CREATING A LEGITIMATE SUPPORT BASE FOR SOLAR-PARKS WITHIN LOCAL COMMUNITIES

Master thesis, MSc. Sustainable Entrepreneurship
University of Groningen, Campus Fryslân

June 9, 2021

RICK VAN HEUVELEN

Wirdumerdijk 34
8911 CE Leeuwarden

Supervisor/ university
Drs. J. (Hans) van Polen
University of Groningen

ABSTRACT

Facing global climate change, one of the transitions the world has to make is the shift from a fossil-fuel based energy system to a sustainable energy system. The replacement of centralised electricity generation sources to renewable electricity sources requires adequate land. Accordingly, these decentralised, renewable electricity generation sources will be more locally and closer to the users. It is recognized that social acceptance is the constraining factor in achieving public support for building renewable energy projects. Therefore, through semi-structured interviews with representatives of several organizations that successfully initiated solar-parks with community acceptance, an answer to this thesis' main research question has been formulated. It is found that a constructive collaboration with the local government, a clear (communication) framework and open negotiation processes are significant important factors in the creation of community acceptance. Furthermore, a constructive collaboration with the municipality indicates the need for socio-political acceptance first, before the creation of community acceptance can be accomplished. However, it is found that a clear framework is frequently missing and vagueness about definitions is lacking in practice. Therefore, future research should focus on the construction of unified frameworks and processes to create community acceptance.

INTRODUCTION

Climate change has been scientifically recognised as a threat to human societies and natural ecosystems, yet the public concern and awareness for these problems vary greatly (Lee, Markowitz, Howe, Ko & Leiserowitz, 2015). These differences within climate change belief and risk perception, according to Lee et al. (2015), depends on country and culturally specific aspects. Facing global climate change, one of the transitions the world has to make, is the transition from a fossil fuel-based energy system to a sustainable energy system (Solomon & Krishna, 2011). Although differences in climate change belief, policymakers and citizens in some countries recognize the need for energy savings and the transition towards renewable energy sources (van Leeuwen, de Wit & Smit, 2017). However, climate policy action in most countries will depend on gaining and maintaining public support for a diverse set of societal changes (Lee et al., 2015). For instance, within the European Union, member states are committed to legislation in order to meet the climate objectives. The European Union set the objective that in 2020, 20% of gross final energy consumption within Europe should have come from renewable energy sources (Dutch Ministry of Economic Affairs, 2016). In 2019, the European Union member states collectively reached a share of 19,7% from renewable energy sources. (Eurostat, 2020). Nevertheless, with the European Union close to its objectives – regarding the share of renewable energy sources – not every individual country has achieved this success. For instance, within the Netherlands, the share of renewable energy sources in 2019 was 8,7% (Eurostat, 2020) whereas the objective for 2020 was 14% (Dutch Ministry of Economic Affairs, 2016).

After a relatively slow pace of integrating renewable energy, it seems that the Netherlands are trying to meet with neighbouring countries' achievements (van Leeuwen et al., 2017). Especially within the field of renewable electricity, significant improvements have been made. For example, over the year 2019, the share of renewable energy in gross final energy

consumption has increased by 19,45% (Eurostat, 2020). Second, the solar photovoltaic (solar-PV) electricity generation has increased by 39,7% over the same year (IEA, 2020). These investments and improvements are necessary in achieving the climate objectives for upcoming years. By 2023, the share of renewable energy in the final energy consumption should be 16% (Dutch Ministry of Economic Affairs, 2016).

In order to achieve these ambitious renewable energy objectives, the government created a national climate agreement in 2019 – which is a national roadmap of the 'Paris Agreement' (National Climate Agreement, 2019). One of the elements of this climate agreement is the 'Regional Energy Strategy' (RES). This agreement has provided authority in creating a regional strategy to local governments (National Climate Agreement, 2019). For instance, one of the elements of this specific agreement is that each region could indicate suitable locations for renewable electricity generation on land – such as solar-PV and wind generation. A second phenomenon is the bottom-up approach of citizens in the production and usage of renewable energy. Within 2020, the Netherlands counted 623 'Renewable Energy Cooperatives' (RECs) with 97 thousand members. These RECs had a collective generation out of solar-PV of 166-Megawatt peak (MWp), which is around 2% of the total national generation (Lokale Energiemonitor, 2020). Furthermore, according to Hufen & Koppenjan (2015) local wind electricity cooperatives have proven to be successful and under specific circumstances, other local energy cooperatives can be successful as well. Additionally, a number of researchers – from different perspectives – have described the role of cooperatives and local initiatives in the transition towards a sustainable future and the energy transition itself within the Netherlands (Oteman, Wiering & Helderman, 2014; Van der Schoor & Scholtens, 2015; Van der Schoor, Scholtens & Peine, 2016; Hasanov & Zuidema, 2018). Accordingly, the government has asked for citizen participation within large-scaled renewable

electricity generation projects (National Climate Agreement, 2019). Therefore, the government strives for 50% local ownership for the environment within the projects on land (National Climate Agreement, 2019).

However, as it sounds as a solid agreement, there is a tension between the national legislation and the local initiatives. On the one hand, the Dutch national government must commit to its climate agreements. In order to succeed, the government implemented (local) policies, with new market opportunities for entrepreneurs simultaneously (National Climate Agreement, 2019). On the other hand, citizens and landowners already started the bottom-up approach on a local scale (Lokale Energiemonitor, 2020). However, in absence of appropriate capabilities, leadership and funding, the scalability of these projects is limited (Hoppe, Graf, Warbroek, Lammers & Lepping, 2015; Ghorbani, Nascimento & Filatova, 2020). Therefore, large firms are mostly building the large-impact Renewable Energy Technologies (RETs) – such as solar-parks in accordance with the RES. With the idea of 50% local ownership in their mind, the entrepreneurs are trying to shape community acceptance for their renewable energy projects (Roddis, Carver, Dallimer, Norman & Ziv, 2018). The investigation of what shapes community acceptance for solar-parks is important because of the high land-take and potential conflict with other land uses. This gives rise to a specific set of economic, social and environmental issues (Jones, Comfort & Hillier, 2013). Furthermore, it is within this area where the Not In My BackYard (NIMBY) discussion unfolds. The construction of facilities, such as solar- and wind-parks, often requires large amounts of land. Especially the start of construction is often delayed due to public resistance to the project, because of 'NIMBYism' (Wolsink, 1994). Therefore, there is a tension between the entrepreneurs – that are initiating the solar-parks and contributing to the national climate objectives – and the local communities – facing the negative externalities of having a solar-park within their backyard.

Initially, the social acceptance debate merely involved wind-parks due to its visual impact on landscapes. It was recognized that social acceptance was the constraining factor in achieving public support for building renewable energy projects, and especially for wind-parks (Wüstenhagen, Wolsink & Bürer, 2007). Nevertheless, due to its increasing impact on the domestic landscape, social resistance against solar-parks has significantly increased (Jones et al., 2013).

In order to compete in this challenging area of creating social acceptance, a set of appropriate capabilities is necessary. Next to the economic challenges associated with the transition to renewable energy, the social and environmental challenges are uniformly important. According to the literature, sustainable entrepreneurship is the only approach capable of combining economic, social and environmental value creation in combination with the concern for well-being of future generations (Hockerts & Wüstenhagen, 2010). The central idea behind sustainable entrepreneurship is that performing opportunities must not undermine the ecological and social environments in which they operate (Shepherd & Patzelt, 2011). When possible, the opportunities undertaken eventually restore the specific environments towards recovery of the balance between economic, environmental and society activities (Parrish, 2010). Following from the literature, sustainable entrepreneurs possess the capabilities to solve multiple challenges at the same time and are capable to overcome the problems involved with initiating renewable energy projects.

The goal of this research is to investigate how sustainable entrepreneurs can initiate new solar parks, with the endeavour of local ownership and legitimate multi-stakeholder initiatives. To achieve this ambitious objective, the sustainable entrepreneurs must create a support base with community acceptance for building new renewable energy projects – in this case solar-parks.

Therefore, the main research question of this academic work will be: '*how can sustainable entrepreneurs create a legitimate support base for the initiation of solar-parks within local communities?'*. Since the academic field on creating community acceptance for the initiation of solar-parks is relatively nascent (Fast, 2013), this thesis adds value to different fields of interest. Since the field of theory is in the process of generation, this thesis elaborates on existing concepts. Second, this thesis elaborates on the process of creating community acceptance, which could help local communities in having a stronger voice in the decision-making process of new renewable energy projects. Lastly, this thesis sheds light on the practical implications for sustainable entrepreneurs in the process of creating community acceptance.

The remainder of this research will be structured as follows. The following section will contain a literature review, which will be followed by the research methods used. The fourth section will present the findings. Lastly, this research will end with a discussion and a final conclusion. This last section is specified with the theoretical and practical implications, accompanied by the limitations of this work.

THEORY

Besides the transition from a fossil fuel-based energy system to a sustainable energy system, global energy demand is increasing and making renewable energy sources critical to future sustainable power provision (Armstrong, Waldron, Whitaker & Ostle, 2014). This replacement from experienced electricity generation sources to land-based solar and wind electricity generation technologies requires adequate land (Hüber, Hergert, Price, Zäch, Hersperger, Pütz, Kienast & Bolliger, 2017). Since a modern society must have access to a reliable electricity supply, these changes demand much of the current system. Moving away from centralised, polluting power plants, future electricity generation will be more locally and

closer to the users (Dutch Ministry of Economic Affairs, 2016). Within the Netherlands, most renewable electricity will be produced in the North Sea, but an extensive amount will also need to be generated on land using wind- and solar-parks (Dutch Ministry of Economic Affairs, 2016). This could have a significant impact on scenic qualities, or may generate resistance to changes in landscape and community (Apostol, Palmer, Pasqualetti, Smardon & Sullivan, 2016), making the acceptance of the effected communities an important factor for the transition (Dutch Ministry of Economic Affairs, 2016).

The start of the discussion around social acceptance for RETs started already in the 1980-ies (Gaede & Rowlands, 2018). Within the take-off phase the focus was on the public perceptions and attitudes. The social acceptance research was therefore mainly shaped by the dominant attention on public acceptance, which is described as the aggregated degree of acceptance by individual citizens (Wolsink, 2018). However, it is argued by Gaede & Rowlands (2018) that the terms 'public acceptance' and 'social acceptance' are used interchangeably within academic work causing great confusion in literature. For example, van Rijnsoever, van Mossel & Broecks (2015) stating that the concept of public acceptance is often unclear due to its dual meaning, referring to a form of behaviour towards the RET itself and its implementation. Other authors are dividing the term 'public acceptance' in subcategories of 'social acceptance', as has been done within the research of Roddis et al. (2018). However, Upham, Oltra & Boso (2015) have set up a theoretical framework for thinking about RETs acceptance and phrased the following definition for 'social acceptance: *"A favourable or positive response (including attitude, intention, behaviour and – where appropriate use) relating to a proposed or in situ technology or socio-technical system, by members of a given social unit (country or region, community or town and household, organization)"* (Upham et al., 2015: 103).

A common denominator within academic work on 'social acceptance' is the highly influential framework of Wüstenhagen et al. (2007). Their paper started with the statement that clear definitions for social acceptance are rarely provided. Thus, making clarification of the understanding as their main objective. They distinguished social acceptance by three dimensions, namely '*socio-political acceptance'*, '*community acceptance'* and *'market acceptance'* (Wüstenhagen et al., 2007). Furthermore, within their paper, it is recognized that social acceptance is the main barrier in achieving the renewable energy targets.

Dimensions of 'Social Acceptance'

In general, there are three dimensions of social acceptance with the broadest or most general level being *'socio-political acceptance'*. This dimension encompasses the general support for a technology or for policies that support its development (van Rijnsoever et al., 2015). Roddis et al. (2018) are clarifying this dimension as the acceptance by policymakers and the general public. Furthermore, socio-political acceptance contributes to the acceptance by key stakeholders and policy makers. These policy makers can employ various strategies to influence socio-political acceptance, which can foster the other dimensions of 'social acceptance' (Van Rijnsoever et al., 2015). For example, Wüstenhagen et al. (2007) illustrates spatial planning systems that stimulate collaborative decision making to increase community acceptance.

The second dimension is *'community acceptance'*, which is described as the specific acceptance of siting decisions and renewable energy projects by local stakeholders, particularly residents and local authorities (Wüstenhagen et al., 2007). It plays a particularly important role in cases where the implementation of RETs affects large groups of agents (e.g. the siting decisions for solar-parks) (Van Rijnsoever, 2015; Roddis et al., 2018). It is within

this area where the discussion around Not In My Back Yard (NIMBY) unfolds. Academia describe NIMBYism as the resistance against specific projects. And especially that the difference between general acceptance of RETs and resistance can be explained by spatial aspects. However, the term has been highly criticized as an oversimplification of people's genuine motives (Wolsink, 2006; Bell, Gray & Haggett, 2005). Furthermore, according to Wolsink (2007) the typical pattern of local acceptance before, during and after the project follows a U-curve. This curve is shaped as going from high to low acceptance during the siting phase and back up to a higher level of acceptance once the project is running. According to Roddis, Roelich, Tran, Carver, Dallimer & Ziv (2020), it may not even be possible to initiate a RET without community acceptance.

The third and last dimension of social acceptance is *'market acceptance'*. This dimension can be interpreted as the process of market adoption of an innovation by adopters and consumers – such as households and businesses (Wüstenhagen et al., 2007; Van Rijnsoever et al., 2015; Roddis et al., 2018). This aspect is more linked to small-scale RETs instead of solar-parks. According to Fast (2013), the stream of literature of social acceptance on *'market acceptance'* is generally weak, especially on the field of geographical concepts and spatial analysis. Besides, it is mentioned that this stream of literature to social acceptance has been insufficient to explain opposition to RETs, although it generated important knowledge on other aspects (Fast, 2013). Furthermore, the *'market acceptance'* dimension is more linked, in a wider understanding, with *'socio-political acceptance'*. Because large firms, or other influential stakeholders that have adopted RETs can use their influence to effect crucial political decisions about renewable energy policies (Wüstenhagen et al., 2007).

Community Acceptance

The importance of community acceptance within RET projects is commonly acknowledged within academic work (e.g., Roddis et al., 2018; Carley, Konisky, Atiq & Land, 2020). Especially due to the consideration that government officials and companies must negotiate with the local community through several processes. Without the acceptance of the community, the initiation of the specific innovation may not be possible (Roddis et al., 2020). Although the acceptance by communities has been widely acknowledged, academic research has overlooked public responses to solar-parks within densely populated areas – such as in Europe (Roddis et al., 2020). Within developing countries, academia has focused on case studies within India and South Africa (Yenneti, Day & Golubchikov, 2016; Nkoana, 2018). These studies found that local residents have been faced with threats to their livelihoods in India, and identification of corruption and inadequate consultation in South Africa (Yenneti et al., 2016; Nkoana, 2018). Another body of academic research focuses on the United States. These found that, for instance, aspects of positive impact – such as jobs – have a strong effect on personal attitudes of local communities in California. In addition, public opinion is generally favourable within the Southwest stimulated through indicators such as visual impact and buffer distances (Carlisle, Kane, Solan & Joe, 2014; Carlisle et al., 2016).

One of the first attempts at understanding community acceptance of solar-parks within densely populated areas is the empirical case study by Roddis et al. (2018). They analysed several cases of solar-parks within Great Britain to identify indicators for community acceptance. They found that solar-parks proposed on the highest quality agricultural land are less likely to be approved than those on land with lower (agricultural) values. In addition, solar-parks are more likely to be approved in more socially and economically deprived areas and larger solar-parks were less likely to be approved than smaller solar-parks (Roddis et al., 2018). These results indicate the importance of scale as an indicator for community

acceptance. This study has been followed up by a second empirical case study by Roddis et al. (2020) which analysed the Cleve Hill solar-park in Great Britain. The latest case study contributed additional indicators of community acceptance of solar-parks. For instance, they identified the 'green-on-green' issue – which is defined as the potential impact on wildlife and habitats around the solar-park – and the importance of scale and place attachment (e.g., concerns about landscape character, visual impacts and recreation). Lastly, Roddis et al. (2020) find that the broader (political) view of citizens on energy policy feeds into their view on specific projects. Thus, making the role of policy and process an indicator for shaping community acceptance of solar-parks. Together these two papers have identified 28 determinants of community acceptance within different overarching categories (Roddis et al., 2020).

Community Ownership

Another stream of literature discusses community ownership for RETs next to community acceptance. This theme aligns with the bottom-up approach of citizens in the production and usage of renewable energy. Currently, the Netherlands counts 623 Renewable Energy Cooperatives (RECs) (Lokale Energiemonitor, 2020). A REC is described as a decentralized, non-governmental initiative of local communities to promote the production of renewable energy, mostly formed by a group of community members that shares a common long-term objective with active citizenship involvement (Oteman et al., 2014). According to van der Schoor & Scholtens (2015) were RECs an emergent phenomenon that in the present stage provide a useful grassroots approach for many citizens to engage in the transition to a sustainable future. This is confirmed by an increase of 2550% in the total number of collective solar-parks within the Netherlands over the period from 2015 until 2020. Within this five-year period of time, the total number of collective solar-parks increased from 2 to 53 (Lokale Energiemonitor, 2020). However, the scalability of collective renewable energy

projects is limited due to the absence of appropriate capabilities, leadership and funding (Hoppe et al., 2015; Ghorbani et al., 2020). According to 'HIER opgewekt' – a Dutch organization that measures data regarding local energy generation – RECs should currently aim for quality instead of quantity (Lokale Energiemonitor, 2020). Since the Dutch government has asked for citizen participation within large-scaled renewable electricity generation projects – through the endeavour of 50% local ownership (National Climate Agreement, 2019) – the RECs have an increasing social interest. Accordingly, RECs acquire a voice within the decision-making process regarding local energy policy, participation processes and potential ownership deals (Lokale Energiemonitor, 2020).

The increasing social interest of RECs and the advantages of community ownership is acknowledged within academic work. According to Proka, Loorbach & Hisschemöller (2018) RECs reinforce the energy transition by increasing social acceptance of renewable energy projects through awareness raising and the provision of resources and knowledge. Furthermore, when RECs successful implement community ownership and responsibility, local acceptance for renewable energy installations increases (Otemal et al., 2014). And according to Wagemans, Scholl & Vasseur (2019) RECs foster local acceptance through presenting communities a voice in the development and operation of renewable energy projects, and the REC is more likely to generate local support than other parties. Thus, decisions made in RECs – resulting from collective action – may find greater social acceptance than decisions made by other actors outside local communities (e.g. investor-oriented firms) (Yildiz, Rommel, Debor, Holstenkamp, Mey, Müller, Radtke & Rognli, 2015).

METHODS

Within this section, the research method of this qualitative study is presented. To answer the main research question: "*how to create a legitimate support base for the initiation of solar-*

parks within local communities?" a cross-sectional research approach has been adopted. This research approach focused on a number of solar-parks – and their underlying process of building community acceptance – that have been built within the Netherlands.

Research Design

The academic field of creation of community acceptance for the initiation of solar-parks within developed countries is relatively nascent (Fast, 2013). To find how sustainable entrepreneurs were able to create this phenomenon of 'community acceptance', a qualitative research approach has been used. This type of research is commonly seen as theory generation and elaboration rather than theory testing, and particularly valuable for examining novel and emerging questions in business ethics (Reinecke, Arnold & Palazzo, 2016). Since the current field is in a need for understanding the creation of community acceptance, this approach is most suitable. As mentioned, a cross-sectional research approach has been adopted. According to Bell, Bryman & Harley (2019), the cross-sectional research approach is described as the collection of data on more than one case at a single point in time and interested in finding associated patterns or prevalence within in a number of characteristics and/or traits. As this research has a qualitative approach, semi-structured interviews have been executed. According to Bryman (2006), semi-structured interviewing is the predominant approach for qualitative cross-sectional research design. This flexible process of interviewing opens the path for the interviewee to elaborate freely on the specific topics, yet the main interview themes are covered. The interview guide can be found within Appendix D.

Data Collection & Ethics

This thesis had the intention to investigate how sustainable entrepreneurs can create a legitimate support base for the initiation of a solar-park within a local community. The developing organizations have been invited via email to participate within this academic

research. The invitation was mostly sent to the headquarters of the organizations and asked specifically for representatives that have played an active role within the process towards the creation of 'community acceptance' (e.g. project managers and/or business developers). These representatives can provide the most specific information regarding the process and the underlying factors. In consultation with the representatives of the organizations, the specific projects have been carefully chosen. All projects needed to be developed by Dutch organizations and sited domestically. Furthermore, all projects needed to have successfully created 'community acceptance' and granted with a permit from the (local) government. Therefore, all of the participative organizations contribute to the Dutch national climate objectives. And they all have an intrinsic objective to collaborate with local communities. An overview of the selected cases and the organizations' representatives can be found within Appendix A.

The data was collected through recorded, semi-structured interviews with a number of representatives of several different organizations. An informed consent was sent in advance to ask for permission to record the interview. Furthermore the consent contains several points to approve ethical security for the interviewee. Besides the consent for the interviewees, the researcher of this thesis also agreed upon a non-disclosure document. Together with the involved organizations the researcher arranged which information could be non-anonymously included. The signed informed consents can be found in a separate attachment (accessible via a shared link in Appendix B). The projects that were involved are either in the process of construction or they are already in operation.

Data Analysis

Once the recorded interviews were collected, the data analysis follows naturally. The first step in this process starts with transcribing the recorded interviews. Right after the process of

transcribing, the interviews were coded with predefined codes. These codes are formed following from the literature, the research topic and the interview questions. However, initially, the option to include codes derived from the interviews was left open. Accordingly, eight different themes were identified within the interviews. These themes can be found within Figure 1 accessible via Appendix C. Within this figure, a hierarchical order of themes is demonstrated with the accompanied colours. It starts with the interviewee, the representative that was involved in the process of creating community acceptance. The first two codes that belong to the interviewee are: (1) general information of the interviewee and (2) general information regarding the involved project. The other themes are linked to the process of creating community acceptance and different codes have been assigned to these separate themes. The transcripts and the associated codes are accessible via a separate attachment (accessible via a shared link in Appendix B).

To ensure the credibility of the interviewees, triangulation research was performed. Secondary data that is provided by the involved companies themselves has been applied to verify the answers retrieved from the interviews. It diminishes misunderstandings and avoids errors in what the researcher has seen and/or heard in the interview (Bell et al., 2019). In the end, this set of primary data is used to answer to main research question of this thesis. With the findings of this thesis, and the relevant existing theory, a conclusion is made. The following section describes the findings of this thesis.

RESULTS

This section of this thesis displays the results. The aim of this section is to provide an overview of the process how current sustainable entrepreneurs create a legitimate support base for the initiation of solar-parks within local communities.

‘Support base’ defined by key actors

Within the conversations with all interviewees confusion exists in defining the words ‘support base’ and social acceptance. This confusion exists partly due to the Dutch language. This language possesses the word ‘draagvlak’ which means literally a ‘support base’. All interviewees mention that within the world of renewable energy, no consensus exists about the definition of this word. Within the conversations, they have all used the word ‘acceptance’ instead of a ‘support base’. A common definition, according to the interviewees, is that the majority of the local community should at least accept the project proposal and that they not necessarily have to support it. And that the process is open for negotiation, so there is room to change the project proposal. After a successful debate, there should be sufficient acceptance to accept the project proposal. In that case, one could say that there is a ‘support base’ for the renewable energy project. However, almost all interviewees indicate that it is a subjective process and that the local government could play a significantly more important role in this. They should indicate the framework of how acceptance for a project proposal should be measured and when a ‘support base’ exists.

The initial process (the first steps)

Commonly the first step is an investigation into possible locations. Most organizations are trying to find locations that are in accordance with a number of factors. Some organizations purely look to the Regional Energy Strategy and the indicated locations by the local government. Others are trying to find a location with generally not much local residents and within sparsely populated land. Furthermore, possible locations are mostly located relatively close to access points of the electricity grid and have the possibility to be integrated within its natural environment.

The first step of the process to create acceptance for the project frequently starts with a first creation of the development proposal. After the first step, the organizations either choose to adopt a stakeholder analysis or to first contact the local government. In case of a stakeholder analysis, the organizations investigate which parties are active within the field of interest. It ranges from the political environment and potential competitors to the history of the local community. One organization even mentions that they conduct a full background check of the local community, including their disposable income. Other organizations are more interested in the political background of the municipality or their history with renewable energy projects. All interviewees mention that they review the municipalities policies on the field of renewable energy.

Demands from the (local) government

In general, the interviewees make a distinction between two types of local governments – mostly municipalities. On the hand there are municipalities with a 'hands-off' mentality. This type of local governments do not have clear demands or requirements, they basically tell the entrepreneurs to find a 'support base' within the local community for their project and then come back to file the grant. These municipalities do not have a clear vision on how the process should look like, neither that they have a clear framework. Only sometimes they refer to the climate agreement and they strive for 50% local ownership, but they do not demand it.

On the other hand there are municipalities with a more 'hands-on' mentality. This type of local governments have a clear vision and framework upon the process that the entrepreneurs should follow. One of the interviewees mentions even an example with a civil servant that did a significant amount of work to create community acceptance for their project. Another interviewee mentions that the municipality came to their events within the local community to

emphasize the need for the energy transition and why that specific project would be beneficial to the community.

However, all interviewees mention that it is not always beneficial to cooperate with a municipality that has indicated a clear framework. Almost all organizations gave the example of a municipality that really demands the 50% local ownership, as indicated as an endeavour within the national climate agreement. For example, a number of interviewees mention that it was sometimes not possible to receive a permit without collaboration with a REC. Moreover, two organizations even mention that they were not allowed to talk with the local residents without cooperating with a REC.

The process of creating a 'support base'

After the first steps of the process as described, most organizations start the process with the local community by creating a concept project proposal. This concept is the basis for all interviewees to develop the solar-park. Furthermore, all interviewees mention that the process to create a 'support base' for a solar-park is a tailor-made development. Whereas the first decision is mostly whether the entrepreneur will organise a general event for the local community, or whether the entrepreneur should visit the local residents living the closest to the project first. Three of the interviewees mention specifically that it is a timing and quantity decision. If there are too many local residents living nearby the project, a general event is preferred over personal meetings. However, most interviewees prefer to visit a few residents first to obtain their concerns and opinions about the idea.

Within these first conversations and meetings with the local community, most interviewees provide general information about the project. All interviewees mention that the local residents mostly do not possess the required knowledge to conduct a decent discussion.

Therefore, these first meetings mostly consist of explaining, listening and answering questions. Five of the interviewees emphasize specifically the importance of this stage because the organization could set the stage for the upcoming development process. According to one of the interviewees: *"Local residents are often relatively stubborn and suspicious at those first meetings. As an organization you need to act humanly and to be open for their critics. Listen carefully, and try to find out their concerns and requirements. It might be though, but as an organization you need to be open to the local residents and try not to respond reactive."*

Another interviewee mentions that: *"You have to make sure that you present a well-balanced proposal at a general event or personal meeting. Because if you present a complete proposal, the community will have the feeling that they could change nothing. And on the other hand, if you present an incomplete proposal, the community will say that you could come back once you have a thorough project. You have to find the balance between these two types, and present a proposal where the community has the feeling that they could have a voice in the decision-making process."*

In case the organizations have started with personal meetings with a number of the local residents, their next step was always a general event for the larger community (e.g. the village). All interviewees mention that those events have been used to present the concept project proposal to a larger group. However, it is not the same concept anymore. After the personal meetings with a few residents, all interviewees mention that the project proposal adapts according to (some of) their concerns and/or requirements.

In sum, the personal meetings with the local residents and the events with the larger community are both used to listen carefully to the concerns and requirement of the residents. According to one of the interviewees: *"Organizations can be successful by being open and transparent to the local residents. You have to be prepared to do concessions and to see where you could improve the project proposal. People always have concerns and requirements, sometimes unexpected and peculiar, but we should always listen and try to address these concerns."*

A side step within the development process is the usage of task forces. Three interviewees mention that task forces are a beneficial tool in creating acceptance within the local community. According to one of the interviewees: *"In task forces there is room not only for local residents, but also for other parties that might have a stake in a specific project. This setting is beneficial because these parties then have a direct voice within the decision-making process, in front of the other stakeholders."*

Another interviewee adds: *"A task force is beneficial because a number of local residents are able to act as a spokesperson for the entire community. Task forces may be even crucial within the process of creating a support base. Namely, sessions with task forces are relatively intense and productive."*

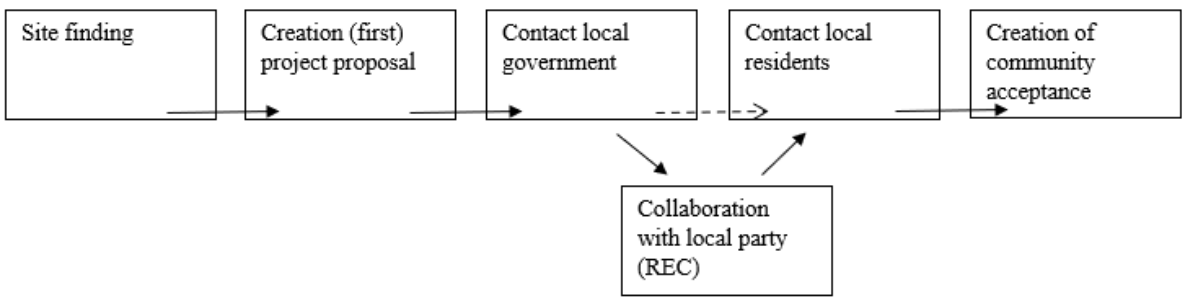

Figure 2: *Initial process of creating 'community acceptance'*

Collaboration with local party (REC)

The process described in Figure 2 is the process that most of the interviewees have described. However, some interviewees mention that they give priority to collaborate with a local party. This ranges from a Renewable Energy Cooperative (REC) and a village council to a well-known community member. These collaborations contribute to the initiation of local ownership for the community. Other interviewees just mention the collaboration because local governments have adopted the endeavour of 50% local ownership for the community in their policies, and one interviewee mention specifically that their organization always strives for 50% local ownership in their solar-parks. Consequently, all interviewees mention that they initiate local ownership as a mean to create a 'support base', and not as an end.

The difference within the process of collaborating with a REC is the type of agreement. Three of the interviewees mention that there should be an equal weight in costs and benefits. Consequently, those interviewees all gave the example of a difference in responsibilities. In those projects, the REC was responsible for the creation of community acceptance whereas the entrepreneurs were responsible for the general development. According to those interviewees, it is beneficial because the REC speaks the local language and knows the culture, so they have an advantage in having the conversation with the local residents. On the other side, the organizations of these interviewees are experienced developers. Thus, the organization has an advantage on the other aspects of the development process (e.g. contact with the local government, technological development, finance, subsidies etc.). Nevertheless, another interviewee mentions that: *"Our organization always take the lead in the process of creating community acceptance. We start the process ourselves, chair the meetings and we remain responsible for the overall development."* Finally, two of the interviewees mention that it is always a tailor-made process and that they make the decision of responsibilities specifically based on the project, or the type of municipality.

Addressed factors

Within the process of creating community acceptance for a solar-park, the entrepreneurs all faced different factors that have been addressed. The interviewees all mention that they face always some resistance against their proposed ideas. As one of the interviewees specifically mentions: *"There is always a pain in the hearts of the local residents. Most communities have a history with the municipality or with another organization that has tried to initiate a Renewable Energy Technology (RET) in their environment. It is up to the organization to investigate what the concerns are, and more importantly, how the organization could address these concerns."*

Factor	**Addressed concerns**
Aesthetic	Visual impact Glint and glare Impact on the landscape
Economic	Property values Land values (e.g. agricultural value of the land)
Environmental	Wildlife and habitats Decrease of biodiversity
Social	Employment opportunities Alternative options (sustainability funds, donations)
Procedural	Trust and transparency Business model Project details (project identity) Collaboration possibilities

Table 1: *Factors addressed to create 'community acceptance'*

Within Table 1, an overview of the addressed factors can be found. The factors have been divided into five groups: aesthetic, social, economic, environmental and procedural. One of the most important factors found in this thesis is the visual impact of a solar-park. All interviewees mention that local communities have concerns regarding the sight, glint and glare and the impact on the landscape. These concerns have been addressed by placing embankments and integrating the solar-park in its natural environment (e.g. increase the

amount of plants and trees). Second, almost every interviewee mentions that the difference between a successful and a failed project is the process and collaboration with the local community and the municipality. According to the interviewees, successful projects include decent procedures and well established collaborations with municipalities or other bodies of the local government. Last, another important factor that returned in most conversations with the interviewees is that local ownership could be significantly beneficial in the process of creating community acceptance.

DISCUSSION

The objective of this thesis was to investigate how sustainable entrepreneurs can create a legitimate support base for the initiation of solar-parks within local communities. Eight representatives of organizations that have built solar-parks in the Netherlands were interviewed in order to investigate how a successful process to create community acceptance originates.

Conclusions

First, every representative of the organizations involved in this thesis, has provided a different definition for the words ‘social acceptance’ and ‘support base’. All interviewees agreed on the vagueness of the definitions and called for a common understanding, provided by the (local) government. Vagueness of the definition is in line with previous literature by Gaede & Rowlands (2018), van Rijnsoever et al. (2015) and Wüstenhagen et al. (2007), indicating the necessity for an appropriate solution. A definition for ‘social acceptance’ for a Renewable Energy Technology (RET) should be clearly defined amongst all relevant stakeholders to accelerate the process of initiation of RETs.

Second, since the academic field of creation of community acceptance for the initiation of solar-parks within developed countries is relatively nascent (Fast, 2013), a clear process on the creation is lacking. This thesis displays a process based on eight interviews with representatives that have worked on successful projects. It indicates a chronological order, but all interviewees have indicated the tailor-made process based on several different factors. Commonly it starts with a location that serves certain conditions. It appears that locations within sparsely populated areas have a significantly higher chance of success. Something that was mentioned by Apostel et al. (2016) as that renewable energy production sites could have a significant impact on scenic qualities, or may generate resistance to changes in landscape and community. Besides, if the location has been assigned as promising by the local government within its Regional Energy Strategy (RES), the municipality appears to be more cooperative. It indicates the importance of socio-political acceptance by municipalities for the renewable energy policies and its development (van Rijnsoever et al., 2015). The RES is an important factor within the early phase of the process to most organizations because all interviewees indicated the necessity to conduct a policy analysis of the local government. Especially to investigate the political background of the municipality and their history with renewable energy projects. It has been found that both the history with other projects and the political background play a significant role in the mentality of the local government. All interviewees have mentioned that a cooperative municipality can be highly beneficial in the creation of community acceptance. Successful projects contain examples of municipalities emphasizing the need for the energy transition at local events or a municipality that accepts requirements of local residents instead of honouring the local land-use plan. These examples are in line with the social acceptance framework for RETs of Upham et al. (2015). This may indicate that the creation of community acceptance starts with the creation of socio-political acceptance. Within the three-dimensional model of Wüstenhagen et al. (2007) socio-political

acceptance is described as the broadest or most general level of social acceptance. It encompasses the general support for a technology or for policies that support its development (van Rijnsoever et al., 2015). Consequently, socio-political acceptance can foster the other dimensions of social acceptance – e.g. 'community acceptance' (van Rijnsoever et al., 2015).

However, it appears that it is not always beneficial to collaborate with a local government that has a clear framework on how the process to create community acceptance should look like. Namely, all interviewees provided an example of a municipality possessing a policy that requires strict 50% local ownership in renewable energy projects for the local community. The endeavour of local ownership has been adopted in the national climate agreement (National Climate Agreement, 2019), but it should not be a requirement. The examples mostly consist of municipalities not granting a permit without collaboration with a Renewable Energy Cooperative (REC). But also not allowing the organizations to step foot into the local community, before they start collaborating with a REC. It indicates clarification of current policies and demands to drop the strict requirement for 50% local ownership. All interviewees indicate that local ownership could be used as a significant valuable mean to create community acceptance, but that it should not be seen as an end by local governments. The valuable contribution of a REC has been acknowledged within the academic work of Proka et al. (2018) through awareness raising and the provision of knowledge and resources to local residents.

The specific contribution of a REC in the process of creating community acceptance is appreciated by most interviewees. A REC has high responsibility within the local community and speaks the same language. Furthermore, a REC knows the history and the cultural background and residents appear to feel more comfortable to explain their concerns. These

favourable factors stimulated by a REC could foster local acceptance relatively easier than executed by other organizations outside the local community (Wagemans et al., 2019). Within the process itself, some of the organizations emphasize the need for task forces. These task forces have acted mostly as spokesperson for a larger community. Sessions with task forces appear to be relatively intense and more productive compared to public events with local residents. Consequently, a process with a REC, a task force and an entrepreneur appears to be relatively successful. Notwithstanding, all interviewees emphasized during this entire research the tailor-made process based on the different factors. In the end, local residents always have concerns and requirements, sometimes unexpected and peculiar, but the entrepreneur should always listen and try to address these concerns. That means to create a legitimate support base, the initiator should always be transparent, open to do concessions and to react reliable and trustworthy.

Finally, it has been found that once the organization has found the pain in the hearts of the local residents, and was able to address these concerns, a legitimate 'support base' for the solar-park can be created. The most important concerns that have been found in this thesis are aesthetic, economic, environmental, social and procedural factors. All interviewees mention that the visual impact to the local residents is one of the most addressed concerns. Related is the concern of environmental impact and the possibility to integrate the solar-park in its natural environment. The organizations have addressed these concerns by placing embankments, placing the solar-panels further away from the residents, planting trees and plants and increase the biodiversity. Many of the addressed factors found in this thesis are similar to those found by Roddis et al. (2018) and Roddis et al. (2020). However, within this thesis all interviewees emphasized the importance of procedural factors that have been

addresses within the process to create community acceptance. These factors did not receive significant attention within the academic work previously named.

Theoretical implications

Since the Netherlands are trying to meet neighbouring countries' achievements – regarding the renewable energy objectives – the government would benefit from an acceleration in implementing renewable energy projects. That also means that the government should establish clear communication regarding the related policies. However, this thesis has found a significant difference in municipalities' frameworks regarding the process of creating community acceptance. Secondly, every representative of the organisations that have been interviewed, emphasize the vagueness of the definitions for the words 'community acceptance' and 'support base' within the field of renewable energy. Consequently it indicates the necessity to create a common framework for the process of measuring and creating community acceptance. Furthermore, it indicates a need for clarification regarding the definitions for the words used by relevant stakeholders. Experts in the field, complemented by government bodies could play a significant important role in defining a clear framework and definition for the creation of community acceptance.

Practical implications

Although the academic field on creation of community acceptance is relatively nascent (Fast, 2013), a first number of attempts at understanding community acceptance have been executed (Roddis et al., 2018; Roddis et al., 2020). Whereas these two attempts identified indicators for community acceptance, this thesis adds a procedural overview of the development process. For both sustainable entrepreneurs and local residents, it sheds light on the procedures and decision-making process of the creation of community acceptance. Furthermore, this thesis analysed several different factors that have been addresses to create community acceptance.

Many of the addressed factors analysed within this thesis overlap with previous literature by Roddis et al. (2018) and Roddis et al. (2020). For instance, both previous literature and this thesis emphasize the importance of place attachment (e.g. concerns about landscape character) and environmental issues (e.g. biodiversity). However, main issue addressed within thesis is the importance of clear procedures, transparency and communication. Therefore, the main implication for sustainable entrepreneurs is to develop a clear process, with transparency, room for negotiation and honest communication.

Second, since all interviewees emphasized the importance of RECs as a specific contribution within the process of creating community acceptance, local residents should unite. Thus, the main practical implication for local communities is to initiate a REC or to join an existing (local) cooperative. As argued by Wagemans et al. (2019), a REC could foster local acceptance relatively easier than other parties outside the local community.

Limitations and Future Research

As any other academic work, this thesis contains some limitations and provides future research directions. First, a development process for the initiation of RETs and the associated creation of community acceptance contains several stakeholders ranging from the (local) government and its citizens to an organization. However, this thesis has only focused on the side of the organisations that have operated as technical developers. This thesis does not shed light on the side of the development process of the (local) government, the local community or any other type of stakeholder. Thus, future research may add value in investigating other sides of the development process. Especially, due to the need of clarification for social acceptance frameworks, the side of the (local) government presents a significant interesting opportunity to investigate the vagueness of the definitions and the ambiguity of (local) energy policies. Second, within this thesis eight different solar-park projects within the period of

2017 until 2021 have been investigated. However, in the middle of this timeframe, the Dutch government activated their most recent national climate agreement in 2019. The main difference became the policy that local governments should strive for 50% local ownership within renewable energy projects for the community. Thus, some of the projects that have been investigated within this thesis obtained a permit without the most recent policies in place. And the procedural development process has been slightly different within these projects. Therefore, future research may compare projects before and after the most recent national climate agreement to investigate any different factors within the procedural development process. Last, this thesis has only investigated projects that successfully created community acceptance and received a permit from the local government. Therefore, future research may add value to investigate any solar-park projects that did not succeed in creating community acceptance and had to terminate the project.

REFERENCES

Apostol, D., Palmer, J., Pasqualetti, M., Smardon, R., & Sullivan, R. 2016. ***The Renewable Energy Landscape: Preserving Scenic Values in our Sustainable Future*** (1st ed.). Routledge.

Armstrong, A., Waldron, S., Whitaker, J., & Ostle, N. J. 2014. Wind farm and solar park effects on plant-soil carbon cycling: uncertain impacts of changes in ground-level microclimate. ***Global Change Biology***, *20*(6), 1699–1706.

Bell, D., Gray, T., & Haggett, C. 2005. The 'Social Gap' in Wind Farm Siting Decisions: Explanations and Policy Responses. ***Environmental Politics***, *14*(4), 460–477.

Bell, E., Bryman, A., & Harley, B. 2019. ***Business Research Methods*** (5th ed.). Oxford University Press.

Bryman, A. 2006. Integrating quantitative and qualitative research: how is it done? ***Qualitative Research***, *6*(1), 97–113.

Carley, S., Konisky, D. M., Atiq, Z., & Land, N. 2020. Energy infrastructure, NIMBYism, and public opinion: a systematic literature review of three decades of empirical survey literature. ***Environmental Research Letters***, *15*(9)

Carlisle, J. E., Kane, S. L., Solan, D., & Joe, J. C. 2014. Support for solar energy: Examining sense of place and utility-scale development in California. ***Energy Research & Social Science***, *3*, 124–130.

Carlisle, J. E., Solan, D., Kane, S. L., & Joe, J. 2016. Utility-scale solar and public attitudes toward siting: A critical examination of proximity. ***Land Use Policy***, *58*, 491–501.

Dutch Cabinet. 2019. ***National Climate Agreement - The Netherlands*.** https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands

Dutch Ministry of Economic Affairs. 2016. ***Energy Report: Transition to sustainable energy*.** https://www.government.nl/binaries/government/documents/reports/2016/01/01/energy-report-transition-to-sustainable-energy/Energy+Report+Transition+to+sustainable+energy.pdf

Eurostat. 2020. ***Share of renewable energy in gross final energy consumption***. https://ec.europa.eu/eurostat/web/products-datasets/-/t2020_31&lang=en

Fast, S. 2013. Social Acceptance of Renewable Energy: Trends, Concepts, and Geographies. ***Geography Compass***, *7*(12), 853–866.

Gaede, J., & Rowlands, I. H. 2018. Visualizing social acceptance research. ***Energy Research & Social Science***, *40*, 142–158.

Ghorbani, A., Nascimento, L., & Filatova, T. 2020. Growing community energy initiatives from the bottom up: Simulating the role of behavioural attitudes and leadership in the Netherlands. ***Energy Research & Social Science***, *70*, 101782.

Hasanov, M., & Zuidema, C. 2018. The transformative power of self-organization: Towards a conceptual framework for understanding local energy initiatives in The Netherlands. ***Energy Research & Social Science***, *37*, 85–93.

Heffron, R. J., & McCauley, D. 2017. The concept of energy justice across the disciplines. ***Energy Policy***, *105*, 658–667

Hockerts, K., & Wüstenhagen, R. 2010. Greening Goliaths versus emerging Davids — Theorizing about the role of incumbents and new entrants in sustainable entrepreneurship. ***Journal of Business Venturing***, *25*(5), 481–492.

Hoppe, T., Graf, A., Warbroek, B., Lammers, I., & Lepping, I. 2015. Local Governments Supporting Local Energy Initiatives: Lessons from the Best Practices of Saerbeck (Germany) and Lochem (The Netherlands). ***Sustainability***, *7*(2), 1900–1931.

Huber, N., Hergert, R., Price, B., Zäch, C., Hersperger, A. M., Pütz, M., Kienast, F., & Bolliger, J. 2017. Renewable energy sources: conflicts and opportunities in a changing landscape. ***Regional Environmental Change***, *17*(4), 1241–1255.

Hufen, J. A. M., & Koppenjan, J. F. M. 2015. Local renewable energy cooperatives: revolution in disguise? ***Energy, Sustainability and Society***, *5*(1), 1–14.

International Energy Agency. 2020. ***Renewables Information.*** https://www.iea.org/subscribe-to-data-services/renewables-statistics

Jones, P., Comfort, D., & Hillier, D. 2013. Spotlight on solar farms. ***Journal of Public Affairs***, *15*(1), 14–21.

Lee, T. M., Markowitz, E. M., Howe, P. D., Ko, C.-Y., & Leiserowitz, A. A. 2015. Predictors of public climate change awareness and risk perception around the world. ***Nature Climate Change***, *5*(11), 1014–1020.

Nkoana, E. M. 2018. Community acceptance challenges of renewable energy transition: A tale of two solar parks in Limpopo, South Africa. ***Journal of Energy in Southern Africa***, *29*(1), 34–40.

Oteman, M., Wiering, M., & Helderman, J.-K. 2014. The institutional space of community initiatives for renewable energy: a comparative case study of the Netherlands, Germany and Denmark. ***Energy, Sustainability and Society***, *4*(1), 1–17.

Parrish, B. D. 2010. Sustainability-driven entrepreneurship: Principles of organization design. ***Journal of Business Venturing***, *25*(5), 510–523.

Proka, A., Loorbach, D., & Hisschemöller, M. 2018. Leading from the Niche: Insights from a Strategic Dialogue of Renewable Energy Cooperatives in The Netherlands. ***Sustainability***, *10*(11), 4106.

Reinecke, J., Arnold, D. G., & Palazzo, G. 2016. Qualitative Methods in Business Ethics, Corporate Responsibility, and Sustainability Research. ***Business Ethics Quarterly***, *26*(4), xiii–xxii.

Roddis, P., Carver, S., Dallimer, M., Norman, P., & Ziv, G. 2018. The role of community acceptance in planning outcomes for onshore wind and solar farms: An energy justice analysis. ***Applied Energy***, *226*, 353–364.

Roddis, P., Roelich, K., Tran, K., Carver, S., Dallimer, M., & Ziv, G. 2020. What shapes community acceptance of large-scale solar farms? A case study of the UK's first 'nationally significant' solar farm. ***Solar Energy***, *209*, 235–244.

Schoor, T., Lente, H., Scholtens, B., & Peine, A. 2016. Challenging obduracy: How local communities transform the energy system. ***Energy Research & Social Science***, *13*, 94–105.

Shepherd, D. A., & Patzelt, H. 2011. The New Field of Sustainable Entrepreneurship: Studying Entrepreneurial Action Linking "What Is to Be Sustained" With "What Is to Be Developed." ***Entrepreneurship Theory and Practice***, *35*(1), 137–163.

Solomon, B. D., & Krishna, K. 2011. The coming sustainable energy transition: History, strategies, and outlook. ***Energy Policy,*** *39*(11), 7422–7431.

Upham, P., Oltra, C., & Boso, À. 2015. Towards a cross-paradigmatic framework of the social acceptance of energy systems. ***Energy Research & Social Science***, *8*, 100–112.

van der Schoor, T., & Scholtens, B. 2015. Power to the people: Local community initiatives and the transition to sustainable energy. ***Renewable and Sustainable Energy Reviews***, *43*, 666–675.

van Leeuwen, R. P., De Wit, J. B., & Smit, G. J. M. 2017. Review of urban energy transition in the Netherlands and the role of smart energy management. ***Energy conversion and management***, *150*, 941-948.

van Rijnsoever, F. J., van Mossel, A., & Broecks, K. P. F. 2015. Public acceptance of energy technologies: The effects of labeling, time, and heterogeneity in a discrete choice experiment. ***Renewable and Sustainable Energy Reviews***, *45*, 817–829.

Wagemans, D., Scholl, C., & Vasseur, V. 2019. Facilitating the Energy Transition—The Governance Role of Local Renewable Energy Cooperatives. ***Energies***, *12*(21), 4171.

Wolsink, M. 1994. Entanglement of Interests and Motives: Assumptions behind the NIMBY-theory on Facility Siting. ***Urban Studies***, *31*(6), 851–866.

Wolsink, M. 2006. Invalid theory impedes our understanding: a critique on the persistence of the language of NIMBY. ***Transactions of the Institute of British Geographers***, *31*(1), 85–91.

Wolsink, M. 2007. Planning of renewables schemes: Deliberative and fair decision-making on landscape issues instead of reproachful accusations of non-cooperation. ***Energy Policy***, *35*(5), 2692–2704.

Wolsink, M. 2018. Social acceptance revisited: gaps, questionable trends, and an auspicious perspective. ***Energy Research & Social Science***, *46*, 287–295.

Wüstenhagen, R., Wolsink, M., & Bürer, M. J. 2007. Social acceptance of renewable energy innovation: An introduction to the concept. ***Energy Policy***, *35*(5), 2683–2691.

Yenneti, K., Day, R., & Golubchikov, O. 2016. Spatial justice and the land politics of renewables: Dispossessing vulnerable communities through solar energy mega-projects. ***Geoforum***, *76*, 90–99.

Yildiz, Z., Rommel, J., Debor, S., Holstenkamp, L., Mey, F., Müller, J. R., Radtke, J., & Rognli, J. 2015. Renewable energy cooperatives as gatekeepers or facilitators? Recent developments in Germany and a multidisciplinary research agenda. ***Energy Research & Social Science***, *6*, 59–73

APPENDIXES

APPENDIX A

Overview of the selected cases

Case/Project	Project Developer	Position of the interviewee	Description
Solar-park 'A´	Company A	Business Developer / Project Manager	The project occupies 35 hectares of land. Company 'A' has created community acceptance through the integration of this park within the surrounding landscape. It uses around 7 hectares of this projects land to improve the ecological environment. Furthermore, it was one of the first projects within the Netherlands that secured acceptance through collective action.
Solar-park 'B'	Company A	Project Manager	Together with a Renewable Energy Cooperative (REC), Company 'A' launched the initiative of this solar-park. This project is based on a 50/50 collaboration agreement between Company 'A' and the REC. The emphasis was on the ecological aspect of the project and the integration of the project within the surrounding landscape. The project will occupy around 70 hectares of land, where between 25- and 30% will be available for the natural environment and recreation.
Solar-park 'C'	Company A	Project Manager	Company 'A' has initiated this project alongside a well-known community member. Collectively they have found community acceptance, due to integration of the solar-park within the landscape among others. The project will occupy around 60 hectares of land.
Solar-park 'D'	Company A	Project Manager	The project occupies around 40 hectares of land, and part of the generated renewable electricity is delivered directly to a nearby hospital. Transparency was one of the main pillars in the take-off phase of this project, and the solar-park is being integrated within the surrounding landscape. For instance, the developing company placed embankments to secure the visual impact.
Solar-park 'E'	Company B	Project Manager	Company 'B' has initiated this project in two phases. It is one of the largest solar-parks within the Netherlands which occupies more than 150 hectares of land. Company 'B' developed this project together with a Renewable Energy Cooperative. Emphasis was on the integration of the project in its natural environment. For instance, part of the project land is used to create employment opportunities in horticulture and another part is used to increase the biodiversity.
Solar-park 'F'	Company C	Managing Director	This relatively small solar-park which occupies around 10 hectares of land, has been initiated by Company 'C'. The company secured community acceptance through integration of the project in its natural environment. Place attachment and biodiversity were the most important factors. Company 'C' addressed their concerns by placing embankments and securing the projects identity within the projects operational phase.
Solar-park 'G'	Company D	Community Manager	The project occupies around 50 hectares of land. Company 'D' launched this initiative alongside a village council. Together they have created community acceptance through local ownership possibilities, a sustainability fund and integration of the project in its natural environment. Of the total number of hectares land used, around 40% is used to increase environmental values.
Solar-park 'H'	Company E	Business Developer / Project Manager	The project occupies around 60 hectares of land. Company 'E' found community acceptance through several factors. Place attachment and recreation possibilities were the most important concerns. Company 'E' addressed these concerns by integrating the project in its natural environment and by placing the solar-panels further away from the local residents. In this, they secured the visual impact and recreation possibilities.

APPENDIX B

Google Drive Link

Access to a separate Google Drive Folder with the signed informed consents and the transcripts + coding of the conducted interviews.

APPENDIX C

Interview themes and colour codes

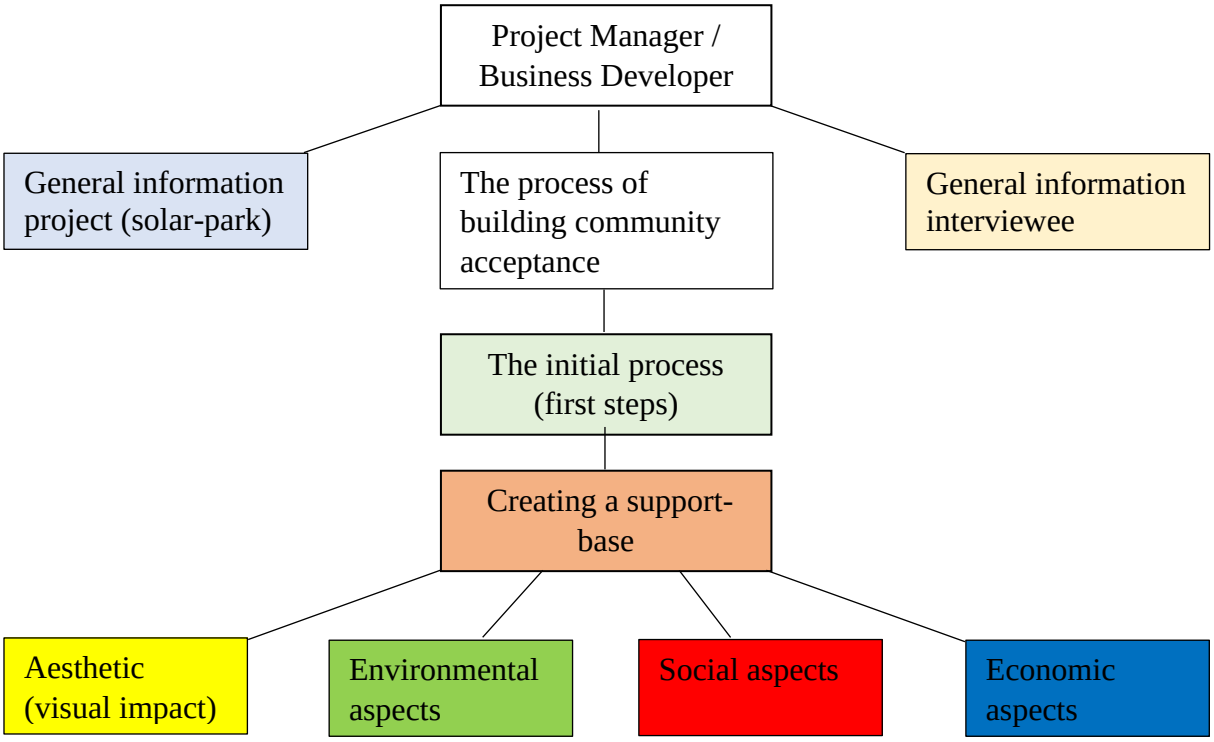

Figure 1: *Interview themes and colour codes*

APPENDIX D

Interview Guide

Introduction:
Short introduction of who I am, as a researcher and my relevant background in the field. Followed by a short introduction of my research. Explaining what the purpose is, what questions I am going to ask and what I expect from the participant. To remind the participant, emphasize the points mentioned within the informed consent (e.g. possibility to answer the questions anonymously and ethics).

The interview questions: (In general)
Note: *For all following questions, the researcher made possible sub-questions and prompts*

1. Could you give a short introduction of the project? (Beforehand the researcher and the participant agreed which project to discuss)
    a. Where is the project sited?
    b. Which parties are involved?
    c. How much land does it occupy?
    d. When is it built? Or going to be in operation?
2. Could you explain the initial process? How did your organization obtain the land?
    a. Why is that specific type of land useful to develop a solar-park?

Transition: *Explain again that the topic of interest is the creation of community acceptance for that specific project. Therefore, I will ask the following questions first*

3. According to you, what is definition for the word 'support base'?
4. According to you, what is definition for the word 'social acceptance'?
    a. Is there a difference between those two words?
    b. How does your organization uses the words?
    c. How are the words used within local governments (municipalities)?

5. Could you describe the normal procedure of creating community acceptance? (Grand Tour question)
    Note: *That means not specific for the project we supposed to talk about, but more in general. How does such a process look like, according to you?*

6. Could you describe the procedure of creating community acceptance for the project we agreed to discuss? (Grand Tour question)

7. What were the most important factors that have been addressed to create community acceptance for the project we agreed to discuss?
    a. What were the concerns of the local community?
    b. What were the concerns/requirements of the municipality?

    Note: *When specific factors were not mentioned*
8. Could you describe which visual/social/economic/environmental factors were addressed for the project we agreed to discuss?

Ending: Thank the participant! Participation is highly appreciated. Mention one more time that the participant has the opportunity to read and/or modify the answers.