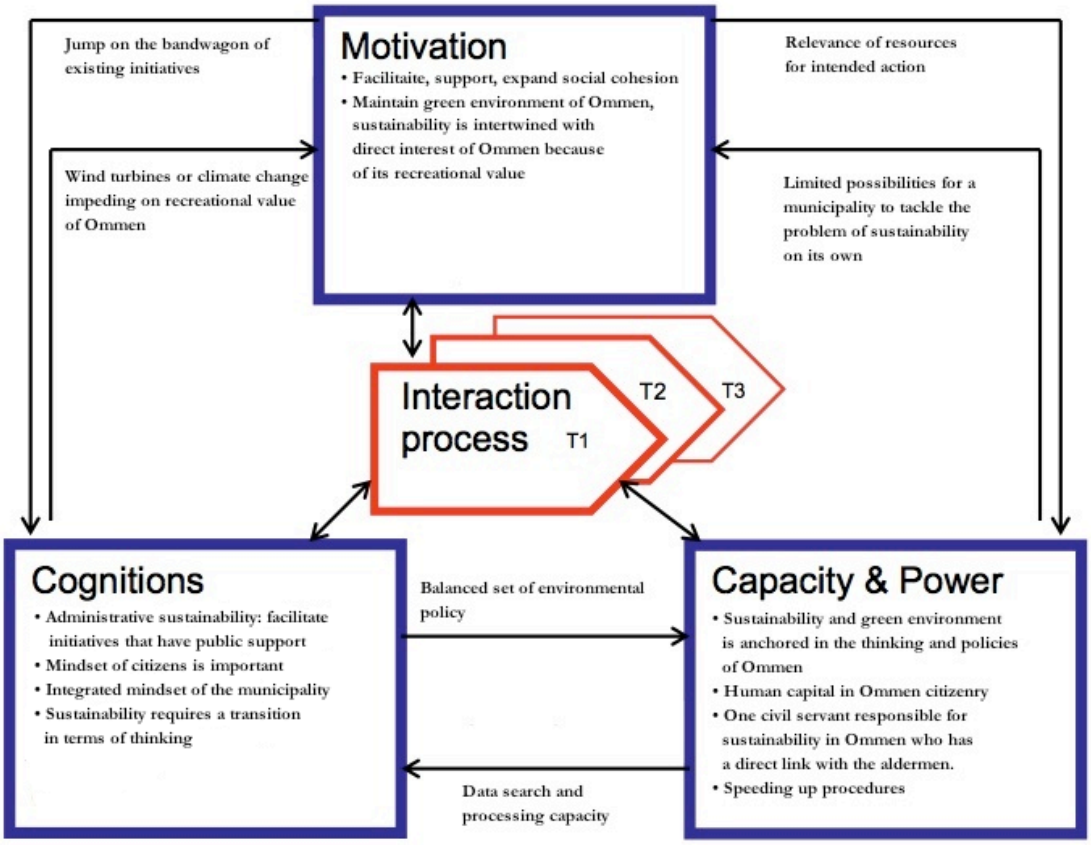

Figure 24: Visualization of the municipality's core actor-characteristics and interactions between the characteristics.

9.3.3. Conclusion

The initiators appealed to several provincial policies and requested the municipality's help in finding a building for the community center and later on to grant a sum of money for renovating the community center. SDO benefited from the flexibility regarding the multiple instruments it was able to utilize, the flexibility with regard to the administrative levels it could resort to for support for their plans, and underlying all this is SDO's objective of maintaining social cohesion and the livability of Ommerkanaal which is something that speaks to the hearts and minds of the province and municipality.

Underlying the initiative itself are the case specific circumstances that sparked the actual commencement of the initiative, which were the top-down decisions that (potentially) impacted the livability of the residents in Ommerkanaal.
To this matter, Bomberg & McEwen's (2012) study shows an interesting similarity. Their findings show that because citizens were excluded by closed and entrenched policymaking systems, they were incentivized to mobilize locally. Thus, structural barriers may prevent mobilization, but it may also be an incentive for mobilization. Symbolic resources are required to overcome these barriers and for mobilization to occur. SDO had these resources; a strong community identity that is able to triumph collective action problems, and a quest for community sustainability.
In addition, SDO's reasons for incentivizing community renewable energy is consistent with Wüste & Schmuck's (2012) findings. Wüste & Schmuck hold that ecological motives dominate (climate mitigation), but are often linked with social and economic drivers (community-feeling and making village life more attractive).

That being said, the municipality played a role in granting the building (in which the community center is located) for a symbolic price; a condition that enabled the community center to get established. Furthermore, the municipality supported the project by granting an additional sum of money for

renovating the community center. The municipal support speaks to the intensity of resources in the governance regime. Because SDO aimed for sustainability by addressing each of the three pillars (especially the social pillar), and because the community members supported their ideas, the municipality decided to support the projects as well. In addition to that, the Ommer-Motive adds to the extent, coherence and intensity of the regime because it stresses the importance of social durability and civic participation.
The €35 000 granted by the municipality was already embedded in the program 'Caring Ommen', which also accumulates the intensity of the governance regime.
Thus the social inclination of the initiative was an important motive for the municipality to become involved and to further incentivize the ideas of the initiators. Also, a relevant case specific factor is that it is in Ommen's direct and economic interest to enhance sustainability because it is a recreational municipality. This direct interest is significantly intertwined with the municipal environmental policies, according to one of the aldermen (Scheele, 2014), which contributes to the intensity of the regime. Also, the coherence of the goal ambitions becomes apparent in that both the initiators and municipality have livability as an important motivating factor.

In line with Allen *et al.*'s (2012) findings, Ommerkanaal too exhibits three key 'enablers'; experts who are able to offer specialist advice and services (i.e. Stimuland and the local company assisting the energy neutral renovation), funders who are able to offer financial resources (i.e. the province, municipality, and the community center itself), and doers who are able to devote time and effort (the initiator who had the time to invest in the projects).
Also, with regard to the latter enabler, other studies report the importance of a well-known and persevering individual as the driving force for community action (Wüste & Schmuck, 2012; Walker, 2008). In this sense, the initiator interviewed specifically mentioned the importance of maintaining moral and motivation throughout the process.

The province's collection of policy instruments the initiators made use of also hints at the importance the province vests in the social aspect of bottom-up initiatives. The Provincial Long-Term plan Rural Area, the Sustainable Villages contest, and the collective tender for solar panels all exercise a social element to a certain extent.

This points to the overall importance the provincial and municipal government attribute to social aspect in bottom-up initiatives (relating to renewable energy or not). SDO was able to make use of the available budget reserved for these kind of initiatives.
If social cohesion and public support were absent in Ommerkanaal, or if this was not a goal in SDO's initiatives to maintain this, the initiatives would not likely have achieved the same degree of performance. The literature reports similar notions. Adams (2008) notes that opportunities lie in the social capital that is specifically strong in rural communities for a local owned and based response to climate change. The successful achievements of SDO are also consistent with Walker's (2007) findings. He explained that certain local community and project characteristics enhance a successful outcome of community renewable energy projects, which are: local people or existing community groups take lead, where social cohesion is already apparent, and lastly where involvement and benefits are distributed collectively.
Another case specific circumstance contributing to the level of performance of the initiative involved the available amount of time of one of the key initiators in the project. He considered himself a volunteering project leader. The time he spent on this project was in his view at the brink of what can be expected of a volunteer (den Hoedt, 2014). According to this initiator, his position in a private sector project would have been a full-time job.
Also, the strength in the interaction between the municipality, province and initiators, was according to the initiators vested in the way the province and municipality perceived the initiators; as worthy partners. In this sense, there is mutual trust and respect between the actors, which was not the case in light of the previous provincial decisions involving the N36 and plans to build a wind farm in Ommen. This adds to the coherence of the relevant actors in the regime.

Recapitulation

One of the key factors that explains the degree of performance of the initiative is SDO's emphasis on the social pillar of sustainability – next to the other two – and Ommerkanaal's livability, which gave way to extensive government support. Next to the financial support, the initiators also had enough time to realize their goals due to specific circumstances (unemployment due to the economic recession).

Furthermore in light of the case-specific context, the dissatisfactory developments decided in a top-down fashion that would impact on Ommerkanaal's environment and livability incentivized the motive to improve and maintain the livability of Ommerkanaal collectively and in a bottom-up fashion.

The already existing social cohesion in the community proved to be another enabling factor for the initiative as well. In line with this, the initiative experienced wide public support, which was important for the initiators to continue their efforts and for the municipality to support a project that would be sustainable in an administrative sense.

10. Conclusions and recommendations

10.1 Case comparison

In order to draw a general conclusion with regard to the three cases that have been analyzed in the previous chapters and to attain the goal of this thesis, it is important to illuminate relevant aspects on the basis of which these cases can be compared to set the stage for the final conclusion. Thus, this section is devoted to indicating important comparative elements of the three cases that have been studied.
The figure found below (figure 25) provides an overview of the relevant comparative aspects that emerged during the analysis of the cases.

Project characteristics
The first three elements are rather straightforward and will not be discussed further.
The fourth aspect emerged as a result of finishing the analysis of the three cases. This social element is understood as the collective disposition of an initiative that experiences public support and is driven by social motives. While this element also includes public support, which is separately mentioned, it involves two additional notions. The social element regarding the solarpark is disputable according to the municipality and opposition. However, for both DEC and SDO, the social element was one of the central aspects of the initiatives.

Structural context
Another comparative aspect that surfaced is the extent of support of the local government. The municipality of Deventer and Ommen each supported DEC and SDO respectively by various means (e.g. financial support). The municipalities supported these initiatives because these were in line with their ambitions. However, while the solarpark in Heeten contributes to the targets of Raalte, the municipality raises conditions that the initiators struggle to meet. With regard to financial feasibility, Deventer supported DEC while it did not have a profitable business case, Raalte explicitly opts out to grant exploitation subsidies to unfeasible projects.

On a related note, the extent to which the municipal policies support the case in concern is another interesting comparative element. In DEC, evidently because the municipality was one of the co-initiators of the DEC, the idea of the cooperative as embedded in municipal policy. The same goes for SDO; the opportunity for Ommerkanaal to apply for support to establish a community center is clearly embedded in not only municipal policy, but also provincial policy. However, while the municipal council of Raalte did formally agree upon a positive attitude vis-à-vis the solarpark in Heeten, more extensive integration of land-based solar panels is avoided.

With concern to the property and use rights, each of the cases face different situations. Property rights were not a barrier for SDO since the municipality of Ommen granted the community center for a symbolic price. In DEC's case, the governmental bodies owning the parcels on which the wind turbines were constructed gave permission to the municipality to do so. Deventer pities that the land is not municipal property, since if it was the case, revenue stemming from the wind turbines could flow back to the citizens in Deventer. In the case of the solarpark, the municipality struggles to agree upon a land price that is appropriate for a solarpark, which is one of the bottlenecks hampering the progress of the initiative.

Case-specific context
Furthermore, the case-specific context played a different role in each of the three cases. Top-down issued developments incentivized local members of the community in Ommerkanaal to get organized and start thinking about their hamlet's future. In Heeten, the collective solar panel purchase illuminated the shortcomings and insufficiencies of roof-based solar panels, which sparked the idea of a solarpark. However, the rural municipality of Raalte, the provincial freeway, and the recent

bankruptcy of the manure fertilizer hamper a smooth implementation of the solarpark. For DEC, the interaction between one of the 'to-be' initiators and the municipality proved to be helpful in finding the right individual to lead a group of volunteers towards a cooperative.

Another comparative element involves the level of public support for the initiative. The level of public support is not apparent in Raalte yet, because of the interaction gridlock the actors are currently involved in. While Escozon certainly made some progress regarding the implementation of the solarpark, DEC and SDO already gained public support in the early stages of the initiative.

With regard to the role of social cohesion in the initiatives, its effects only explicitly become apparent in the case of SDO. Social cohesion supported the performance of the initiative. However, while Heeten is a relatively small village in which the residents are familiar with one another, the role of social cohesion did not play an important role in the implementation process of the solarpark. For DEC, social cohesion is practically not relevant because the cooperative is located in a large city, compared to the other two cases.

Interaction process
The motivations of the stakeholders in the interaction process were similar in each of the cases (except for the opposition in the solarpark case).
Furthermore, the cognitions of the stakeholders involved in the interaction process of DEC and SDO were similar and supported the initiative. The cognitions involved in DEC and SDO were not diverging or competing with one another. However, the lack of consensus in the cognitions domain in the case of Escozon hampers the performance of the initiative.

Lastly, none of the cases reported a lack of time, skills of expertise as a reason for delay in the implementation process.

Now that the relevant comparative elements have been illuminated, it is important to assess the national, provincial and municipal governance context all together by means of the GAT as the second step to arrive at the final conclusion.

Comparative elements	*Initiatives*		
	Escozon Solarpark	*Deventer Energy Cooperative*	*Foundation Sustainable Ommerkanaal*
Project characteristics			
Scale	Village	City/municipality	Hamlet
Initiators	Two entrepreneurs	Municipality and citizens	Citizens
Impact on landscape	Medium	High	Low
Installed capacity	6000 solar panels (assuming 260 Wp panels with a generated capacity of 235 kWh) amounting to 1 410 000 kWh	2 wind turbines amounting to 3 MW	- 700 solar panels amounting to 165.000 kWh (same assumptions as Escozon) - Energy neutral community center
Social element	Disputable according to involved stakeholders	Present	Present
Structural context			
Municipal policy	Ad hoc approach	Initiative embedded in policy	Initiative embedded in policy
Support of local government	Under condition of public support and financial feasibility	Present	Present
Property and use-rights	Land owned by municipality	Land owned by national level governmental bodies	Community center building granted for a symbolic price by the municipality
Case-specific context			
Specific case circumstances	Incentivized initiative, but hampers progress	Helped further progress of the initiative	Incentivized initiative
Level of public support	Not apparent	Present	Present
Social cohesion	Existent	Relatively non-existent	Existent and supportive
Interaction process			
Motivations in the process	Similar, except for opposition.	Similar	Similar
Cognitions in the process	Diverging and hampering the initiative	Not diverging	Not diverging
Time, skills, and expertise	Present	Present	Present

Figure 25: Relevant comparative elements distillated from the three cases

10.2 General assessment of the governance context

This assessment discusses the Dutch governance context in its totality as a second step in answering the central research question. The GAT quickscan can be found in figure 26.

Levels and scales, actors and networks

The Dutch governance context for renewable energy addresses the relevant administrative levels of government, and includes a variety actors from society, which is typical in light of the neo-corporatist disposition of the Netherlands that has significant experience with voluntary environmental agreements (high extent and coherence levels and scales, high extent; coherence and flexibility actors and networks) (Bressers & Bruijn, 2004). Still, there is no strong pressure from an actor or actor coalition for behavioral change (low intensity actors and networks). In addition, a provincial official stated that municipalities do predominantly focus on achieving sustainability goals on their own territory (Komdeur, 2014), which also became clear in the three cases discussed (applies to coherence). In similar vein, there is leeway for administrative levels to go their own way; the national government

does not dictate the province, and subsequently, the province does not tell the municipalities what to do (Migchelsen, 2014) (medium intensity levels and scales).
The cases discussed in the preceding chapters point out that initiators are fairly flexible in whether they resort to the local, provincial, or in some cases the national government for support (high flexibility levels and scales).

Problem perspectives and goal ambitions
The extent of problem perspectives and goal ambitions is qualified as medium because the different administrative levels perceive the extent of the problem in differing degrees. While the municipalities and province typically speak of sustainability in light of the three pillars, the national government solely focuses on renewable energy in the covenant. Also, while the financial feasibility is typically a necessary condition for an initiative to apply for a subsidy, the financial feasibility of projects practically revolves around the energy price, infrastructural costs, complexities, technicalities and insufficiencies in legislation and policies. So, if other elements in the governance context and wider context are hampering the development of local renewable energy initiatives as such, the financial feasibility of these projects struggles to materialize (also low coherence of policy instruments and strategies).

The different levels of government look in the same direction in terms of their task for achieving their stated sustainability missions, but the 'right' path towards that end is not univocal (medium coherence problem perspectives and goal ambitions). The different levels of governments attribute their own perspectives vis-à-vis which type of renewable energy sources they regard most adequate and promising. While the national government puts emphasis on onshore and offshore wind energy, the province of Overijssel looks for a more distributed renewable energy portfolio and does not stimulate wind energy in particular. With regard to municipalities, Raalte and Ommen ventilated their reluctant attitude vis-à-vis wind energy. In similar vein, solar energy does not receive the same attention in spatial planning strategies as wind energy does.

The flexibility of the governance context in terms of the ability for all governmental levels to readjust their ambitions potentially undermines the presence of any intensity of the Dutch governance context (high flexibility problem perspectives and goal ambitions) since targets can also be reassessed to less ambitious goals. While the national and provincial ambitions hardly exceed 2020, two of the municipalities studied in this thesis have ambitions that exceed 2020, with Deventer aiming at energy neutrality in 2030, and Raalte in 2050 (Ommen wields the target of 20% in 2020). One could argue that since this administrative level is where the physical implementation of renewable energy takes place, municipalities are likely to be reluctant to pursuit short-term and extensive targets because of the consequences of implementing large-scale renewable energy. Still, these targets are more ambitious than the ones stated by the national government and province, which is why the regime intensity for goal ambitions is qualified as medium.

Strategies and instruments
The national zip-code rose, countervail-regulation, and SDE+ are all fiscal instruments, which do not cover any of the high investment costs that are typical for implementing renewable energy installations. The instruments employed by the municipalities typically entail concrete projects and strategies that link societal actors but do not involve exploitation subsidies. Furthermore, regulatory or intervening instruments are not included in the arsenal of renewable energy stimuli on all administrative levels discussed in this thesis, which has implications for the extent and intensity of the governance regime instruments (medium extent, low intensity). Additionally, whereas the effectiveness of information campaigns is disputable (Henryson *et al.*, 2000 cited by Faber & Hoppe, 2013), the national government has no specific policy in raising awareness for sustainability. The province of Overijssel does pay attention to educating its residents and disseminating information. Ommen puts strong emphasis on raising awareness among its residents, while Deventer is of the opinion that the municipality is the wrong messenger in this sense (Sint Nicolaas, 2014). Raalte has a less distinct stance on awareness-raising policies, and does not avoid such instruments.

With regard to instruments specifically designed for local renewable energy initiatives, the province developed a number of programs backed with significant funds (e.g. Sustainable Villages, the solar panel tenders). On the contrary, several actors involved in the field of local renewable energy mentioned that the national government's zip code rose is not encouraging enough (Arends, 2014; Migchelsen, 2014; Spiertz, 2014; Doedens & Middelkoop, 2014) (low intensity of policy instruments). To this matter, the Association for decentralized sustainable energy (E-decentraal) mentions issues with the zip code-rose, which induces complexity because of the array of restrictions and ambiguities, and does not provide a viable business-case (e-Decentraal, 2014) (low coherence policies and strategies). The literature recognizes the importance of a supportive national context that responds to demands on the local level (CSE & CDX, 2007; Toke *et al.*, 2008; Kahn, 2003; Strachan & Lal, 2004; CSE, 2009).
In similar vein, while the national countervail-regulation is an attractive instrument in itself for people owning a set of solar panels, the future of this regulation is not certain according to the Minister of Economic Affairs (House of Representatives, 2013), which adds to an incoherent governance regime since the national government explicitly mentioned the importance of policy consistency. Also, inequality arises among people that like to contribute to a low carbon-economy; people with their own (suitable) roof are better off than people that do not own a roof, or have an unsuitable roof.
In general, instruments mutually exclude one another; projects are granted a subsidy typically for one aspect (e.g. solar panels, establishing an energy desk, renovating a community center). However, when one applies for different subsidies that address other aspects of the same project, one can combine instruments (medium flexibility of policy instruments).

Responsibilities and resources
In policy documents of all three administrative levels, it can be observed that responsibilities are partially assigned to civil society and the private sector, in which the government has a facilitative role in the sustainability theme. The national government explicitly notes that parties are responsible for the components assigned to them, while the province and municipalities speak of collaborative approaches (with society and firms) in championing their targets in different renewable energy themes. However, which resources are assigned or used to carry out these responsibilities are not always specifically mentioned, or enough (low extent and low intensity of responsibilities and resources). Similarly, a competence struggle that is felt in all three administrative level is the role they all preach, but find hard to practice; the facilitative role. Municipalities and the province struggle with what activities comprise a facilitative role, and how to give shape to such a new task (Komdeur, 2014; Pierey, 2014; Arends, 2014). Furthermore, the presence of mechanisms such as the RCR and PCR explicitly creates competence struggles, as was shown in Drenthe (low coherence).

Governance dimension	*Extent*	*Coherence*	*Flexibility*	*Intensity*
Levels and scales	High	High	High	Medium
Actors and networks	High	High	High	Low
Problem perspectives and goal ambitions	Medium	Medium	High	Medium
Strategies and instruments	Medium	Low	Medium	Low
Responsibilities and resources	Low	Low	-	Low

Figure 26: Governance Assessment Tool quickscan Dutch governance context.

10.3 Overall conclusion

What factors impact the degree of success of the implementation of local renewable energy initiatives in the Dutch province of Overijssel?

The outcomes of the GAT in the previous section give indication of a lack of intensity and coherence of the Dutch governance regime to support local renewable energy development.
The insufficient intensity of instruments such as the zip-code rose that is the main pillar for local renewable energy initiatives, incoherence as a result from these instruments that are in friction with incumbent legislation and the status quo, and insufficient allocated resources in light of a facilitative government are factors that impact on the degree of success of the implementation of local renewable energy initiatives.

Regarding the latter the administrative levels all recognize, in light of the changing role of the government, the importance of collaborating with societal actors and the private sector. In doing so, the government typically assumes a facilitative role. This arises from the general paradigm that the (especially the decentralized) government has a limited capacity to effectuate the transition towards a sustainable society. In other words, the facilitative role flows from the self-effectiveness assessment of the government regarding the effort to attain targets of sustainability. While a facilitative role as such is in correspondence with arguments made by Meadowcroft (2007) and Bulkeley & Kern (2006), the governance regime as such is insufficiently geared to translate such a role effectively.

This facilitative role has to be regarded vis-à-vis the hurdles local renewable energy initiatives have to overcome. In this sense, local renewable energy installations have to compete with the archaic and conventional energy installations that maintain a relatively low energy price. Renewable energy development in general requires high investments during the startup phase involve long-term return of investments and typically have a higher energy price. However, one of the pivotal conditions for local renewable energy initiatives to apply for the policies at hand is a feasible and robust business case that preferably yields results in the short term. The governments do not differentiate whether the applicant is a firm, association, or foundation. And in this regard, the threshold for an initiative to receive any funds is that they have to be a legal entity of some sort.
If the applicant however manages to develop a robust business case, the key national level subsidy (SDE+) involves a feed-in tariff, which does not alleviate the high capital investment up-front. The provincial tender only finances renewable energy projects that also involve energy-efficiency measures. Still, the provincial energy fund does offer financial capital for initiators (not for wind energy). Municipalities commonly do not grant exploitation subsidies because they lack the capacity to do so or perceive that renewable energy ought to be financially feasible.

That being said, the governments ask for an active society as a partner to achieve their ambitions in light of a perceived limited capacity. Accordingly, local renewable energy initiatives commonly struggle to establish a feasible business case without financial support because of wider contextual factors (i.e. energy price, expensive technologies) and regime factors (insufficient intensity and coherence). However, the mechanisms implemented to synchronize these two and countervail the effect of these factors fail to do so effectively.

Also, the presence of dominant paradigms or cognitions of influential actors in the interaction process that hinder the initiative demand additional intensity of the local governance regime to overcome this hurdle and impact on the progress of the implementation process, as can be seen in Escozon.
This becomes apparent when one compares DEC and Escozon. While the responsible alderman in the DEC case pitied that the land on which the wind turbines were installed was not municipal property, because economic benefits could not flow back to the local economy (Pierey, 2014), the municipality of Raalte sees the solarpark on municipal property as a potential liability and experiences uncertainties (otherwise the negotiations about the land price would not have been so strenuous). This stems from

sensitivity of switching agricultural land for a solarpark in a rural municipality such as Raalte, and difficulties in determining the price of land. In same line of argumentation, the community center previously owned by the municipality of Ommen was granted for a symbolic price to the community of Ommerkanaal.

So, the lack of intensity predominantly arises from the instruments insufficiently enforcing the ambitions, and a lack of resources required for the intended change. While this insufficiency is in general a restricting factor for local renewable energy initiatives, certain aspects in the interaction process itself can countervail this deficiency.

One of those aspects concerns the social disposition of an initiative. The provincial and municipal governments attribute significant value to the social aspect of renewable energy as can be distillated from all three cases. Initiatives that anticipate this cognitive frame are more likely to be supported by the government (i.e. SDO and DEC) than initiatives that lack a social element in view of the government (Escozon).
DEC and SDO both had a collective disposition. DEC was established by a large group of volunteers that pursued to establish a cooperative that would supply green energy to all citizens in Deventer. SDO was an initiative of four initiators representing initially a community center. DEC's public support came in shape of the majority in the municipal council. SDO's public support was derived from a positive survey result. Both DEC and SDO had, next to motives related to renewable energy, a clear social motive. Escozon lacks, according to the local government, a collective disposition, has not gathered public support yet (apart from the council), and although the municipality trusts the idealistic motives of the entrepreneurs, it still regards them as entrepreneurs.

However, local renewable energy initiatives that exceed a certain threshold in which they become 'large-scale' struggle to sustain this social component. In DEC, this becomes apparent in that citizens own only 25% of the wind turbines. In this regard, the two wind turbines amount to an investment of over € 1 million, require various IAS's and permits, and have to go through various procedures. It is hardly imaginable that solely a group of motivated citizens pulls this cart, without professional support. In similar vein, Escozon struggles to develop a feasible business case because the policy instrument that is supposed to bolster the collective disposition of such projects is an insufficient stimulus and does not effectuate a feasible business case (i.a.). For SDO, the time and energy devoted to the project is similar to that of a full-time job, according to the initiators.
With regard to the scale of the initiative, the impact of a renewable energy installation on its environment, regardless of whether it involves two wind turbines or a solarpark can slow down the progress of the implementation process (i.e. DEC and Escozon).

An aspect that is able to countervail some of the effects of the aforementioned factors is the flexibility of the regime. In situations where intensity is lacking, this can be countervailed by adaptive strategies. These adaptive strategies can link different aspects and domains and open up new arenas to incentivize further progress. This could be seen in the DEC case, which also indicates the importance of a supportive local government.
Internally, all three cases had sufficient time, skills, and expertise. Expertise was to some extent already existent, and if not, initiators and municipalities typically mentioned the importance of learning-while-doing. The literature mentions the possibility of internal obstacles to local renewable energy initiatives that involve of a lack of time, skills, motivated individuals or expertise (e.g. Rogers *et al.*, 2008; Hinshelwood, 2001; Seyfang *et al.*, 2013), which was not the situation in the SDO, DEC, or Escozon.

10.4 Recommendations

For policymakers
As already indicated by the Energy-covenant, the New Energy program and the facilitative role of the governments; I still reiterate and re-emphasize that governments ought to pay attention to alleviating legislative and technical barriers. This incoherence breeds uncertainty, which is something that has troubled the Dutch environmental policy context for more than a decade now.

Having said this, governments need to sort out what this facilitative role actually comprises. If this role implicates that the tremendous task that is still ahead of the government is championed with a significant contribution of these initiatives, then it is of crucial importance that these initiatives are supplemented by adequate support and resources.
If that is the case, governments ought to lower the expectations of the abilities of these initiatives, because - in general - the socio-economic, political and technological context in which these initiatives have to thrive is not geared to supporting these developments (i.e. energy price, dominant cognitions, technological barriers).
But still, recent geo-political turmoil in Eastern Europe that threatens the energy security of Europe is an exceptional opportunity for the government to jump the bandwagon and raise awareness among its citizens to bolster the intensity of the governance regime. While some governments convey that they are the wrong sender of such messages, perhaps these local renewable energy initiatives can play a stimulating role here.

For future research
A specific cavity that has been inadequately discussed in the literature is the peculiarities revolving around land-based solar panels. The argument of Wolsink (2007b), that factors impeding on the successful implementation of wind energy are applicable to other CRE's as well, is hard to justify here since the impact on the landscape of a solarpark is fundamentally different from that of a wind turbine.

The literature that delves into the local interaction processes involved with implementing renewable energy typically does so by assuming the perspective of a top-down implementation. As a result, a significant share of the literature that looks into local implementation processes focuses on for what reasons people oppose or accept certain developments related to renewable energy. The literature that actually researches factors influencing bottom-up initiatives is represented to a lesser extent. While this paper sheds some light on this field of study, there is still much more to be done.
For instance, future research can transcend the qualitative approach typically used in implementation studies and apply quantitative methods to learn more from these societal developments on a larger scale. Furthermore different contexts, as was observed in this thesis, matter. Thus a comparative study between different provinces or different countries could illuminate other issues hampering the development of these initiatives.

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Appendix

SECTION 1: CIT assumptions

CIT builds upon a set of key assumptions to narrate the dynamics of social interaction processes, Bressers (2009, p. 132) and de Boer & Bressers (2011, p. 67).

The theory‘s first main assumptions are:

- Policy processes are not mechanisms, but human social interaction processes between a set of actors (people, parts of organizations). This includes policy implementation management and project realization.
- Many factors can have an influence on the activities and interactions of these actors but only because and in as far as they change relevant characteristics of the involved actors.
- These characteristics are: their motives (which drive their actions), their cognitions (information held to be true, with which the situation is interpreted) and their resources (providing capacity and power) (see also Bressers 2004).
- These three characteristics are influencing each other, but cannot be restricted to two or one without losing much insight.
- The characteristics of the actors shape the process, but are in turn also influenced by the course of and experiences in the process and can therefore gradually change during the process
- A first layer of such influential sub-factors is specified in the boxes in figure 19 below, including how they influence the core actor characteristics. Of course these factors can in turn be influenced by numerous other factors from within or outside the system.

Assumptions about the interaction between the multiple contextual layers and the actor-characteristics:

- Specific case characteristics, like the characteristics of the geographical place, and the history of the process, e.g. earlier decisions made before the delineated research period, often specifying the setting the institutional arena for the case process, form a first layer of context. This context is also partly dynamic over time, caused by experiences in the process itself and by targeted actions of those involved.
- The characteristics of the actors are also influenced by factors from a wider and more general external context that is labelled the structural context in CIT. It consists of elements of public governance and private property and use rights. The structural context will to a far lesser degree be influenced back by individual implementation cases. In fact it is the essence of the difference between the specific and the structural context that the latter holds for in principle

all similar cases and not only for any specific case. Nevertheless it too will gradually change in processes on a larger scale than the case, but with similar dimensions of motivational, cognitive and resource developments in response to external influences and internal frictions.

- Around this context there is yet another more encompassing circle of political system, socio-cultural, economical, technological development and problem contexts.
- Each wider context not only influences the narrower one, but can also directly influence the actor characteristics.

Assumptions regarding regime qualities, boundary spanning and adaptive strategies:

- Regimes with a deficient extent will be more likely to lead to degradation o
or an inability to protect the ecological functions of th
a larger extent.
- Regimes with a large extent', but with low coherence will more likely lead to degradation of natural resources or inability to protect the ecological functions of the water resource, than regimes with a similar extent but a higher degree of coherence.
- In the implementation process, the additional fragmentation that is typical for complex regimes will tend to lead to more discord between the actors (goals), more uncertainty (cognitions), and more stalemates (power) and, thereby, can hamper implementation.
- In the implementation process, coherence of the structural context (the regime) will tend to lead to less discord (due to more win-win'- solution creativity), less (subjective) uncertainty (due to more exchange of information and less distrust) and less stalemates (due to less possibilities for target groups to play the implementers off against each other and more standard operation procedures for the solution of conflict).
- The rules of the game that e.g. provide or restrict resources are often not static but themselves subject to change partly by external strategies by actors in the process unless they are firmly fixed by the regime. The same holds for the actor constellation in the process.
- The setting of actor characteristics that impacts on the course and result of the process is not only dynamic due to external factors, but can also to some extent be manipulated by clever external strategies of the actors during the process (these are often forms of boundary spanning – see Bressers and Lulofs 2010).
- Since adaptive boundary spanning strategies often require concerted actions by more than one individual person, this also draws attention to the internal organization of the actor ("actors" in most analyses are in fact "corporate actors": organizations or parts of organizations). Here the receptivity of these actors and actor organizations is relevant.
- Also this receptivity can be positively influenced by internal strategies of actor organizations, which promote continuous learning, conscious dealing with uncertainty, and stimulating mutually supportive intra- organizational relations.
- While the extent and coherence are crucial qualities of the structural context when the main purpose is to stabilize and protect a certain situation, there are others that should be added however when change and the creation of new resources is the main purpose.
- The first additional quality is the intensity: to what degree is the change striven for a deviation from —business as usual‖? The greater the intensity, the more resistance that will have to be overcome (negative feedback loops), but sometimes also more enthusiasm can be provoked (positive feedback loops).
- The second is the flexibility of the regime; the degree to which it allows and facilitates the case-specific variation and boundary spanning strategies of actors needed for adaptive management in as far as the change ambitions are served by this adaptiveness. Under the conditions of sufficient motivation of the implementers and sufficient inter-regime extent and coherence more flexibility will lead to better adaptive strategies and thereby to improved results.

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SECTION 3: Main evaluative questions of the governance assessment tool (adopted from de Boer *et al.* 2013, p. 4-5)

Governance dimension	*Governance regime qualities*			
	Extent	*Coherence*	*Flexibility*	*Intensity*
Levels and scales	How many levels are involved and dealing with an issue? Are there any important gaps or missing levels?	Do these levels work together and do they trust each other between levels? To what degree is the mutual dependence among levels recognised?	Is it possible to move up and down levels (up scaling and downscaling) given the issue at stake?	Is there a strong impact from a certain level towards behavioural change or management reform?
Actors and networks	Are all relevant stakeholders involved? Are there any stakeholders not involved or even excluded?	What is the strength of interactions between stakeholders? In what ways are these interactions institutionalised in stable structures? Do the stakeholders have experience in working together? Do they trust and respect each other?	Is it possible that new actors are included or even that the lead shifts from one actor to another when there are pragmatic reasons for this? Do the actors share in „social capital" allowing them to support each other"s tasks?	Is there a strong pressure from an actor or actor coalition towards behavioural change or management reform?
Problem perspectives and goal ambitions	To what extent are the various problem perspectives taken into account?	To what extent do the various perspectives and goals support each other, or are they in competition or conflict?	Are there opportunities to re- assess goals? Can multiple goals be optimized in package deals?	How different are the goal ambitions from the status quo or business as usual?
Strategies and instruments	What types of instruments are included in the policy strategy? Are there any excluded types? Are monitoring and enforcement instruments included?	To what extent is the incentive system based on synergy? Are trade-offs in cost benefits and distributional effects considered? Are there any overlaps or conflicts of incentives created by the included policy instruments?	Are there opportunities to combine or make use of different types of instruments? Is there a choice?	What is the implied behavioural deviation from current practice and how strongly do the instruments require and enforce this?
Responsibili-ties and resources	Are all responsibilities clearly assigned and facilitated with resources?	To what extent do the assigned responsibilities create competence struggles or cooperation within or across institutions? Are they considered legitimate by the main stakeholders?	To what extent is it possible to pool the assigned responsibilities and resources as long as accountability and transparency are not compromised?	Is the amount of allocated resources sufficient to implement the measures needed for the intended change?

SECTION 4: Overview of initiatives in Overijssel

Initiative	year	size	who	Type of organization	Extent of the initiative	Type of CRE
EnergieRijk Voorst	2012	2013; 50 members. 150 households put up solar panels via this project	Municipal reach; citizens initiative	Cooperative (u.a.)	energy	Solar, ambition for wind
Duurzaam Diepenveen	2012	8 initiators	Village reach; Citizens of diepeveen in collaboration with a task group (4 citizens) of Ons Diepenveen 2020 which is appointed by municipality of Deventer	Task group, it flew out of Deventer wijkaanpak Deventer BUiten	Energy, but with Ons Diepenveen 2020; livability of diepenveen. water, mobility, food	Solar (collective purchase)
Duurzaam Lettele			Village reach; villagers	Workpackage	Energy; making a sport and recreation building energy neutral and supplier of green energy	Solar (information, partially finance, collective purchase), but ambition is also small scale wind
Stichting Borne Duurzaam	2011	100 citizens	Town reach; Initiative of citizens,	Foundation	Energy, and kitchen garden	Solar
Duurzaam Heeten	2011		Town reach Initiative of citizens	Foundation	Three pillars; energy, social, economic. Education ,sharing,	solar
Energiepark Heeten	2014		Town reach (municipal impact; park) Initative of citizens	Cooperative (excluded liability)	energy	Solar (park)
ReggeStroom	2012	100-500 members	Municipal reach Initiative of citizens	Cooperative (excluded liability)	energy	Solar (collective purchase, Wind (via old wind-mill)
Energieneutraal Noord-Deurningen	2011		Town reach. Initiative of the Kernraad (workpackage E.N.D.) Noord-Deurningen (one of the ten kernraden in municipality	Foundation	Three pillars	Green signal feasibility solar and manure fermentation

			Dinkelland. Independent body)			
Duurzaam Vasse	2011		Vasse, Hezingen and Mander Reach. Initiative of citizens		Three pillars, livability	
Energiek Vasse			Vasse, Hezingen and Mander reach. Initiative of citizens	cooperative	energy	Solar (on 't Eschhoes)
De Groene Musketiers	2014	24 members	Lemelerveld reach, citizen initiative	Consumers cooperative	energy	Proposal for solar (park), information and advise on solar panels, proposal for wind turbine
Stichting Duurzaam Heino	2011		Village reach. Plaatselijk Belang (local interest) Heino (organization without political connectedness	Foundation (ANBI status)	Energy, water, eco-garden, education	Solar (collective purchase)
Duurzaam Hoonhorst	2010	1200 panels	Village reach. Initiative of citizens.	Foundation	Energy, education, waste, care, sharing	Solar (collective purchase), biomass
Duurzaam Ommerkanaal	2010		Neighboorhood reach. Initative of Plaatselijk Belang Buurschap Ommerkanaal	Foundation	Energy, livability	Solar (buurthuis)
Zon op Willemsoord	2013	16 members	Willemsoord reach. Initiative of citizens	Striving to establish cooperative. Now it's an initative	energy	Solar panels on buurthuis (or Multifunctioneel Centrum)
Deventer Energie	2012	60 initiators, 170 members, 1.648 participants in windpark	municipal reach. Initiative of citizens	Cooperative (excluded liability)	energy	Wind, electricity and gas via Qwint BV.
Stichting Zon Deventer	2011	300 customers	Municipal reach. Initiative of citizens	Foundation (consumers organization)	energy	Solar (collective purchase,
Bathmen 'Zonnebath						
Buurt aan Zet			Initiative of residents of Colmschaete-Zuid	initiative	energy	Solar (collective purchase)
Transition Town Deventer	2008		Deventer and environment reach. Initiative of citizens	movement	Energy, social, food, art,	solar

Zonnehoven	2009	9-10 members, 100+ customers	Initiative from residents of de Worp neighborhood. De Worp / Hoven (neighborhood) reach.	Task group / foundation	energy	Solar (collective purchase, and public buildings)
Duurzaam Fleringen	2011		Initiative of village-council (also an intermediary body) Village reach.	foundation	Energy, ambition is also economic and social sustainability	Solar (collective purchase), biomass
NEWaterfabriek RWZI Hengelo	2010		Initiative of government; Waterboard Regge and Dinkel		energy	Waste water (biomass)
Duurzaam Holten	2012	3 initiators	Village reach. Initiative of citizens	foundation	Energy, kitchen garden, repair café, cleaning up litter,	Solar (collective purchase)
IJsselEnergie	2012		Kampen reach.	company	energy	Solar
Markelo Duurzaam	2012		Markelo reach. Village council and entrepreneurs association Markelo. Hieropgewekt states; initiative of citizens	Foundation	Energy, trade	Plans for solar panels on company and office roofs, biomass
Nieuwleusen Synergie	2012	41 members	Town reach. Initiative of citizens and companies	Cooperative (excluded liability)	Energy, trade, school gardens, glasvezel	Buys in green electricity, still does not generate its own. solar (collective purchase)
Synergie De Höfte	1991/2013		Initiative of citizens. Village reach.	foundation	Kinderboerderij, garden, food, local trade, energy	Perhaps solar
Aardehuis	2006	43 members	Initiative of citizens. Local community reach.	association	Three pillars, cradle to cradle, ecological living, energy	Solar, heat
Duurzaam Rijssen	2012	5 members, 80 customers	Municipal reach. Initiative of citizens	foundation	Repair café, energy,	Solar (collective purchase)
Biomassalland	2012		Initiative of firms (Agrarisch Natuurverenigin	Cooperative (excluded liability)	energy	Biomass

			g Groen Salland, Borgman Beheer Advies B.V.). regional reach.			
Energie Cooperatie Wilsum	2014?		Initiative of citizens	Cooperative?	Energy?	Solar?
Blauwvinger Energie	2013		City reach. Initiative of citizens	foundation	energy	Solar (collective purchase), ambitions for wind
Duurzaam energie ontwikkelbedrijf Zwolle	2011		Initiative of government/municipality	Societal enterprise	energy	
Duurzaam Zwolle		3 initiators	Municipal and national reach.	Initiative / website	Food, energy, sustainability	
Energie Cooperatie Hof van Twente (ECHT)	2013	5 initiators	Initiative of citizens. Municipal reach.	Cooperative (excluded liability)	energy	Ambitions for solar and biomass
Duurzaam Willemsoord	2012/2013	15 members	Initiative of citizens. Village reach.	initiative	Village garden, energy	Solar panels on MFC and sports center.
Duurzaam Hasselt	2010			foundation		
Dwarsgracht / Jonen	2011?		Initiative of entrepreneurs association		energy	Biomass?
Duurzaam Broekland?	2011					Solar (collective purchase)?
Olst-Wijhe			Initiative of municipality			

SECTION 5: Types of CRE's focused on by the articles in the discussed literature

Adams (2008)	wind and solar
Agterbosch *et al.* (2004)	wind
Agterbosch *et al.* (2009)	wind
Aitken *et al.* (2008)	wind
Aitken (2009)	wind
Aitken (2010a)	wind
Aitken (2010b)	wind
Allen *et al.* (2012)	not specified
Barry & Chapman (2009)	wind
Beddoe & Chamberlin (2003)	wind
Bell *et al.* (2005)	wind
Betsill (2001)	NA
Bidwell (2013)	wind
Bollinger & Gillingham (2012)	solar
Bomberg & McEwen (2012)	wind and solar
Breukers & Wolsink (2007)	wind
Burton & Hubacek (2007)	wind and solar

Cas *et al.* (2010)	wind
Cowell (2006)	wind
CSE (2009)	wind and solar
CSE & CDX (2007)	wind and solar
Del Rio & Burguillo (2009)	wind and solar
Devine-Wright (2005a)	wind
Devine-Wright (2005b)	wind
Devine-Wright *et al.* (2001)	wind
Devine-Wright *et al.* (2007)	wind and solar
Denis & Parker (2009)	wind and solar
ECN (2008)	wind and solar
Ellis *et al.* (2007)	wind
Gross (2007)	wind
Hinshelwood (2001)	wind
Hinshelwood & McCallum (2001)	wind
Hoffman & High-Pippert (2005)	wind and solar
Hoffman & High-Pippert (2010)	wind and solar
Jager (2006)	solar
Jobert *et al.* (2007)	wind
Jones & Eiser (2010)	wind
Kellet (2007)	wind and solar
Khan (2003)	wind
Khan *et al.* (2007)	wind and solar
Kwan (2012)	solar
Li *et al.* (2013)	wind and solar
Li & Yu (2013)	wind and solar
Margolis & Zuboy (2006)	wind and solar
Maruyama *et al.* (2007)	wind
McLaren Loring (2007)	wind
Michalena & Angeon (2009)	wind and solar
Mussall & Kuik (2011)	more on wind, some solar
Nadaï (2007)	wind
Parag *et al.* (2013)	not specified
Peters *et al.* (2010)	not specified
Rai & Robinson (2013)	solar
Rogers *et al.* (2008)	wind
Seyfang *et al.* (2013)	wind and solar
Shih & Chou (2011)	solar
Sovacool (2009)	wind and solar
Sovacool & Ratan (2012)	wind and solar
Strachan & Lal (2004)	wind
Strachan *et al.* (2006)	wind
Toke (2005)	wind
Toke *et al.* (2008)	wind
Tsousos *et al.* (2005)	solar
Walker (1995)	more on wind and other CRE, some solar
Walker (2007)	wind and solar
Walker & Cass (2007)	wind and solar
Walker & Devine-wright (2008)	NA
Walker *et al.* (2007)	wind and solar
Walker (2008)	not specified
Walker *et al.* (2010)	wind and solar
Warren & Birnie (2009)	wind

Warren & McFayden (2010)	wind
Warren *et al.* (2005)	wind
Wolsink (2000)	wind
Wolsink (2007a)	wind
Wolsink (2007b)	wind
Wolsink (2009)	wind
Wüste & Schmuck (2012)	wind and solar
Zoellner *et al.* (2005)	wind
Zoellner *et al.* (2008)	wind and solar