

Community ownership of large-scale wind farm developments

Can community ownership improve the public acceptance of large-scale wind farm developments in the Netherlands?

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By Sofiane Ghenam – S2719940

Supervision: Terry van Dijk

Rijksuniversiteit Groningen

Master programme: Environmental and Infrastructure planning



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List of abbreviations

CBS: Centraal bureau voor de Statistiek
CNR: Concept Notitie Reikwijdte
GIS: Geographic Information System
KWh: Kilowatt hour
MER: Milieueffectenrapport
MW: Megawatt
NCTV: Dutch coordinator on counterterrorism and safety
NIMBY: Not in my backyard
NWEA: Nederlandse Wind Energie Associatie
PBL: Planbureau voor de leefomgeving
RUG: Rijksuniversiteit Groningen
RVO: Rijksdienst voor Ondernemend Nederland
SER: Sociaal-Economische Raad
TWh: Terawatt hour

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Abstract

As of 2018, the Netherlands generate 6.9 Terawatt hour (TWh) from on-shore wind farms, in sharp contrast with the intended goal of 35 TWh in 2030. Although spatially possible, there has been growing resistance from local communities. This research explores whether community ownership schemes could be able to improve public acceptance in large-scale wind farm developments, by reviewing five cases in the Netherlands. Results indicate that these schemes can indeed improve the public acceptance, though the opinions on which scheme is most suitable still differ among interviewed locals.

Chapter 1. Introduction

In 2015, the Paris Agreement was signed that brought all nations under a common cause to combat global warming and adapt to the effects of climate change. In order to combat the effects of climate change, the agreement was made to limit the increase in temperature well below 2°C, while actively pursuing to limit further increase in temperature to 1.5°C (United Nations, 2015). In response to the Paris Agreement, every country has pledged to constitute a national plan in which it states how the country will contribute to the commonly agreed upon goals stated in the Agreement. The Netherlands has stated to aim for a 49% CO₂-emission reduction by 2030 (Klimaatberaad, 2018). To achieve this goal, the Netherlands is reengineering its current means of energy generation. In 2018, the Dutch guidelines for the climate agreement were presented, which further specify the aims of the energy generation. The presented goal is to generate 35 TWh (Terawatt hour) renewable energy on-shore by 2030. The current and planned energy generation was 6.9 TWh from on-shore windfarms (RVO, 2018), and 2.1 TWh from solar energy in 2017 (CBS, 2018). Solar energy will be implemented in new and existing housing. This will, however, be far from sufficient to meet the energy goals. Therefore, studies have shown that the biggest portion of the 35 TWh will have to be generated by large-scale windfarms (Klimaatberaad, 2018).

It has, however, been widely recognized that one of the potential barriers of wind energy generation is the public acceptance of wind farms (Wolsink, Wüstenhagen, & Burer, 2007). While opinion polls show that public awareness of the importance of generating energy from renewable resources is high, the construction plans of large scale windfarms are often met with considerable opposition (Bell, Gray, & Haggett, 2005; Wüstenhagen, Wolsink, & Burer, 2007). This so called "Not in my backyard" (NIMBY) (Devine-wright, 2005a; Wolsink, 2006) concept is often being used to grasp the national-local or attitude-behavior 'gap'. In the Netherlands, this gap is a growing topic of debate due to increasing resistance of local communities against the construction of new wind farms. In 2018, the national "Coördinator terrorismebestrijding en veiligheid" (NCTV) (Dutch coordinator on counterterrorism and safety) has expressed concern about the increasing amount of radicalized wind turbine activists resulting from the construction of multiple large scale windfarms (NCTV, 2018). This might cause some major issues in the upcoming years, considering the Dutch ambition to construct additional and more sizable wind farms to generate the additional 24TWh of renewable energy on-shore.

The recent trends by the NCTV indicate a decline in the public acceptance of the development process of large scale wind farms in the Netherlands. The flaws in the development process are indicated by the fact that initiators of wind farms have to resort to court action in many cases (Langbroek & Vanclay, 2012). It will therefore be beneficial for the Netherlands to look into methods that can improve the public acceptance. Schemes which compensate local communities could be effective methods. At the moment there are no national laws which prescribe the use of any compensation schemes. However, the Nederlandse Wind Energie Associatie (NWEA) has drafted a code of conduct which consists of a loose set of guidelines for wind farm developers (NWEA, 2016). The NWEA code of conduct discusses several possible compensation methods which can be implemented. There is

particular attention for community ownership schemes. Academic research has remarked that especially community ownership schemes can be a helpful mechanism to achieve more public acceptance (Munday, Bristow, & Cowell, 2011; Warren & Mcfadyen, 2010). Most of the academic research on community ownership schemes has focussed on relatively small wind farm developments. However, in the Netherlands, there is an extensive need for more on-shore wind energy, the majority of which will be provided by large-scale wind farm developments (100 MW or larger).

This research will therefore explore the effect of community ownership schemes on the public acceptance of large-scale wind farm developments in the Netherlands. Four community ownership schemes will be incorporated in this research, those being: development trusts, energy tariffs, local and national shareholding. Through the use of five selected wind farm developments in the Netherlands, the effects of these schemes will be compared and discussed.

In the second chapter the existing literature the NIMBY approach will be discussed, which will be followed up with existing literature on community ownership approaches. Chapter 3 will discuss the used methodology of this research, which will include the Dutch policy context of large-scale wind farm developments. The chapter will conclude with the characteristics of the included case areas. In chapter 4 the results will be presented in depth. At first there will be attention for the general attitudes towards wind turbines. This will be followed with the presentation of the attitudes towards community ownership schemes specifically. The chapter will wrap up with the individual results from each community ownership scheme. In chapter 5, the results will be linked to the existing literature on community ownership schemes. In a similar vein to chapter 4, the general attitudes towards the wind farm developments will be discussed. This will be followed by a discussion on the main research question: can community ownership schemes have a positive effect on the public acceptance of large-scale wind farm developments in the Netherlands? Subsequently, the effect of the four assessed community ownership results will be discussed. In chapter 5, the effect of the four assessed community ownership results will be discussed. Chapter 5 will also conclude the research, which will be followed up with the final chapter. The final chapter will reflect on the thesis and the research process. Furthermore, some recommendations for further research will be stated.

Chapter 2. Theoretical background

In this chapter, the theoretical background of the study will be discussed. First of all, it is important to get a clear understanding of how public resistance against wind farm developments are being formed. Grasping what drives the public resistance might give us important insights. These insights can be useful for the improvement of the public acceptance of wind farm developments. There is considerable research on public resistance of wind turbines in academic literature. This field of research has been mainly dominated by the NIMBY concept, since it is the only theoretical framework for understanding the attitude-behaviour gap (Batel & Devine-Wright, 2015). Lately, the usefulness of the concept has, however, been disputed (Devine-wright, 2005a; Warren & Mcfadyen, 2010; Wolsink, 2007b). In the following section the NIMBY concept will therefore be critically reviewed.

2.1 Rethinking the NIMBY concept

Several studies have used the NIMBY concept to provide a spatial explanation of the public resistance against the construction of wind turbines (Warren, Lumsden, O'Dowd, & Birnie, 2005). Empirical studies on renewable energy projects have, however, not been able to support the NIMBY concept. In fact, in many cases the contrary seems to be case. Warren et al. (2005) described an 'inverse NIMBY syndrome', which revealed that residents living closer to the construction of wind farms were more approving than residents living further away. The 'inverse NIMBY syndrome' has been indicated by several studies on the public attitudes on wind farm projects (Damborg, 2003; Warren et al., 2005; Warren & Mcfadyen, 2010).

The effect of proximity can be partly explained by the direct financial benefits gained from allowing the construction of wind farms on the private property of farmers (Groot, 2016). The Dutch government will compensate land owners with SDE-subsidies, which states a payment of 12.000 euro per megawatt (MW). Modern Dutch wind turbines in large scale wind farms have a capability which ranges from 3 MW to 7.5 MW and can therefore result in a financial payment of up to 90.000 euro to property owners for one wind turbine (RVO, 2010). These large payments to property owners can positively alter their attitude due to personal gains (Groot, 2016). These payments can cause the opposite effect for local residents which do not receive any of these payments, even though they are subjected to the construction in their vicinity (Groot, 2016).

However, there have been other studies that reflect favourably on the assumption that residents living closest to the wind farms will have the most negative attitudes (Swofford & Slattery, 2010). Nonetheless, it is important to note that the study undertaken by Swofford & Slattery (2010) has been undertaken in the United States. This is important to note due to the difference of wind energy policies and regulations of the United States verses Western European countries such as The Netherlands, Germany and The United Kingdom (Swofford & Slattery, 2010; Warren & Mcfadyen, 2010).

Swofford & Slattery (2010) reject the NIMBY concept as well, even though their research supports the assumption that residents living closest to the wind farms will have the most negative attitudes. The overall assumption of NIMBYism in the traditional form suggests that those who are living within close proximity of wind farm projects would oppose wind farm developments. This was not evident from their research, which indicated that nearly over half of the local community was in favour of supporting further wind farm developments on their property (Swofford & Slattery, 2010).

Other NIMBY research has focused on the lack of full knowledge as root of the opposition. This literature presumes that opposition stemming from ignorance, irrationality and selfishness is caused by the 'information deficit' (Owens, 2001). This view holds that the information deficit can be overcome by separating the facts from the myths for individuals. This will provide the public with full factual information and can therefore make them more accepting towards large scale wind farms (Devine-wright, 2009). However, this approach does fail to grasp the underlying driving factors of the NIMBY concept too. Empirical studies using this NIMBY approach show that opponents of large scale wind farms are often highly informed, thereby undermining the information deficit theory. Individuals will not 'learn for the sake of learning' when there is no issue to drive them. This changes, however, when individuals are faced with an issue that concerns them. In those cases, individuals will actively seek out information in order to get some control over the issue imposed over them (Petts, 1997).

These findings are in line with Wolsink's rejection of the NIMBY model (Wolsink, 2007b). Wolsink argues that that the NIMBY term is an imprecise and simplistic concept which moreover is "lacking in any explanatory value" (Wolsink, 2007b). If the NIMBY concept would be true, it can be logically assumed that everyone would prefer wind farm developments in someone else's backyard, without allowing room for alterations of insights based on usefulness of location (Wolsink, 2007b). This assumption disregards the complexity of the planning situation, and does not acknowledge the importance of different spatial contexts. Wolsink therefore suggests that four forms of opposition. Firstly there is the true NIMBY-motivated form of opposition. Secondly, a not-in-any backyard form of opposition can be distinguished. This form of opposition is based on individual's complete rejection of wind farm developments, regardless of their location. The third form of opposition is based on an initial positive attitude towards the wind farm development, which overtime changes to a negative attitude. This change is contributed to discussions regarding the wind farm development. The last form of opposition disguised by Wolsink, is opposition due to faulty construction plans, without the rejection of the technology itself (Wolsink, 2007b).

The four forms of opposition can be a useful framework for the categorization of types of public opposition. Wolsink acknowledges that these types can exist alongside each other, and can be driven by a myriad of factors (Wolsink, 2007b). Literature on the topic of wind energy projects has indicated number of factors which influence the public perception of windfarms. These factors range from local perceptions of economic impacts, influences in the politics and development of windfarms to the fairness of the planned developments and the psychological connection to places (Devine-wright, 2005a; Warren & Mcfadyen, 2010; Wolsink, 2007b). Other authors have identified distributive justice and procedural justice as two particular relevant aspects in explaining the lack of public acceptance of wind farms (Lienhoop, 2018; Warren & Mcfadyen, 2010).

Capitalizing on these factors, a new wind energy approach has emerged which might improve the public perception of large scale windfarms. Academic literature suggests a significantly higher degree of public acceptance of wind parks in the case of community ownership of wind turbines (Hoppe, Graf, Warbroek, Lammers, & Lepping, 2015; Munday et al., 2011; Warren & Mcfadyen, 2010). While some research has been conducted on community ownership cases, comparative qualitative studies between cases where community ownership was and was not applied are lacking (Devine-wright, 2005b; Lienhoop, 2018).

2.2 International experiences with community ownership

Few studies have been conducted on the effect of community ownership schemes on the public acceptance of large-scale wind farm developments. As of now, such studies have not been conducted in the Netherlands. This is possibly due to the limited implementation of community ownership schemes in large-scale wind farms in the Netherlands (Kooij et al., 2018), which will be discussed in chapter 3.2. However, in several other countries community ownership schemes have however been implemented increasingly. The effects of these schemes on the public acceptance have been studied by several researchers (Cowell, Bristow, & Munday, 2011; Lienhoop, 2018; Warren et al., 2005). The following section will explore this existing international research on the implementation of community ownership schemes. Implementations from Denmark, Germany, the United Kingdom and Scotland are included. First of all, the mandatory Danish implementation of community ownership schemes will be discussed.

Denmark is widely regarded as the leading nation on community owned wind energy generation. From the beginning of the 1970 Danish communities have constructed small wind turbines through private-public partnerships (Olsen & Anker, 2014; Toke, 2005a). The public acceptance of wind farms has been very high compared to other European countries. However, recently opposition seemingly to increased (Warren & Mcfadyen, 2010). In 2008, the Danish Renewable Energy act was introduced which ensured the public participation with three regulatory measures for wind energy projects aimed at increasing the public acceptance (Olsen & Anker, 2014). The first measure is aimed at fully compensating property owners for the loss of the value of their property due to the construction of the wind turbines in their vicinity. This measure is called the 'compensation scheme'. The second measure, called the 'community benefit', provides funding for local projects to enhance the recreational and scenic values. The third and last measure is the 'co-ownership scheme'. This scheme imposes the obligation for wind energy developers to offer a minimum of 20 percent of ownership of the wind energy project to the local community (Olsen & Anker, 2014). This thesis will focus on the second and third measure to study if these compensation schemes have a positive effect on the public acceptance of the wind energy projects.

The co-ownership scheme will be discussed first. The co-ownership scheme of Denmark is aimed at citizens residing within 4.5 kilometres of the wind turbines. Through the scheme, these residents have preferential rights to purchase shares with a maximum of 50 shares per individual. The remaining shares will be put up for public auction if local residents have not bought them up (Olsen & Anker, 2014). Co-ownership schemes, also known as community ownership schemes, are increasingly being deployed in Europe in order to improve the public acceptance of the wind energy projects. The main argument for community ownership is generally that individuals who invest in wind energy developments have a significant personal commitment to them. Therefore, they are more likely to support the wind energy development (Toke, 2005b).

The co-ownership scheme has been met with varying success in Denmark (Olsen & Anker, 2014). In some cases, local communities have refrained from buying any of the shares, usually due to high levels of opposition. Due to the nature of the measure, this attracted other large investments from big investors, further fuelling opposition. In other cases the scheme has led to 'energy nomads' buying up properties in communities with planned wind energy developments which would enable them to buy shares (Olsen & Anker, 2014).

Research from other European nations have shown mixed results with community ownership schemes. A German study, which analysed three forms of compensation to residents (direct compensation to residents, indirect compensation to municipalities and co-ownership through shares), found that local residents were hesitant to buy shares because they are perceived as risky investments

(Lienhoop, 2018). However, it is important to note that the risk in this case was mainly fuelled by the bankruptcy of a large German energy developer. Local residents furthermore expressed displeasure associated with the shareholding due to high upfront costs, which could not be afforded by everyone, thereby excluding participants from participating (Lienhoop, 2018). The same resentment was found in a Dutch case report on a developing large-scale wind energy farm, in which a local residents expressed "to simply not have the financial means to participate"(Groot, 2016).

Olsen & Anker (2014) state that there was a tremendous rise of wind power generation in Denmark after the implementation of the co-ownership scheme. However, their literature research concluded that this does not resulted in a positive change of attitude towards wind farm developments. Moreover, they report that opposition against the developments has grown and is becoming increasingly more professional. This is in line with the Dutch trends indicated by the NCTV. In the bi-annual Terrorism Threat Assessment of 2018, the NCTV states that there have been an increasing amount of vandalism towards wind developers and that over 53 developers have received threatening letters concerning wind farm developments (NCTV, 2018). The NCTV concluded that "these trends can be seen all over Europe" (NCTV, 2018).

Due to these European wide trends in public opposition against wind farms, it is problematic to analyse the effects of community ownership. Decoupling these trends from the effects that community ownership can have on the public acceptance has proven to be difficult, which has resulted in conflicting results. In order to study these effects, it is necessary to do extensive research which accurately represents all of the underlying drivers of individuals (Wolsink, 2007b). Contrary to the literature research method of Olsen & Anker, it might thus be beneficial to review studies which use qualitative methods such as interviews or focus groups.

The German qualitative research of Lienhoop (2018) contradicts the findings of Olsen & Anker. The qualitative study of Lienhoop conducted three focus groups and a choice experiment with a total of 388 persons. The study found that rural residents regarded compensation for negative effects trough community ownership schemes as important. Participants expressed that the providing of shares would possitively influence the public attitude toward wind farm developments (Lienhoop, 2018). A Scottish case study conducted on two community owned wind farms is in line with the German study, remarking that communities felt a sense of ownership derived from the windfarms (Warren & Mcfadyen, 2010). This sense of ownership is revealed in the naming of the turbines, indicating the physical embodiment of the turbines within the community cohesion (Warren & Mcfadyen, 2010). These findings are in favour of research conducted by Devine-wright (2005a), which states that perceptions of wind turbines are not only based on their physical attributes, but also by socially constructed aspects, such as naming the turbines.

Creating a sense of ownership is one of the biggest challenges in wind energy developments due to their large impact on the place identity and therefore can cause a major place disruption for local communities (Devine-wright, 2009). Place attachment differs from individual to individual and place to place. Individuals strongly attached to certain places are expected to have great interest in changes and therefore might take an action to prevent unwanted forms to change, while individuals which are weakly attached to a place might feel less motivated to engage in such a change (Devine-wright, 2009). The development and planning of wind energy projects can span several years before decisions are made and construction begins. Throughout this long development phase, individuals will try to make sense of the changes in their environment, ultimately reshaping the place identity. With the use of a newly designed framework, Devine-Wright (2009) explores these individual responses to place changes due to wind energy developments.

The framework consists of five consecutive phases individuals experience when changes occur. In the first phase, individuals develop their understanding of the project through communication with trusted others, the media and through proposals from the project initiators (Devine-wright, 2009). In the following phase, individuals will set out to make sense of the change. Studies using social representation theory have shown that in this phase there can be a coexistence of meanings. This implies that individuals might agree with a general laws, but resist them on a local level (Batel & Devine-Wright, 2015). Through the anchoring and objectification, individuals will make the unfamiliar familiar. A study by Vorkinn & Riese (2001) found a negative relation between place attachment and the perceived opinions of changes caused by energy projects. Individuals which perceived the energy projects as place enhancing therefore had positive responses to the overall project. Other studies found no relation between place attachment and the perceived opinions, stating that individuals which were strongly connected within the community were likely to oppose energy developments regardless of their strength of place attachment (Stedman, 2002).

In the third phase, individuals will evaluate these the different meanings in order to establish if the change will be positive or negative. The evaluation of the interpreted meanings of the change will directly determine the next phase: the coping of the change. Especially the perceived fairness and trust of the developed project are leading factors in the evaluation and coping phases (Devine-wright, 2009; Gross, 2007; Lienhoop, 2018; Wüstenhagen et al., 2007). Two key aspects have been identified as important in explaining the trust and fairness of wind park developments: disruptive justice and procedural justice (Lienhoop, 2018). *Distributive justice* is primarily concerned with the fair distribution of outcomes. In the case of wind energy, the society as a whole is gaining from the construction of wind turbines due to climate protection, while local communities face direct landscape impact. This asymmetric distribution, therefore, creates a national-local divide, fuelling social resentment against wind energy projects (Lienhoop, 2018; Wolsink et al., 2007). *Procedural justice* is focused around the decision-making processes and the involvement of affected local communities. Ideal procedural justice involves a full participation process, respectful treatment and the ability to get one's voice heard. In the case of wind energy planning, local communities have limited influence, thereby restricting community participation. This further fuels public resentment against the wind energy projects (Gross, 2007; Wolsink, 2007b).

Qualitative research has proven that community ownership is able to improve the perceived disruptive justice due to financially including individuals in the development of wind energy developments (Lienhoop, 2018; Warren et al., 2005). Selling shares (the most common form of community ownership) has proven to be of strategic political advantage, since it creates a group of individuals which have made considerable personal commitment to the wind energy project. This group will therefore be more likely to support the wind energy developments (Toke, 2005a).

However, community ownership does not seem to improve the perceived procedural justice, because it does not provide involvement for residents in the project approval, which is the most important process of wind turbine developments (Lienhoop, 2018). This is a direct effect of the mandatory public participation in the spatial planning of wind energy developments. The existing legislation in countries such as in Denmark and Germany only ensures that public participation is available in the first development steps. Therefore they leave no incentive for wind energy developers to provide any participation in the decision making (Lienhoop, 2018). Lienhoop therefore suggest to include mandatory participation opportunities, especially for the approval step of the wind energy developments.

In the last phase of the proposed framework of Divine-Wright individuals will begin to act according to their perception of the ongoing change. This can manifest itself through a positive or negative action dependent upon the perceived attitude to the change. Individuals who perceive the change as positive might even start campaigning on behalf of the project and, in some instances, actively seek

financial involvement themselves (Devine-wright, 2009; Toke, 2005a). Individuals who perceive the change as negative often unite in order to combat the incoming change. These protests are increasingly occurring in the Netherlands and eventually resulted in property damages caused by protesters who combated the perceived changes (NCTV, 2018).

Derived from existing literature on community ownership that makes use of shareholding the following conceptual model was constructed:

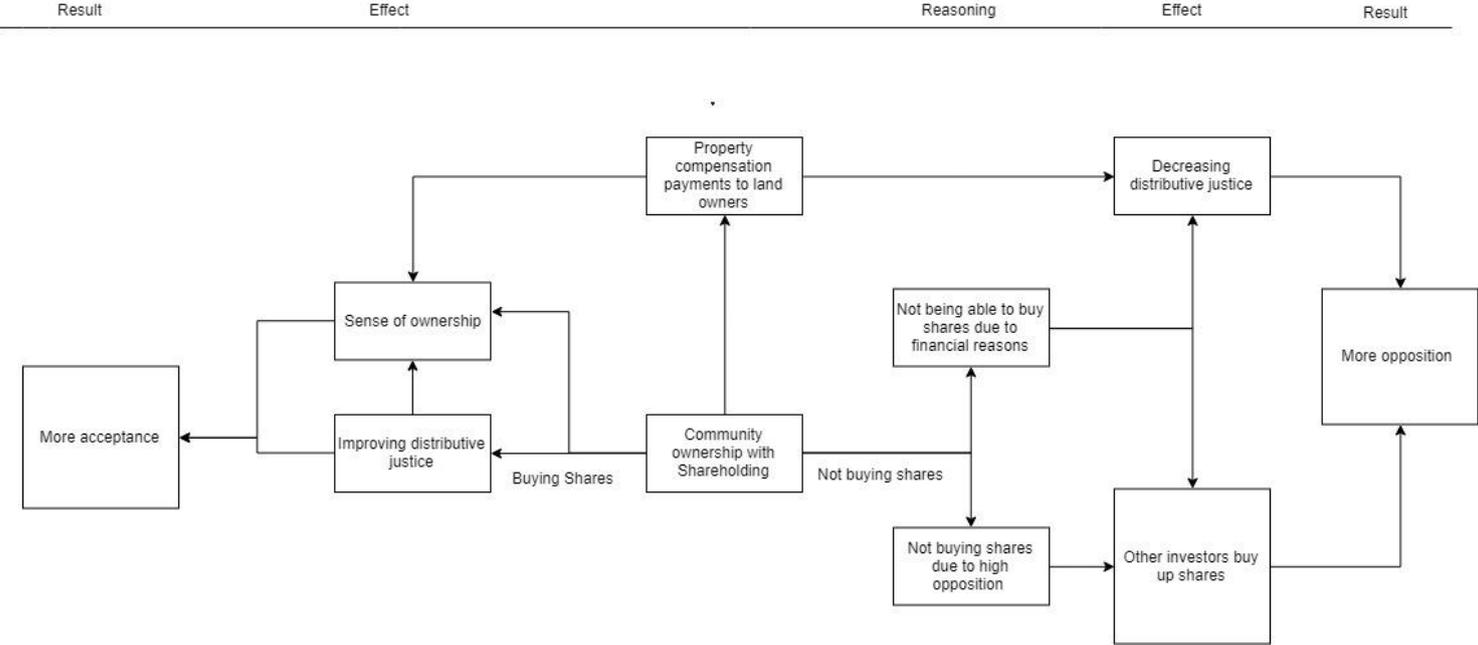


Figure 1: Conceptual model of shareholding use in wind farm developments

Several studies have indicated that community ownership is successful in improving public acceptance and therefore reducing societal problems for the approval and planning of wind energy permissions (Toke, 2005b; Walker, 2008). Literature on community ownership has, however, remained indecisive on which form of community ownership is most effective in improving public acceptance (Lienhoop, 2018; Walker, 2008). Lienhoop (2018) found in her research on different forms of community ownership that participants preferred indirect financial payments to the municipality instead of direct ownership through shareholding. For community owned large-scale windfarms in the Netherlands however, there has mainly been made use of shareholding. This is in contrast with smaller initiatives which have risen up across the country, which make use of other forms of community ownership (Schreuer & Weismeier-Sammer, 2010).

The provision of shares for local residents is a common practice in Denmark and Germany and is embedded in national legislation. There are however various community ownership schemes used in other countries (Lienhoop, 2018; Olsen & Anker, 2014; Walker, 2008). In some cases, there has been made use of an indirect form of community ownership often called community charities. Community charities are similar to the Danish community benefit measure and are hosted by the developers of the wind farm which materially support community amenities such as a village hall by providing electricity generated from the wind farm. Development trusts are comparable to community charities, but provide communities with financial funds for community enterprises (Walker, 2008). In other cases, cooperatives have risen up that mostly consist of public-private partnerships which directly own the wind farms and gain their revenue (Walker, 2008). Cooperatives distinct themselves from most of the other forms of community ownership due to also being available for all interested individuals or organizations, so not merely focusing on the local community (Walker, 2008).

However, academic literature on community ownership schemes do mostly revolve around the shareholding schemes (Lienhoop, 2018; Walker, 2008). Nonetheless, the German study conducted by Lienhoop (2018) concludes that other community ownership schemes might be more successful in creating more public acceptance. This research will therefore include a multiplicity of community ownership schemes.

Chapter 3. Methodology

Empirically studying public acceptance calls for a qualitative approach which is capable of identifying to the underlying drivers (Wolsink, 2007b). A qualitative study will be able to provide further insights in the underlying emotions and drivers of the public acceptance for wind farms due to in-depth contact with participants. This will tackle the heart of most misunderstandings of public acceptance, such as the NIMBY concept, which has proven to be insufficient in explaining the underlying drivers (Devine-wright, 2009; Wolsink, 2007b). In a similar vein, a qualitative approach will be able to decouple the current trend of European wide resistance from the effects of the assessed community ownership schemes.

3.1 Main approach

In order to study the local acceptance of large-scale wind farms, attitudes of individuals living around planned and developed wind project developments will need to be included. This research will therefore make use of semi-structured interviews, conducted with residents living around currently planned and developed large-scale wind farm projects. Semi-structured interviews are an excellent tool to explore the underlying drivers of certain behaviour or expressions and are therefore an appropriate tool to use in this research (Clifford, French, & Valentine, 2013). Another key advantage of face-to-face contact in the form of semi-structured interviews are higher response rates relative to postal or phone surveys and the potential to minimize misunderstandings (Warren et al., 2005). The primary aim of the semi-structured interviews was to test the hypothesis that community ownership is successful in raising the public acceptance of large-scale wind farms.

The chosen approach is to conduct a total of 25 semi-structured interviews distributed evenly among five cases. Due to the limited timespan of this research, it was not feasible to include any additional interviews. For future research, it is suggested to conduct additional interviews to further explore the effect of community ownership on the public acceptance of large-scale wind farms.

Similar to the Danish co-ownership scheme law, this research includes any residents living within 4.5 kilometres of wind turbines. A 4.5 kilometre buffer zone was generated for each individual turbine within the cases, using Geographic Information System (GIS), within ArcMap (ESRI Inc.) (Olsen & Anker, 2014). There is no public available information on which local residents have received payments for the construction of wind turbines on their land. The construction of wind turbines is in all cases on agricultural areas, which are sparsely populated with big plots of land owned by farmers living on them. Therefore, choice is made to exclude any residents living within a 1 kilometre radius of the wind turbines. This decision has been made to exclude citizens who possibly have altered attitudes towards the wind turbines due to the high probability of personal benefits derived from property payments (Groot, 2016). Continuing the same line of reasoning, this research will exclude any other participants which have received any payments linked to their land for the construction of the wind turbines. Following these criteria, a buffer zone was created of 1 to 4.5 kilometres of the turbines. Several buffer zones of the selected cases overlapped which each other. In these cases the overlapping areas were removed, which made sure that included respondents would reflect on one wind farm its properties.

Hereafter five points were randomly generated with the use of ArcGis which correlated with the 1 to 4.5 kilometre buffer zone. As close as possible to the randomly generated points the interviews were conducted. If a randomly generated point was located in a uninhabited area (e.g. bodies of water or nature land usages) the dwellings closest to the points were used as a reference point. Furthermore, dependence on the public transport dictated the choice of households which ruled out isolated dwellings.

This research will only include residents which have direct vision from their property of at least one of the turbines. Although this criterion can be seen as limiting for the research, in practice it will be negligible due to the towering size of the wind turbines. Some of the included wind parks are planning the construction of wind turbines with a maximum height of 249 metres, which will be visible for over many kilometres. Since there is no tool or dataset to include residents which have direct vision of one of the turbines, this will have to be assessed on sight.

Public attitudes portray a U-shaped curve along the development process of the wind farm projects (Wolsink, 2007b). Wolsink found that most residents would have a positive attitude towards wind power developments when there was no planned wind power development in their vicinity. However, when planned projects were announced, the public attitude would drop negatively. It was observed that this drop was relatively larger for wind farms compared to solitary turbines. After the construction of the projects, the public attitude was found to stabilize again, especially in the case solitary wind turbines which were found to enhance the public attitude of wind turbines even further than before the project announcement (Wolsink, 2007b).

In line with these findings, this research will only include residents which are residing at their household since the start of the relevant wind park project announcement. This decision has been made to ensure that residents will have experienced the whole development process of the project until the time of interviewing. Naturally, this differs for each case; the announcement date of the cases can be found in *table 1*. The "Concept Notitie Reikwijdte en Detailniveau" was chosen as the time of the announcement due to being the official starting notion for every wind energy development of over 100 MW in The Netherlands.

Although the cases are similar in most regards, the U-shaped curve could contribute to the observed differences in the assessed cases. This is caused by the fact that one of the included cases is at a different phase in its development process (Windpark Noordoostpolder, for example, has been completed). Moreover, the announcement dates of the included wind farm developments differed. It is conceivable that the U-Shaped curve occurs over time in one phase, despite the fact that Wolsink only assessed the change amongst three phases of the development process (No plan, a plan and a completed plan) (Wolsink, 2007b). Studying differences between the cases can therefore be of interest, which will be discussed in the discussion/conclusion.

Additionally, this research will only include residents above the age of 18 at the announcement date. When a randomly selected resident did meet the exclusion criteria discussed above, or chose not to participate in the research, other households in the street would be chosen for which the same criteria would apply. This will be done until five interviews would be conducted for every case. The interviews were structured in five sections, which would take about 10 to 20 minutes each in total. In the first section, the general information from the participant was questioned, together with the general opinion of the wind farm. The general opinion was questioned in twofold, once for the opinion at the time of announcement of the wind farm development and once for the opinion at the time of the interview.

In the second section, two shareholding schemes were discussed which differentiated between cooperatives (shareholding for any interested individual), and local shareholding. In this section explores whether participants themselves would have a more positive attitude towards the wind farm if these schemes would apply. Moreover, they were asked the same question, but this time empathising with an individual with an opposing view of their own. Finally, the perceived effects of the shareholding schemes on distributive and procedural justice was questioned in this section. The following sections regarded development trusts and energy tariffs which followed the same questioning of the shareholding section. In the fifth section, participants were asked to rank the community ownership schemes from most to least desirable, which they would subsequently need to motivate.

All interviews were digitally recorded and transcribed with the use of ATLAS.TI, a software package to conduct analyses on qualitative data. With the use of ATLAS.TI a great variety of codes were formulated in order to analyse the transcribed interviews. Before the interviews were conducted there were 24 codes deductively created which found their origin in existing literature. Besides the deductive codes there were 8 inductive codes formulated which arose while interviewing and transcribing. A network overview of the formulated codes can be found in the attachments. Within this network a distinction has been made between inductive and deductive codes. All data is anonymized and stored at a safe data storage location at the Rijksuniversiteit of Groningen (RUG). To ensure full anonymity, the participants were given a pseudonym. Furthermore, the research was conducted in accordance with the ethical guidelines of the University of Groningen (University of Groningen, 2012). Participants were asked to sign an informed consent form to ensure full disclosure and a copy of this can be found in the attachments.

3.2 Dutch policy context of on-shore wind energy planning

The Netherlands has been a pioneer country on the discourse of sustainable transitions and have been one of the first countries which had wind turbines constructed (Vasileiadou, Huijben, & Raven, 2016). In the 1970s, communities and individuals started experimenting with alternative energy generation out of dissatisfaction with the national government energy policy. The first constructed wind turbines in the Netherlands were constructed on a grassroots initiative basis as a reaction to the oil crisis and anti-nuclear energy protests (Oteman, Kooij, & Wiering, 2017). Through citizen ownership of the wind turbines, a small number of privately owned wind turbines arose in agricultural areas throughout the Netherlands. At this point local shareholding schemes arose, mostly consisting of local farmers who funded the construction of the wind turbines with the use of shares (Kooij et al., 2018). Members of the cooperation received interest over their shares from large suppliers which bought their turbines. These developments occurred without any political influence, while the 1989 Electricity Act facilitated the shareholding scheme by obliging the energy supplier to buy the produced electricity for a fixed price and guarantee grid access (Agterbosch, 2006).

Between 1991 and 1997 other Dutch community owned turbines have emerged, mainly being located in the province of Friesland (Oteman et al., 2017). These community owned turbines didn't only provide benefits to individuals, but also to the community as a whole (Trommelen, 2014). These community benefits were very similar to the development trusts and community charities which are common in Great Britain (Walker, 2008). Community benefits were funnelled into public amenities such as local football clubs, church restorations and fairs. These small scale grassroots initiatives were vastly different in nature than the so called 'first wave of grassroots initiatives', due to serving the local community rather than invested individuals, and can be seen as the first community benefit schemes in wind energy planning in the Netherlands (Kooij et al., 2018). This study will refer to these schemes as development trusts. Development schemes are mostly being used in grassroots initiatives, but recently there have been large scale wind farm developments which make use of such schemes (Mer, 2004; Witteveen&Bos, 2016)

Later in 1998, the Elektriciteitwet (Electricity bill) was passed in the Netherlands which concluded that all wind parks with an installed capacity of over 100 MW should fall under the coordination of the national government (Elektriciteitwet, 1998). The Elektriciteitwet was introduced to promote the use of renewable energy generation on land in order to reduce the reliance on fossil fuels. In 2001 this was further promoted by the Dutch government, which embraced the term 'energy transition'. This would define the transition for sustainable forms of generating energy for the following decade (de Boer & Zuidema, 2013). The Dutch government mainly chose to focus on large wind farms throughout the last decade without much attention for niche projects and local initiatives (de Boer & Zuidema, 2013).

In the energy agreement of 2013, new policies were being implemented in an agreement between the national government, employers, business representatives and environmental groups. The aim of this agreement was to further stimulate the construction of renewable energy sources in order to reach the European Union of set goals of 14% in 2020 (SER, 2013). To reach this goal, the agreement calls for extensive collaborative action of all involved sectors to strengthen the public acceptance of wind farms. The agreement concludes that the forceful implementation of current and upcoming developments is counter-productive. The social acceptance will need to be strengthened on multiple scales, with a special focus on the local and the provincial scale. This can be done through innovations in wind turbines which will be able to produce more energy per square kilometre, the remediation of old and inefficient wind turbines and integrating wind turbines efficiently in the landscape (SER, 2013).

A small paragraph in the 2013 energy agreement was dedicated to the compensation and participation of local communities to improve the public acceptance. The Dutch government acknowledges the Danish success of the Renewable Energy act of 2008, which anchored the compensation schemes in national law. Following the energy agreement, a similar law has been put in place in the Netherlands which states that developers of wind developments of 15 MW or more will need to include the members of local communities in the development process to strengthen the public acceptance. Shareholding, development trusts and other co-ownership schemes for local communities are suggested methods in the agreement for improving the local acceptance (SER, 2013).

Furthermore, there is another co-ownership scheme, which has received little attention. It is primarily being used in the United Kingdom. The scheme uses reduced energy tariffs for local affected communities of wind energy developments (Munday et al., 2011; Walker, 2008). Through this scheme, local households can get a reduction on their energy taxes based on their zip codes in relation to the planned wind energy developments (Kooij et al., 2018). This scheme has been referred to the 'zip code rose project' which will compensate zip code areas and its adjacent areas for small scale wind energy developments. The national government would grant a tax reduction of 7,5 cent per kWh for energy generated by shareholding cooperatives (SER, 2013). The agreement specifies that the involved actors will have to make further agreements for the exact implementation of this scheme and specifies that costs accompanied with this scheme can be passed on to the consumer (SER, 2013). While the zip code rose project was mainly aimed at small scale grass root projects, it could also be beneficial for larger scale projects. Due to extensive lobbying of grass root initiatives and support groups, the tax reduction was increased to 10 cent per kWh and was found fairly successful with 38 projects in 2016 (Kooij et al., 2018).

Lastly, the 2013 agreement specifies that the renewable energy sector will set up a code of conduct together with the nature and environmental organisations to formalize measures to improve the public acceptance. In 2014, the Nederlandse Wind Energie Associatie (NWEA) established this code of conduct, which is the leading document for the sector on improving the public acceptance and participation as of 2019 (NWEA, 2016). The code of conduct contains a loose set of guidelines for the sector with the overarching acknowledgement that every development has its own complex characteristics.

Firstly the document discusses a participation plan for upcoming developments. In upcoming developments a social impact assessment of the involved area of the development will need to be taken in consideration. On basis of a so called participation ladder there will be made a distinction between informing, consulting, structurally involving, consensus building and co-ownership for the local community. Local actors and residents will be included in every step of the project process which includes the developments, construction and exploitation. The project developer will be responsible for the participation and will need to provide the local community with information about the project and participation moments. The code of conduct ensures that all insights will be taken in account and form the basis for further financial and spatial measures further on in the project process (NWEA, 2016).

Secondly, the code of conduct touches upon several suggested forms of financial participation, which can be implemented according to the case specific context of a wind park development. It is specified that financial participation scheme will be chosen, which will be able to improve the public acceptance the most. The first example is a co-ownership scheme for wind farm developments. In the given example of co-ownership, the ownership will not be exclusively available for the local community. Shareholding is the second example given, which is akin to other shareholding schemes seen in Denmark, Germany and the United Kingdom (NWEA, 2016; Walker, 2008). It is important to note that shareholding in this context is seen as inherently risk bearing for the participants (NWEA, 2016). The third example given are development trusts, which are granted to the local community. For these financial participation schemes, an independent board will need to be installed, which will ensure proper investments will be made in favour of the local community. Finally, reduced energy tariffs are being discussed, which can be granted to the surrounding households of developments (NWEA, 2016).

Four years after the energy agreement of 2013, it could be concluded that the impact of the Dutch energy transition had been fairly limited, with about 6,6% of the total generated electricity being generated with sustainable means (Eurostat, 2017). In 2017, the Netherlands was the second to last scoring country of the European Union on the share of energy generated by renewable sources and had to make tremendous efforts to reach its 2020 target of 14% (Eurostat, 2017). In line with the energy agreement of 2013, there has been a strong focus on the remediation of old wind turbines with the use of new innovative models (RVO, 2018). A national study on wind energy on land in 2017 concluded that wind turbines are increasingly being implemented with performance enhancing techniques such as Lidar, bat detectors, bird radars and new techniques for obstacle lightning. The report concluded that these techniques can improve the public acceptance of the wind turbines, but can also result in higher costs for developers (RVO, 2018). In 2017, a total of 851 MW was being remediated, which in turn would add 917 MW to the total renewable energy generation capacity of the Netherlands (RVO, 2018).

At the end of 2018, the National planning agency on liveability (In Dutch: PBL) announced that the share of renewable energy would be expected to be 12,4% in 2020, which would mean the Netherlands will not reach the goal for 2020 (PBL, 2017)

3.3 Selected cases

Five cases have been selected for this comparative case study. The selected cases introduced below show a high degree of similarity due to all being previously realised wind parks, which have lately been updated by replacing the existing turbines, or building additional turbines to the existing infrastructure. All of the selected cases are on-shore windfarms, although some of the cases include a set of turbines situated in the water at the shore. The selected cases have an installed capacity of over 100MW, which means they qualify as large-scale wind energy farms. Wind parks with an installed capacity of over 100 MW are considered large scale wind parks in this research, since they automatically fall under the national government coordination by Dutch law (Elektriciteitwet, 1998). Furthermore, an environmental impact assessment (MER in Dutch) was required for all of the included cases. An MER is required for decisions that allow the creation, modification or expansion of a wind farms. In the MER the effects of the development plans on its environment will be assessed. If a wind farm development will have a larger capacity than 15 MW and/or 10 or more turbines a MER will need to be conducted (RVO, 2019b). The MER is often included in the Concept Notitie Reikwijdte (CNR), which can be seen as a guiding document for wind farm developments. For all cases, a CNR was available, which has been used in this research to describe the general characteristics of the development plans.

The type of community ownership differs from case to case. Besides the Windpark Wieringermeer, all cases make use of mixed community ownership schemes. For this research, the schemes were categorized in four groups: National shareholding (shareholding for any interested individual), development trusts (funding in public amenities), energy tariffs (Energy tax reduction schemes e.g. zip code rose project) and shareholding (the provision of shares to local communities). These schemes correspond with the financial participation schemes given by the NWEA code of conduct document for the energy sector (NWEA, 2016). In *table 1*, the general characteristics of the included cases are listed.

	Installed capacity	Remediated & new turbines	Maximum blade height	Announcement date (CNR)	Development phase	community ownership schemes
Windpark Noordoostpolder (Windpark Noordoostpolder, 2019)	429 MW	55 remediated-86 new turbines	198,5 meter	2004 (mer, 2004)	Completed	development trusts, local shareholding and energy tariffs
Windpark Wieringermeer (Windpark Wieringermeer, 2019)	300 -400 MW	74 remediated-106 new turbines	177 meter	2013 (Pondera Consult, 2013)	Phase 5	Development trusts and local shareholding
Windplan Windplan Groen (Windplan Groen, 2019)	300 – 400 MW	98 remediated-90 new turbines	249 meter	2016 (Pondera Consult, 2017)	Phase 1	Local shareholding, national shareholding and energy tariffs
Windpark Windplan Blauw (Windplan Blauw, 2019)	250 MW	74 remediated-61 new turbines	248 meter	2016 (Witteveen &Bos, 2016)	Phase 2	energy tariffs, development trusts, local shareholding and shareholding
Windpark Zeewolde (Windpark Zeewolde, 2019)	300 MW	220 remediated-91 new turbines	220 meter	2015 (Pondera Consult, 2015)	Phase 3	Local shareholding and National shareholding

Tabel 1: Summary of the included cases

All of the selected cases are situated in polders which are drained by the former Zuiderzee Works. These polders have been drained between 1930 (Wieringermeerpolder) and 1967 (Southern Flevoland). All polders formed the province of Flevoland, with the exception of the Wieringermeerpolder, which is part of the province of North-Holland. The polders have ideal circumstances for wind farm developments due to the modern, flat and open landscape. As a result of these properties, a multitude of wind turbines have been constructed in the polders during the last decades (Provincie Flevoland, 2016). The inhabitants of the polders have, therefore, been subjugated to the turbines for a long time, which could result in a higher public acceptance towards wind farm developments. However, the new wind turbines are significantly higher and will, in most cases, be placed in different locations. This has led to significant opposition in the majority of the cases (De Dronter, 2019b; Inspraak Bureau Energieprojecten, 2017; Langbroek & Vanclay, 2012; Raad van State, 2018). Moreover, these common characteristics will contribute to the comparability of the cases. *Figure 1* illustrates the selected areas and their assessed areas.

General overview the assessed area's

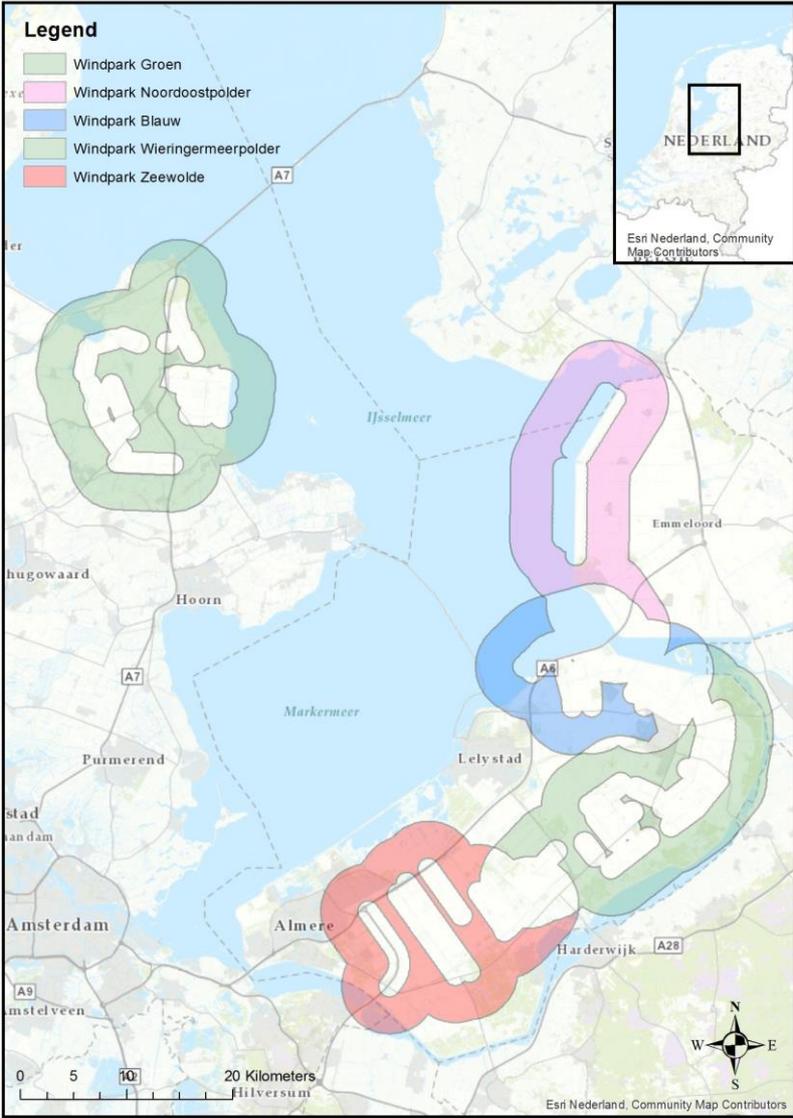


Figure 2: General overview of the assessed areas for the individual cases

3.3.1 Windpark Noordoostpolder

Introduction of the case

Windpark Noordoostpolder is wind farm realised in 2017 and situated in the upper part of the Dutch province of Flevoland. Windpark Noordoostpolder is the biggest windfarm in the Netherlands to date. The windfarm has an installed capacity of 429 MW, which is generated by a total of 86 turbines. 48 of the turbines are located in the coastal water of the IJsselmeer and 38 are located on-shore. The maximum tip height of the turbines located in the water is 149 meter and for the inland turbines 198.5 meter (Windpark Noordoostpolder, 2019). Before the realization of the wind park Noordoostpolder, a set of 55 much smaller turbines were being remediated which were constructed in 1987. These turbines had a combined capacity of 15MW and had a shaft height of 30 meters. The new plan was initiated by numerous investors and local farmers who united and provided land for the consortium of Koepel windenergie Noordoostpolder (Langbroek & Vanclay, 2012). The park is situated on the edge of the border between the municipality of Noordoostpolder and the enclosed municipality of Urk (see figure 2). There was much support from the municipality of Noordoostpolder, while the public acceptance of the municipality of Urk was low, which manifested itself in protests against the wind farm development.

Unlike the new municipality of Noordoostpolder, the municipality of Urk knows a long history. Before the draining of the Zuiderzee (South Sea), which was situated at the current municipality of Noordoostpolder, Urk was an island of circa 80 hectares. The islands history goes back 1000 years and has a distinct cultural identity characterized by fishing and religious conservatism (Langbroek & Vanclay, 2012). After the land reclamation, the island of Urk became a municipal enclave in the newly founded municipality of Noordoostpolder.

At the start of 1998, the consortium koepel windenergie was founded and it started lobbying for an expansion of the in 1987 placed wind farm. This gained little traction in the following years, until making its first appearance in the provincial vision of Flevoland in 2004 (in which both municipalities are located) (mer, 2004). In 2008, the public support for the wind farm grew and was presented in the national media. This was followed by a swift reaction from protesters, who united under the name "Urk Briest". A month later, in 2008, the Dutch national government announced to give special status to the project, which meant they took over all planning procedures of the koepel windenergie. In 2010, the council of Urk presented an alternative plan for the wind farm development which suggested another location than the original plan. The council of Urk suggested that the alternative plan would be able to achieve more public acceptance. The alternative plan was not discussed any further due to the high investment costs made up until that point. Furthermore, the proponents suggested that the original plan would succeed to be implemented due to the national governmental promises, which agreed to pay nearly €1 billion in subsidies (Langbroek & Vanclay, 2012).

At the final deadline for appeals against the wind farm, 39 appeals were received which included appeals from the municipalities of Urk and Lemmer and about 700 appeals from citizens of Urk which were combined in one appeal. These appeals were rejected by the Council of state in 2012, which marked the beginning of the construction of the wind farm.

Financial participation

Residents and farmers of the Noordoostpolder, Urk and former Lemsterland can participate through shares in the outer-dike part of Windpark Noordoostpolder, which was built in the IJsselmeer. These individuals have the exclusive right to purchase these shares and cannot be traded. For a period of 20 years, the consortium will pay € 10,000 annually to five surrounding villages as a form of a development trust. These villages are: Creil, Espel, Nagele, Rutten and Tollebeek. Furthermore, the consortium will pay an additional €60,000 yearly to the municipality of Urk for the upcoming 15 years (Langbroek & Vanclay, 2012). For residents close to the Noorder- and Westermeerweg (the roads at which the turbines are located) there is a reduced energy tariff scheme in place. Residents can receive an average of approximately € 1,800 per year refunded on their energy bill (Windpark Noordoostpolder, 2019).

Windpark Noordoostpolder

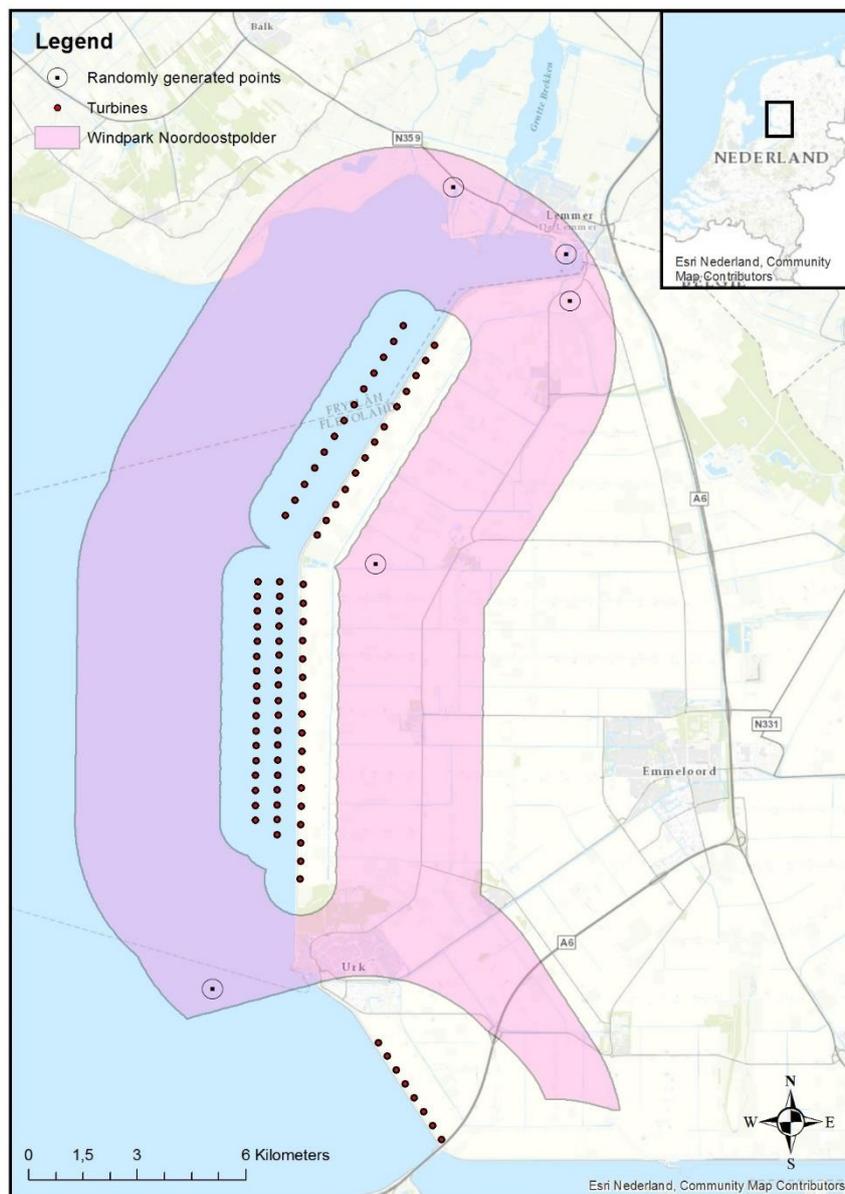


Figure 3: Windplan Noordoostpolder and the randomly generated points

3.3.2 Windpark Wieringermeer

Introduction of the case

Windpark Wieringermeer is a wind farm which is under construction as of 2019. The wind farms is situated in the Wieringermeerpolder, which is the first area that was drained by the Zuiderzee works. The Wieringermeerpolder is located at the tip of the province of Noord-Holland, unlike the other drained areas, which would become the province of Flevoland. Before construction started in 2018 there were various actors in the area who had wind turbines on their properties. These actors have collaborated under the name Windkarcht Wieringermeer. In total 74 existing turbines will be remediated for which new innovative turbines will be put in place. 34 solitary wind turbines will be relocated to other sites to tackle the current sprawl of the wind turbines across the area. This will be done by placing the wind turbines in a line arrangement. In total, 106 new turbines will be constructed which in total will generate about 300 to 400MW. 82 turbines are built by the energy supplier Vattenfall (formerly known as Nuon) which will have a maximum tip height of 177 meters (Windpark Wieringermeer, 2019). Moreover a turbine testing facility from Vattenfall is located at the development site which will be enlarged (Pondera-Consult, 2013).

In 2016, a total of 40 local residents and businesses have submitted appeals against the wind farm development. The appeals note that there is insufficient public acceptance in the local communities of the Wieringermeerpolder. In addition, the appeals indicate that there has not been adequate research of the utility and necessity of the wind park. Local residents expressed their fear that living enjoyment will be affected by visibility, light and noise nuisance as well as shadow flickering of the wind turbines (the effect caused when rotating wind turbine blades periodically cast shadows through constrained openings such as the windows of neighbouring properties). They are also afraid that the landscape and nature will be affected. The Raad van State (National Administrative Law Division) has declared all these objections unfounded with the exception of one appeal. The appeal was about a local gliding airport, which would need to be relocated (Raad van State, 2016)

Financial participation

A development trust has been established for the surrounding communities of the wind farm of Wieringermeer. The trusts can be used for general social purpose and / or promote sustainability in the Wieringermeer. Residents living within the range of 3.5 kilometres will be able to submit conceptual ideas that are eligible for (partial) financing. The Wind Fund Board determines which projects are awarded a grant. This may involve, for example, keeping a swimming pool open or the realization of a half-pipe for the youth. As of 2019, the Windloket Wieringermeer Foundation will soon determine which ideas will be rewarded. Proposals for projects can be submitted when the park opens (Windpark Wieringermeer, 2019).

A special office has been put in place, which will provide the local community with information about the Wind farm. The office will handle questions and complaints from local residents and other interested parties. Moreover, the office will also be responsible for the payment of the shares which can be bought by residents living up to 1250 meters from the wind farm. The office is an independent foundation in formation with three directors - chosen by the initiators and the Environment Council - and an employee who takes on the executive duties (Windpark Wieringermeer, 2019).

Windpark Wieringermeerpolder

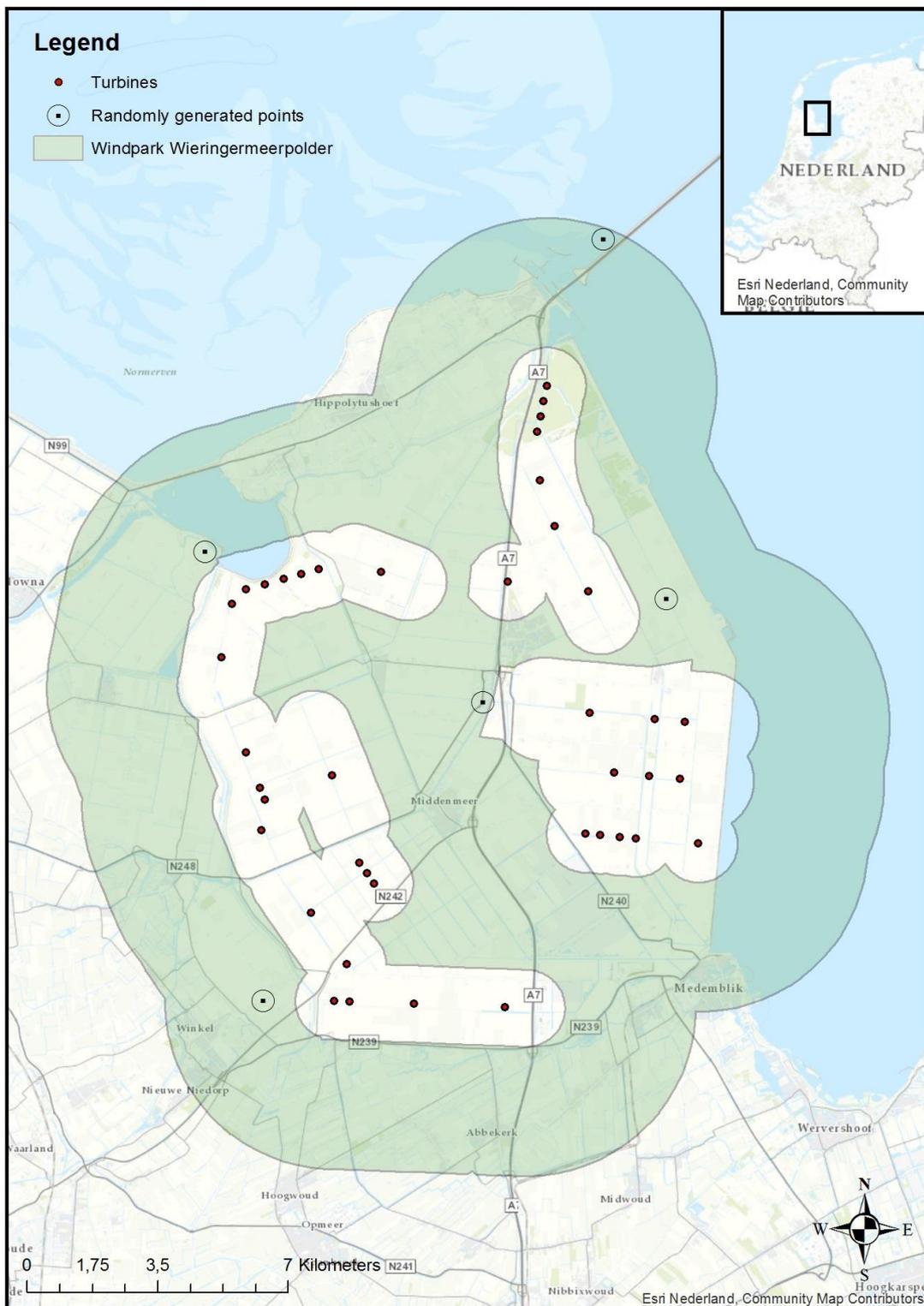


Figure 4: Windplan Wieringermeerpolder and the randomly generated points

3.3.3 Windpark Windplan Groen

Introduction of the case

Windplan Groen is situated at the eastern part of the Flevopolder. The Flevopolder is the biggest area which has been drained by the Zuiderzee works and became part of the similarly named province of Flevoland. Due to the spatial properties of the province of Flevoland, it has been responsible for over a quarter of the wind energy production in 2016 (Provincie Flevoland, 2016). The province of Flevoland has developed a spatial development plan of wind energy on land for the future in 2016 which would guide further developments. This is in line with the national Dutch government decision to upscale older models of wind turbines with new innovative models (SER, 2013). The vision calls for more coherent planning of the wind turbines than was done in the past, to improve the capacity and the quality of the landscape (Provincie Flevoland, 2016). The Flevopolder has been divided in three wind development regions, of which Windplan Groen is the most eastern region. The Flevopolder is a highly agricultural area with several spread out villages. Windplan Groen is entirely situated in the municipality of Dronten, in which the villages of Dronten, Biddinghuizen, Ketelhaven and Swifterbant are located. Dronten, Biddinghuizen and Ketelhaven are surrounded by Windplan Groen, while Swifterbant is surrounded by the neighboring wind farm of Windplan blauw.

In the first development plan, a total of 109 turbines would be constructed. This total was reduced to 90 in March 2019 due to the recently announced airport of Lelystad (Windplan Groen, 2019). The 90 newly placed wind turbines will generate about 300 to 400MW. The construction of these wind turbines will be combined with the remediation of older models. All 98 currently active wind turbines in the development area will be remediated for bigger turbines with a maximum tip height of 249 meters (Windplan Groen, 2019).

There has been extensive communication with local residents to provide insights and public participation (Windplan Groen, 2019). Despite the communication there is resistance against the wind farm development in the villages of Biddinghuizen and Ketelhaven (De Drontenaar, 2019c). Residents expressed to be worried about the placement of the wind turbines in relation to their homes. In the current, plan the nearest wind turbines to both villages are placed at 859 meters. There are no guidelines in the Netherlands for the minimal distance at which wind turbines can be placed from residential areas, but a minimum distance of 400 meters is often chosen for the construction. This correlates with the distance at which sound nuisance can have an effect on the surrounding areas (Windplan Groen, 2019). The wind turbines will also be equipped with innovative technology which will shut down the wind turbines when shadow flickering will occur for the neighbouring properties. In the Netherlands, a maximum of 6 hours of shadow flickering is allowed each year for neighbouring properties, which will be ensured with these innovative techniques (Economische Zaken, 2016). Lastly, the local communities expressed to be concerned about the lights, which will need to be placed on top of the wind turbines. In the original plan of the wind park the wind turbines would be equipped with flickering lights similar to the wind turbines of Noordoostpolder (mer, 2004). In the latest plan the lights will be replaced with non-flickering lights, which can be muted in clear weather conditions. In addition, innovations in radar technologies will be followed closely which can possibly link incoming aircrafts to momentarily turning on the lights (Windplan Groen, 2019).

Financial participation

Residents of the province of Flevoland will have the opportunity to financially participate in Windplan Groen through shareholding. A distinction has been made between development participation and exploitation. Initiators who are co-owners of a wind farm, including the existing lines or solitary wind turbines that need to be remediated, can financially participate in the project through shareholding. Other residents and entrepreneurs just beyond the project development range can participate in the developments in a similar shareholding schemes through the Windshare association. All other residents of the municipalities involved can participate in the exploitation phase of the wind park. Furthermore, local major energy users have expressed to be interested in reduced energy tariffs. The various participation options are further elaborated in the development phase (Windplan Groen, 2019).

Windpark Groen

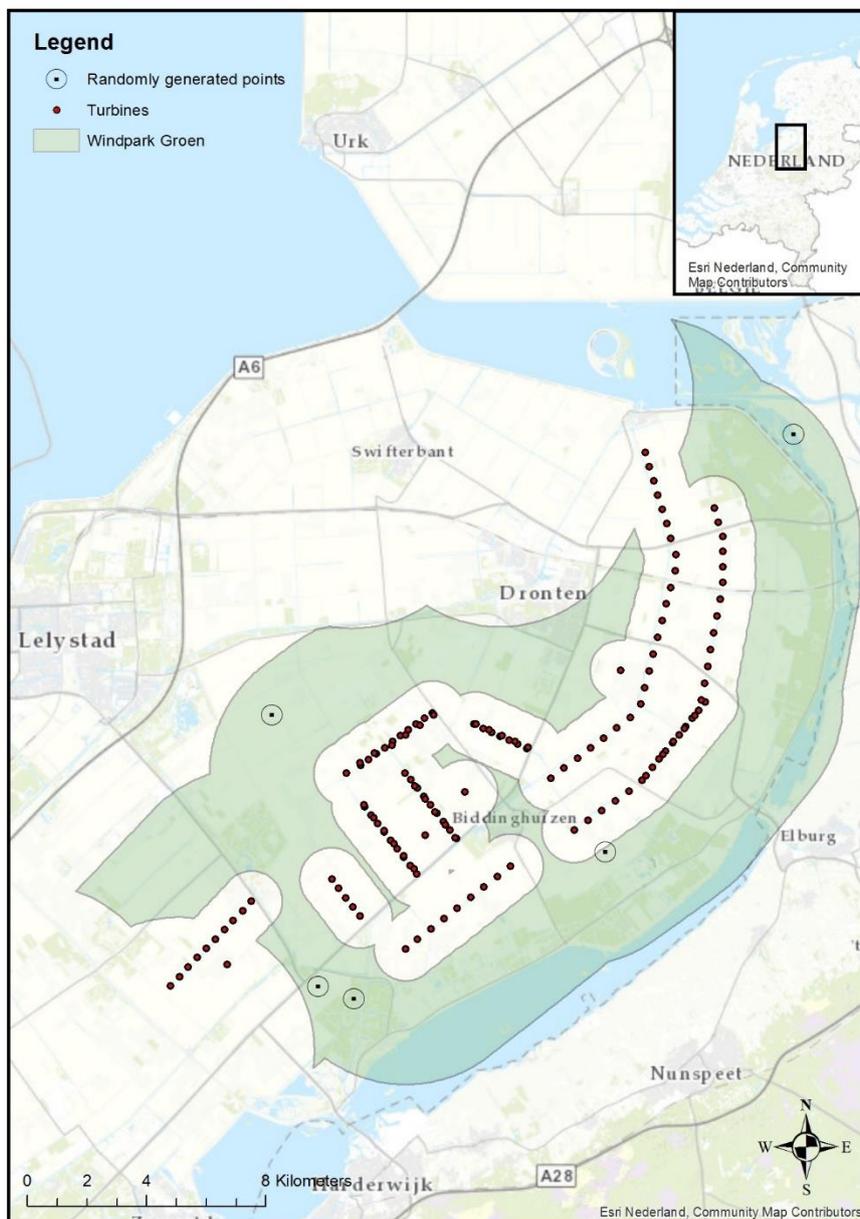


Figure 5: Windpark Windplan Groen and the randomly generated points

3.3.4 Windpark Windplan Blauw

Introduction of the case

Windplan Blauw is located at the northern part of the Flevopolder and is similar to the Windplan Groen part of the spatial development plan of wind energy on land of the province of Flevoland (Provincie Flevoland, 2016). The wind farm development surrounds the village of Swifterbant, which is part of the municipality of Dronten. On the western edge of the wind farm development, the municipality and city of Lelystad is located and on the eastern edge the village of Dronten itself is located. The wind farm is being developed in collaboration between Vattenfall and the cooperative SwifterwinT, which consists of local farmers who currently own wind turbines in the area (Witteveen&Bos, 2016). The existing 74 wind turbines will be remediated, for which a total of 61 bigger turbines will be put in place. The new turbines will be placed in a line formation to improve the quality of the landscape. A set of 24 turbines will be placed in the coastal water of the IJsselmeer and the remaining 37 turbines will be placed on land. The turbines in the IJsselmeer will have a tip height of 213 meters and the inland turbines will be slightly higher with a tip height of 248 meters. In total, Windplan Blauw will generate about 250 MW (Witteveen&Bos, 2016). The wind farm will be equipped with the same dimmable lights and shadow flickering techniques as Windplan Groen will use, in order to reduce any nuisance (De Drontenaar, 2019b).

From the start there has been resistance in the village of Swifterbant against the placement of the windturbines. The village of Swifterbant with its 6347 inhabitants has collected about 800 signatures from worried local inhabitants (De Drontenaar, 2019b). The inhabitants objected to the placement of a set of 5 wind turbines, which were planned near the village. Some of the inhabitants have united under the protest group "Windbrekers". The protest group expressed that the wind turbines will have a negative effect on the liveability and health of the local community and was willing to look into alternatives which would relocate the wind turbines to other locations further away from the village (De Drontenaar, 2019b). The developers have addressed these objections and relocated 4 of the turbines 80 meters further away from the village. The developers expressed to be disappointed by the need to relocate 4 of the wind turbines, since they had planned to financially contribute to the forest which surrounds the village. This financial compensation will be cancelled due to the wind turbines not being placed within the forest after the relocation (De Drontenaar, 2018b). After the relocation, the Windbrekers have, however, continued their protests stating: "we are not against wind turbines, we are however against the five turbines near the village" (De Drontenaar, 2019a).

Financial participation

Windplan Blauw makes at least 2.5% of the total investment sum available in the form of shares for residents and entrepreneurs from the project area and surrounding cores. These sale of shares are expected to begin at the start of construction phase. It is also possible to become a "friend of windplan Blauw". A friend of windplan Blauw can participate in the designing of the policy framework of the community shareholding scheme. Questions such as; who can participate and under what circumstances can local residents participate, are being addressed. Furthermore, Windplan Blauw will make use of energy tariffs which will provide electricity generated from the wind farm to the environment.

Lastly, development trusts are also being used. The development trusts are aimed at improving the quality of the environment by developing physical and social facilities for nature, recreation and/or culture. Residents can apply for development trusts similar to the development trusts of Windpark Wieringermeer (Windpark Wieringermeer, 2019). The development trusts are being paid by the initiators, who will pay € 1050 per prepared Megawatt per year. That amounts to approximately € 250,000 per year for the whole development (Windplan Blauw, 2019).

Windpark Blauw

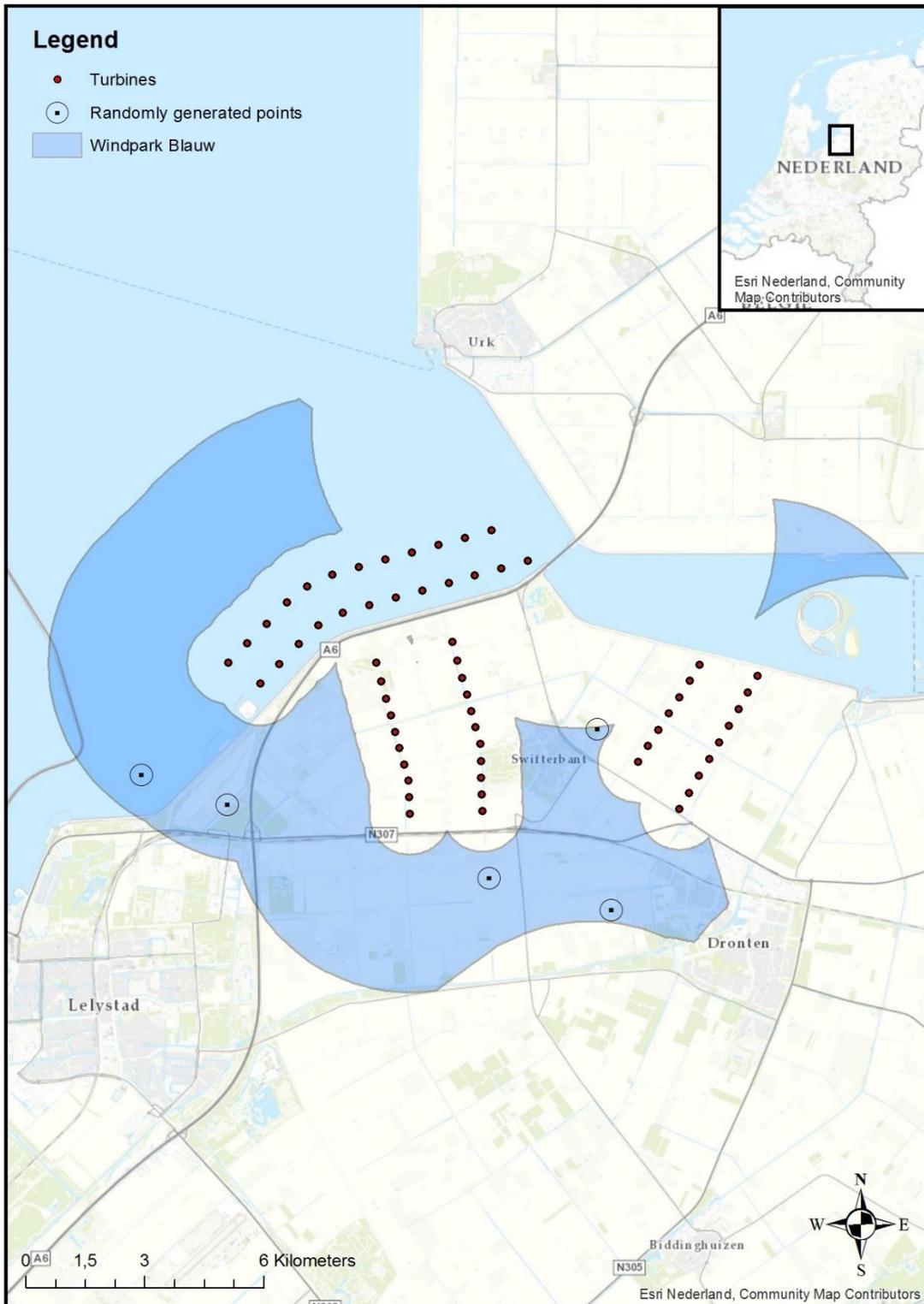


Figure 6: Windpark Windplan Blauw and the randomly generated points

3.3.5 Windpark Windplan Zeewolde

Introduction of the case

Windplan Zeewolde is located at the southern part of the Flevopolder and is likewise part of the spatial development plan of wind energy on land of the province of Flevoland (Provincie Flevoland, 2016). The wind farm is situated between the cities and municipalities of Almere and Zeewolde. In an area of 300 square kilometres, the 220 turbines will be remediated for 91 new turbines. Within the development area, over 90% of the population is a shareholder in the wind farm. The shareholder group, which consist of over 200 farmers and local residents, have initiated the project themselves under the cooperative of Windplan Zeewolde BV (Windpark Zeewolde, 2019). The cooperative is responsible for the construction of the new wind turbines as well as the remediation of the older turbines. The older turbines will be remediated after the construction of the new wind turbines is completed. With a maximum tip height of 220 meters, Windplan Zeewolde will generate about 300 MW (Pondera-Consult, 2015).

Windplan Zeewolde met with little resistance from the local communities surrounding the development area. However, there have been several farmers with wind turbines which indicated that the participation and communication was not adequate. They would have preferred to remediate and construct their own wind turbine, but this was not possible due to Windplan Zeewolde BV having these exclusive rights (Omroep Flevoland, 2018). Furthermore, there was some resistance from housing developers who were planning to develop 15.000 new houses at the outskirts of Almere. This was countered by the National government, which indicated that there were conflicting zoning plans between the province and the municipality (Omroep Flevoland, 2018). The zoning of the housing development has not been finalized, since the specific locations of the houses have not been appointed. Therefore, there has been a ruling in favour of Windplan Zeewolde, which had finalized the appointed specific locations for the wind turbines (Raad van State, 2018).

Financial participation

The financial participation scheme of windpark Zeewolde is comparable with the shareholding scheme used in Windplan Groen. Similar to Windplan Groen, Windplan Zeewolde will make 2.5% of the total investment sum available for shareholders (Windpark Zeewolde, 2019). Initiators who are co-owners of the current and/or newly planned wind turbines can invest in the project, starting at the announcement date. Moreover, local residents living within the range of the project development can invest in shares of the exploitation phase of the wind farm. Residents from villages which are not in the range of the project development, but are close by, such as Zeewolde and Almere, can participate through shareholding as well (Windpark Zeewolde, 2019).

Windpark Zeewolde

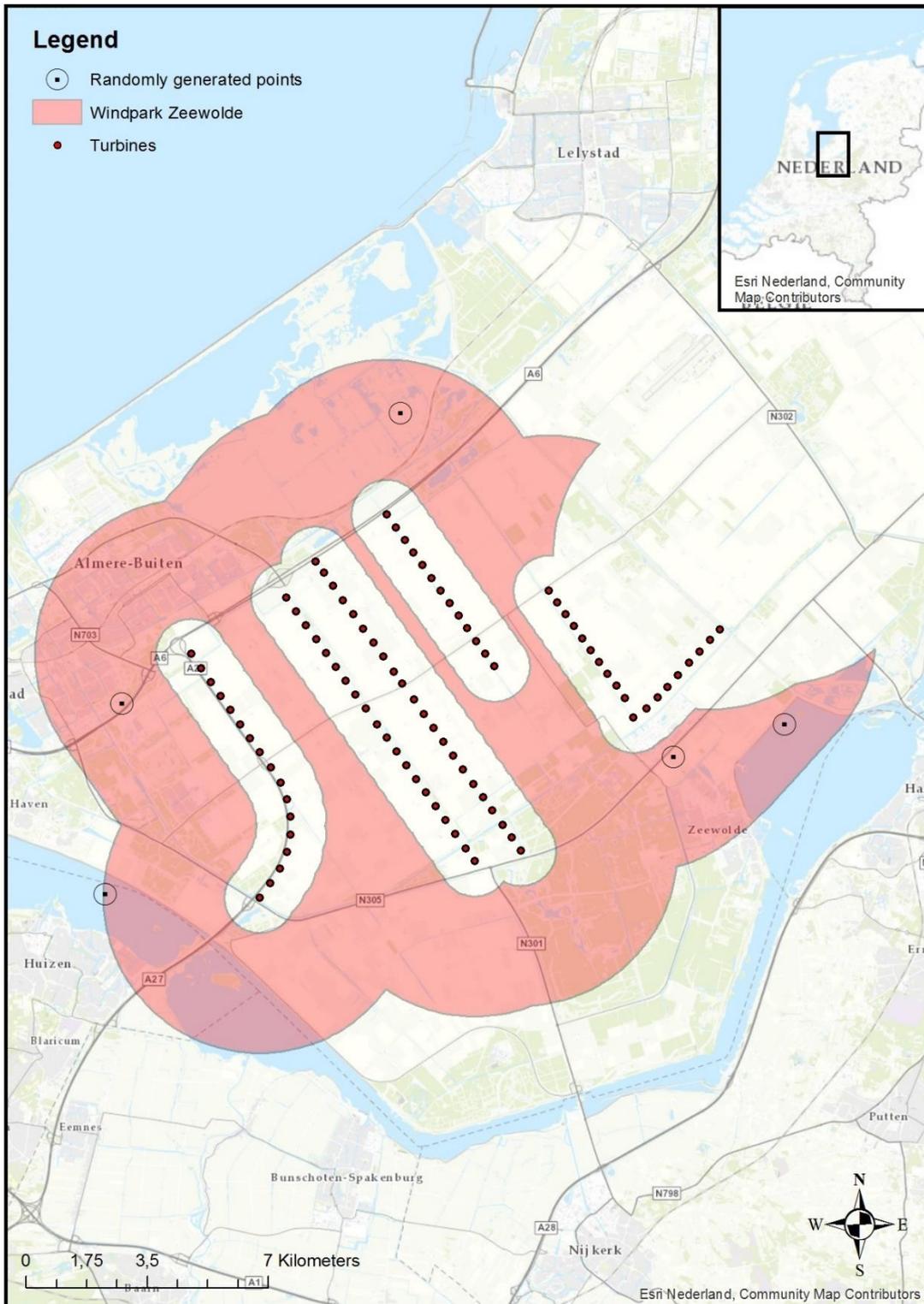


Figure 7: Windpark Windplan Blauw and the randomly generated points

Chapter 4. Results

4.1. General attitude results towards wind turbines

In the following section, the general public acceptance at the time of the interviews will be discussed. Out of the 25 interviewed participants, 18 participants reported to have a positive attitude towards the wind farm development in their vicinity. In every case area, there was at least one participant which expressed to have a negative or neutral attitude towards the wind farm development. All participants noted that they were in favour of renewable energies, to which most participants added they had several solar panels at the roofs of their houses. It is, however, important to notice that most of the housing was recently constructed in the assessed regions, which were mostly delivered with integrated solar panels. This could have an impact on the attitude towards renewable energies in general. All participants who stated to have a negative opinion of the wind farm development in their region, stated to support other wind farm developments in the Netherlands. They however condemned the wind farm development in their proximity, mainly due the being too close to residences. This combined with the towering height of the turbines means that they are/will be visible from an extensive distance. In *table 2* the general attitudes towards the wind farm developments at the time of interviewing are summarized. The attitudes are broadly organized in three categories: positive attitude (+), neutral attitude (o) and a negative attitude (-). Furthermore, the results are grouped in sections which correspond with the assessed cases.

	windpark Noordoostpolder	Windpark Wieringermeer	Windpark Windplan Groen	Windpark Windplan Blauw	Windpark Zeewolde
General attitude	0 0 -1 1 -1	1 -1 1 1 1	-1 1 1 1 1	1 1 1 1 -1	1 1 1 1 0

Tabel 2: General attitudes of the wind farm developments

4.1.1 Appearance of turbines

The closest wind turbines of Noordoostpolder is placed at 1.5 km of the village of Urk and has height of 198.5 meters. The turbine will therefore be visible from every location within the town of Urk, which has no high-rise buildings. Two participants which had negative attitudes against the development reported to be constantly reminded of the 'ugly' turbines, due to being visible from every location. A resident of Tollebeek, which is located in the same development area, expressed that she also had a negative attitude towards the wind turbines at the time of announcement. At that time, she lived in Urk and heavily protested the wind farm development. Her opinion changed when she had moved, just about 4.5 kilometres away from the turbines to the village of Tollebeek. A participant, who had a positive attitude towards Windplan Groen, noted that his positive attitude concerning the project was conditioned on the fact that the project developers would ensure that the turbines would be placed at a reasonable distance. The participant expressed that this was done in the case of Windpark Groen. This is in sharp contrast with another participant who lives on the other side of the village. He expressed that the wind turbines would be placed far too close to the village, which is 859 meters from the first residencies. He mentioned to be outraged by the recent concession which was done on behalf of the announcement of Lelystad airport.

"Near the airport a series of 20 wind turbines will be removed due to regulations, but here 249 meter high windmills will be constructed at a distance of 859 meters of the village" Local resident of Windpark Groen

The distance from which the turbines were placed seemed to be one of the most debated topics at the time of announcement. A participant from windpark Noordoostpolder noted that the local media made visual examples of the view of the turbines in relation to the village. The participant noted that these examples were highly exaggerated and framed the turbines as an 'iron curtain' which would be constructed around the village.

Furthermore, participants from several wind farms expressed to experience hindrance from lights which are blinking on top of the turbines. One participant described the night sky view near the wind farm of Noordoostpolder as a "circus-like view", which was blinking every night of the year. Recently, these concerns have been addressed by the project developers of Windplan Groen which have agreed to implement dimmed lights which will not blink periodically (De Drontenaar, 2018a). Lastly, there were several participants which expressed to be content with the remediation of the old turbines. In most cases, the wind turbines were built by different farmers at different times. This resulted in many different turbine types, which gradually became more efficient and silent. The participants from windpark Blauw and windpark Wieringermeer noted, that the spatial quality of the area had decreased over the decades. This was mainly due to the unregulated spatial distribution of the wind turbines and their varying heights. In line with these concerns, the current remediation plans aim to create a more integrated scenery. A participant stated:

"I prefer to see the turbines being placed in an aggregated area in straight lines, as they are doing now. That will make the placement more appealing than the current situation" Local resident of Windpark Blauw

In line with these concerns, the current remediation plans aim to create a more integrated scenery. Participants noted that these changes contributed to a more positive attitude towards the wind farm developments, due to improving the spatial qualities. One participant from windpark blauw noted however that the turbines could be designed somewhat more attractive. He suggested that the bases of the wind turbines would be painted in a gradual green hue, which would integrate the wind turbines even more in the spatial environment. He furthermore expressed that most of the wind turbines had too many straight angles, which he interpreted as aggressive. He, therefore, advocated for more appealing wind turbine designs with curves.

4.1.2. Effectiveness and nuisances of turbines

The attitude towards the wind turbines was mostly grounded in deeper concerns regarding the wind farm development. A participant residing in the vicinity of Windplan Groen stated to have become a member of a protest group against the wind farm development because:

"The wind turbines will be located close to the village. In my opinion the shadow flickering, noise, and appearance of the wind turbines will have a negative impact on the liveability of the village... This can deter young families to move to the Biddinghuizen" Local resident of Windpark Groen

Concerns about the liveability of the community were heard from all participants which had a negative attitude towards the wind farm developments. Participants were concerned that the sound would certainly have a negative effect on the environment. Several participants from windpark Noordoostpolder and windpark Groen indicated to regularly walk or cycle in the proximity of the wind turbines. Most of the turbines are located at dikes which are regularly used by local communities to wind down and seek tranquillity. Some participants indicated that the tranquillity of these places was disturbed by the sound of the wind turbines. One participant from Windpark Noordoostpolder noted to be concerned about the safety of the wind turbines, especially in winter times. Last winter, signs that warned about the probability of ice falling of the turbines were placed along the wind turbines.

Furthermore, all the participants with a negative attitude expressed that they found the wind turbines to be a visual nuisance. Especially in the village of Urk, located within Windpark Noordoostpolder, participants indicated that the wind turbines had a major impact on their view. The constructed wind turbines are located off-shore and several meters away from the coast. Participants from Urk communicated that the historic village view from and towards the village was forever destroyed due to the placement of the turbines. This in contrast with participants from other development areas

such as windpark Zeewolde and Wieringermeer, which described the wind turbines as 'neat', 'cool', or even 'soothing'. These participants expressed that the wind turbines evoked a positive emotion in them, due to the sustainable properties of the wind turbines.

"It cheers me up when I see the wind turbines. Each time I think, 'they are generating the power particles that run my coffee machine and power my phone!'" Local resident of Windpark Zeewolde

Contrary to these opinions, some interviewees indicated to have doubts on the effectiveness of the wind turbines. These doubts were heard from participants that had positive and negative attitudes toward the wind turbine developments. One participant from Noordoostpolder stated: "They do not generate that much", and another participant from Zeewolde added to have heard that the wind turbines would only begin to generate profits in about six years. Following the same line of reasoning, one participant questioned if wind energy would be the silver-bullet of renewable energies. "I think we can get rid of them in 10 years, since we will all ride on carbon and hydrogen than" he stated.

4.1.3 Change in attitude over time

All participants were questioned on their attitude towards the wind farm development at the time of notice and at the time of interview. If the attitude changed, the participants were asked why this change occurred. In *table 2*, the results have been simplified to give a general overview of the attitudes at the time of announcement (t=0), and at the time of the interview (t=1).

	windpark Noordoostpolder	Windpark Wieringermeer	Windpark Windplan Groen	Windpark Windplan Blauw	Windpark Zeewolde	Overall Attitude
attitude t=0	-1 -1 -1 -1 -1	1 -1 1 1 1	-1 1 1 -1 1	1 1 1 1 -1	1 1 1 1 -1	0,20
attitude t=1	0 0 -1 1 -1	1 -1 1 1 1	-1 1 1 1 1	1 1 1 1 -1	1 1 1 1 0	0,48

Tabel 3: Attitude results over time

As was stated above, most of the participants had a positive attitude towards the wind farm development in their proximity. None of these participants noted that their attitude had changed negatively. Several participants did however indicate that their opinion changed positively. One participant stated:

"You get used to it. When I saw the initial development plans of the wind farm I thought, 'that is going to be awful'. But they were not constructed in one day, and eventually I did not see them anymore" Local resident of Windpark Noordoostpolder

This change in attitude reflects most of the other participant's changes in attitude. 10 participants noted that their initial attitude towards the wind farm development was negative. Out of these 10 participants, 5 participants reported to have changed their attitude to a neutral, or in 2 cases even a positive opinion. Results show that especially participants living in the vicinity of Windpark Noordoostpolder had a negative attitude towards the wind farm development. All of the interviewed individuals in this case area reported to be shocked and irritated by the announcement of the development. This changed over time for several participants, who stated to have gotten used to the wind turbines. Windpark Noordoostpolder, however, remained the least publicly accepted wind farm of the assessed cases at the time of the interviewing. The attitudes in the other wind farm developments were strikingly similar to each other.

4.2. Results from community ownership schemes in general

In this section the opinion results of the participants towards the community ownership schemes will be presented. At first, there will be attention for community ownership in general, regardless of the specific scheme. This section will conclude with the results from the ranking order of the community ownership schemes, which will give an indication of the most preferred scheme. Thereafter, the opinion results of the participants towards the individual schemes will be presented.

The majority of the participants have expressed that at least one of the proposed community ownership schemes can positively influence the public attitude. This is, however, unsurprising due to the high number of participants which expressed to already have a positive attitude towards the wind farm development. Participants who had a positive attitude towards the developments were therefore asked to emphasize with individuals which held an opposing attitude. After discussing each community ownership scheme, the participants were asked if these schemes could improve the public acceptance of current wind farm development in their area. The simplified results are listed in the table under CO opinion. The results of the attitude of the participants towards the wind farm development are listed above for reference.

	windpark Noordoostpolder	Windpark Wieringermeer	Windpark Windplan Groen	Windpark Windplan Blauw	Windpark Zeewolde
attitude t=1	0 0 -1 1 -1	1 -1 1 1 1	-1 1 1 1 1	1 1 1 1 -1	1 1 1 1 0
CO opinion	1 1 0 0 1	1 1 1 1 1	0 0 1 1 1	0 1 1 1 0	1 1 1 1 1

Tabel 4: Opinions of community ownership schemes

Participants reflected that community ownership schemes would probably have some effect on individuals which oppose the wind farm developments. However, it was expressed frequently that this would probably not make a substantive change in their opinion towards the wind park development. An interviewed resident of Windpark Blauw asserted:

"People are in favour or against wind farm developments" Local resident of Windpark Blauw

The results do, however, indicate that a form of community ownership could positively influence the public attitude of individuals who had a negative attitude towards the wind farm development. Out of the five individuals which indicated to have a negative attitude, two expressed that a form of community ownership would have a positive impact on their attitude. The other three participants indicated it would be considerate of the wind farm developers to incorporate a form of community ownership, but it would not make a difference in their attitude towards the development. A participant from Urk was recently approached for such a compensation scheme, but she did not feel the need to participate in it. When questioned if any scheme could contribute to more public acceptance from the community, she stated:

"We [the community of Urk] have so much resistance against the wind farm. The organization which is behind the development probably can't do any good, regardless of their efforts" Local resident of Windpark Noordoostpolder

This line of reasoning was heard from most of the participants who stated that community ownership would not be able to improve the public acceptance of wind farm developments. Some participants expressed that community ownership schemes seemed like bribery to them. Several opponents of wind farms expressed that accepting the 'bribes' felt like accepting the wind farm development. This is in stark contrast with other participants, who were in favour of some of the community ownership schemes. It was expressed that the community could benefit from the ownership schemes, which in turn would change the perception of the wind turbines. A participant advocated that this could change the perception of a wind turbine from a nuisance to something that is generating finances for the community. Several participants even suggested to paint community owned turbines.

"You can paint the [community owned turbines] in another colour. Then everyone can see: 'Hey, we have participated in this turbine, this is generating profits'" Local resident of Windpark Wieringermeer

The results do indicate that some form community ownership can be beneficial in improving the public acceptance of large-scale wind farm developments. The different types of schemes were rated however remarkably different from each other. In *table 4*, the ranking results of the different community ownership schemes are summarised. Each column represents a participant and they are organized in relation to the assessed cases. The rows represent the distinguished community ownership schemes. The numbers from 1 to 4 represent the favourability of the community ownership scheme in question. 1 represents the most favourable scheme, while 4 represents the least favourable.

	windpark Noordoostpolder	Windpark Wieringermeer	Windpark Windplan Groen	Windpark Windplan Blauw	Windpark Zeewolde	Average Rank
Local Shareholding	4 3 2 3 2	2 2 4 3 3	3 3 2 3 4	4 4 3 1 2	4 2 3 3 2	2.84
National Shareholding	2 4 4 4 4	4 4 3 4 4	4 2 3 4 2	1 3 4 4 4	1 4 4 4 3	3.36
Development trusts	3 2 3 2 3	3 3 1 2 2	1 4 4 2 3	3 2 2 3 3	3 3 2 2 4	2.60
Energy tariffs	1 1 1 1 1	1 1 2 1 1	2 1 1 1 1	2 1 1 2 1	2 1 1 1 1	1.20

Tabel 5: Ranking results of community ownership schemes

The last column of *table 4* illustrates the average rank given by all the participants. The lower the average rank, the more participants prefer the questioned community ownership scheme. An average rank of 1 would therefore imply that all participants would prefer that scheme above the others and a 4 would indicate the least desirable scheme. The results indicate that, among the interviewed participants, national shareholding was favoured the least out of the four community ownership schemes. 16 participants ranked national shareholding as their least desired community ownership scheme. Participants ranked local shareholding as their third most desired scheme, with an average rank of 2.84. Development trusts were slightly more favourable, with an average rank of 2.60. Finally, Energy tariffs were evidently the most favourable scheme of the four with an average rank of 1.20. This is reflected in *Table 4*, which clearly shows that the overwhelming majority of 20 participants chose energy tariffs as the most desired compensation scheme.

4.3. Results from local and national shareholding schemes

At first, local and national shareholding schemes will be discussed. Local and national shareholding were the lowest ranked community schemes by the participants. Participants expressed that especially national shareholding seemed unfavourable to them. Numerous participants stated that national shareholding would probably result in a more negative attitude towards the wind farm development. A participant from windpark Noordoostpolder expressed:

"The wind farm is situated here, so we have to deal with the inconveniences. I would therefore find it obvious that not the whole of the Netherlands can invest in it, but that it is limited for those that experience inconveniences from them" Local resident of Windpark Noordoostpolder

In contrast with local shareholding, participants expressed that national shareholding would not divide the cost and benefits fairly between the society. This sentiment was found amongst most of the participants which ranked national shareholding as their least favourable scheme. However, a participant from windpark Blauw, who ranked national shareholding as the most favourable scheme noted that:

"In a small community such as this, local shareholding is not going to work... It would be unfair if one neighbourhood would qualify for the scheme, while another neighbourhood 600 meters further away wouldn't. You therefore have to make them available for everyone, which will include everyone" Local resident of Windpark Blauw

Six participants expressed similar opinions and chose national shareholding above local shareholding. One of these participants expressed that national shareholding would be able to have a greater range, which could therefore result in more and better wind turbines. Several participants from the Flevopolder noted that their province had ideal characteristics to generate wind energy. They stated to prefer that the whole of the Netherlands could benefit from these unique characteristics. Naturally all these participants were in favour of the wind farm development in their vicinity.

The majority of the interviewed participants expressed that local shareholding could result in a more positive attitude towards the wind farm development. However, they added that this would probably be for individuals who already had a positive attitude towards the wind farm development. Participants noted that individuals who were opposed to the wind farm developments would probably not be interested in buying shares. A participant which opposed the wind farm development in his vicinity stated:

"I have been granted the opportunity to invest in the wind farm, but that is not preferable to a nice view for me" Local resident of Windpark Noordoostpolder

Several other participants expressed that investing in the turbines could change the turbine from a nuisance to something that generates profits. Participants reflected that this would change the perception of the wind turbine and added, "You can't complain about the turbines if they generate profits for you". However, most participants did express to not be interested in buying any shares. This mostly had to do with the risk bearing characteristics connected to shareholding. Participants expressed not to be interested in investing and would prefer to wait until it was proven feasible to invest. Several participants had have opportunities to invest, yet none of the interviewed participants had partaken in any shareholding schemes. A participant from Windpark Zeewolde was given the opportunity to participate in a local shareholding scheme expressed:

"I think it is not transparent enough. You can buy shares via Meerwind for example, but these shares are not easily tradable and you are bound to a specific energy supplier... It is often not clear what your profit will be" Local resident of Windpark Zeewolde

Most participants communicated not to be aware of the provision of shares by the wind farm development, despite four of the assessed wind farm developments making use of the shareholding schemes. Participants regularly expressed that they only learned about those schemes during the interviews. A small number of participants stated that if a shareholding scheme would be granted to them, they would probably be interested in buying shares. They therefore indicated that these schemes could be beneficial for the public acceptance of the community, but would need to be communicated more noticeably.

Participants furthermore expressed to consider local shareholding schemes to not service the whole community. They indicated that they thought it likely that only wealthy individuals would be able to invest in wind turbines, mainly due to the high upfront investment costs which would need to be covered. Participants noted that mainly younger individuals will not have the financial means and will therefore be left out. A participant from wind farm Wieringermeer noted that many individuals that lived in the outskirts of villages did have few financial means. These people would, however, experience the most nuisance from the wind farm, but would not be able to buy shares. This in turn could result in a negative change in the public acceptance. Many other participants expressed the same thoughts, noting that the provision of shares could divide the local communities.

Various participants supposed that their influence in the wind farm development would increase by participating in one of the shareholding schemes. Participants expressed that they especially regarded the local shareholding scheme as beneficial for their influence. Some participants expressed that individuals who had bought shares would automatically participate more in the wind farm development and would therefore be able to raise their concerns more than before. However, other participants did note that the schemes would probably be of no influence since the projects were already planned. A participant from the Noordoostpolder noted:

"They will only provide the shares to keep the neighbourhood satisfied" Local resident of Windpark Noordoostpolder

4.4. Results from development trust schemes

Development trusts were rated the second to best scheme by the participants. However it is important to note that the scheme was ranked better than local shareholding with an average rank of 2.60, compared to the similar average rank of 2.84 given to local shareholding. 15 participants reported, nonetheless, to have a more positive attitude towards development trusts instead of local shareholding schemes. The majority of these participants indicated that development trusts would be able to service the whole community. A participant from Wieringermeer stated:

"I prefer development trusts out of the four schemes because they can be of benefit for all individuals in the area who can possibly be bothered by the development" Local resident of Windpark Wieringermeer

Several participants expressed that development schemes could be beneficial for a multitude of associations, such as local sport clubs, retirement homes, community centres or local playgrounds. Regularly indicated was that these associations badly needed financial support, due to a lack of funding from the government. Participants from different wind farm developments mentioned that municipalities invested insufficient funds in the younger and elder inhabitants. Wind farm developments could aid these groups with financial support of associations and clubs. A participant noted that the public acceptance towards the wind farm development would probably improve if it would be communicated clearly that these facilities were brought to the community by the wind farm development.

A participant from Wieringermeer explained that a datacentre had been built by Microsoft in their neighbourhood. Microsoft announced to fund local clubs and cultural associations, which is akin to the development trust schemes used in wind farm developments. The participant reflected positively on these development trusts and added that similar development trusts could change the community acceptance of wind farm developments as well. Several participants indicated to prefer that these development trusts would be handled by an independent organisation, which could allocate the funds to appropriate facilities. These participants disclosed to prefer an independent organisation which would allocate the funds above the municipality, because they thought the municipality would be biased and would heavily favour some individuals. Various other participants did however strongly oppose the development trusts. A participant from Zeewolde stated:

"You do not service the whole community [with the development trusts]. For example, there will be people which do not desire a football field at all, but with the development trust they will get both wind turbines and a football field in their backyard" Local resident of Windpark Zeewolde

Similar opinions were heard among the opponents of the development trust scheme. Most of the opposing participants communicated that they would probably not make any use of the facilities that received grants from the development trust. A participant from Zeewolde which stated to dislike local and national shareholding expressed:

"It will be the same as with the shareholding schemes. You serve a portion of the community, in this case not the investor, but the community minded individuals" Local resident of Windpark Zeewolde

A participant from windfarm Noordoostpolder expressed to dislike development trusts due to making the community even more dependent on the wind farm development. The participant noted that the wind farm developers could abuse the development trust as a leverage technique to expand the wind farm. This sceptic attitude towards the wind farm development was found amongst all of the participants of windpark Noordoostpolder. They expressed distrust in the wind farm developers to

such an extent that they could do nothing to improve the public acceptance. They stated that the commercial nature of the organisations created scepticism in the development trusts, especially since they supposed that these schemes would not be transparent.

Nonetheless, most of the participants indicated that development trust could have a positive impact on the public acceptance towards wind farm developments. Participants which stated to dislike development trust indicated that these trusts would not change their opinion, but would probably be of positive influence for individuals which are involved in the associations and clubs. The majority of the participants noted however that development trust schemes would not redistribute the profits of the wind farm developments any better in their opinion. A participant from Wieringermeer stated:

"I do not think it will redistribute the profits. For [the wind farm developers] the grants made towards the society are probably negligible, but for the community it will be a nice addition. It will therefore be positive" Local resident of Windpark Wieringermeer

The symbolic nature of the development trusts was reflected upon by many participants. They stated that the wind farm developers gained goodwill from the local community by providing funds through these schemes. A similar symbolic attitude toward the development trust was stated by participants when questioned about the effect development trusts could have on the influence in the project. Several other participants stated that the influence in the wind farm developments would probably decrease when development trusts would be in place. They indicated that the wind farm developers would probably only offer development trusts to keep the community satisfied.

4.5. Results from energy tariff schemes

Before the energy tariffs were mentioned as part of the interview, a number of participants communicated to favour schemes akin to the energy tariff scheme. Energy tariff schemes were the highest rated scheme among the interviewed participants. 20 participants rated the energy schemes as their first choice. The remaining 5 participants ranked energy tariff schemes as their second most desired scheme. All participants indicated that they would approve of such a scheme and most participants added that the public acceptance would probably increase from these schemes. Three out of the five opposing participants, who had indicated to have a negative attitude towards the windfarm development in their vicinity, noted that energy trusts would not be able to have positive effect on their attitude towards the development. These participants expressed that no compensation would outweigh the negative effects of the wind turbines in their daily lives. However, the other two participants indicated that energy tariffs would have a positive effect on their attitude. These participants noted that this scheme would be useful, due to directly compensating those who are negatively impacted by the wind turbines. One of these participants stated:

"By implementing this scheme, the turbines will be of use for the community. If people will see the benefits of the wind turbines in their own bank accounts, they will become more positive" Local resident of Windpark Noordoostpolder

This line of reasoning was reflected by many participants, which stated that the most direct form of compensation would be noticed by most individuals. Participants noted that the barrier to pay an upfront investment in the shareholding schemes would exclude individuals. On a similar note, they indicated that development trust would exclude individuals who would not make use of the facilities that were granted funds. Participants therefore stated that energy tariffs would be the most beneficial, since every participant in the compensated area would be able to benefit.

However, participants did differ in opinion on the specifics of the scheme. Some participants suggested that the energy supplier would transfer a sum of money at the end of the year. A participant

from Wieringermeer noted that this would improve the visibility of the compensation, which would, in turn, be able to improve the public acceptance. Others noted, however, that their current energy bills were highly unclear. An annually compensation from the energy supplier could easily get lost in these bills. These participants therefore suggested that the energy supplier would pay a small amount of money to individuals on a monthly basis. Several participants added that the financial compensation would not need to be much. They stated that a small payment could have a tremendous impact on the attitude. This would mainly be due to feeling included and being considered in the development plan. A participant from Windpark Blauw stated:

"When people have to pay less for something, they will become aware of the benefits. They might dislike the view of the wind turbines, but if they can benefit from them they might begin to accept it" Local resident of Windpark Blauw

Some of the participants stated that this form of community ownership would be able to distribute the profits more fairly. Participants indicated that their energy bills were raised considerably during the last years. A participant noted that the wind turbines could be solution to this, by coupling the reduction on the energy bills with the physical presence of the wind turbines. The participant indicated that they believed that this would create a win-win situation, which would create a benefit for the whole community and would ensure the development of renewable energies for the larger society. A few participants did however express to have their doubts. A participant from Noordoostpolder noted:

"[As with development trusts] I still expect that the community will rely on the wind energy developers. If we accept this form of compensation the energy developer might say 'you have received this compensation, so we are going to build new turbines'" Local resident of Windpark Noordoostpolder

As for the development trusts, participants indicated that their influence would probably not increase from the energy tariff scheme.

Chapter 5. Discussion/Conclusion

5.1: A change in attitudes over time

First off, the attitude change over time will be discussed. Devine-wright's (2009) framework on the individuals change in perception when developments occur does suggest that individuals develop their understanding of the project in the first phase. The participants' answers are in line with the framework that they began developing this understanding with the use of the media, followed by informal communication with others within their community. Some participants stated that their opinion was framed by the local media, which shaped their attitude towards the wind farm development. Especially wind farm Noordoostpolder was heavily framed, which is reflected in the heavy protests in the following years of its announcement. These findings support the assumption that the opposition of wind farm developments is caused by an 'information deficit', caused by incomplete, or framed information (Owens, 2001). However, the information deficit seemed to only be present at the announcement of the wind farm development. Opponents of wind farm developments indicated in this research to be highly informed in the wind farm development. This supports the rejection of the NIMBY model as was suggested in recent academic literature. Additionally, these findings support Petts (1997), who found that individuals who oppose wind farm developments will actively seek out information of the development.

Furthermore, participants from Urk expressed that Urk had a strongly connected community, due to its former island history. This further strengthens the negative attitude towards the wind farm development, as was underlined by Stedman (2002). Participants from Urk also stated to have a strong place attachment to the village of Urk. This confirms the study by Vorkinn & Riese (2001), which indicated that individuals that have a strong place attachment will likely perceive new developments negatively. Participants from the newly constructed surrounding villages and other assessed case areas expressed to be less attached to the place. A participant in Zeewolde underlined this by clarifying that the village was undergoing rapid changed due to being recently founded. In such an environment, a newly constructed wind turbine was just another new building among many others.

The change in perception towards the wind farm developments among the participants supports the U-shaped curve found by Wolsink (2007b). The results indicate that participants did indeed have a more negative attitude towards the wind farm developments at the time of announcement, compared to the time of the interview. However, the differences between the two phases were neglectable, since most of the participants had a positive opinion towards the wind farm developments at the time of announcement. The exception was windpark Noordoostpolder, where participants unanimously expressed to have a negative opinion towards the wind farm development at the time of announcement. At the time of interviewing, the perception of the participants had increased to -0.20.

Windpark Noordoostpolder is, however, the only windpark out of the assessed cases that has been completed. The U-shaped curve would thus suggest that the perception towards the wind farm development would be stabilized to a clear majority, which would be in favour of the development. The general attitude of the participants at the time of interviewing were, however, the lowest of all assessed cases (a mean score of -0.20 in windpark Noordoostpolder, versus 0,48 over all cases). This could suggest that the recovery time of the public attitudes will be longer if there is more resistance against the wind farm development, as was the case for windpark Noordoostpolder.

Furthermore, several participants expressed to be more in favour of wind farm developments than of solitary wind turbines. Participants noted that the spatial quality had been decreased as a result of the high amount solitary wind turbines in their vicinity. This is in contrast with Wolsink (2007b), who found that solitary wind turbines were supposed to enhance the public attitude towards wind farm developments. However, several participants expressed the view that the wind farm development contributed to the spatial quality of the area.

5.2. Distributional and procedural justice

Devine-wright's (2009) framework suggests that individuals will start coping in the fourth phase. The outcomes of this phase will be largely influenced by the perceived fairness and trust of the wind farm developments (Devine-wright, 2009; Lienhoop, 2018; Wüstenhagen et al., 2007). The results indicate that opposing individuals of wind farms in their vicinity have little to no trust in the wind farm developers. This was especially underlined by participants from windpark Noordoostpolder, who reflected severe scepticism in regards to the developers. Participants expressed to not have been incorporated sufficiently in the development process, which was highlighted by the rejection of the alternative plan submitted by the council of Urk. Participants. The rejection of the alternative plan had a tremendous impact on the perceived trust of the wind farm developers, which is in line with the findings of Langbroek & Vanclay (2012).

Secondly, about 700 appeals against the wind farm Noordoostpolder have been submitted from the surrounding villages of the development in 2012. All of those appeals have been rejected. During the development process, individuals who oppose the wind farm developments can let their concerns be heard and taken into consideration. Participants from all wind farm developments expressed that they could indeed let their voices be heard, but that the development would continue, regardless of their opinions. Some individuals stated that this was no problem for them, since they were already in favour of the wind farm development and did not feel the need to voice their concerns or objections. However, opposing individuals who did share their concerns indicated that these participation processes left them irritated and bitter.

Lienhoop (2018) identified two key aspects as important in explaining the perceived fairness and trust of wind farm developments: disruptive and procedural justice. The goal of the submission of appeals by local inhabitants mentioned above is to improve the procedural justice of the local community. Ideal procedural justice would involve allowing individuals to let their voice be heard and considering the opinions during the decision making, thus providing residents with more influence (Lienhoop, 2018). In reality, the local inhabitants have not been able to gain more influence in the projects through the submission of appeals.

Windpark Groen exemplifies the lack of influence of local inhabitants with the recent concession in support of Airport Lelystad (Windplan Groen, 2019). The relocation of the 20 turbines in favour of Lelystad Airport has left opposing residents feeling bitter and excluded from the development process. While the two major planning interventions in their vicinity take each other in account, objections from residents are being denied. All opposing participants thus stated that their objections were being heard for the sake public appearance, without any intent to consider them. Therefore, it can be concluded that the appeal processes have been counterproductive for the procedural justice of opposing individuals in the assessed cases. Lienhoop (2018) and Gross (2007) found similar deficiencies in German and Austrian participation processes and therefore suggested that participants should be included in the development process and the decision making. This would ensure that local inhabitants will have actual influence in the development project, which thus can improve the procedural justice.

The distributional justice is primarily concerned with the perceived distributional fairness of the outcomes of the wind farm developments (Wolsink, 2007a). Participants indicated that the wind turbines create inconveniences for the local communities. Especially the visual and noise nuisance were indicated as problematic by both proponents and opponents of the wind farm developments. Participants indicated, in line with Lienhoop (2018) and Wolsink (2006), that the profits were asymmetrically distributed between the society as a whole and the local community. Some participants stated that they desired some form of compensation, due to the inconveniences they would have to deal with on an everyday basis.

5.3. Community ownership as compensation

Community ownership could be a form of compensation that might be able to improve the distribution justice and therefore the public acceptance (Lienhoop, 2018; Munday et al., 2011; Warren & Mcfadyen, 2010). The results indicate that community ownership of wind farm developments can indeed improve the public acceptance of large-scale wind farm developments in the Netherlands. The majority of participants stated that community ownership schemes would contribute somewhat to more public acceptance from communities in the vicinity of wind farm developments.

However, some participants perceived community ownership schemes as bribery. This finding links back to the proportional and distributional justice. Most participants reflected that the distributional justice would be improved by providing local communities with compensational funds. Many participants, however, expressed that their influence would not be improved with the implementation of community ownership schemes. These results are in line with the findings of Gross (2007), who states as her key finding that procedural and distributional justice have to be both incorporated in wind farm developments to increase the social acceptance.

The need to improve the procedural justice is underlined in the results of this study. Participants noted that the compensation schemes are unlikely to make substantive changes for those that opposed the wind farm development. Out of the five participants who stated to oppose the wind farm development in their vicinity, three indicated that community ownership schemes would not change their attitude. All of these participants indicated that a financial compensation would be considerate, but they would rather have actual influence in the planning and development of the projects. However, some participants expressed that they would oppose the development, regardless of the compensation or influence they would have.

In contrast, two other participants that opposed the wind farm development in their vicinity stated that their attitude towards the wind farm development would improve if community ownership schemes would be offered. Both of these participants noted that community ownership would provide a sense of ownership over the incoming changes, thus contributing to a larger public acceptance. Some participants indicated that it could be beneficial to paint the wind turbines, if community ownership would be implemented in their wind farm. Warren & Mcfadyen (2010) found similar results in their study, which concluded that the naming of wind turbines could be seen as the physical embodiment of the structures within the community cohesion. Painting the turbines would be similar action that could contribute to the sense of ownership. Devine-wright (2009) indicated that creating a sense of ownership is one of the biggest challenges for wind farm developments. Community ownership and the simple act of painting or naming the wind turbines could contribute to creating this sense. However, one of the biggest remaining questions is: what form of community ownership would be suited the most to increase the public acceptance?

5.4. The effect of different community ownership schemes

The results clearly indicate that most participants were not interested in shareholding schemes. Especially national shareholding was widely regarded as the worst community ownership scheme among the participants. Participants stated that the profits of the wind farm would be distributed asymmetrically, thereby contributing to decreasing the distributional justice. Local shareholding schemes were regarded to be more positive for the public acceptance by participants. Nonetheless, some participants stated to not approve of the wind farms and, therefore, indicated not to be willing to engage in shareholding schemes, even though they could benefit from them.

This indicates a shortcoming in the line of reasoning made by Toke (2005b), who states that individuals who invest in wind energy developments will be more likely to support wind farm developments due to a significantly higher personal commitment towards the development. This is true for those who invest, but the question remains: who is investing? All opponents of the wind farm developments indicated that they were not willing to invest, while some proponents indicated to possibly be interested in buying shares in the wind farm developments. So, the results indicate that the shareholding schemes will likely only succeed in raising the public acceptance further for those that were already in favour of the developments. This is in contrast with the conceptual model of shareholding use, which assumed that individuals only refrained from buying shares at high levels of opposition. Contrary to this assumption, the results indicate that only those that have a positive opinion will be interested in buying shares. These findings are comparable with the research conducted by Olsen & Anker (2014), which found similar opinions towards shareholding schemes among opposing individuals.

Moreover, the results support the study conducted by Lienhoop (2018), which found that individuals refrained from buying shares due the high required upfront investments. Similar to the findings in her research, participants from this study expressed that local shareholding would exclude individuals which would not have sufficient funds. Additionally, participants expressed to be concerned about the non-tradability of the shares. Participants expressed that the high upfront costs, lack of transparency and non-tradability made the shareholding schemes unappealing. These findings, therefore, imply that local shareholding schemes will have a neglectable effect on distributional justice. However, some participants did indicate community ownership schemes could be beneficial for the procedural justice.

Additionally, this research indicates that there is a lack of information provision on the use of shareholding schemes. It would be favourable to communicate these schemes more clearly to the community, in order to raise the public acceptance. Local shareholding schemes are the most implemented schemes among large-scale wind farms in the Netherlands (Schreuer & Weismeier-Sammer, 2010). This is reflected in this research by four of the five wind farms making use of local shareholding schemes. Despite their common use, most participants indicate to not be in favour of the scheme.

In contrast, the majority of participants expressed to be in favour of development trust schemes. The majority of participants that supported the wind farm developments in their vicinity did conclude that development trusts could be beneficial. Participants noted that development trusts could be able to provide financial aid to struggling local clubs and associations. By funding these community driven facilities, the wind farm developments could create benefits for local communities. The development trusts could strengthen the sense of ownership local communities would have over the wind turbines and, in turn, improve the public acceptance of the developments. By providing funding for community owned facilities, development trusts would be able to service individuals that are strongly connected within the community. According to Stedman (2002), these individuals are likely to oppose energy

developments. In theory, development trusts should be able to target those that are most likely to oppose the developments.

Individuals who feel that they have been treated fairly are more likely to support the development, and therefore have more trust in the wind farm developments (Gross, 2007). In line with Gross's findings, proponents of wind farm developments expressed to be in favour of development trusts. Moreover, they expressed that development trust could lead to a more positive attitude towards the wind farm developers. The reverse can be the case for those that feel not to have been treated fairly. Opposed participants expressed that development schemes would not be their most favourable community ownership scheme. These participants communicated to have a sceptic attitude towards the wind farm developers. As consequence of this is, they also expressed to have a sceptic attitude of the development trusts. Some fear that their local communities will be even more reliant on the wind farm developers as a result of the development trusts. Others view the motives of the developers with suspicion due to their commercial nature.

As was suggested by Stedman (2002), individuals who are strongly connected within the community, and therefore make more use of community facilities, are more likely to perceive energy projects as negative. Moreover, Gross (2007) suggests that individuals who have a negative opinion of the wind farm developments will have less trust in the developers. Thus, for the assessed cases, it can be concluded that development trust would not be able to improve the public acceptance of opposing individuals who are strongly connected within the community. Additionally, the participants expressed that the development trusts will have no benefit those that make no use of the facilities that were being granted. This implies that development trusts would only be beneficial for those that do support the developments and are strongly connected within the community.

Lastly, the results indicate that out of the assessed community ownership schemes, energy tariffs would be able to improve the public acceptance the most. An overwhelming majority of participants expressed to be in favour of such schemes. Some even proposed such schemes on their own during the interviews, before any of the schemes were mentioned. The participants especially expressed to be in favour of energy tariffs due to including every resident from their local community. Two out of the five opposing participants stated that energy tariffs would have a positive effect on their attitude towards the wind farm development. Furthermore, participants expressed that the payments did not need to be much. They indicated that any payment would make them feel included and considered. This underlines the importance of the perceived fairness and legitimacy for the public acceptance of wind farm developments. These findings support the rethinking of the NIMBY model as was suggested by Wolsink (2007b). The participants explicitly express to prefer energy tariff schemes, due to being a fair compensation for the whole community, rather than perusing individual gains. These findings do, furthermore, confirm the findings of Gross (2007) and Lienhoop (2018), who found that a perceived lack of fairness was the central obstacle of wind farm developments. The participants indicated that energy tariffs would redistribute the profits generated from the wind farm development more fairly, thus improving the distributional justice.

However, most of the participants did express that they did not presume that their influence in the wind farm developments would increase from any of the community ownership schemes. Participants especially indicated that they perceived not to gain any more influence in the developments with the implementation of development trusts and energy tariff schemes. Moreover, many participants communicated they presumed their influence would decrease with these two schemes. All participants which opposed wind farm developments in their vicinity stated that the lack of influence in the development would not change if community ownership models would be implemented. In line with Langbroek & Vanclay (2012) and Lienhoop (2018), three participants indicated to prefer to have more decision power in the developments, above compensation funds. These participants, therefore, expressed not to be interested in community ownership schemes. The German based study of

Lienhoop (2018) suggests that public decision power can only be achieved by making mandatory participation opportunities, especially for the approval phase of the wind farm developments. However, this will be a tremendous change for the Netherlands, which in contrast of Denmark and Germany, has not incorporated any community ownership schemes in its national legislation. A logical first step would thus be to implement community ownership, preferably energy tariff schemes, in the national legislation.

5.5 Comparability and generalizability of the included cases

It is important to note that these conclusions can only be drawn from these specific cases, at this moment in time. The results could differ for other cases or if community ownership schemes would have been offered at the time of announcement. Generalizing these findings over all large-scale wind farm developments would do no justice to the complexity of the cases and could result in a simplified contextual framework such as the NIMBY concept. This thesis can, however, be useful in providing contextual knowledge of the public acceptance of large-scale wind farm developments in the Netherlands.

Furthermore, it could be questioned whether the included cases themselves are comparable with each other. First of all, not all cases were in the same development phase. This could have contributed to some of the observed differences, as was discussed in chapter 3.1. Moreover, the cases were announced at different times. This could also lead to differences between the cases, since Wolsink's U-curve suggests that the public attitudes towards the wind farm projects would stabilize over time (Wolsink, 2007b). However, the results do not indicate major differences between most of the cases. The attitudes of the assessed participants in windpark Wieringermeer, Groen, Blauw and Zeewolde, were strikingly similar to each other, as can be seen in *Table 2*. On the other hand, windpark Noordoostpolder can be seen as the oddball amongst the five assessed cases. First of all, Noordoostpolder has been announced in 2004, in contrast with the other cases, which have been announced between 2013 and 2017. Likewise, windpark Noordoostpolder was the only assessed case which has been completed at the time of interviewing.

Secondly, some of the results from windpark Noordoostpolder do differ considerably from the other cases. *Table 3*, which summarized the attitudes of the participants over time, clearly present these differences. Participants from Noordoostpolder expressed to have a more negative attitude towards the wind farm development at the time of announcement and at the time of interviewing. This difference can be caused by the fact that windpark Noordoostpolder was one of the first large-scale wind farms in the Netherlands and was started long before the other wind farm developments. This can indicate that the four cases of windpark Wieringermeer, Groen, Blauw and Zeewolde are significantly different from the case of Noordoostpolder, thus making comparisons less valid. However, Wolsink's U-shaped curve implies that the public attitudes of windpark Noordoostpolder would be stabilized since the wind farm development is completed. Yet, the results indicate the contrary. In fact, the results suggest that the public attitudes are the lowest in windpark Noordoostpolder.

It is therefore debatable whether the difference in attitudes among the assessed cases are caused by the different announcement dates. In chapter 3.3, the general characteristics of the surrounding areas of the cases were discussed. It became evident that Urk's historical background, from which most opposition originated in windpark Noordoostpolder, was significantly different from the other assessed cases (Langbroek & Vanclay, 2012). As was discussed in chapter 5.1, the strong place attachment and strongly connected community of Urk are likely to have shaped the negative attitudes amongst the communities of windpark Noordoostpolder. This leads to the conclusion that the contextual differences are likely the cause of the differences between windpark Noordoostpolder and the other assessed cases.

It is evident that it is important to take in account the historical background of the cases, as well as the underlying community dynamics. The case characteristics, described in chapter 3.3, attempt to capture a general overview of these contextual differences. To give further insights in the contextual differences, all quotes and opinions of participants have been linked to the corresponding wind farm developments the in chapter 4.

Chapter 6. Reflection

Due to the limited time span of this study some concessions had to be made in the methodology. This chapter will elaborate on these concessions, and discuss some of the difficulties encountered in the research process. Furthermore there will be stated recommendations for further research for the effect of community ownership on public acceptance.

First of all, the randomly generated points did reflect a general overview of the attitudes of local residents of wind park developments. However, this resulted in many participants which expressed to have a positive or neutral attitude towards the wind farm development. Out of the 25 participants, only 5 participants expressed to have a negative attitude of the wind farm development in their vicinity. For further research it might be interesting to select participants which oppose wind farm developments in their vicinity. This would allow a better understanding of the effect of community ownership on the public attitude of individuals with negative attitudes toward wind farm developments.

Selecting participants prior to the interviews would also circumvent one of the biggest obstacles of this research. During the interviewing it became evident that distances between houses in the assessed area were vast. Due to limited time and financial resources it therefore become difficult to reach the location of the random generated points. Furthermore, it became evident at the time of interviewing that most residencies in the buffer zones did not have a clear view of the wind turbines. In the villages there was often no clear view due to buildings obstructing the view. Moreover there had been planted trees at the edge of most villages, which did also block the view of the wind turbines. This proved to be a complication for the research, due one of the criteria being, having a clear view of the wind turbines. Some randomly generated points therefore became obsolete. In the vicinity of these points was searched for the nearest residency which had a clear view of the turbines. After the first round of interviews was therefore chosen to make use of Google Street view. However, often was found that new trees were planted, which were not documented at the date the Google Street view was established.

For this research was chosen to include wind farm developments which remediated existing wind turbines. This was due to the aim of this research, studying large-scale wind farm developments. Most large-scale wind farm developments in the Netherlands were smaller developments which were being up scaled, at the time of remediation (RVO, 2019a). These wind farm developments had a high degree of similarity, compared to other wind farm developments, which were constructed from the ground up. However, it must be acknowledged that, residents in the assessed cases were more familiar with wind turbines, due to smaller turbines being in place before the remediation of the assessed cases began. This is also reflected in the spatial development plan of wind energy on land of the province of Flevoland (Provincie Flevoland, 2016), which states that ' the province has been familiar with turning blades, high in the scenery'.

For further research it might be valuable to include cases of newly constructed wind farms. These wind farm developments could be able to give further insights on the effect of community ownership on the public acceptance.

Chapter 7. Literature

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Appendix 1. Interview Guide (Dutch)

Aan de Rijksuniversiteit van Groningen schrijf ik, Sofiane Ghenam mijn master scriptie. Mijn master scriptie schrijf ik over de mogelijke verbetering die de gedeelde eigendomsrechten van windmolenparken kunnen hebben op de beleving van de windmolens. Aan de hand van een vijftal grote windmolenparken in Nederland onderzoek ik bijvoorbeeld of de mogelijkheid om te investeren in windmolenparken bijdraagt aan een eerlijkere verdeling en beleving van de kosten en baten. In het interview zal ik een aantal verschillende manieren van compensatie regelingen bevragen.

Het interview zal ongeveer een kwartier tot een halfuur duren. Bij het interviewen zou ik graag audio willen opnemen. Dit helpt mij ook om zo nauwkeurig mogelijk uw bevindingen over te zetten in tekst. Meer informatie hierover is terug te vinden op het consentformulier. Hebt u hier bezwaar tegen?

Als u gedurende het interview bepaalde vragen niet wil beantwoorden of het interview in zijn geheel wil stoppen kunt u dat op elk moment doen. Verder zal alle data die in dit gesprek is verkregen worden geanonimiseerd. Dit wil zeggen dat uw naam nergens in het onderzoek gebruikt zal worden, er zal gebruik worden gemaakt van pseudoniem, om uw anonimiteit te waarborgen. Hebt u nog vragen voor we het interview beginnen?

Algemeen

- Hebt u een betaling ontvangen voor het plaatsen van een wind turbine op uw land?
- Hebt u vanaf uw huis/landgoed direct zicht op een windmolen?
- Vanaf wanneer woont u op dit adres?
- Bent u op gedurende de tijd dat u op dit adres staat ingeschreven zonder lange tussenperiode op het adres verbleven?

(Minimale woonduur: Noordoostpolder 2004, Wieringermeer 2013, Windpark Zeewolde 2015, Windplan Groen 2016, Windplan Blauw 2016)

- Bent u of andere medebewoners lid van een milieuorganisatie?
- Bent u of andere medebewoners lid van een protestgroep tegen het windmolen park?

Houding ten opzichte van het windmolenpark

- Wat was uw mening ten opzichte van het windmolenpark toen het werd aangekondigd?
- Wat is uw mening ten opzichte van het windmolenpark op dit moment?
- Indien veranderd, hoe komt dit?

(U-shape, Wolsink)

A+B: Mogelijkheid tot aandelen kopen

- Was een mogelijkheid voor u om aandelen voor het windmolenpark te kopen?
- Indien ja: Is deze mogelijkheid duidelijk aan u gepresenteerd?
- (1) Wat was uw mening over het kopen van aandelen voor het windmolenpark?
- Hebt u (uiteindelijk) aandelen gekocht, of bent u dit van plan?
- Waarom hebt u ervoor gekozen wel/geen aandelen te kopen?
- (2) Indien de mogelijkheid er wel/niet was om aandelen te kopen, zou uw houding dan anders zijn over het windmolenpark?
- (3) Hebt u het gevoel dat door de mogelijkheid van het kopen van aandelen de kosten en baten eerlijker worden verdeeld tussen u als bewoner en de projectondernemers?

(Distributive justice)

- (4) Hebt u het gevoel dat door de mogelijkheid van het kopen van aandelen u meer inspraak zou kunnen geven in het windmolenpark?

(Procedural justice)

C: Investerings van de projectondernemers in gemeenschappelijke voorzieningen

- Zijn er investeringen in de omgeving geweest van de projectondernemers van het windpark?
- Indien ja: is dit duidelijk aan u gepresenteerd?
- (1) Wat is uw mening van deze investeringen?
- (2) Indien deze investeringen er wel/niet waren, zou uw houding dan anders zijn over het windmolenpark?
- (3) Hebt u het gevoel dat investeringen van projectondernemers in gemeenschappelijke voorzieningen de kosten en baten eerlijker worden verdeeld tussen u als bewoner en de projectondernemers?

(Distributive justice)

- (4) Hebt u het gevoel dat investeringen van projectondernemers in gemeenschappelijke voorzieningen u meer inspraak zou kunnen geven in het windmolenpark?

(Procedural justice)

D: Gereduceerd energietarief voor omwonenden

- Is in uw gebied een gereduceerd energie tarief aangeboden als compensatie?
- Indien ja: is deze mogelijkheid duidelijk aan u gepresenteerd?
- (1) Wat is uw mening van een gereduceerd energietarief voor omwonenden
- (2) Indien er wel/niet een gereduceerd energietarief voor omwonenden is aangeboden, zou uw houding dan anders zijn over het windmolenpark?
- (3) Hebt u het gevoel dat bij een gereduceerd energietarief voor omwonenden de kosten en baten eerlijker worden verdeeld tussen u als bewoner en de projectondernemers?

(Distributive justice)

- (4) Hebt u het gevoel dat bij een gereduceerd energietarief voor omwonenden u meer inspraak zou kunnen geven in het windmolenpark?

(Procedural justice)

Hypothetische situatie

Stel, het bestaande windmolenpark in uw omgeving zou u mogen plannen. Het staat vast dat het park op dezelfde plek zal komen, u kunt echter zelf kiezen uit een compensatie mogelijkheid, welke zult u kiezen?

- *Aandelen aankoop is mogelijk voor iedereen*
- *Aandelen aankoop is exclusief mogelijk voor omwonenden*
- *Gereduceerd energietarief voor omwonenden*
- *Er wordt een speciaal fonds opgericht door de projectondernemers. Hierin wordt maandelijks een bedrag wordt gestoken, bedoeld voor de ontwikkeling van gemeenschappelijke voorzieningen in de omgeving.*
- Zou u de bovengenoemde compensatie mogelijkheden kunnen nummeren tussen 1 (uw hoogste voorkeur) naar 4 (de mogelijkheid met uw minste voorkeur?)
- Welke compensatie methode zou volgens uw mening voor het grootste draagvalk zorgen bij de gemeenschap?

Afsluiting

- Zijn er nog toevoegingen die u graag zou willen vermelden?



Appendix 2. Consent formulier

Ondergetekende:

Naam:

Adres:

Woonplaats:

verklaart als volgt:

In het kader van het opnemen van het interview voor mijn Master scriptie op ... De opgenomen gesprekken en transcripten zullen uitsluitend beschikbaar zijn voor Sofiane Ghenam en de Master scriptie begeleider.

De verkregen data zal geanonimiseerd worden om zodoende de identiteit van de ondergetekende te waarborgen. De data zal opgeslagen worden op de beveiligde opslagruimte van Rijksuniversiteit Groningen.

De ondergetekende kan zijn/haar medewerking op elk moment in het proces van het maken van de scriptie terug trekken waarna alle verkregen data zal worden verwijderd. Ondergetekende kan ook aanvraag doen naar de data, de transcripten en/of de Master scriptie.

te ... op ...

Deelnemer, naam:

Interesse in opname/ transcript / Master-scriptie (omcirkelen wat van toepassing is):

Emailadres (in geval van interesse in informatie):

Student-onderzoeker: Sofiane Ghenam

Sofiane.ghenam@live.nl

Appendix 3: Code network

Displayed in yellow are the deductive codes, and in orange the inductive quotes.

