Community Compensation Fund and Social Acceptance of Onshore Wind Energy Projects

Two cases from The Netherlands

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Abstract

Social acceptance of onshore wind energy projects is important in meeting the growing demand of renewable energy and for goal attainment of climate change mitigation targets. This thesis discusses whether a community compensation fund (CCF) is a useful tool to enhance social acceptance. For this purpose, two cases of the development of onshore wind energy projects in the Netherlands are studied by both desk research and stakeholder interviews. The selected cases have similarities but differ in the goal and organisation of the CCF. It is found that there are many different and interrelated factors and processes that play a role in social acceptance. The results show that a CCF can play a role in influencing these processes and factors to enhance social acceptance. In both cases it is found that the specific CCF is proof that there is an agreement between initiators and the community about the project. However, it is certainly not a panacea. This research has particularly deepened the knowledge of community acceptance and its relation with socio-political acceptance at the municipal level. It is also observed that the goal and organisation of a CCF plays a role in future community building. The use of a tool, e.g. a social impact assessment can help to determine the long-term effect of a CCF on the community. In future development processes it is recommended that a policy is in place about communication between initiators, the community and the municipality.

Acknowledgments

Stimulated by the storytelling of my children about their studies and also wondering why I did not take a university degree after high school I came to the conclusion that it is never to late to attain a master's degree. So after a working career in agriculture of more than 30 years I decided to quit my job and enrol in a master programme. As part of my job I became involved in a wind energy project in the Flevopolder in 1997. From that moment on I became more and more involved in renewable energy and the difficulties in the realisation of renewable energy projects. Therefore, the choice for the EEM master of the University of Twente was not a difficult one.

This thesis is the end of almost two-and-a-half-year part time studying besides being self-employed in the field of agriculture and sustainability. The MEEM programme has enriched my understanding of social and political processes and given me a better framework as background for experiences from the past.

I would like to thank all the people who contributed to the research and the guidance in writing this thesis. The interviewed stakeholders for their willingness to share their thoughts and experiences on the projects. Eelco Bots and Else Noë from Windunie who helped me get on the right track with the research. And last but not least my supervisors Dr. Lisa Sanderink, Dr. Dasom Lee and Dr. Florence Metz, who gave much useful feedback during the writing process.

Without the support of my family, I would not have started as an older student, let alone being able to finish with a master's degree. Therefore, special thanks to my wife Jennie who was always very supportive and believed in the success from the very start. Also, many thanks to my three children, Willianne, Arnout and Maarten, and my son in law Kees. They all stimulated me and gave practical advice when needed in their own specific way. It is a blessing to have such great people as a family.

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1 Introduction

1.1 The quest for electricity from renewable sources

Electricity is one of the most indispensable commodities in modern life. The Dutch compendium for the living environment (2022) shows an increase between 1990 and 2021 in the use of electricity in the Netherlands of 50%. On top of this increase the combined transport service organisation (TSO) and distribution service organisations (DSO's) in the Netherlands predict another increase in the demand for electricity until 2050 of again 50% (Netbeheer NL, 2021). In addition to the question of how to meet this increase in demand there is also the question of how to replace fossil fuels for renewable sources for the production of electricity.

Since the 1980s, the awareness increased that other energy sources than fossil fuels must be developed for the production of electricity. In the last decades of the 20th century, renewable energy was seen as a solution for air pollution by fossil fuels and as an alternative to nuclear power (Wolsink, 2013). Nowadays, the most common reason for promoting the production of renewable energy is climate change mitigation. Worldwide, countries have ambitious targets for climate mitigation and renewable energy production. The targets for climate mitigation are internationally agreed in the Paris Agreement (United Nations, 2016) and put extra pressure on the international targets for renewable energy production. In the case of the Netherlands, the CO_2 emission reduction target in the Dutch Climate Agreement is translated to a specific renewable energy production target of a total of 35TWh electricity produced by largescale onshore wind and solar energy by the year 2030 (Climate agreement, 2019). To reach this target, the Netherlands, which is divided into thirty regions, has to formulate his own Regional Energy Strategy (RES) in a participative process with the local communities and other stakeholders in the region. In the case of renewable energy production, each RES region has to make a bid to the national government for the realization of renewable energy production capacity. Currently, the goal of 35 TWh renewable energy production is still far away as in 2021 only 21TWh was produced by onshore wind and solar (CBS, 2022). Hence, rapid expansion of renewable energy production is needed for goal attainment in 2030.

The production of renewable energy has come to the foreground with the need to lower the global carbon footprint for climate change mitigation (Mi et al., 2018). However, there is also quite a lot of opposition against the use of renewable sources (Enserink et al., 2022; Hitzeroth & Megerle, 2013; Kontogianni et al., 2013). Wind energy is one of the most efficient sources of renewable energy these days. At the same time, it is a source that encounters opposition for several reasons(Hirsh & Sovacool, 2013; Jobert et al., 2007). For example, avian mortality, aesthetic aspects, low-frequency sounds and flickering shadows. Furthermore, the Climate Agreement (2019) sees the contribution of

wind energy for goal attainment as the most important source. But in the meantime, the development and realisation of wind energy projects is very difficult because of a lack of acceptance of, and many times even opposition against possible sites from the neighbourhood (Dijk van, 2012). In order to reach the goal of the Climate agreement (2019) and to contribute to the rising demand for electricity it is important to overcome siting barriers that exist or arise by possible wind energy projects. Because of this importance, this study focusses on the effect of a community compensation fund (CCF) on the social acceptance of onshore wind energy projects in The Netherlands.

1.2 Opposition or acceptance versus burden or benefits

The contribution of this thesis is threefold. First, this thesis contributes to the knowledge of the acceptance of onshore wind energy projects to be developed in the Netherlands specifically. This is important because there is little literature to be found about wind energy projects. Moreover, the research that exists is not conducted while focusing on a specific country or region. This is problematic because research on social acceptance and the effect of a CCF is best done on projects that comply with the same legal rules. Second, by reviewing two recent cases of onshore wind energy projects it gives insight in the possibilities and effects of CCF's on the acceptance of wind energy projects. The experiential expertise from interviewed representatives of the stakeholder groups gives a clear and detailed picture of the development process and the acceptance of the project. Third, based on the combination of the theoretical model and the case study it adds additional depth to the literature on CCF's and it gives directions for future research into the acceptance of wind energy projects and other renewable energy projects.

Many renewable energy projects in the Netherlands and worldwide have to deal with debates and controversies on the acceptance of these projects. This can be concluded from the large amount of academic literature from different scholars and from different scientific fields on the subject (Cashmore et al., 2018; Enserink et al., 2022; Langer et al., 2018; Pasqualetti, 2011; Roddis et al., 2020; Rohe & Chlebna, 2021; Sovacool & Lakshmi Ratan, 2012; Wolsink, 2013) and from practice illustrated by the increase of contested projects (e.g., province of Drenthe) (Dijk van, 2012). Understanding the processes and circumstances that lead to opposition against renewable energy projects is important, to be able to find tools to overcome this opposition and enhance acceptance.

Besides legal instruments for siting decisions, such as an environmental impact assessment and social impact assessment (Noë, 2019)other instruments like community compensation, co-ownership and process participation are possible instruments to enhance acceptance of wind energy projects (Baxter et al., 2020; Jobert et al., 2007; B. J. A. Walker et al., 2014; G. Walker et al., 2009). In the development of onshore wind energy projects in the Netherlands, a CCF is a popular tool nowadays, it is even laid down in a code of conduct between stakeholders (Dutch Wind Energy

Association, 2020). A CCF is used as a specific type of community compensation, whereby a wind energy project yearly sets aside money in a fund during the lifetime of the project, which is eventually spent at the benefit of the community. In practice, various kinds of CCFs are seen. Differences at the fund spending and at the organizational side of the CCF are possible. The funds can be spent on communal or on individual goals also, they can be spent in a monetary or in a non-monetary way. The organization and management of the fund can be the responsibility of the community or of the wind energy project. The use of a CCF in combination with wind energy projects is relatively new and there is no empirical research into its effects on the acceptance of wind energy projects specifically. Therefore, the focus of this research is on wind energy projects in the Netherlands and the use of CCF as a tool to enhance social acceptance. More in-depth knowledge about community compensation in relation to social acceptance will not only contribute to the current Dutch renewable energy goals until 2030, it will also contribute to future goals in the light of the expected doubling of the electricity demand until 2050 (Netbeheer NL, 2021).

1.3 Community compensation as part of the puzzle

Community compensation and its effects on acceptance is the focal point of this thesis. In academic literature community compensation is not a new phenomenon (Boomsma et al., 2020; Claro, 2007; García et al., 2016; Himmelberger et al., 1991; Klein & Fischhendler, 2015; ter Mors et al., 2012). According to Himmelberger (1991) it became a much-used policy tool to balance regional/national needs and local burdens in siting processes for facilities like waste disposal, airports, prisons, and infrastructural projects. In general, community compensation or community benefit schemes are meant to compensate local communities for the burden of hosting such facilities in their neighborhood (Himmelberger et al., 1991; ter Mors et al., 2012). Ter Mors et al. (2012) have found that community compensation has potential to overcome siting controversies for Carbon Capture and Storage. Simultaneously, others like Claro (2007) also warn for possible negative effects of community compensation as a form of bribery or bargaining.

In the case of onshore wind energy projects, the local community is affected by either the perceived negative effects such as noise levels or landscape deterioration, or by social factors like, as unfair perceived decision processes or lack of trust in the involved stakeholders (Mors ter & Groeneweg, 2016). While research has been done on the effects of community compensation by several scholars (Brannstrom et al., 2022; Himmelberger et al., 1991; ter Mors et al., 2012; B. J. A. Walker et al., 2017), until now no empirical research is known on the effects and best practices of community compensation specifically for the acceptance of wind energy projects. Based on Ter Mors et al. (2012), community compensation is expected to have a positive influence and so it is worth studying community compensation as part of solving the puzzle called social acceptance.

Accordingly, the objective of this research is to contribute knowledge on how social acceptance of wind energy projects within communities can be improved. This is done by reviewing the effect of a CCF as a measure on the different aspects of social acceptance in two specific wind energy projects in the Netherlands. The central research question is formulated as follows:

Does a community compensation fund (CCF) enhance social acceptance of onshore wind energy projects in the Netherlands, and if so, how?

There exists a wide body of academic literature from different perspectives on the acceptance of renewable energy technology in general and wind energy specifically. Many scholars (Noë E W, 2019; Roddis et al., 2020; Sovacool & Lakshmi Ratan, 2012; Suškevičs et al., 2019) use the triangle of social acceptance based on the work of Wüstenhagen et al. (2007), which describes social acceptance as a combination of socio-political acceptance, market acceptance and community acceptance. First, socio-political acceptance is acceptance on a general level of policies and technologies by the public, policymakers and key stakeholders. Second, market acceptance according to Wüstenhagen et al. (2007) is the acceptance or adoption of a socio-technological system by consumers, investors and businesses. Third, community acceptance is the acceptance of a specific project by the community that is directly affected by the siting decisions of that project. The effect of CCFs on these three components of social acceptance is studied through a case-study. Specifically, two selected wind energy projects in the Netherlands will be reviewed, partly by a study of relevant policy documents and partly by semi-structured interviews with representatives of all stakeholder groups involved in the development process of the wind energy project.

The thesis is structured as follows. In chapter two the conceptual framework is described, including more specific sub questions of the research. Chapter three describes the research design and methodology in more detail. Chapter four contains the results of the research whereafter in chapter five these results will be analyzed and discussed. Conclusions are in chapter six.

2 Conceptual framework

2.1 The importance of social acceptance theories

Ambitious targets, policy programs, available technology, public awareness and environmental impact assessments have not proven to be sufficient for a rapid expansion of renewable energy production and goal attainment in lowering carbon footprints (United Nations, 2021). With the appearance of wind turbines and lately also solar fields in the landscape, it became clear that acceptance of largescale renewable energy by the public in the neighborhood also plays an important role in the implementation of renewable energy projects (Wüstenhagen et al., 2007). A widely accepted theory on the acceptance of renewable energy projects by Wüstenhagen et al. (2007) recognized that social acceptance was neglected as a factor in the development of renewable energy projects until the eighties, when most policy programs started. This neglection was a result of the high public support in the development of renewable energy and the then common believe that public support would automatically result in acceptance (Wolsink, 2013).

According to Wüstenhagen et al. (2007), the importance of social acceptance for renewable energy projects, compared to more traditional energy production facilities, is more prominent for three reasons. First, renewable energy plants are mostly smaller scale, due to which more sites are needed and therefore more siting decisions need to be taken. Second, the energy density of renewable energy is lower compared to conventional power plants and as a result the visible impact (per MWh of production) will be higher. This is amplified by the fact that the extraction of resources for conventional energy production takes place underground and is therefore barely visible for citizens, while wind turbines clearly have a certain visibility in the landscape. The lower density also means that renewable energy production will take place closer to people's homes, bringing their environmental impact also closer to the consumer of electricity. Third, social acceptance of renewable energy projects is mainly a choice between short-term costs and long-term benefits. Whereby the long-term benefits are seen as the contribution of the project to the goals of renewable energy production and the short-term costs are seen as the negative aspects of the project, such as landscape deterioration or noise nuisance.

Based on the importance of social acceptance for renewable energy projects Wüstenhagen et al. (2007) developed a model for social acceptance. The concept has three components of social acceptance - socio-political, market and community acceptance - which are described as separate and sometimes interdependent categories. Figure 1 shows how these components interact in a triangle, implying that each component on its own is not able to successfully lead to social acceptance of renewable energy projects. Other scholars used this model to build upon and expand it. For example,

Sovacool & Lakshmi Ratan, (2012) propose nine factors that explain the acceptance of renewable energy resources, such as political commitment, access to financing and community ownership, which are grouped into socio-political factors, market factors and community factors.

Figure 1 The triangle of social acceptance (Wüstenhagen et al., 2007)

2.2 Factors influencing social acceptance

Different scholars identify different factors as the main driver of social acceptance. Besides the three levels of social acceptance as proposed by Wüstenhagen et al. (2007), other scholars name socio-psychological, procedural and contextual factors as three different factors that influence social acceptance (Devine-Wright, 2008; Ellis et al., 2016; Huijts et al., 2012). The most common socio-psychological factors concern the effect on the landscape, visual impact, and place attachment (Pasqualetti, 2011). Procedural factors, like trust, procedural justice, and distributive justice play a role in the process of developing a wind energy project (Cowell, 2010; G. Walker et al., 2009). Contextual factors are related to environmental concerns and the socio-cultural context of a wind energy project (Dai et al., 2014; Jobert et al., 2007; Kontogianni et al., 2013). Suškevičcs et al (2019) importantly noted, however, that there are regional differences in Europe in how these factors influence the acceptance of wind energy projects.

In the light of the above the use of a CCF as a tool can be placed under a procedural factor. More precise as a tool for better distributive justice, since a CCF is meant to bring benefits to a community as compensation for a local burden in accepting a wind energy project (Himmelberger et al., 1991; ter Mors et al., 2012).

2.3 Theoretical model

This research applies the triangle of social acceptance by (Wüstenhagen et al., 2007), which is widely recognized as the basis of the concept of social acceptance, (see Figure 1). It is found that this acceptance theory is a good foundation for this thesis for three reasons. First, all three components

play an important role in the realization of wind energy projects in the Netherlands. Second, the model allows adaptation to the more specific circumstances under which wind energy projects in the Netherlands are developed. Third, the community component plays an important role in the triangle. Fourth, the effect of a CCF can be tested against the different components of the triangle. See Figure 2.

According to Wüstenhagen et al. (2007), socio-political acceptance is acceptance on the broadest general level. Both policies and technologies are subject to this level of acceptance. Actors within this component of social acceptance are the public, policy makers and key stakeholders. This component of social acceptance is mainly about the acceptance by stakeholders and policy actors of effective policies. These policies are meant to create institutional frameworks that enhance the acceptance at the market and community component (Wolsink, 2013). Others argue that social-political acceptance plays a role on different levels (Devine-Wright et al., 2017). For this thesis three different government levels in the Netherlands are added to the social acceptance triangle. For example,: on the national Dutch level one could conclude that there is sufficient socio-political acceptance, since in the Dutch Climate Agreement there is an ambitious goal for renewable energy production and there is a grant scheme for renewable energy production (SDE++). However, there are big differences between several regions in the Netherlands in the implementation of onshore wind energy, pointing at a lesser socio-political acceptance at the regional or local level. Because the Dutch political and administrative system is divided in three layers from national to provincial to municipal level, it is therefore argued that socio-political acceptance and the effect of a CCF should be studied at all three levels. This makes it possible to distinguish the difference in processes that take place at the different government levels. Hence, the following sub question arises regarding socio-political acceptance:

Sub question 1: Does a CCF contribute to socio-political acceptance of wind energy projects in the Netherlands at the national, provincial and local level, and if so, how?

The component of community acceptance is described at the level of the community that is actually affected by specific siting decisions. Wüstenhagen et al. (2007) indicate three factors within this component. First, a sufficient balance between the perceived costs and benefits for the community, this is understood as distributive justice. Second, the decision-making process giving all local stakeholders the possibility to participate in the process. Wüstenhagen et al. (2007) define this as procedural justice. The third factor consists of the community's trust in the intentions and information from actors outside of the community. Other scholars like Devine-Wright (2008), Ellis and Ferraro (2016), Huijts et al. (2012) use more general terms for these factors as procedural, contextual and socio-psychological factors. In the theoretical model for this research these factors replace the

originals factors as proposed by Wüstenhagen et al. (2007), because they give a broader perspective on the community component.

Another critical reflection on the community component and the three factors of Wüstenhagen et al. (2007) shows that the community is not seen as an actor. Here I argue that the community actively tries to influence the institutional framework at the local level, and in doing so influence the socio-political acceptance at the local level. In other words, there is a dynamic relation or interdependency between the socio-political and community component, at least at the municipal level. See Figure 2.

In an extensive literature review, Langer et al. (2017) found seven important factors correlating to the community acceptance: visibility, experience of citizens, number of turbines, distance to the place, procedural and distributive justice, fear of infrasound, and the mode of participation. Other scholars like Cashmore et al. (2018) and Wolsink (2013) name landscape, place attachment, sound annoyance, noise, economic and tourism impacts as the most controversial impacts on community acceptance. These factors can be split into contextual factors like sound, visibility, and number of turbines; socio-psychological factors like landscape, place attachment and aesthetics; and procedural factors like mode of participation, distributive justice, and communication. It must be noted, however, that this does not say anything about the perception of the weight of these factors given by the community as a whole or by its individual members. Accordingly, the following sub question can be formulated regarding community acceptance:

Sub question 2: Does a CCF enhance community acceptance by balancing contextual, procedural and socio-psychological factors of influence, and if so, how?

The market acceptance component is described by Wüstenhagen et al. (2007) as adoption by the market of an innovative socio-technological system like wind energy. In light of this, consumers, investors and businesses are the actors. The acceptance of renewable energy to use as a source of energy and the possibility to act as an investor are two roles that a consumer can take in this component (Wolsink, 2013). Investors and their willingness to invest in renewable energy projects, and the presence of businesses for building and maintenance are also part of this component of acceptance. However, this description of market acceptance ignores the fact that communities or community members can also be actors in this component. For example, in the case where the initiator of a project comes from within the community, or when community members act also as investors or consumers of renewable energy. Again, a more dynamic link between the community level and the market level is foreseen. The same goes for the dynamic relation between the socio-political level and the market level, since market level actors like investors will have an interest in influencing both

community acceptance and socio-political acceptance. Therefore, the following sub question is formulated regarding market acceptance:

> **Sub question 3: Does a CCF contribute to market acceptance of wind energy projects according to both investors and consumers from within the community, and if so, how?**

From the above arises the conceptual framework for this research as given in Figure 2. The three main components of the social acceptance concept are at the corners of the triangle, while specifying levels, actors and factors of significance. The mechanism of a CCF is located in the middle, illustrating its possible effect on each of these components. Moreover, between all components double pointed arrows are added to highlight interdependency. Compared to Figure 1, the framework places more emphasis on the interrelations between components of social acceptance and becomes more useful for operationalization in the case of wind energy projects specifically.

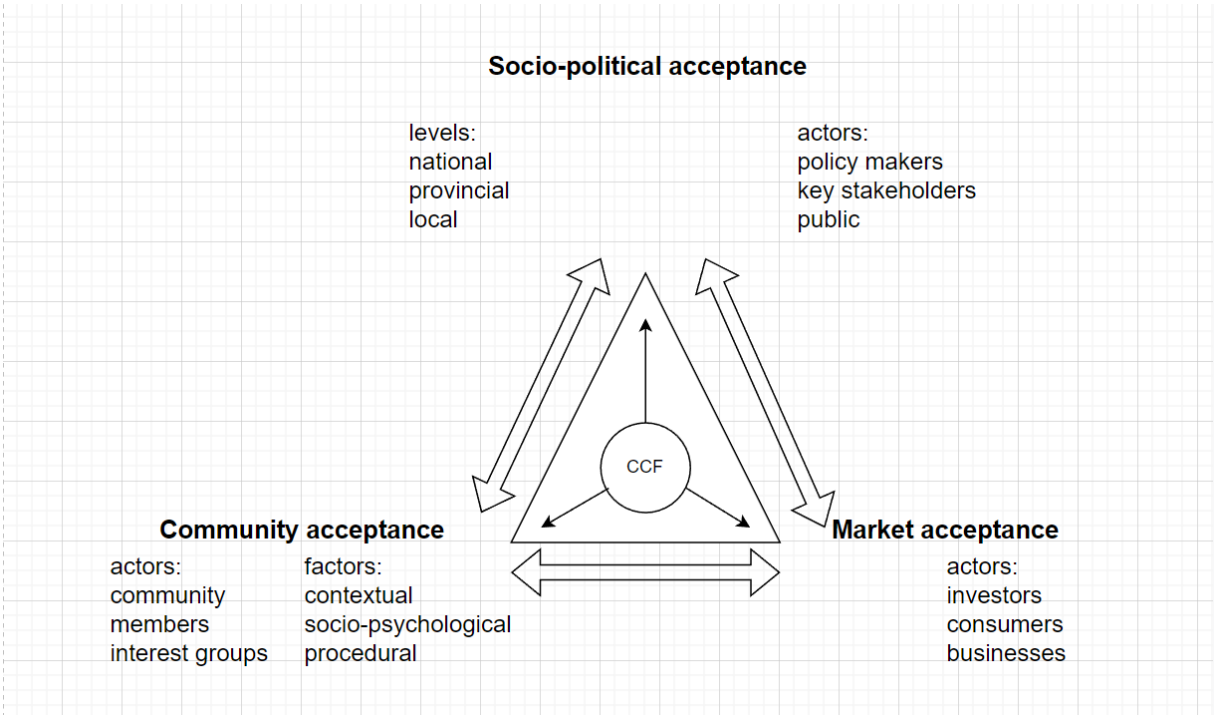

Figure 2 A social acceptance model for CCF based on the triangle of social acceptance (adapted from Wüstenhagen et al., 2007)

3 Methodology

3.1 Research Question

The research question of this thesis formulated in chapter 1.3 is:

Does a community compensation fund (CCF) enhance social acceptance of onshore wind energy projects in the Netherlands, and if so, how?

This question is divided into three separate sub questions as formulated in chapter 2.3:

Sub question 1:

does a CCF contribute to socio-political acceptance of wind energy projects in the Netherlands at the national, provincial and local level, and if so, how?

Sub question 2:

does a CCF enhance community acceptance by balancing contextual, procedural and socio psychological factors of influence, and if so, how?

Sub question 3:

does a CCF contribute to market acceptance of wind energy projects according to both investors and consumers from within the community, and if so, how?

The three sub questions follow the three main components of the triangle of social acceptance which is used as the theoretical model for this thesis (Figure 2). It is hypothesised that a CCF can play a role at all three components of the social acceptance triangle and therefore influence the way a wind energy project is accepted by the community. An answer to the sub questions and finally to the overall research question will deepen the knowledge about the acceptance of wind energy projects and lead to an enhanced social acceptance of future wind energy projects. Besides that, it will add to the body of literature that is available on social acceptance and will also illustrate where more research is needed.

3.2 Case selection

To achieve the research objective, this research was designed as a case study because of the following reasons. First, in a case study the focus is on a limited number of research units and this makes it possible to gain more in-depth insights of the cases compared to, for example a large-scale survey. Second, it is possible to gather data from different sources as will be described later in this

chapter. Third, the advantage of the case study strategy is the possibility to select cases that are more or less similar in several variables but different in the independent variable (Verschuren & Doorewaard, 2010).

The overarching dependent variable in this research is social acceptance of wind energy projects. As argued above, this research follows Wüstenhagen et al. (2007) in the concept of social acceptance consisting of three different components: socio-political acceptance, community acceptance and market acceptance. For the research design and methodology, all these three elements are considered as dependent variables, hence the division of the research question in sub questions. The independent variable in this research is a CCF. Even though other factors can affect the acceptance of wind energy projects as well, such as (co)ownership, participation in the planning process, size and number of turbines or noise, landscape (Wolsink, 2013), a focus on community compensation funds is chosen here. It is expected that the design of such a fund will vary between different projects and that different designs will affect social acceptance differently.

The expectation of the effect of a CCF was tested by a case study of two wind energy projects in The Netherlands. Because of the several possible variables that affect social acceptance, as stated in chapter 2.2, the selected cases are similar with regard to most of these variables. To be able to draw conclusions about the effects of a CCF, the presence and design of a CCF in these cases differ. To limit the variables as much as possible, the selected wind energy projects are comparable in number and size of wind turbines. For the same reason, the selected projects are developed and (co)owned by community members. The choice for this type of development initiative was made, first, because this type of development is most promoted by different government levels and therefore more common than other types of development from outside the community. Second, it proved easier to find this type of projects willing to cooperate. Also, for the case of comparability, the selected wind energy projects were in the building phase or in the early exploitation phase. This allowed for a reflection on the development process and it ensured that the development process was still fresh in the memories of the stakeholders, this minimizes the chance that the attitude towards the process and the project has changed over time. Finally, the design of the compensation fund was already decided upon, necessary to determine different effects as a result of different designs of a CCF.

To answer the research questions two cases were selected for a thorough review. One case, windfarm Weijerswold (WW) in the province of Drenthe consists of four wind turbines. And the other case, windfarm Den Tol (WDT) in the province of Gelderland, consists of nine wind turbines. In both cases the initiators are both members of the community where the project is situated and (partly) owner of the project. See table 2 for a short overview of the projects.

	Windfarm Weijerswold	Windfarm Den Tol
Number of turbines	4	9
Capacity	3.6 MW	3.6
Height	181	230
Start development	2014	2010
Start exploitation	2021	2022
Development process	7 years	12 years
Ownership	50% local	90 % local
Size of community	40 residents	600 residents
Formal objections	>300	35
State council process	yes	Yes
News media attention	36	35

Table 2: the cases in overview

3.3 Data collection

Data on the selected wind energy projects were gathered through three methods. First, the selected cases are reviewed by a desk study in order to find out how the development process took place, how the community compensation fund is designed and how the local community reacted during the development process. Specifically, policy documents, documents from the siting process, articles from the local media and public documents such as meeting minutes were reviewed, together with geographical and demographical data. This gave a general insight into the projects and their acceptance across stakeholders.

Second, semi-structured interviews were conducted; first with representatives from stakeholder groups and then with experts to cross reference the results. The interviews were conducted to deepen the insights from the desk study, and to get a complete and diverse view on the contribution of a CCF to social acceptance of a wind energy project. The identified stakeholder groups are, in line with the three components of social acceptance (see Figure 2), the local or provincial government, local or provincial politicians, project initiators/developers and community members. The interviewed experts were either working in the field of project development for wind energy projects or on other projects where acceptance and public support play an important role.

Although interviews can be time consuming, it is a good method to gather original data. Particularly the possibility to ask open ended questions combined with the flexibility for the interviewee to elaborate on answers, and for the interviewer to probe deeper in asking side questions, makes interviewing a useful tool (Adams, 2015). The two cases and the interviewees were selected with the help of Windunie, a Dutch cooperative that assists local initiators to develop wind energy projects. All of the interviewees were keen to help because they felt that they could contribute to a

better acceptance of wind energy projects based on their role in the projects and their expertise. See Appendix 1 for more demographic details. In order to safeguard the ethical aspects of this research, a short memorandum on this research was made, which passed the ethical review board of the University of Twente .

The semi-structured interviews were conducted using the questions as can be found in Appendix 2. The questions were divided in two parts. Part A was meant to get data on the design of the CCF. The questions in part B were meant to get data on the influence of a CCF on the social acceptance model.

The data from the first stage of the desk study were analysed by looking into various quantitative aspects, such as the duration of the development process, the number of formal objections during the licensing process, the number of articles in the local media and so forth. The data from these reviews gave background information about the development process that was used in the interviews and as a source of triangulation with the results of the interviews. The results from the second stage of semi-structured interviews will be analysed against the three components of social acceptance from the conceptual framework to determine the effect of the CCF on the local acceptance of the project (see Figure 2). This analysis will be an interpretative analysis by the researcher.

Table 1 summarizes the research design, by highlighting key stakeholder groups and indicators for each social acceptance component, and by indicating which method, and types of documents or questions more specifically, are necessary to gather and analyse data in relation to this. See Appendix 3 for a more detailed explanation of each type of acceptance and related interview questions.

As described in chapter three the theoretical model that is used for this research is based on an elaboration of the social acceptance triangle of Wüstenhagen et al (see figure 2). It is argued that the three levels of social acceptance interact with each other and that different actors can be active at different levels at the same time. Furthermore, given the Dutch three layered government system socio-political acceptance is not necessarily the same on national, provincial, and local level. The interview questions were designed in a way that they give insight in the different dynamics and interactions between the levels and the actors of the social-acceptance model.

Social acceptance component	**Stakeholder group**	**Indicator**	**Research method (document review or interview)**

Socio-political acceptance	national policymakers	Is a policy framework in place at the national level?	document review
	provincial or local policy makers	Is there a positive attitude in the municipal council?	document review interview
Community acceptance	community members initiators / land owners	Are factors that are perceived as a burden in the community balanced? How is the relation with other stakeholders?	interview
Market acceptance	investors	Is there an influence on the business case? How is the relation with other stakeholders?	interview

Table 1. overview of stakeholder groups, indicators and related research method

4 Findings

This chapter starts with an overview of the CCF's and how they are organized by both cases WW and WDT in section 4.1. The results of the literature review and interviews on market acceptance, socio-political acceptance and community acceptance are described in sections 4.2, 4.3 and 4.4. Section 4.5 will conclude this chapter with a summary.

4.1 The CCF's of windfarm Weijerswold and windfarm Den Tol

Based on the interviews, the design and organization of the CCF in both cases is different in various ways. The CCF in the case of WW is based on an yearly amount payable to individual households within a range of 1.5 kilometer from the windfarm, depending on the actual distance to the nearest turbine. The CCF in the case of WDT is yearly paid to a communal fund. Clubs and organizations from within the community can apply for a contribution from this fund, which is administered by a foundation from within the community. Table 3 gives an overview of the answers to interview question one to three. The interviewees from each windfarm answered these questions in the same way.

A difference between the two windfarms was found at the starting point of the process and the way of thinking by the initiators as well as by the local residents. From the very start of the development process, the initiators of WDT decided that if they succeeded, the neighboring villages should profit from the windfarm also. Whereas the initiators from WW were at first reluctant of a CCF

Key characteristics of a CCF	Windfarm Weijerswold	Windfarm Den Tol
1.a Destination of fund	Individual	Communal
1.b Kind of fund	Monetary € 15.000 annual	Monetary € 15.000 annual
2.a Responsible for allocation	Windfarm	Foundation 't Gemeynt
2.b Possible applicants	Residents of the neighborhood	Various clubs or associations
3 Geographical boundaries	Living within 1500 mtr, approx. 20 households	From within the village of Netterden, Wals, Wieken, Milt Approx. 600 people

Table 3: description of the organization of the CCF of the two cases-study windfarms (corresponding to interview questions 1-3, see appendix 2)

because they did not see the logic of financial compensation for residents. During the participation process and the negotiations with the residents they agreed on an individual CCF as a compensation for the burdens of the windfarm.

This is evidently shown during the interviews. For example, Mark who is an initiator, stated,

> There might be some sound nuisance, but there is also sound nuisance from passing trucks [Interview 4, Mark].

Furthermore, Piet who is an initiator, mentioned that,

> If the project cannot fund €15.000 annually the project is not feasible at all [Interview 1, Piet].

From the interviews it became clear that in the case of WW, the local residents were from the start focused on minimalizing the burden of the project and financial compensation at the household level. Whereas the local residents of WDT soon realised that the community as a whole could benefit from the offer of the initiators. Therefore, they created a foundation called 't Gemeynt with the purpose to enhance the liveability of the village of Netterden by supporting sports clubs, cultural institutions and other societies. The foundation is supported by more than two hundred people from Netterden, which is more than half the population of eighteen years and above. The board of the foundation consists of members from the community and can decide to allocate money until € 1000. For bigger sums the supervisory board, which is manned by the chairs of the various clubs and associations in the village, has to decide. Applications for a contribution from the CCF can be done by the various clubs and associations from Netterden.

The allocation of the CCF in the case of WW is straightforward and the result of negotiations between initiators and a temporary resident committee. The total amount of the CCF is yearly divided over the households within a range of 1500 meters of a turbine. Whereby the amount depends on the actual distance. This is an agreement for as long as the wind energy project is in operation. On top of this some house owners received compensation for possible loss in property value. In the light of this research this is not seen as part of a CCF since it is a one-time compensation at the start of the project.

4.2 Market acceptance of a CCF

This section focuses on market acceptance, which refers to investors, businesses and consumers willing to accept a CCF as part of a wind energy project. At the national level there is market acceptance of a CCF by the actors as described in the theoretical model. The desk study shows that the market actors, like developers and investors, see a CCF as a tool to enhance acceptance of wind energy projects. The Dutch Wind Energy Association together with other stakeholders put a code of conduct

in place in 2013, where wind energy projects are committed to set up a CCF and contribute € 0,40 - € 0,50 /MWh/year (Dutch Wind Energy Association, 2020). This code of conduct was updated in 2020 because of the participation rule that was agreed upon in the Climate agreement (2019).

The market acceptance in the case study is more nuanced. All the interviewees stated that the CCF did not affect the market acceptance of the project in a negative way. Especially not from the side of investors or financability. However, seen from the side of the community it was found that in the case of WW people were not interested in financial participation whatsoever. Although it was offered as a possibility by the initiators. In the case of WDT people were offered to participate financially through bonds with a guaranteed interest. This offer was accepted by a number of inhabitants of the community.

4.3 Socio-political acceptance

This section focuses on the socio-political acceptance component of the acceptance triangle. It starts with the socio-political acceptance at the national level in section 4.3.1 followed by the socio-political acceptance at the provincial and municipal level in sections 4.3.2 and 4.3.3.

4.3.1 Socio-political acceptance at the national level

On the Dutch National level there is socio-political acceptance of wind energy projects. During the past decades the successive Dutch governments set several targets for the production of renewable energy in general and for wind energy specific. The structural vision (SvWOL) for wind energy projects on land (Ministry of Infrastructure and Environment, 2014) gives a target of a generating capacity of 6000MW to be reached in 2020. The SvWOL was the result of a negotiating process between the Dutch government and the provinces to divide the national target of 6000MW generating capacity between the twelve provinces in provincial targets(Ministry of Infrastructure and Environment, 2014). The Climate Agreement (2019) speaks of a 35TWh production goal in 2030 and the new Dutch coalition agreement from 2021 is stepping up the goal for CO2 reduction to 70% in 2035 and 80% in 2040 (Rijksoverheid, 2021). There is also a grant scheme called SDE++ that guarantees a minimum price for the produced electricity and by doing so gives collateral for initiators and investors. This created an institutional framework which is, according to Wolsink (2013) needed to enhance the other components of social acceptance.

At the start of development by the researched cases there was no mentioning of a CCF at the national level. However, in a later stage as part of the Climate Agreement in 2019, also the national government committed to a goal of 50% community participation or ownership by renewable energy projects to be developed. The documents do not show how this participation is seen and it seems that

it is up to the provincial or municipal level to decide what the exact conditions are for this 50% community participation.

4.3.2 Socio-political acceptance and a CCF at the provincial level

On the provincial level there seems to be less acceptance because according to the Ministry of Infrastructure and Environment (2014) negotiations were needed between national and provincial governments to reach the agreement for the SvWOL, which point out that not every province was willing to cooperate with the national government to reach the goal of 6000MW generating capacity. The provinces Drenthe and Gelderland where the two cases are situated contributed in a very moderate way to the total of 6000MW installed capacity. In the strategic plans of the provinces a CCF is not mentioned specifically, although some conditions are stated with regards to the protection of communities or possibilities to participate for communities or inhabitants. These conditions have the character of a CCF in their purpose of balancing the burdens of a wind energy project in the neighborhood.

4.3.2.1 The case of Weijerswold

The case of windfarm Weijerswold is situated in the province of Drenthe. This province in the northern part of the Netherlands made an agreement in 2013 with the national government for a goal of 285,5 MW generating capacity with wind energy. Based on this agreement the provincial government made an area vision together with four local municipalities who were not opposed to wind energy projects (Province of Drenthe, 2013). This agreement was confirmed again in the provincial structural vision in 2018. Koos who works for the municipality, stated,

> The agreement between the province and only four communities was because the other communities in the province were against wind energy [Interview 2, Koos].

Besides the normal legal requirements for a spatial planning process the provincial government gave two important requirements for wind energy projects. First, a project must have added value for the residents in the area. And second, the municipalities were challenged to plan the projects in accordance with the specific characteristics of the area(Province of Drenthe, 2013).

4.3.2.2 The case of Den Tol

The case of windfarm Den Tol is situated in the province of Gelderland. This province in the eastern part of the Netherlands made an agreement in 2013 with the national government for a goal of 230,5 MW generating capacity with wind energy(Ministry of Infrastructure and Environment, 2014). Based on this agreement the provincial government made a wind vision for the province where suitable areas for wind energy projects were designated. In this wind vision the province incorporated

already existing projects and also projects that were already in the planning phase. WDT was one of these projects in the planning phase, because the initiators started in 2010 with the project.

For potential new sites the province organized workshops and offered assistance to the municipalities by facilitating feasibility studies for these sites. An important driver was to create awareness, enhance knowledge and support for wind energy by the officials and administrators of the municipalities in the province (Province of Gelderland, 2014).

4.3.3 Socio-political acceptance at the municipal level

4.3.3.1 The case of Weijerswold

Coevorden was one of the four municipalities in the province of Drenthe that made an agreement with the province. Based on this agreement the municipality started a search process for the most suitable location(s) for the development of wind energy projects. It turned out that Weijerswold, east of the city of Coevorden was a suitable "search area" for a wind energy project. The choice for this location was based on the fact that the area is seen as a new cultured landscape where wind turbines could fit in. Also, the presence of wind turbines just over the border with Germany was an argument in favour of Weijerswold. Joep who is an alderman, stated,

> In 2013 Weijerswold was designated as a search area for wind energy [Interview 6, Joep].

In the meeting of the municipal council of Dec 10th 2013 the search area for a wind energy project in Weijerswold was formally decided on by adopting the structural vision (City of Coevorden, 2013). It was not an undisputed adoption because there were several amendments against Weijerswold as a search area, finally resulting in six of the twenty-five votes against Weijerswold (Municipal Council Coevorden, 2013). Three important conditions from the municipality were given for the following spatial planning process. First, for each search area only one process or one initiator was allowed. Second, the process and the spatial planning had to be in participation with the nearby residents. Third, initiators from the two search area's had to develop the project in coordination with each other.

4.3.3.2 The case of Den Tol

The history of WDT goes back to the turn of the century. During that time the municipality of Netterden had the choice between two possible sites for a wind energy project. One to the east and the site of WDT to the west of the village. Surprisingly, the city council made a choice for the location east to the village. As Thea who works for the municipality, stated,

> All signs directed to a choice for the location of WDT but surprisingly the council all of a sudden chose for the location east of Netterden [Interview 3, Thea].

However, in 2011 the municipality decided about a new strategic plan for the future development (Arcadis, 2010). This strategic plan acted as the local framework for the development of renewable energy production. In this plan the municipality wrote down an ambition for sustainability and renewable energy production with wind as the source with the biggest potential. The municipal policy for wind energy production is based on three arguments. First, it is seen as very important that the production is within the municipal borders. Second, initiatives from within the community will be stimulated and facilitated. Third, a clustering of wind turbines above single turbines is starting point. Fourth, the search areas for wind energy should be utilized to its maximum (Arcadis, 2010). Based on this policy framework, the initiators saw new opportunities for their plan. After consultation with municipality officials, whether their site would be potential they decided to start the development process.

4.4 Community acceptance and a CCF

4.4.1 The case of Weijerswold

The interviews showed that, when the initiators started the development process, they met almost immediately resistance from the local residents. Organised in an interest group called “Against Wind Weijerswold” (Tegenwind Weijerswold) the local residents tried to stop the development with two main arguments. First, they stated that the distance between houses and turbines would be somewhere between 300 and 450 meters which would cause nuisance. Second, they argued that the communication from the city of Coevorden was insufficient, whereby the residents of Weijerswold did not have enough chance to oppose against the structural vision that led to the search area (Albers G, 2013)

According to several interviewees, the city of Coevorden organized a meeting for the residents in this stage so the initiators could inform the public about their plans and their approach to the project. The interviewees also stated that during this meeting the municipality made it clear that since Weijerswold was designated as a search area that a wind energy project was about to come, one way or the other. When it became clear that the project could not be stopped, a smaller number of residents united in a platform of local residents. Ernst who is a community member, stated,

> The residents opposed the project from the start but finally chose to participate in order to be of influence. I think that was a sensible thing to do [Interview 5, Ernst].

The platform was stimulated by the city of Coevorden in order to make it easier for the residents to participate in the planning process. Two of the interviewees commented that the city of Coevorden facilitated this by paying for an expert to assist the platform with knowledge. It was the

same platform that negotiated the CCF during the planning process. However, Against Wind Weijerswold stayed active in their attempts to stop the project.

One of the interviewees described this period in the process as difficult. The residents felt that they were not heard by the city of Coevorden. Both the council and the alderman during that period (2013-2014) were not concerned about what a wind energy project would mean for the residents. This changed after 2014 when the city of Coevorden hired someone who was able to support the residents with knowledge about wind energy projects and during 2014 a new city council and alderman chose a different attitude to the people of Coevorden, not only on the issue of wind energy but also on other issues.

In 2016 an agreement about the spatial planning and the CCF between the initiators and the platform was reached. This cleared the way for the city of Coevorden to actively support the legal spatial planning process. However, this didn't end the opposition. As put forward by Ernst who is a community member,

> The CCF is not more than a band-aid. The money was not important for the residents. It was all about minimising the burden and nuisance of the project [Interview 5, Ernst].

While Mark an initiator, stated,

> We suggested also the possibility of financial participation but the residents were not interested in this. In my opinion this would have given a better result [Interview 4, Mark].

During the following procedural zoning plan and environmental impact assessment residents still opposed the plan and tried to stop it. Objections were made by, or in the name of twenty local residents and Against Wind Weijerswold with more than 300 elements (Gemeente Coevorden, 2017). When these objections did not affect the outcome of the voting process in the council of Coevorden these parties used their right to submit the objections to the State Council of the Netherlands. The State Council ruled on September 9th, 2018 that all the objections were unsubstantiated (Raad van State, 2018a). The ruling of the State Council completed the spatial planning process and cleared the way for the initiators to proceed with the realisation of the project. This phase ended with the completion of the building and from 2021 onwards the CCF is paid to the residents as agreed.

The desk study learned that the objections of the residents were diverse (Gemeente Coevorden, 2017). However, they can be categorized into three main objections. First, the process and the way the residents were treated by both the city and the initiators led to frustration and resistance. Second, there was concern for nuisance from sound and cast shadow from the blades resulting in concerns for health and well-being. Also, the visibility of the planned turbines was seen as

a problem. Third, the impact of the project on the landscape was seen as negative and not fitting because of the size of the turbines and a possible effect on birds and other biodiversity.

Looking back at the process all the interviewees are more or less satisfied with the result. Although the development process caused several difficulties and a change in some social relations in the community, none of the interviewees indicates a loss of trust in the community or between initiator and community members as a result of the project. For example, Joep an alderman, stated,

> I don't see a difference in mutual relationship now and before the project. Although there might be some jealousy because of the big difference between the financial compensation for the landowner seen against the compensation via the CCF [Interview 6, Joep].

4.4.2 The case of Den Tol

From the very start of the development process the initiators were communicating about their plan and goals. They were in close contact with the community and with the community officials. In fact, they realized that as part of the community it was very important to stay on speaking terms with the community. As proof of this, Thea who works for the municipality, stated,

> The initiators are rooted in the community, and therefore they are trusted. This has proven to be of great importance for the development process [Interview 3, Thea].

However, this did not mean that there was no opposition. All the interviewees said that the board of the village association was strongly opposed to the project and tried to stop the development of WDT. This led to a conflict in the community of Netterden, whereby a group of people decided to establish a new foundation called 't Gemeijnt. The foundation acted with the motto: "if you can't beat them join them" and came in contact with the initiators to speak about the plans. Klaas who is a community member, stated,

> There was a group of people who said: "we do not like the plan but if this plan comes through let us see what is in it for our village" [Interview 8, Klaas].

The interviews showed that, for the initiators it was clear from the start of the project that some kind of a fund for the community was needed as a payback for the perceived inconvenience. This was welcomed by the municipality and according to one of the interviewees it played a role when it came to voting about the project in the council. Being part of the community, the initiators did not want to decide about the allocation of the CCF. Since foundation 't Gemeijnt was at the table with the initiators it was a logical partner to speak about the organization and the allocation of the CCF. This resulted in an agreement where a yearly amount of € 15.000 will be paid to a fund that is managed by 't Gemeijnt. Various clubs and cultural associations from within the community of Netterden and

surroundings, can apply for a contribution from the CCF. The municipality did not interfere or demand things regarding the CCF. Peter who is an alderman, stated,

> For the municipality it was convenient that 't Gemeijnt took on the responsibility for the allocation of the CCF, however there was the question whether they were representing the community in a broad sense [Interview 7, Peter].

The agreement between the initiators and "t Gemeijnt" did not resolve all the arguments against the project. Although a larger group of the community was satisfied there were still opponents who tried to stop the development. This became clear during the formal siting procedure and environmental impact assessment where 3 stakeholder groups and 37 inhabitants of the village made a total of 35 objections to the zoning plan (*"Windpark Den Tol Netterden 2016,"* 2016). These objections can be divided into four categories. There is a category of nuisance from sound and cast shadow, with a possible relation to health issues. A category names an expected counterproductivity for nearby nature development by the project. Visibility and interference with a nearby windfarm will harm the landscape is another category. And finally, the procedure that was followed by the municipality was unclear and shows improper administration. All these objections were rejected by the municipality and the council voted in favor of the project. Following the voting by the council the opponents submitted their objections to the State Council of The Netherlands. By a ruling dated March 14th, 2018 the State Council declared the objections unsubstantiated (Raad van State, 2018b). This ruling completed the spatial planning process and cleared the way for the initiators to proceed with the realisation of the project. After a few years of preparation, the project came into exploitation in the spring of 2022.

Looking back at the process the interviewees conclude that, although there still is opposition against the project all has gone pretty well. It is the expectation that people will get used to it fairly quickly. However, there is also the reality that there will always be a group of people who stay opposed. As Thea stated,

> There are three groups of people. First there are the principal opposers, mostly a limited number. Secondly, there is a big group that is negative and turns to be more positive when uncertainties are taken away. Thirdly, there is a positive group that immediately sees the opportunities [Interview 3, Thea].

Following the completion of the building phase the initiators are planning a round of interviews in 2023 to get a better idea of what the perceived inconvenience exactly is and what it does to the community. Furthermore, the results of these interviews can be a cause for reconsidering the height of the donation in the CCF.

4.5 Results summary

The research question of this paper asked: Does a community compensation fund (CCF) enhance social acceptance of onshore wind energy projects in the Netherlands, and if so, how?
The findings indicate that there is some effect of a CCF on the acceptance but the nuances are complex. At the socio-political level (sub question 1) there is some influence of a CCF because in several policy documents a CCF is conditional for development of wind energy projects. This is mainly on the provincial and municipal level. Although recently also at the national level there is more attention for a CCF and other participative tools. At the community level (sub question 2) the picture is diverse but there is an effect. At the market level (sub question 3) a CCF is found of no influence.

5 Discussion

The theoretical model in this thesis suggests an influence of a CCF on the three components of the social acceptance triangle (Figure 2). Each component has its own actors. Because of the Dutch governmental system, the socio-political component consists of three levels, national, provincial and municipal level. The community acceptance component has different factors that play a role in how the community reacts to a proposed wind energy project. In general, it was found that the empirical data collected through interviews indeed support the theoretical model. However, the interviews points to many subtle nuances that do not always fit into the model. In this chapter the results of the interviews and the desk study will be analyzed against the theoretical model. It was found that a CCF is of influence on two of the three components of the social acceptance triangle.

The effect of a CCF on the market acceptance component is not clear. Nor in a positive way that leads to a better acceptance, neither in a negative way that leads to less attractive business cases for investors. All interviewees stated that market acceptance was not influenced by the CCF. Although there is a difference between the case of WW and WDT. One could say that the market acceptance in the case of WDT is better because community members were interested in investing money in bonds whereas in the case of WW community members were only interested in compensation for the perceived burdens. However, this difference might not be the result of the CCF. It is suspected that the better communication and understanding between initiators and community in the case of WDT resulted in a higher trust in the project. More specific research in the role of communication and trust building between initiators and other stakeholders is needed in order to determine whether is results in better acceptance.

The influence of a CCF on the socio-political component depends on the level of the component at which we look. It was found that at each level a policy framework has to be in place as a condition for acceptance at the other two components of the social acceptance triangle. At the national level, a national goal of renewable energy production together with a grant scheme. At the provincial level a provincial goal of renewable energy production together with conditions concerning landscape and participation. At the community level it was found that socio-political acceptance and community acceptance are strongly interrelated. The influence of a CCF on these components was found to be of importance. Although, it is unclear whether it is the enhanced community acceptance because of a CCF that fosters the municipal socio-political acceptance or the other way around. More quantitative and qualitative research is needed on this point.

The socio-political acceptance on the municipal level is complex. The realization of the projects can be seen as proof that there was socio-political acceptance. Although, that ignores the sometimes heated discussions at the council meetings from both municipalities. In both cases the CCF had a positive effect on the acceptance by the municipal council as proof that the initiators and the community had reached an agreement that would work out. However, in both community councils were votes against the wind energy project. A difference between the two cases is the fact that the initiators of WDT communicated actively with both the council and the community while the initiators of WW left that to the professional developer. This resulted in the case of WW in more opposition in the community as indicated by the higher number of formal objections (see Table 2) and, a feeling of procedural injustice because of a lack of communication.

At the community level a CCF is seen as a tool that helps to balance the perceived burdens caused by the contextual, procedural and, socio-psychological factors that play a role in community acceptance. For example in the case of WW the CCF focuses on individual compensation for the contextual factors. At the higher levels of provincial and national government a CCF is less recognized as a tool for enhancing acceptance. Although more recent developments at the national and provincial level do recognize the need for tools to enhance acceptance of wind energy projects in local communities. This results in more focus at the national and regional level on a policy of participation possibilities for local communities or inhabitants. Such as the 50% participation rule in the climate agreement from 2019 (Climate agreement, 2019). The results of this shift in policy level at the social acceptance of wind energy projects will need further research.

Analysis of the interviews and the municipal documents learned that community acceptance and socio-political acceptance at the municipal level are closely related. Both initiators and inhabitants try to influence the council members and with that the voting of the zoning plan. As stated above it seems that communication between initiators, inhabitants and the community council plays an important role in the way how a wind energy project is perceived in the community. The case of WDT clearly shows that initiators who are also part of the community have an advantage in influencing both the community acceptance and the local socio-political acceptance. This is in line with the theoretical model.

The theoretical model names three different groups of factors that play a role in community acceptance. In the reviewed cases these different groups are recognizable. These factors were named in both the interviews and, in the formal objections during the zoning process. First, procedural factors like a lack of communication and an unclear and unfair process, were named more often in the case of WW. The difference in communication between WW and WDT was that in the case of WDT the initiators communicated more openly with the community and the municipality. This points at the

importance of open communication and trust building. Second, contextual factors like health concerns due to possible sound and cast shadow and, the size and number of turbines. Although, size and number of turbines in both cases were different, these contextual factors were perceived in the same way. It is noteworthy that these and other contextual factors are assessed during the zoning process in what is called the environmental impact assessment procedure and that compliance to certain standards is needed to minimize impact and to protect the environment. There seems to be a lack of trust in the way the environmental impact assessment protects the environment. This research lacked the time and scope to look into this. Future research will be needed to understand the differences here. Third, socio-psychological factors as visibility, landscape and nature conservation were frequently named as an argument against the projects. The influence of the CCF on these factors differed between the studied cases and was somewhat unclear. More research will be needed to relate the influence of a CCF directly to one or more of the factors.

By using the expanded social-acceptance triangle this research proved that under Dutch circumstances there is a difference between the three government levels and socio-political acceptance. This is important knowledge because it helps different government levels and also initiators and other stakeholders to understand the process of wind energy development. This improves the ability of these stakeholders to influence the process in the way they perceive as the best in their interest. However, this is not a guarantee for a better acceptance.

6 Conclusions

6.1 Summary

This thesis describes the influence of a CCF on the social acceptance of onshore wind energy projects in the Netherlands. The social acceptance triangle of Wüstenhagen et al. is used as a base for the theoretical model. First, it is expanded with the three different government levels of the Netherlands at the socio-political component. Second, the dynamics between the three components are more prominent, especially between the municipal socio-political component and the community component. Thirdly at the municipal level the community (community members, interest groups) is an active actor in the development process.

The research question whether a CCF enhances the socio-political, market and community acceptance and in doing so the social acceptance is answered with a tentative yes. It was found that at the municipal level of socio-political acceptance and at the community acceptance there is a positive effect of a CCF. At the provincial level of socio-political acceptance conditions that point to the possibility of a CCF are found. At the national level a CCF is found of no influence. Although, in recent years more attention is given to community participation in a broad sense. The market acceptance is the component of the social acceptance triangle that is not affected by a CCF.

How a CCF is enhancing the social acceptance of wind energy projects is complex and based on this research not entirely clear. The results point in a direction that the influence is mainly in the interplay between the community acceptance and the socio-political acceptance at the municipal level. And a more specific influence or balancing effect at the contextual factors, than on the socio-psychological factors. The results also suggests that the way of communication between the different actors at the municipal level and the community is influencing the community acceptance in general and the effect of a CCF specific.

6.2 Limitations and future research

The expanded social acceptance triangle shows many different and interrelated factors and actors. Besides giving a good overview it is also limited in understanding which factor is influenced by a CCF and to what extent. Although this research had a practical approach it lacked a more extensive set up to disentangle and value all the different relations between actors and factors.

Only two specific cases of wind energy projects where the initiators were also part of the community were reviewed. The findings might differ from other cases with different initiators. Also, possible cultural differences between regions were not part of this research.

The research was mainly based on qualitative data. In future research quantitative data e.g., from a survey should complement the existing data. More data can help to broaden the knowledge about the different factors of community acceptance and the effect of a CCF on each factor. Because of the different nature of the contextual, socio-psychological and procedural factors, this is needed in order to determine how the objections that fit the specific factors can best be minimized, either by a CCF or by another tool. Also, future research into the three factors that are frequently named by community acceptance is needed to gain deeper knowledge about the relative importance of these factors under different circumstances.

The interviews gave a temporary view of how the stakeholders look at the CCF at the time of the interview. A long term influence of the CCF during the exploitation of the wind energy project was not in the scope of this research. However, a CCF is meant to be a long term agreement for the lifetime of the wind energy project. Future research should give more knowledge about the long term effects of a CCF. A social impact assessment as a tool might be useful.

The communication procedures between initiators, municipality and community were not part of this research. However, differences in communication style and timing were noticed. It is suspected that the role of communication and it's influence on community acceptance is underexposed. Therefore, it is suggested that future research should focus on the communication timing and style between the stakeholders in a wind energy project.

6.3 Policy Implications

Based on the findings in this research three policy recommendations are made in order to enhance the social acceptance of onshore wind energy projects. These recommendations are at the local level because it is a that level that policy and affected community touch each other. However, it is important that the local policies are embedded in, and supported by policies at the provincial and national levels.

In order to support a fair and just procedure it is recommended that municipalities adopt a policy that sets the rules for communication style a timing from the very first start of a possible wind energy project. Part of this policy should be a clear statement whether a wind energy project in a specific area is going to be developed or not. This gives the community the possibility to focus on participation in order to influence the project instead of trying to avoid the development of the project.

The conditions under which a wind energy project is supported by the municipality should also be looked at. These are not only the technical conditions like size and number of turbines, but also conditions that see at the environmental and socio-psychological aspects of a wind energy project.

As a last recommendation it is mentioned that the advantages of wind energy projects should come more to the foreground. Especially in this period where energy prices soar as a result of the prices of natural gas. The cost price of energy from wind energy projects is independent from the price of commodities. This can help a community (consumers and businesses) with a more stable price for energy from their own community instead of being dependent on the price of commodities.

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Appendix 1:

Demographic details interviewed persons

number	gender	age	name	role
1	Male	50-60	Piet	Initiator
2	Male	>60	Koos	Municipal employee
3	Female	50-60	Thea	Municipal Employee
4	Male	40-50	Mark	Initiator
5	Male	>60	Ernst	Community member
6	Male	40-50	Joep	Alderman
7	Male	>60	Peter	Alderman
8	Male	50-60	Klaas	Community member
9	Female	40-50	Anna	Expert
10	Male	40-50	Jan	Expert

For the sake of privacy, the names of the interviewed persons are fake. The real names are known to the author.

Appendix 2:

Interview Questions

Part A:

1. To what destinations is the CCF allocated?
    a. E.g., is it allocated individual or communal?
    b. E.g., is it monetary or non-monetary?
2. How is the allocation of the CCF organized?
    a. E.g., who is responsible for the allocation? (Municipality, project owner, community, other)
    b. E.g., who can apply for a contribution from the CCF?
3. How are the geographical boundaries determined of the community to which the CCF is allocated? How many community members are there within these boundaries?
4. What is according to you the impact of the CCF on the community?

Part B:

5. When in the process was the community informed about the project and the CCF?
6. What was the response from the community and other stakeholders to the project and the CCF?
7. Did the CCF change the attitude of the other stakeholders towards the project, and if so, in what sense?
8. Did your stakeholder group try to influence the design of the CCF and, if so, how? Please elaborate on the result. How about other stakeholder groups?
9. When in the development process of the project was a CCF put forward and by whom?
10. What were the key opposing factors against the project and did the CCF contribute to balancing those factors? Please elaborate.
11. To what extent was the community involved in designing the CCF and what was the community's influence on the outcome?
12. How did the CCF affect the financability of the project?
13. How did the CCF affect the level of trust within the community?
14. What is based on your experience the best practice for a CCF to improve acceptance of future projects?

Appendix 3:

overview of stakeholder groups, indicators and related interview questions

Social acceptance component	**Stakeholder group**	**Indicator**	**Research method (document review or interview)**	**Type of document or interview question**
Socio-political acceptance	national policymakers	Is a policy framework in place at the national level?	document review	policy documents
	provincial or local policy makers	Is there a positive attitude in the municipal council?	document review interview	policy documents meeting minutes 1, 3, 4, 5, 6, 7, 8
Community acceptance	community members initiators / land owners	Are factors that are perceived as a burden in the community balanced? How is the relation with other stakeholders?	interview	1, 4, 10, 11 1, 2, 4, 5, 9, 13
Market acceptance	investors	Is there an influence on the business case? How is the relation with other stakeholders?	interview	8, 12 2, 5,6, 13