Tourism Island in Transition

The case of the Dutch island Texel

Master Thesis

Source: Ecomare, 2012

MSc Leisure, Tourism and Environment

Wageningen University

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May 2013

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For quality of life

Wageningen University and Research Centre

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Registration number: 880118-441-020
Thesis Code: GEO-80433
Submission date: May 8, 2013

Master Programme: Leisure, Tourism and Environment (MLE)
Chair Group: Cultural Geography
Department: Environmental Sciences

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Department: Sociology and Governance

Acknowledgements

When I started to think about my thesis subject at the end of August 2012, it took me several weeks to arrive at this topic. Since my interest in renewable energy had grown tremendously in the first year of the master, I knew that this was what I wanted to include in my thesis. From that basis I began to search for linkages between tourism and renewable energy.
This led me to the island of Texel, a tourism hotspot in The Netherlands. The envisioned energy transition of the Wadden islands caught my interest and provided me an empirical case to study. In this thesis tourism fulfils a minor role as my focus shifted more towards the developments and processes that are connected to this energy transition in this specific island context.

Concerning the thesis process, I want to thank both my supervisors Prof. Rene van der Duim and Dr. Art Dewulf whom led me through the process and gave me concise and constructive feedback, despite their full agendas. For me their input was very supportive and accurate.
Secondly I want to thank Karin Peeters for helping me to structure my mind in the first weeks of September 2012 about my thesis topic and the concepts I wanted to include. It worked out very well to embrace her advice to include a second supervisor from another research group.

Thirdly my sincere gratitude goes to the individuals of Texel whom gave me the opportunity to conduct an interview with them. Without their support I never would have gained the data I needed. Their shared insights, knowledge and opinions gave me the opportunity to 'see' the process through the eyes of those who are living on the island and are connected to this envisioned ambition in one way or another. From these people I would like to highlight three persons:

- Rikus Kieft, for giving me additional reports and information which I never would have got otherwise
- Peter Bakker, for giving me extra information and contacts when I contacted him for the second time

- Miss Kikkert, for letting me stay at her bed-and-breakfast and for preparing each dinner and breakfast during the week I stayed on Texel

Last but not least my special gratitude goes to my girlfriend, Hella, whom supported me all the way and miraculously turned a smile on my face when I needed one.

Guido Klep

Content

Abbreviations and Figures

Abbreviations

TESO	Texels Eigen Stoomboot Onderneming (the ferry of Texel)
VVV	Vereniging voor Vreemdelingenverkeer (local tourist office)
RES	Renewable Energy Sources
RET	Renewable Energy Technology
C2CI	Cradle to Cradle Islands
WTO	World Tourism Organization
ECN	Energieonderzoek Centrum Nederland (Dutch energy research center)
Urgenda	Urgent Agenda
UNESCO	United Nations Educational, Scientific and Cultural Organization
CDA	Christen Democratisch Appel (national political party)
PvdA	Partij van de Arbeid (national political party)
GL	GroenLinks (national political party)
VVD	Volkspartij voor Vrijheid en Democratie (national political party)
D66	Democraten '66 (national political party)
Texels Belang	Local political party
Texel 2010	Local political party
TVO	Texels Verbond van Ondernemers (union of entrepreneurs of Texel)
TVL	Texelse Vereniging van Logiesverstrekkers (association of accommodation providers of Texel)
TOP	Texels Ondernemers Platform (entrepreneurial platform of Texel)
LTO	Land- en Tuinbouw Organisatie (national agriculture organisation)
SBB	Staatsbosbeheer (state forestry service)
RECRON	Vereniging van Recreatieondernemers Nederland (association of recreation entrepreneurs in The Netherlands)

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Summary

This thesis examines the ambition of the largest Dutch island Texel to become energy neutral by 2020 by making use of renewable energy technologies. It inspects the process of this energy ambition to find out how it has developed, which actors are involved, what roles these actors have, including the tourism industry, and how we can understand the envisioned transition process and its progression until today. In conceptual terms the research makes use of transition (management) theory, network governance, and the concepts of sustainable development, (sustainable) tourism, and renewable energy concerning the topic of the thesis. The research has an exploratory character and the methods are a literature review, analysing field reports/documents, analysing local newspapers articles, and semi-structured interviews.

During the 10-12 years of development the network and process concerning the energy ambition was constant in motion. The energy network changed in such a way that the private actors Urgenda and TexelEnergy gained weight and support in the local community. But at the same time there has been a lack of leadership and the absence of a common master plan. The municipality and the province have ambiguous roles in the process. The municipality tries to act as a facilitator and a mediator, but has to deal with disunity in the local political arena regarding (the interpretation of) this ambition. The province has provided (financial) support, but has also implemented policies that restrict the possibilities of the ambition.

This transition process is mostly designated to solar energy, wind energy, and biomass because other technologies are not yet applicable and profitable. Wind energy remains a very thorny issue that still receives a lot of resistance from the local community, local politics, and the tourism sector. The societal change in (energy) behaviour and the local acceptance has been a laborious process.

In general the incumbent energy regime is not destabilized yet, but the renewable energy niches are shaping on Texel. The envisioned transition still abides in the pre-development phase of a transition because of the absence of large renewable energy generating projects. Yet the energy ambition must be seen as part of the much wider ideal to make Texel a more sustainable island.

For the future the interaction and the collaborative action between the public, private (and civil actors) is crucial for the success of the ambition. The facilitative role of the local government is of huge importance in this time of transition. This thesis concludes that the multilateral phenomenon of the energy ambition is a complex process, but that also much has already been achieved. The foundation of TexelEnergy and the arrival of Urgenda are milestones. Still several things are necessary to let the process develop further in the future. The most important needs are:

- Install a time of recalibration to reconsider and review this energy ambition, make use of the lessons that are learned and the information and knowledge that became available
- Reach consensus about the future direction of policy and how the renewable energy technologies can be implemented
- Create one master plan, let a common long-term vision be the basis for short-term developments and policy arrangements
- Offer the political space/freedom to the private actors that can make this envisioned transition a success, hereby the facilitating role of the local government is very important
- Effective leadership, the role of a leading actor(s) is crucial to link the involved actors and societal domains in order to bring the energy ambition to the next stages of development

Keywords: Transitions, Transition Management, Network governance, Sustainability, Sustainable Development, Tourism, Renewable Energy, Texel

1. Introduction

In 2007, the Dutch Wadden islands presented the ambition to become completely self-sufficient in water and energy by the year of 2020. With an Ambition Manifesto that was signed by the five town councils of Texel, Terschelling, Schiermonnikoog, Ameland and Vlieland, the islands indicated that they wanted to achieve a goal that is highly ambitious and challenging. More precisely, it became the aim to be self-supportive in the production and consumption of energy by making use of the natural resources of the islands and Renewable Energy Technologies (RET). However, on Texel and Terschelling the footnote was made that self-sufficiency in the case of fresh water was not included in the ambition due to desiccation problems.
This research will focus on the island of Texel. Texel is the largest island and includes a brief history of striving for sustainability and sustainable development. Van der Duim and Caalders (2004) state that Texel tries to position itself as a 'sustainable island' in general and as the island of 'sustainable tourism' in particular.

The Ambition Manifesto is a political agreement to present an energy transition that aims to leave behind the fossil fuel based economy and wants to enter a post-carbonate state of local energy production and consumption. A process that finds its roots in other developments and processes on Texel. The councils realised that it would take many years to accomplish this ambition and it would also involve many actors from all kind of fields and backgrounds, inside and outside the island community. Quite firm energy-saving measures should have to be taken and the use of Renewable Energy Sources (RES) needed to be investigated (further).
Until today the islands are still connected to the electricity grid of the mainland by a large electricity cable, but it is their goal to make that cable a superfluous object in the future. Probably the cable will never disappear, but the idea that it is not necessary anymore and that the islanders can fulfil in their own energy demand is the eventual goal. Most use of fossil energy needs to be replaced by renewable energy technologies that fit into the circumstances and possibilities of the island. This includes renewable energy technologies as solar power, wind power, (deep) geothermal energy, tidal energy and biomass. Some technologies are in a much further development stage than others and can be seen as (more) proven technologies.

The underlying resources of renewable energy represent a massive energy potential which dwarfs that of equivalent fossil resources (Dincer, 2000). On the Dutch islands, there are enough sources present for the implementation of renewable energy technologies; the islands are situated in a region that receives most sun and wind hours in The Netherlands and it has flowing seawater all around. The local circumstances are therefore among the best within the Netherlands, but still every island has its own characteristics and best circumstances for particular renewable energy technologies. The difficulties of renewable energy sources are that they are generally diffuse and not fully accessible; some are intermittent, and all have distinct regional variability's (Dincer, 2000).

This is not the first time that an island commits itself to become completely self-sufficient in its energy production and consumption. A great example of perseverance in an energy-transition can be found on the island of Samsø in Denmark. Starting in the late nineties with this transformation, the 4300 inhabitants managed to produce more energy from renewable sources than they were using in 2005 (Kolbert, 2008). This was a remarkable achievement in such a limited amount of time. Of course, this goal would have never been reached without the support and participation of many local

and external actors. An aspect that is absolutely crucial for the Dutch islands as well. But the example of Samsø shows how such a plan, assisted by substantial local support as well as responsive energy policies, may lead an island community to successfully implementing a renewable energy system (Moller *et al*., 2012). It is a beautiful example for the Ambition Manifesto of the Dutch islands that it is possible to become energy neutral, even though the road ahead may be long, difficult and very different. Many scholars (Moller *et al*., 2012; Michalena *et al*., 2009; Chen *et al*, 2007) state that (small) islands could have a leading role in implementing and using renewable energy. Not only because they have huge potential due to their size, location and abundance of natural resources like wind, sun and seawater, but also because they could act as initiators for conducting research and performing (pilot) projects that can serve as examples for other regions or islands in the world. The Dutch islands pursue this goal as well and in the case of Texel the province and municipality have stated that the island should become an 'experimental area' to test new (renewable energy) technologies.

In a wider context, the aim of the Ambition Manifesto also takes into account global issues like climate change, pollution from CO_2-emmissions, and rising sea levels. More recent acknowledgement and awareness about the depletion of fossil fuels requires better adaptation to a changing environment, especially on islands. Examples of issues on Texel due to climate change are rising seawater levels that are expected in the future and how they should cope with salinization of agricultural land. Next to that, the Dutch islands have an ambitious aim that more or less falls under the umbrella of sustainability or sustainable development and the desire to generate economic activities that are good for the island economy. They enable them to work and live in harmony with the (natural) environment, because a sustainable island should be a basic principle in an area that lives from its natural and ecological values (Suurmeijer *et al*., 2011).
Eventually this ambition could make all islands become national frontrunners and examples for possible change to other energy sources and their sustainable use. They can be the ultimate case to show that things can be done differently. The municipality of Texel even wants to act as an example for the rest of The Netherlands, but it will be clear that they will need a disproportionate amount of support to achieve their goals (Elswijk, 2010). Local and external actors can have an influential role on how this transition develops. The local government signed a political agreement that is in need of support from external and local actors (e.g. energy experts), and therefore the role of the local government exists along that of many others. The context of this energy transition is very complex on an island such as Texel that has put a lot of emphasis on sustainability. But it is that complex context that makes it highly interesting to understand why this Ambition Manifesto was created and how it has developed until today.

Especially on the island of Texel already a lot has happened in terms of striving for sustainable development in all kind of fields in the last decade. In relation to the other four islands it is well-founded to state that Texel has initiated a lot of developments and can be seen as a pioneer for sustainable development and as the initiator of ambitions towards the use of renewable energy. In that sense one must also not forget that the Dutch Wadden islands have large parts of very valuable and vulnerable nature, and are unique in The Netherlands. The (natural) core values like nature, landscape and tranquillity, of the Wadden Sea area attract many visitors every year (Ambition Manifesto Wadden islands, 2007) and since June 2009 the Wadden Sea area was even placed on the UNESCO world heritage list due to its unique tidal landscape (Wadden sea world heritage, 2012). As a

destination, this is definitely a tourism hot-spot and the town councils of the five islands want to maintain or even enforce this position (Ambition Manifesto Wadden islands, 2007). Therefore an important aspect in this ambition is the tourism sector. Tourism has become the main economic pillar of the islands (Suurmeijer *et al*., 2011) and it can have an (negative) impact on the progression and development of this ambition. It will make a good contribution to this study when the role of tourism sector in such developments is investigated as well. The opportunities (e.g. new forms of tourism) and threats (e.g. negative tourist opinions) that influence this ambition are very relevant, especially because Texel largely depends on tourism nowadays.

1.1 Problem description

The energy ambition of the Wadden islands is not an easy task and includes many complex issues. The envisioned 'energy transition process' involves a lot of actors and will take a lot of time to reach a new, post-carbonate equilibrium. Because of that this makes a very interesting case in order to understand how such a process develops in the particular context of Texel, and what role the different involved actors have. It is a 'five-island ambition', but this research will focus on the case of Texel because of its long-term pursuit for sustainability and sustainable development. This ambition is a complex phenomenon that is connected to former (sustainable) developments and events, has encountered difficulties until today, and involves a variety of actors.

This initiative of the ambition testifies of a joint willingness to achieve an aim that is highly ambitious and cannot be completed without the help of others. For this, the councils indicated the importance of local, national and international support. Next to that, they clearly stated that cooperation and support from local people, organisations and (external) businesses are a must for the success of the transition. There are many different actors on the island with different backgrounds and it is important for the process that they have the will to participate or support this ambition. Rather, a number of driving forces is needed to get the process through several different phases. It is a process that requires political will, governance and policy regulation and alignment, leadership and coordination, stakeholder/actor participation and local/external (business) support.
However, such a process is extremely difficult to govern or influence. Since the town councils presented the ambition, local and external businesses and organisations have shown to support or give direction to the ambition. The real question is then about who exactly is involved and has (had) an influence on the development of this energy ambition process. The local government participates in that 'network', but its role exists among other involved actors. It is the aim to understand what role they all have and how one could define this network to better understand and emphasize the development of this energy ambition process. It is a complex 'problem' in which this study will go deeper into the context of the case to make clear who is involved, who has what kind of role and how the current situation of the energy ambition should be understood (with taking into account former developments and events).

Small-scale regions like Texel are bound to regional and national rules and legislation. They cannot completely adjust policy to their individual situation, because islands normally have little influence on regional or national energy politics (Moller *et al*, 2012). This means that there possibly is a deficit in the formulation of energy policies, and that political instruments such as taxation are absent (Moller *et al*, 2012). In addition, electricity and commodity markets are national or international, and rarely anything is decided on energy markets on the local scale, making many of the variables in insular

energy planning exogenous and leaving little to decide to local politics (Moller et al, 2012). The energy ambition is a multi-level and multi-actor phenomenon.
With the energy ambition it is not only the (wider) aim of the town councils to anticipate to environmental issues like climate change, global warming and pollution, but also to create a more sustainable island and to deliver quality and sustainability in the tourism sector. They state that the flow of tourists to the islands has to be maintained in the future. Especially when there is the possibility that this flow cannot be maintained when more and other destinations are threatening this tourist-influx. According to the town councils the islands have to positively distinguish themselves for this cause. There is no doubt that tourism is of great importance to the islands' economies. Their businesses run on the visitors and tourists that come to the islands and they provide many, if not all, tourism and leisure accommodations, activities and possibilities. Besides that, tourism businesses are presented in literature and have proven to be high energy consumers, especially in seasonal periods of peak demand. Their practices, contribution and initiatives towards many elements of this energy ambition are relevant. Eventually a tourism entrepreneur will always look at his own business to see what is in it for him and how he can use some aspects/practices related to the ambition for the advantages of the business. Tourism represents the largest economic pillar of the islands' economy that provides many jobs and generates much income. This was not always so, but tourism has increased significantly on Texel in the last decades, and in relation to the Ambition Manifesto, the following paragraph is the defined goal for the hospitality and leisure sector in the roadmap of the Dutch islands that clarifies the vision on tourism of the islands (Suurmeijer *et al*., 2011):

Together with all covenant partners iconic projects should be defined and realised with an ambiguous goal. First, the tourism sector is the most important economic sector on the different islands. Successful projects can be set as an example which can be followed or enforced in other sectors. The second goal is the image of the islands to the visitors and tourists. In this way an image of a healthy, natural, green, sustainable and corporate socially responsible way of recreation can be substantiated and this can give tourism on the islands an extra boost.

To get a better understanding of this energy ambition and all its complexities, problems and bottlenecks, this research will make use of transition (management) theory, network governance, and the relationship between the concepts of renewable energy, sustainability and tourism. The thesis will try to make clear how the current circumstances of this energy ambition can be understood in the context of Texel. The current stage of developments also raises questions about what are the reasons that the process has developed to what it is now, and what may be needed to let the energy ambition develop further in the future. The ambition is linked with, and engaged in previous and contemporary (sustainable) developments and factors in which more clearness is needed to understand how it all works out, and affects the process in reality. By doing so, a more complete image and a better insight is pursued of a tourism islands in transition.

1.2 Research objective

Derived from the problem statement, the research objective of this thesis is:

To examine the energy ambition process and its actors and developments on the Dutch tourism island of Texel, including the role of the tourism sector in this specific context.

The involved actors, their interaction and understanding the energy ambition process in the context of Texel is what lies at the basis of this research. Local and external public and private actors have an influence on the ambition and their role needs to be investigated. The complexity of the phenomenon emphasises to the researcher to approach the previous and current developments based on the insights that are derived from multiple actors and multiple levels. In this thesis the researcher wants to structure the complexities of this energy ambition and its surrounding developments and processes.
The role of tourism and tourism entrepreneurs holds a specific position within this context. Tourism is one of the island's main sources of income and tourists are very important to the island economy. It would be devastating for the island when tourism numbers decreases dramatically due to bad decisions or misjudgements. In order to get a better understanding of the process, the field of tourism is included in this research as well.

1.3 Research questions

The research and sub-research questions:

1. **How did the envisioned energy transition process develop on the tourism island Texel in The Netherlands?**
   - What is the current state of affairs of the energy ambition?
   - What is necessary for the energy ambition on Texel to develop further in the future?

2. **What are the roles of involved actors in this process?**
   - How did the energy transition arena of the ambition develop?
   - What is the role of the tourism sector in this energy ambition process?

Fig. 1 *The Wadden harbor of Texel*

1.4 Relevance of the study

This research will contribute to the knowledge about the (social) understanding of energy transition in the context of a small (tourism) island. There are many aspects that influence this ambition. The context, the involved actors and the (past) developments all contribute to the progression of the process and the circumstances that exist today. Transition processes are complex phenomena and therefore this research will try to make a contribution to the understanding of these processes, specifically in the energy domain and in the case of an island.

This includes empirical and theoretical knowledge that will be derived from field work and the gathering and analysis of qualitative data.

Theory about transitions and managing transitions is constantly being developed. Therefore the researcher wants to contribute to this development and wants to show the empirical complexity of envisioned (energy) transitions in reality. In fact, the energy ambition on Texel is a difficult process and is far from reaching its goal. Therefore it is interesting to find out why it has developed into the circumstances that exist today, and how one can interpret this ongoing and unfinished process in this particular context.

2. Theoretical Framework and Literature Review

The theoretical framework presents the concepts that form the basis for the research objective. This chapter introduces transition theory (2.1) and related the concepts socio-technical system, and the transition arena. Some specific transition theory critiques are included as well.

Subsequently the chapter introduces the concepts of network governance (2.2), and the interrelationships between (sustainable) tourism, sustainable development and renewable energy (2.3) concerning the topic of this thesis.

2.1 Transitions

Due to the envisioned energy transition on Texel, transition theory and related concepts will serve as a guide to understand the wider context and current status of this technological (and social) process of change. Transitions are extensive and complex processes and they are also interesting from a sustainability point of view, because they constitute possible routes to sustainability goals (Kemp and Rotmans, 2002). As the developments on Texel are connected to the goals of sustainability and to strive for a more sustainable island in the future, transition theory is relevant for its investigation. To gain a better understanding of this energy transition process, several elements of transition theory will be elaborated on a theoretical and empirical basis. The following paragraphs will expand the theoretical elements.

2.1.1 Transition theory

Texel, together with the other four Dutch islands, envisions an energy transition to become energy neutral by the year 2020. A process of transition that is as ambitious as it is progressive, but nonetheless is grounded in the ideal to make the island more sustainable and more independent from the fossil energy that is imported from the mainland.

Transitions are phenomena of all ages. In fact, over a period of a few hundred years our society has undergone tremendous changes in the fields of science, technology, culture, behaviour and many more. Society has become increasingly complex on three levels: the level of society itself, the level of the problems facing our society, and the level of dealing with these problems (governance) (Loorbach, 2010). Modern society is developing into a network society in which a growing number of

problems emerge that seem impossible to solve with traditional approaches and instruments or through existing institutions (Rotmans *et al*. 2001).
A transition can be described as a set of connected changes, which may reinforce each other but take place in several different areas, such as technology, the economy, institutions, behaviour, culture, ecology, and belief systems (Martens and Rotmans, 2005). Nice examples of historical transitions can be found in the research of Geels (2002) in which he investigated case studies from the past like the transition from sailing ships to steam ships between 1780 and 1900. Because transitions are multi-dimensional with different dynamic layers, several developments must come together in several domains for a transition to occur (Martens and Rotmans, 2005). Also, in different places in society transition proves to be an attractive concept to induce sustainable development (DeWulf *et al*, 2009). Transitions are important in relation to sustainable development as they can open the door to radical improvements in environmental (and economic and social) performance (Meadowcroft, 2005).
As mentioned before, islands have good potential for the application of various forms of renewable energy. Still, a transition generally is a long-term process of change where the structural character of a societal domain transforms (Rotmans *et al*. 2001). They involve a shift in the dominant 'rules of the game', a transformation of established technologies and societal practices, movement from one dynamic equilibrium to another, typically stretching over several generations (25–50 years)(Meadowcroft, 2009). In short, transitions are changes from one socio-technical regime to another (Geels and Schot, 2007). The socio-technical regime is an important concept related to transitions. This concept is elaborated in the next subchapter.

For the Dutch islands the aim for energy-neutrality is set in a very short timeframe; thirteen years, running from 2007, when the ambition was made politically explicit, to 2020, the current envisioned end goal. It is presented as an ambition that calls out for more sustainable solutions in producing and consuming energy, applied all around the island in many different forms. These applications include households, (tourism) companies, and buildings, but also urge for increased awareness and (electric) mobility for example. Thirteen years is not as long as the 25 to 50 years which is considered to be the general timespan for transitions to complete as put forward by many scholars. And because of that not every aspect of transitions and transition theory will suffice to explain the situation on the Dutch island of Texel. It will simply be impossible to describe this energy ambition process that is complex and connected to many other developments, while only six years have passed since the latest ambition was expressed politically. Yet there are important elements of transition theory that are relevant and can be used in this research to examine how this transition process has developed in real life in the context of a (tourism) island.

Generally it could be stated that there are three concepts that form the basis of transition theory: multi-stage, multi-level and transition management (Brugge *et al*., 2005). The multi-stage concept explains that a transition occurs at several stages involved in the process. Rotmans *et al.* (2000) state through which phases a transition goes before reaching a new equilibrium:

1. A *pre-development* phase of dynamic equilibrium where the status quo does not visibly change but changes take place under the surface
2. A *take-off* phase in which thresholds are reached and the state of the system begins to shift

3. An *acceleration* phase where visible structural changes take place rapidly through an accumulation of socio-cultural, economic, ecological and institutional changes that reinforce each other
4. A *stabilization* phase where the speed of social change decreases and a new dynamic equilibrium is reached.

The phases are put forward in the following figure (Martens and Rotmans, 2005):

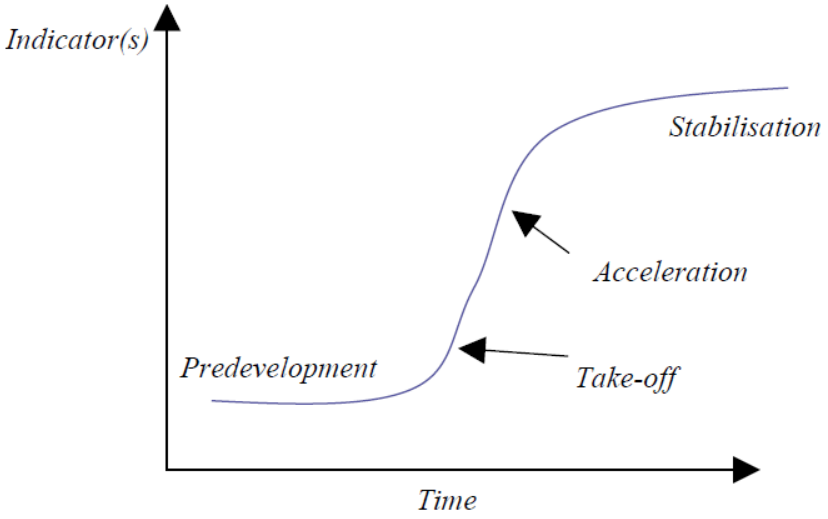


Fig. 2 *The transition S-shaped curve and its four development phases (Martens and Rotmans, 2005)*

The energy ambition on Texel is far from reaching its new dynamic balance or stabilisation phase as presented in figure 1. Because it is an on-going process it is impossible to investigate it by making use of transition theory as if this process was already finished. The transition curve as displayed in figure 1 could then form the basis for the reconstruction of past developments to understand a transition process that has already reached a new stabilisation phase. In the case of Texel the current dynamic equilibrium is that the supply of energy mainly comes from the mainland and is generated from fossil fuels or (foreign) nuclear power plants. The phase of stabilisation in post-carbonate energy equilibrium is still many years from today. In that respect, the first three phases, the *pre-development* phase, *take-off* phase and possibly the *acceleration* phase are the most relevant development phases to include for this research. Texel has a history to strive for sustainable development and sustainability. To understand the (creation of the) energy ambition the former events and developments are important. Still the process should develop further before the island may be ready to enter the next stages of development. The developments and circumstances that define the pre-development and take-off phase can provide a lot of information about the current circumstances on the island, and what possible conditions and needs are necessary for let the process develop further. Important criteria for the start and recognition of the acceleration phase are where visible structural changes are rapidly followed upon each other (Rotmans et al, 2000).

The multi-level concept of transition theory includes that transitions occur at multiple levels. The concept marks the division between functional scale levels at which transition processes take place: micro-, meso- and macro-level (Brugge *et al*, 2005). The multi-level perspective is a framework for

understanding sustainability transitions that provides an overall view of the multi-dimensional complexity of changes in socio-technical systems (Geels, 2010).
As for transition management, besides that it tries to steer transitions, it is based on coordinating multi-actor processes at different levels, aiming at long-term sustainability through the creation of a joint problem perception and long-term vision, innovation networks and experimental playgrounds (Brugge *et al*, 2005). Transition management is concerned with how to govern transitions to more sustainable socio-technical systems (Smith and Stirling, 2008), but managing transition processes is neither predictable nor straightforward (Loorbach, 2007).

Key elements of transition management are (Loorbach and Rotmans, 2006):

- Systems-thinking in terms of more than one domain (multi-domain) and different actors (multi-actor) at different scale levels (multi-level); analysing how developments in one domain or level gel with developments in other domains or levels; trying to change the strategic orientation of regime actors
- Long-term thinking (at least 25 years) as a framework for shaping short term policy
- Back- and fore-casting: the setting of short-term and longer term goals based on long-term sustainability visions, scenario-studies, trend-analyses and short-term possibilities
- A focus on learning and the use of a special learning philosophy of learning-by- doing and doing-by-learning
- An orientation towards system innovation and experimentation
- Learning about a variety of options (which requires a wide playing field)
- Participation from and interaction between stakeholders

The ultimate goal of transition management is to create new societal processes that 'disturb' existing institutions and structures and lead to new interrelations between actors and institutions (Loorbach, 2007).
In case of the Dutch islands, this energy transition could be characterized as: (a) a movement from a fossil fuel based (or dominated) energy system to a non-fossil fuel based (or dominated) energy system; or (b) a shift from a carbon emitting energy system to a carbon neutral (or low carbon) energy system; or (c) a transition from a non-renewable energy system to a renewable energy system (Meadowcroft, 2009). The final goal of the islands is linked to these three characterizations; an energy system that has moved away from burning fossil fuels and its polluting emissions. The underlying reasons for the envisioned energy transition on the Dutch islands include developments in several domains with taking into account many actors. Rather, initiating a transition from a preconceived goal of sustainability, which is inherently subjective, should arise from a multi-actor process, involving a balanced diversity of stakeholders (Brugge et al., 2005). The latter is a very important aspect for the reasons driving this research and the complexities on governing an envisioned energy transition on an island. In a technological perspective one could understand the reasons for this ambition, notwithstanding the fact that is an enormous challenge. In that sense it is important to state that this envisioned energy transition has a technological side and a social side, and that both sides at least have to find a kind of mutual balance to make developments and progression possible.

The technological developments come from the possibilities of renewable energy technologies and the present natural resources that underpin them. These technological innovations are becoming more visible and widely used in society, the developments go very fast. While renewable energy sometimes is seen as an object of extravagance, of moral requirement or an ideological project, an increasing number of communities realise the economic benefits of utilising renewable energy locally (Clark and Lund, 2007). The envisioned transition of Texel should also constitute change that has a positive outcome for the islands' economy, community and business sectors.

2.1.2 The socio-technical system

Transitions refer to the change in dynamic equilibrium from one state of equilibrium to another, also referred to as regime change (Smith *et al.*, 2005). The socio-technical regime concept has to be elaborated further because it is connected to transitions and transition theory. Transitions are linked up with system innovations (Loorbach and Rotmans, 2006), which are much broader than just technological innovations, because the current societal regime is supposed to change (Termeer and Dewulf, 2012). Socio-technical regimes are constituted around the acknowledgement that technology use and innovation is not a thing on its own. Technologies could be seen as 'socially shaped and society shaping' (Hughes, 1987 in Berkhout *et al.*, 2003). Technology and technology transitions are inextricably bound to social groups, social activities, and social rules. This means that the socio-technical regime concept accommodates the broader community of social groups and their alignment of activities (Lawhon and Murphy, 2011). This is defined to include the social relations (e.g. the interests, values and behaviours of people and organisations) that link, use and make sense of technological artefacts (e.g. tools and machines) (Berkhout *et al.*, 2003). The relevance and meaning of technology is present throughout society. Technology and social factors can complement and thwart each other. Socio-technical regimes are diverse and complex to understand. Therefore, to elaborate the socio-technical regime concept, one should understand what (other) concepts constitute the concept.

<u>The socio-technical landscape</u>

The socio-technical *landscape* is the most widely defined context wherein transitions occur, constituted by the 'cultural and normative values, broad political coalitions, long-term economic developments, and accumulating environmental problems' that broadly shape industrial and technological development trajectories (Geels, 2004). The socio-technical landscape is the macro-level, which forms an exogenous environment that usually changes slowly and influences niches and regime dynamics (Verbong and Geels, 2007). More specific, the societal landscape is determined by changes in the macro economy, politics, population dynamics, natural environment, culture and worldviews (Brugge *et al.*, 2005). Such a landscape exists for every regime and includes all-encompassing values and movements that constitute the socio-technical system. The landscape is the broader field or the broader area in which a regime has its place and where it is influenced by the landscape's contextual factors and circumstances.

<u>The socio-technical regime</u>

Socio-technical *regimes* can be seen as critical dimensions of socio-technical systems in that they organize the activities and structure the relationships of/between diverse groups such as public authorities, civil society organizations, users, suppliers, producers, financiers, and researchers (Lawhon and Murphy, 2011). Socio-technical regimes are relatively stable configurations of

institutions, techniques and artefacts, as well as rules, practices and networks that determine the 'normal' development and use of technologies (Rip and Kemp, 1998 in Smith *et al*., 2005).They give meaning and direction to the way a system is organised and can be considered the meso-level of that system (Brugge *et al*., 2005) Many socio-technical regimes exist, but as a concept, it can be positioned at the centre of a socio-technical system. Geels (2004) states that the socio-technical system can be defined as the linkages between elements necessary to fulfil societal functions (e.g. transport, communication, nutrition). As (energy) technology is a crucial element in modern societies to fulfil those functions, it makes sense to distinguish the production, distribution and use of technologies as sub-functions; socio-technical systems thus consist of artefacts, knowledge, capital, labour, cultural meaning, etc. (Geels, 2004). The socio-technical system consists of three layers; the landscape, the regimes, and the niches. Therefore a three-level model captures the context within which transitions occur: first, there are 'regimes' ('dominant practices, rules and technologies' that frame particular societal domains); then, there are 'niches' (localised areas where innovation can first take root); and, finally, there is the 'socio-technical and economic landscape' (that forms the wider context within which specific regimes operate) (Meadowcroft, 2005).

Niches

At the micro-level, one can find *niches*, the locus where novelties emerge (Verbong and Geels, 2007). Niches act as 'incubation rooms', shielding new technologies from mainstream market selection and its protection comes from small networks of actors who are willing to invest in the development of new technologies (Verbong and Geels, 2007). They provide important settings that are less susceptible to prevailing market pressures (Smith and Stirling, 2008). Transition management focuses on nurturing strategically-designed experimental niche settings, where: teething troubles are tolerated; new ways of doing things are valued; learning is encouraged and embedded in future development (Smith and Stirling, 2008). The search for new, feasible technologies is very likely to happen in distinct, but also related niches.

A regime is shaped by several niches. These niches are at the base of a multi-level system, beneath incumbent socio-technical regimes and overarching landscapes (Smith, 2007). They can be considered as the true bottom of these levels and are defined as a discrete application domain where actors are prepared to work with specific functionalities, accept such teething problems as higher costs, and are willing to invest in improvements of new technology and the development of new markets (Hoogma et al, 2002). Niches are the micro-level of the socio-technical system.

Important niche-internal processes are: building of social networks, learning processes and articulation of expectations to guide learning processes (Verbong and Geels, 2007).

At the niche level, variations and deviations from the existing regime can occur (e.g. new technologies or social practices) (DeWulf *et al*., 2009). The dominant energy regime on Texel is still based on fossil energy. However, in this overarching energy regime that is supposed to change in the future, the renewable energy niches will need to gain momentum to make a change of the current regime possible in the future.

The following figure presents a visualisation of the socio-technical landscape, system and regime:

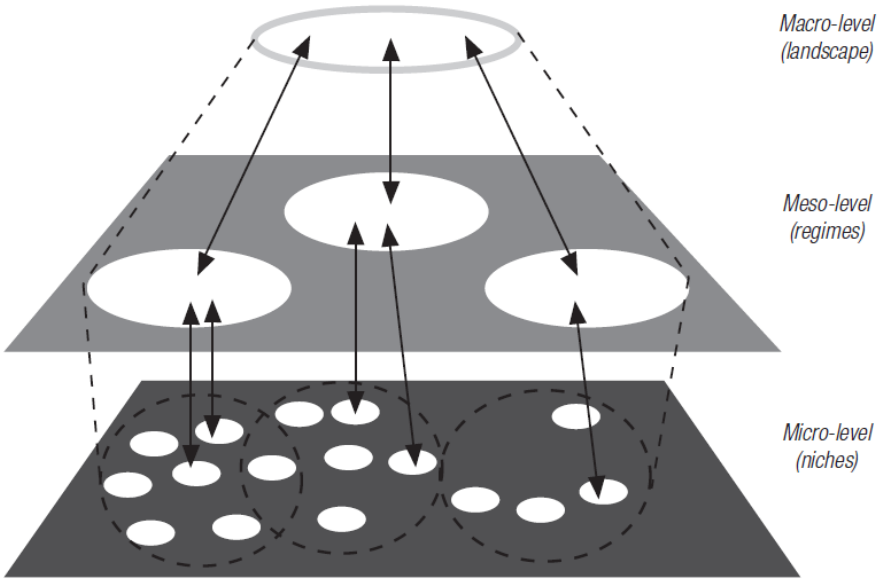


Fig.3 *Interaction between different scale-levels (Geels and Kemp, 2000 in Loorbach, 2007)*

These layers 'interact' with each other according to the development phase the transition process is in. Regimes and niches are similar structures, although of a different level of aggregation (Loorbach, 2007). Between these two levels, competition takes place (Loorbach, 2007).

The phases of transition theory have a specific relationship to these layers, because the circumstances are different in each development stage. In the predevelopment phase of a transition, the incumbent regime often acts as an inhibiting factor that will seek to maintain social norms and belief systems and to improve existing technologies, while the take-off phase is reached when certain innovations at the micro-level, e.g. in terms of behaviour, policy or technology are reinforced by changes at the macro-level, e.g. changes in worldviews or macro policies (Brugge *et al*., 2005). The socio-technical landscape has a broader and wider range than the island of Texel and it is mostly out of their control whether it changes or not. The landscape can be seen as values, coalitions, developments and problems that transcend the boundaries of Texel and are related to the whole country, or even Europe.

<u>The energy regime</u>

Socio-technical regimes have become the focal unit of analysis (Smith *et al*., 2005). A regime can change when societal pressure is too large. A (renewable) energy regime consists of several niches. Examples are the types of renewable energies such as wind energy, solar energy and biomass. Some of these 'regime' examples (i.e. wind and solar) actually represent only niche practices and concepts when looked at from the higher perspective of the electricity regime as a whole, since they enjoy neither the institutional nor the market dominance that is a defining feature of the regime concept (Smith *et al*., 2005). The electricity regime itself may be seen as nested within a global energy regime organised primarily around the extraction, trade and combustion of fossil fuels (Smith *et al*., 2005). At a relatively high level of aggregation, the electricity-generating regime is dominated by rules and practices relating to centralised, large-scale (usually thermal) power technology and high voltage alternating current grid infrastructures (Smith *et al*., 2005).

The energy regime as explained by Smith *et al.,* (2005) is challenged and supposed to change according to the ambition of Texel. The island will try to distinguish itself from the centralised rules and practices of the incumbent regime to form a new regime where renewable energy does have institutional and market dominance.
The current socio-technical regime of Texel is built around fossil energy. To change this, market and institutional dominance of renewable energy has to be achieved in such a way that the electricity cable form the mainland 'can be cut loose' and electric self-sufficiency is established. From the perspective of the current fossil energy regime, renewable energy technologies are still niches in that regime.
However, new technologies emerge within more or less protected niches, and can become 'working' configurations that shape and re-shape the regimes and landscapes they sustain and that are in turn sustained by them (Shove and Walker, 2007). Regime change is primarily a function of two partially coupled processes: (1) shifting selection pressures on the regime, and (2) the coordination of resources (capabilities, factor endowments, knowledge) available inside and outside the regime to adapt to these pressures (Gössling *et al*., 2012). Therefore, the mission for the island is to 'upgrade' and incorporate the current renewable energy niches into a new, unique renewable energy regime that is dominant to the position of fossil energy. In terms of transition, the core task is to figure out how currently dominant socio-technical regimes might be dislodged and replaced and how new configurations might become mainstream (Shove and Walker, 2007). Despite this is a very challenging task, in the case of Texel this core task is exactly what can make the energy ambition become successful in the future.

2.1.3 The Transition Arena

The transition arena concept is connected to transitions in such a way that it creates a space, or a platform for interaction between the involved (leading) individuals/actors/pioneers in a transition process. The formation of a so called transition arena is inextricably bound to transitions and transition management. They are a 'key element' of transition management (Meadowcroft, 2005) and are networks of innovators and visionaries that develop long-term visions and images that, in turn, are the basis for the development of transition-agendas and transition-experiments, involving growing numbers of actors (Loorbach and Rotmans, 2006). The transition arena model is based on a network approach (Loorbach, 2007).
The arena is a small network of frontrunners with different backgrounds, within which various perceptions of a specific persistent problem and possible directions for solutions can be deliberately confronted with each other and subsequently integrated (Loorbach, 2010). Transition arenas thus build a network of change agents committed to instituting their shared sustainability visions, pathways, and experiments (Smith and Stirling, 2008).The different backgrounds of the different actors provide different views and perspectives on the problem and possible ways to deal with that problem in the future. Those who constitute the arena, have an influence on the transition and its (future) direction and developments.

For an arena to be working properly, it is important that every actor also considers the other actors' backgrounds and is able to be flexible about his own. These people participate on a personal basis and not as a representative of their institution or based on their organizational background (e.g. government, business, science, civil society) (Loorbach, 2010). Moreover, Meadowcroft (2009) states that the practical focus for activities from transition management lies within the arena(s) and

experiments that are at the core of the concept. Transition experiments are supposed to contribute to sustainability at the system level and can be linked up with existing innovation efforts and other transition experiments in complementary ways (DeWulf *et al*., 2009). In theory, experiments are characterised by a high risk of failure as well as a high potential (Rotmans, 2005). Still, arena participants and their networks are crucial executers of these experiments (DeWulf *et al.*, 2009). Figure 4 presents the differences between the regular policy arena and the transition arena (Loorbach, 2007):

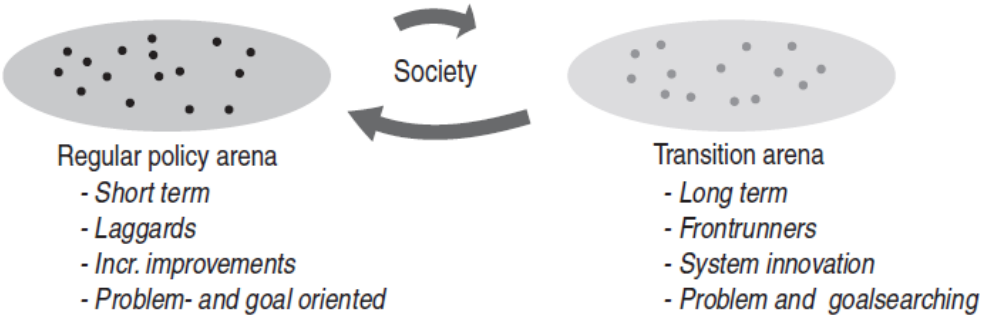


Fig. 4 *The transition arena as policy niche (Loorbach, 2007)*

There exist a broad variety of different definitions and explanations about the transition arena, and with sustainability as the overall guiding principle, multiple transition visions are developed in the transition arena (DeWulf *et al*., 2009). The actors in that physical but also to some extent 'virtual' arena are expected to possess the following competences as stated by Loorbach (2010):

1. Ability to consider complex problems at a high level of abstraction
2. Ability to look beyond the limits of their own discipline and background
3. Enjoy a certain level of authority within various networks
4. Ability to establish and explain visions of sustainable development within their own networks
5. Willingness to think together
6. Open for innovation instead of already having specific solutions in mind

In essence, the transition arena is the instrument that has to enable a self-organising and self-steering participatory process, which leads to a guiding and inspiring long-term orientation and short-term experiments that support it (Loorbach, 2007). These competences are general as well as context-specific and the arena process is an open, evolving process of innovation that implies variation and selection: after a certain period of time, some people drop out and others join in (Loorbach 2010). This also reflects the complexity of an arena, since it content will change over time and new actors will make their appearance. However, using the transition arena model is no guarantee for successful transition management, nor is it a necessary condition for a transition to take place (Loorbach, 2007).Whether a transition arena is present and which actors are part of it depends on the context and the circumstances of the transition.

2.1.4 Transition (management) theory critiques

The transition management concept, as being part of transition theory, has received a lot of attention in an increasing amount of domains for the last several years. It is a concept that

continuously expands and develops, but is also criticized. The concept that aims to influence (socio-technical) transitions towards more sustainability has received critique on its core values and related aspects from the work of Meadowcroft (2005, 2009), Kern and Smith (2008), Shove and Walker (2007), and DeWulf *et al*., (2009)
This section will address some of the main critiques of transition (management) theory.

To begin with, transition management attempts to incorporate a very wide range of aspects into a single theory (DeWulf *et al*., 2009). The following aspects are assumed by DeWulf *et al*., (2009) to be part of transition management theory:

- *Multi-actor*: multiple actors are needed and often maintain a conflictive relation
- *Multi-sector*: system innovations affect multiple sectors
- *Multi-level*: co-evolution of developments at niche, regime and landscape level
- *Multi-time scale*: both short and long term orientation
- *Multi-objective*: maintain multiple images of the future
- *Multi-option*: keeping options open by developing multiple innovative niches

These wide ranges of aspects are rich, but also display a pitfall of transition management. Within transition management theory it is not very clear how all this variety should be handled (DeWulf *et al.*, 2009) since the amount and magnitude of these aspects is huge. This relates to a very important point of discussion that is about the question whether it is even possible to govern or steer transition processes by making use of transition management. It is stated that a transition cannot be managed or controlled, but that it can only be influenced into a certain way or direction (Termeer and DeWulf, 2012). The way transition management really steers, or influences a transition process is therefore disputable itself, and studies of systems in transition are typically distanced, even voyeuristic, making few claims about how individuals and organisations can, might or should act to affect the processes in question or to steer trajectories towards pre-defined, normative goals (Shove and Walker, 2007).

In a sense, transition management operates in the field of sustainable development and a multitude of actors, sectors, levels, etc., where other, related theories are also relevant. Termeer and DeWulf (2012) argue that ´multiple theories will continue to be needed simultaneously for dealing with complex societal sustainability issues because there are more and more varied steering moments, roles and arenas than transition theory could cover alone – or any other single theory for that matter´. Steering societal developments in areas as complex as sustainability is unlikely to be successful when only one theory is used, especially when the relevant time frame extends over one or more generations (DeWulf *et al*., 2009). For example, related to transition management are network governance, that refers to theories that take into account the interdependencies of public, private and semi-private actors in self-organizing networks (Klijn and Koppenjan, 2000) and multi-actor collaboration, that addresses cooperation and negotiation between multiple interdependent actors in the context of a 'wicked' problem domain in which they all have a stake, like environmental pollution or water management (DeWulf *et al*., 2009).
These are only two theories that are similar to transition management, while many more exist. The reasons to make use of a multiplicity of theories for transitions as addressed by Termeer and Dewulf (2012) because of their interconnectedness are therefore well-grounded.

The aspect of *multi-time scale* has also received some negative attention. Kemp et al. (2007) states that the model of transition management is not very clear how a transition management process can survive multiple short term political changes, or how long term structural changes may be achieved through short term steps. The connection to politics is close, because transition management can be viewed from several angles: as a policy perspective, a theoretical approach and a research agenda (Meadowcroft, 2005). The changes in the political arena are influential on transition management. The transition management literature consequently draws upon a narrow (perhaps necessarily narrow) slice of what is in fact a much wider debate about social systemic change (Shove and Walker, 2007). Even so, the transition debates so far have been overly optimistic about the role of governments in system innovations while neglecting the realities of policy formulation and implementation which is essentially a political process, not a managerial task (Kern and Smith, 2008). For example, in the case of an energy transition it is extremely difficult for a government to align policy to the different (renewable energy) technologies that emerge due to the developments of the process. Eventually, existing socio-technical structures and organisational routines are major obstacles for sustainable system innovations (Kern and Smith, 2008).
To structure this discussion, the following aspects are derived by Kern and Smith (2008) to address a few very important points of discussion or critique around transition management theory (in: Meadowcroft, 2009):

- Should transition management include or satisfy current (energy) regime incumbents or should it focus entirely on newcomers, outsiders and innovators (encourage frontrunners)?
- There are tensions between long-term goals and the need for short-term success. The dilemma with long-term multi-stakeholder processes is that short-term objectives easily become dominant and long-term visions recede behind the horizon (Vergragt, 2005).
- The 'level playing field' for different technologies and practices creates uncertainty for companies faced with investment decisions. These decisions taken now determine the structure of the energy system for decades.
- The role of the government may be overestimated since it is extremely difficult to make decisions and to politically steer a system change, therefore the government can be seen by other stakeholders as an unreliable actor. Structural change in energy systems is politically difficult.

Overall, Kern and Smith (2008) criticize transition management enthusiasts for being overly optimistic about the possibilities of displacing the existing regime, and for neglecting the political and power dimensions of transitions (Meadowcroft, 2009). Transition management itself is still in development and it so far mainly focused on the predevelopment phase of transitions: transition arenas with frontrunners structuring societal problems, developing transition visions and transition experiments (Loorbach and Rotmans, 2010). The crucial challenge for transition management will therefore be for the coming years to engage regime actors in the process and develop societal pressure so that the newly emerging niches and the innovative regime actors can co-create new societal regimes (Loorbach and Rotmans, 2010). Transition management is itself an experiment, so it may be possible to do better in the future—to draw lessons and try to increase openness and reflexivity of future iterations (Meadowcroft, 2009). The underlying concern with escaping current system configurations shines through in the writings of transition theorists, and one sometimes gets the idea that the change that really matters is truly dramatic change, the overturning of the big

(energy) systems, and in particular change that impacts consumers and reaches down into the patterns of their everyday lives (Meadowcroft, 2009). Shove and Walker (2007) underline that some types and agents of change, such as fundamental transformations in the ordinary routines of daily life, are missed in transition management.

2.2 Network governance

Transition (management) theory is not the only theory from which societal change and change processes can be explained and analysed. To widen the theoretical discussion, network governance is included as well. The envisioned energy transition of Texel is a process of change, which is intertwined and connected to many developments, processes and actors. Because transition (management) theory has a very specific focus on explaining and analysing transition processes, network governance is added to the theoretical framework to deepen the analysis of the situation of Texel. This (similar) theoretical concept emphasises the case of Texel from a different perspective.
To explain the network governance concept, a brief introduction is given about the meaning of governance. Stoker (1998) highlights five crucial elements of governance:

1. Governance refers to a set of institutions and actors that are drawn from but also beyond government.
2. Governance identifies the blurring of boundaries and responsibilities for tackling social and economic issues.
3. Governance identifies the power dependence involved in the relationships between institutions involved in collective action.
4. Governance is about autonomous self-governing networks of actors.
5. Governance recognizes the capacity to get things done which does not rest on the power of government to command or use its authority. It sees government as able to use new tools and techniques to steer and guide.

The essence of governance is its focus on governing mechanisms which do not rest on recourse to the authority and sanctions of government (Stoker, 1998). Even if we would like to continue to regard the state as the sole legitimate locus of political power and authority, we have to acknowledge that the state often lacks the power to solve pressing policy problems on its own; this is what is addressed by the literature on governance networks (Hajer and Versteeg, 2005).
Network governance is governing with and through networks (Rhodes, 1997 in Termeer and DeWulf, 2012) as they are based on interdependencies, but not necessarily equity, between public, private and civil society actors (Klijn and Skelcher, 2005). One can then consider phenomena like public–private partnerships or interactive policy making as specific forms of governance networks (Klijn, 2008).
Governance networks are claimed to have a large potential for proactive governance as the manifold actors can identify policy problems and new opportunities at an early stage and produce flexible responses that allow for adjustments to the complexity and variety of the concrete conditions (Klijn and Koppenjan, 2000 in Sorensen and Torfing, 2005). Second, governance networks are seen as important instruments for the gathering of information, knowledge and assessments that can qualify policy decisions (Sorensen and Torfing, 2005). Network actors often have detailed knowledge relevant for political decision making, and when the knowledge of all the actors is added up, it represents an important basis for making the intelligent choice of a feasible option (Kooiman, 1993 in

Sorensen and Torfing, 2005). Third, governance networks are said to establish a framework for consensus building or, at least, for the civilizing of conflicts among stakeholders; if the affected actors are involved in the decision-making process, they will tend to develop a sense of joint responsibility and ownership for the decisions, which will oblige them to support, rather than hamper, their implementation (Sorensen and Torfing, 2003).

The following figure presents the differences between transition management and network governance:

	Nature of change	*Change trajectory*	*Main actors*	*Relationship between actors*	*Steering/influencing*	*Leading figures*	*Role for government*	*Success*
Transition management	Long term structural change of a societal domain	S-shaped curve, with phases, over the course of an entire generation	Regime players and niche players (innovators)	Conflictive on the short term, shared long term goal of sustainability	Creating transition arenas, starting transition experiments Niche management	Transition manager Visionary innovators	Transition manager, creating conditions for a transition programme	More sustainable societal domain
Network governance	Change in policy networks and outcomes of games	Policy games in successive rounds	Public and private actors linked in networks, supporting or hindering policy strategies	Sustainable interdependencies between actors, engaged in overlapping policy networks	Network constitution, process management	Network manager or process manager	Partner, process manager, network builder or staying out	Democracy and enriched chance of policy implementation

Fig. 5 *Comparison of transition management and network governance (Termeer and DeWulf, 2012)*

The core concepts to analyse networks are rules, interaction patterns and (shared) perceptions (Koppenjan and Klijn, 2004 in Termeer and DeWulf, 2012). Over the course of time, rules develop, resource distributions emerge and actors start to share perceptions (Termeer and DeWulf, 2012). These networks provide a context for so called policy games: a series of interactions between actors concerning certain policy issues (Termeer and DeWulf, 2012). The policy network is the more or less stable context within which separate games about policy decisions take place (Klijn *et al*., 1995).

Now the problem is that the potential efficiency gains of governance networks are only fully realised in well-functioning governance networks (Sorensen and Torfing, 2005). Changes in the composition of the network actors, the presence of unresolved tensions and conflicts, weak and ineffective leadership, frustration over the lack of visible results and external events that disturb the policy process can destabilize governance networks and turn them into malfunctioning talk shops (Sorensen and Torfing, 2005).

2.3 Tourism, sustainable development and renewable energy

The concepts of sustainability and sustainable development are part of tourism (development) for a long time. Many scholars researched the relation and interaction between tourism and sustainable development. For its application and actual meaning in tourism, one could take more than one direction in order to explain sustainability or sustainable development in the context of the field. For this research, it will be the aim to approach tourism and sustainable development by taking into account the role of energy and the emergence of renewable energy. One of the most important factors for sustainable development is the requirement for a supply of energy resources that is fully sustainable (Dincer, 2000). In relation to tourism and sustainable development the renewable energy possibilities could be an appropriate way to provide (other and innovative) solutions for energy and sustainability issues in the field of tourism. Haberstroh (2004) states that renewable energy is

predestined to become the first principle of sustainable tourism, since energy stands at the beginning of everything. Energy is so important to the industry that its relevance is not disputed. In this subchapter the concepts of renewable energy, sustainable development and tourism are explained in relation to each other and in relation to the topic of the research.

2.3.1 Renewable energy

The use and application of renewable energy in its various forms is slowly becoming a solid and formidable opponent of fossil energy. They represent an era of new and cleaner technologies that will become more visible and important in the future.

Most of the used energy depends on finite resources, such as coal, oil, gas and uranium (Omer, 2010). Although fossil fuels are still being created today by underground heat and pressure, they are consumed much more rapidly than they are created (Kaygusuz and Kaygusuz, 2002). Therefore our world-wide reserves will be depleted in a (near) moment in the future and the importance of renewable energy grows by the day.

The climate is changing due to human activity, especially due to combustion of fossil fuels for energy provision and in the transportation sector (Bode *et al*., 2003). Fossil fuels are at the very core of industries and societies that it seems that humankind may never be able to live without them. Their wide use is so comprehensive that the use of fossil fuels for generating energy is only just a part of a much larger utility network. Contrary to fossil fuels, the intensive use of renewable energy is inextricably linked to zero greenhouse gas emissions (Kostakis and Sardianou, 2011). Renewable energy technology is one of the solutions, which produces energy by transforming natural phenomena (or natural resources) into useful energy forms and the tremendous progresses in the field of renewable energy technology indicate the feasibility to substitute fossil fuels in the near future (Chen *et al*., 2007). Nonetheless it is important to acknowledge the fact that renewable energy is not a 'one size fits all' technology, but that the use of the various renewable energy sources such as wind, solar, biomass or ocean energy must be adapted to local conditions (Moller *et al*., 2012). For example, wind energy may be combined with solar power, or biomass utilisation may only be efficient with district heating (Moller *et al*., 2012).

Today, there are many developments in the field of renewable energy technology and the penetration and implementation of renewable energy projects is one of the major goals of European countries in their quest for achieving sustainable development (Kostakis and Sardianou, 2011). It may still not be the primary focus in The Netherlands, for the Wadden islands it seems to be one of the major issues on their agendas. Energy is at the centre of the sustainable development paradigm as few activities affect the environment as much as the continually increasing use of energy (Omer, 2010).

However, the use of renewable energy sources is strongly related to public acceptance (Kostakis and Sardianou, 2011). As in the case of Texel, the local community, (tourism) businesses and other involved actors are needed to support and make a contribution to the energy ambition.

In tourism, much research has been done on tourist attitudes towards the use and application of renewable energy in the sector. Tourists and the general public have become more environmentally aware in the last years which can be derived from the motives they have and the decisions they make. Whether it is about the motives of tourists to choose for a renewable energy accommodation (Tsagarakis *et al*., 2010) instead of a 'normal' accommodation, or about the factors that affect the

willingness to pay for renewable energy (Kostakis and Sardianou, 2012), it presents research about the tourists attitude and perspectives. Although the tourist industry is a high energy consumer, very little work has been published on energy saving and renewables in terms of stakeholders' attitudes on the topic (Tsagarakis *et al*., 2010). In the case of tourism and tourism businesses, renewable energy is an interesting topic because it can contribute to sustainable development in the sector. Travel and tourism can become a promotional bandwagon, using renewable energy as key to sustainability of destinations and tourism operations (Haberstroh, 2004). However, what is less clear is the degree and direction of linkage between renewable energy technology and tourism, i.e. the degree and direction of causality (Michalena *et al*., 2009).

Possibilities to implement and accept renewable energy exist for the tourism industry. Whether it is by joining large-scale energy projects in which other stakeholders participate, or it is through implementing smaller solutions directly into the businesses (e.g. solar panels). Wind farms are used for marketing purposes in certain areas of Denmark, where hotels, guest houses and camp sites use wind turbines for "green tourism" promotion to meet tourists' growing interest in environmental issues and new technologies (Bergmann *et al*., 2008). Ghobadi (2012) states that the widespread use of renewable wind energy for tourism development will take place in the world's energy markets soon. The world is facing an each strategic condition change for developing the outstanding chance to pursue its long path to reach a permanent cooperation in providing energy and tourism sustainable development (Ghobadi, 2012).

2.3.2 Sustainable development

Sustainable development is a very broad concept that includes a variety of explanations and definitions. The ambiguity of the concept lies in an absence of semantic and conceptual clarity, resulting in its focus and purpose being interpreted in a variety of ways (Lélé, 1991 in Sharpley, 2000). For that reason it is appropriate for this study to focus on the most commonly used definitions which are widely accepted in literature.

Sustainable development is a complex notion that is inherently normative and subjective, because it requires an estimation of what the needs of the present and future generations are and how they can be fulfilled; it is also an ambiguous notion, because it requires trade-offs between social–cultural, economic and ecological developments which can be weighed differently (Martens and Rotmans, 2005). Sustainability rests on three integrated elements: the ecological, sociocultural, and economic (Saarinen, 2006). Probably the most common and widely used definition of sustainable development is; 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (Anon, 1987 in Dincer, 2000). It actually means that if we break down the world today, there is nothing left for the next generations. The ability of the present generation to make the right choices and to execute the right developments, which are obviously sustainable and maybe built upon new insights and technologies, is what is needed to achieve sustainable development.

Still, ecology, economy and society will never stop changing and developing because sustainable development is a never-ending process of progressive social changes that involves multiple transitions or system innovations (Kemp, Loorbach and Rotmans, 2007). Sustainable development within a society demands a sustainable supply of energy resources (that, in the long term, is readily

and sustainably available at reasonable cost and can be utilized for all required tasks without causing negative societal impacts) and an effective and efficient utilization of energy resources (Dincer, 2000). In this regard, renewable energy resources appear to be one of the most efficient and effective solutions (Kaygusuz and Kaygusuz, 2002). The path towards the future of the Dutch islands contains a seemingly envisioned energy transition that has the ability to make use of new technologies and technological innovations in the energy sector. The intimate connection between renewable energy sources and sustainable development becomes visible in this sense (Dincer, 2000).
In relation to tourism, one could argue that renewable energy sources can solve a considerable part of the issues around the high energy demand in the industry. For this, one of the ultimate goals in sustainable development is to foster responsible environmental/energy behaviour (Gössling, 2002) not only for tourism operators, but also for tourists themselves (Tsagarakis *et al*., 2010). In literature, there is much emphasis on the use of energy and energy demand in the industry, and how this energy use is still not very sustainable. Renewable energy applied in the tourism sector is closely connected to sustainable development and sustainable tourism.

2.3.3 Sustainable tourism

In the past 50 years, tourism has been marked by extraordinary expansion (Berno and Bricker, 2001). Tourism is a broad system based on the movement of people, goods, capital, and ideas, among many other things, between home regions and destinations that are linked by means of routes and transit regions and associated with many other societal processes (Saarinen, 2006).
It is an enormous industry which has considerable importance to many economies all around the globe. The notion of sustainability really found its way in tourism when The Brundtland Report (1987) and the subsequent Earth Summit (1992) made tourism academics and practitioners also began to consider the implications of sustainable development for their own industry (Berno and Bricker, 2001). Yet, the relationship between sustainable tourism and sustainable development is not as easy as it seems. Mainly this is because both concepts are built from very broad and complex underlying concepts that can also be elaborated from their own characteristics and backgrounds; *tourism*, *sustainability* and *development*.
The World Tourism Organization defines sustainable tourism as tourism development that 'meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future, leading to management of all resources in such a way that economic, social, and aesthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes, biological diversity, and life support systems' (WTO, 1998, p. 21 in Berno and Bricker, 2001). In this regard, one can easily recognize the same elements of sustainable development; economy, ecology and society. In these various, but integrated directions tourism should apply developments to suffice the notion of sustainable development. Although sustainable tourism should logically reflect the tenets of sustainable development, there exist significant differences between the two concepts (Sharpley, 2000).
As the definition of the WTO seems very specific and comprehensive, it is the question whether all of its included aspects can be achieved and maintained in tourism. The concept of sustainable tourism development is and remains the subject of vigorous debate (Sharpley, 2000). Some scholars argue that sustainable development in tourism is impossible since tourism will never be able to become completely sustainable or reflect the notion of development. Responses to sustainable tourism development commonly represent two basic schools of thought: (1) concern with the promotion of sustainable development, despite its challenges, and, (2) concern with the condemnation of the

industry (Berno and Bricker, 2001). The basic ideas and principles of sustainable development have been applied to tourism, but perhaps as a result of conceptual problems, disagreements, and the multidimensionality of both concepts (Sharpley 2000), many commentators have stated that no exact definitions of sustainable tourism exist (Saarinen, 2006).

2.3.4 (Tourism) islands and renewable energy

Islands are rich in abundant natural energy sources and they constitute the ideal regions for the demonstration of innovative renewable energy projects (Michalena *et al*., 2009). Renewable energy also contributes to the long term goals of sustainability (Dale, 1998), and therefore islands, because of their location and particular socio-economic structures, may be leading the way to wide-scale use of sustainable energy (Moller *et al*., 2012). The use and application of renewable energy sources is a growing market, probably especially on and around islands, and includes great potential for the substitution of the polluting business of generating energy from fossil fuels. In Europe the majority of the islands suffer from large dependence on imported energy (Chen *et al*., 2007). Island development problems are mostly related to imported fossil fuel energy dependence, fresh water availability and waste management, associated with transportation and other problems (Chen *et al*., 2007). All around the world there are examples of islands that aim at renewable energy self-sufficiency with Samsø in Denmark probably being the best known example. The increase in the renewable energy supply on islands is a promising development because it can show how renewable energy sources can be utilised in a positive and successful way, with taking into account the social, economic and environmental aspects of sustainable development. Also, there is a lot to gain for islands because of the pressures they encounter from climatic change and tourism activity and of the opportunities and specific characteristics that they present: Islands suffer from climate change, maybe more than mainland areas (Michalena *et al*., 2009). The moral aspect associated with discussions around climate change also puts pressure on consumer studies industries especially if they are energy intensive, as their clients are becoming increasingly critical about excessive energy consumption and tourism is one of them (Jiricka *et al*., 2010). Nonetheless the issue of renewable energy in island communities is highly complex, given the many conflicting interests, the limited space, the particular demographics of many insular communities, as well as the often good potentials particularly for marine and wind energy (Moller *et al*., 2012). One important aspect for (tourism) islands is the difference in energy demand throughout the year when tourism numbers go up and down.

Concerning the different islands, various types and integrated combinations of renewable energy technologies can be investigated before it gets clearer what the best solutions are in respect to the local circumstances. As said before, technological combinations can be made and different local circumstances ask for different solutions. This brings us to a very valuable characteristic of an island; deployment of renewable energy in islands is a great opportunity to test new technologies, in circumstances where conventional technologies are costly, and new solutions are more efficient (Chen *et al*., 2007). Islands in general offer possibilities to investigate various options and to conduct experiments and (pilot) projects. For this, technologies can be tested and improved, bottlenecks can be distinguished, and learning processes can take place. In relation to tourism, Michalena *et al*., (2009) state that three possible scenarios can explain the association identified between island renewable energy technology (RET) and tourism development:

1. *RET exploitation is a key, or important, driver on which to promote and sustain tourism development.*
2. *Tourism development, and the consequent need for tourism-related services, drives RET implementation.*
3. *Tourism development and RET implementation are two facets which reflect the level of the institutional and political architecture of the islands.*

Renewable energy can be the driving force behind more sustainable tourism on an island, provided that it will be accepted and implemented by the tourism operators, the tourists, and the local community. For example, solar systems integrated in buildings which maintain the traditional construction style could reduce energy consumption in buildings, improve living standards of residents and attract ecologically sensible tourism (Michalena *et al*., 2009). Other kind of tourists, such as energy experts, businessmen and other island inhabitants could also become more interested in the ability to learn about renewable energy and the way it is used and dealt with on the island. Haberstroh (2004) argues that 'energetic' tourism can be a new form of tourism where visitors can learn all about the renewable energy technologies which are present on the island. In a way, this could be a new development for the tourism sector of Texel.

3. Methodology

This chapter discusses the research design (3.1), data collection (3.2), and data analysis (3.3) of the research. Also some problems in the data gathering are presented.

3.1 Research design

Triangulation of methods was part of this research because the researcher could then overcome the threat of doing valid and reliable research (Boeije, 2010). Internal validity means that we can be confident that researchers describe and/or explain what they had set out to describe and explain and reliability is when the same phenomenon is repeatedly measured using the same instrument it should lead to the same outcomes, assuming that the phenomenon itself has not changed (Boeije, 2010). Triangulation means that the researcher makes use of a combination of methods that will allow him to get a somewhat different perspective on the data which is obtained via the main method (Robson, 2007). In this study, these methods conducted were semi-structured interviews and analysing (energy) related field reports and documents, and the articles of local media sources.

This research has an exploratory character in order to understand better and in more depth the historical and present aspects of the energy transition process on the Dutch island of Texel. For this, a case study approach was chosen. The case study is characterized by researching cases in their context and by allowing the researcher to work more in depth as for example in a survey (Verschuren and Doorewaard, 2005). The researcher took the case of Texel to understand how the islands' envisioned renewable energy transition has developed, why it has developed in this way and which actors were involved until today. This study is about how the envisioned energy transition of Texel has worked out from the moment the first ambitions surfaced to the situation that exists today. The exploratory character of the research enabled the researcher to 'discover' the complexity of this context-specific envisioned energy transition. The results of the research cannot be generalised to the population at large because they are very case and context specific. The explorative nature of the

study allowed the researcher to clearly define what has happened over the last 10 to 12 years on Texel, and why it has happened.
The goal of qualitative research is to understand the multiple constructions and interpretations of reality that are in flux and that change over time (Merriam, 2002). Qualitative researchers are interested in understanding what those interpretations are at a particular point in time and in a particular context (Merriam, 2009). The case of the Dutch island Texel represents a particular point in time in a particular (transition) context. The different actors involved in this research had different interpretations about the energy ambition and from their combined interpretations this thesis was constructed.

3.2 Data collection

Both primary data and secondary data were obtained. A comprehensive literature review formed the basis for the interpretation of the phenomena that came under study in this research. This review included academic literature, field reports and documents and articles of the local media website 'TexelPlaza' and the local newspaper 'The Texelse Courant'.

3.2.1 Semi-structured interviews

Empirical data was gathered from semi-structured interviews with thirteen individuals from Texel that were, or are connected to the envisioned energy transition in one way or another. From these thirteen individuals, eleven were interviewed in-depth, and two were (very briefly) interviewed by e-mail. By making use of semi-structured interviews the interviewees were able to explain clearly how they interpret the situation of Texel regarding the energy ambition, without being controlled by a strict interview structure of the interviewer. The researcher deliberately focussed on an open character of the conversations because this allowed the interviewees to bring in every aspect he/she considered to be important regarding this ambition process. Only when not all important pre-defined topics were highlighted the interviewer deliberately steered the conversation into a specific direction. The researcher collected the interviewees by reading about the energy ambition and the involved actors and individuals, but also by deliberately asking the interviewees about other individuals that would be interesting to interview. The latter strategy worked out very effectively.
For the interviews the following thirteen individuals were approached;

Actor	Position
Municipality	1. Current alderman 2. Former alderman 3. Municipal official
Urgenda	4. Programme manager of Texel
TexelEnergy	5. One of the three first founders
Wadden harbour	6. Director
Tourism sector	7. General manager 'Hotel group Texel' 8. Park manager 'the Krim' 9. Saline agriculture entrepreneur / tourism entrepreneur
Local tourism office (the 'VVV')	10. Director
Sustainable Texel	11. Current employee 12. Former director (contact by e-mail)
Workgroup for sustainable tourism	13. Former director of 'The foundation of museums of Texel' (contact by e-mail)

The interviewed individuals represented the public, private and civil domain of Texel and multiple actors that are/were (indirectly) involved in the energy ambition.

The researcher made two interview blueprints, one especially for the tourism interviewees, and one for the interviewees of the other actors. The basic structure of the interviews was based on four topics: the history of the energy ambition and sustainability on the island, the current situation, the future, and the role of tourism. For the tourism interview three topics were specified on tourism; the history of the island, the current situation (and the connection with the energy ambition), and the future. In Appendix A both interview blueprints are presented.

3.2.2 Texel Plaza and Texelse Courant

Texelse Courant and Texel Plaza are local media sources which were both used in this research. These sources of local information gave the researcher the opportunity to analyse former published (newspaper) articles which are related to the topic of this thesis. The articles ranged from 2001 to 2013. Within this period a lot of developments took place and therefore the articles were good information sources that could be used to make a historical reconstruction of important developments and events in the past on a longitudinal timeline. The data was gathered from the archives of both local media sources by making use of keywords to find the articles. These keywords were: 'energy', 'sustainability' 'sustainable energy', 'Ambition Manifesto', 'Sustainable Texel', 'Urgenda', 'TexelEnergy' and 'tourism'. Around 175 (small) articles from the archives were gathered and analysed by the researcher. This analysis was done by reading all articles and picking out the facts and developments that were connected to both the energy ambition as well as the keywords that were used to find the articles. The articles were divided into groups of the used keywords/labels through open coding. In open coding, the fragments are compared among each other, grouped into categories dealing with the same subject, and labelled with a code (Boeije, 2010). From 175 articles around half was used to complement and invigorate the data from the interviews. The articles from the local media contained most of all factual data that exactly displayed what had happened in what particular month and year. Besides the timeline, this data was also used to complement the rest of chapter 4.

3.2.3 Study site and site visits

The gathering of data took place on the Dutch island Texel in the period from November 2012 to January 2013. All interviews were conducted on Texel and therefore the researcher travelled to Texel four times. Not only to conduct the interviews, but also to visit the island and to discover the (visible) developments regarding the energy ambition. As not very much developments were visible, the researcher encountered many buildings and private houses that were provided with solar panels, a number of small scale wind turbines, the only (large) wind turbine of Texel, and a number of electric cars.

3.3 Data analysis

Interview transcripts, field reports/documents, and local media articles were the main data sources that were analysed during this research. One of the first steps to get grip on the qualitative data is to reduce its volume, and to organize and condense it into something manageable (Robson, 2007). For this reason, the data analysis of the interviews has gone through the phases of coding as described by Boeije (2010). These phases included open coding, axial coding and selective coding (Boeije,

2010). The conducted interviews were recorded and typed down in the exact same words as they were said by the interviewees. From here the data was split into units or segments that seem to be relevant and meaningful for the research (Robson, 2007). The researcher categorized the data by labelling the fragments through open coding as mentioned earlier.
After that, the phase of axial coding was executed. The primary purpose of axial coding is to determine which elements in the research are the dominant ones and which are the less important ones (Boeije, 2010). The categories as being formed in the open coding phase were reviewed and elaborated further. The main categories were marked in red, and the subcategories, were placed beneath that main category. The last phase was selective coding which refers to looking for connections between the categories in order to make sense of what is happening in the field (Boeije, 2010). This final phase displayed the interaction between the involved actors during a 10-12 year time period and the (former) developments and events that were the basis for the emergence of the first energy ambition and the later created Ambition Manifesto.

The following field reports and document were used in this research:

- The 'Ambition Manifesto' report
- The Structural report ('Texel on track') by the municipality
- The 'Sustainable Wadden islands' report by Grontmij and E-kwadraat
- The feasibility report of a geothermal plant on Texel by Ecofys
- The 'execution report' of the energy vision for Texel 2010-2020 commissioned by the municipality
- The 'Texel gives energy' report by Urgenda
- The 'Waddenenergiekrant'
- The 'sustainable energy on Texel' report by ECN
- The 'energy plan Texel 2030' by Ecofys
- The 'new energy for energy plan Texel 2030'report by ECN and commissioned by Sustainable Texel

The researcher marked the most important parts of these documents and used these parts as 'background information' or data that complemented the data from the interviews. In this thesis references are made to most of these documents.

Problems in gathering data
Some problems were encountered by the researcher when gathering the data. First of all not all information and data about what has happened was available to the researcher. As many field reports, (research) documents, (newspaper) articles, and websites were used to perform this thesis, it should be noticed that not all documents and articles were available to the researcher because he did not have access to all documents.
Second, the historical reconstruction is built from data from local media and the input of interviewees. Because some events and developments are a long time ago, not all interviewees were familiar with or could remember the exact way of how certain developments took place. Therefore unclearness and absence of certain developments could be encountered. Also, the perspectives of the interviewees were both similar and different. This thesis must therefore be seen explicitly as an

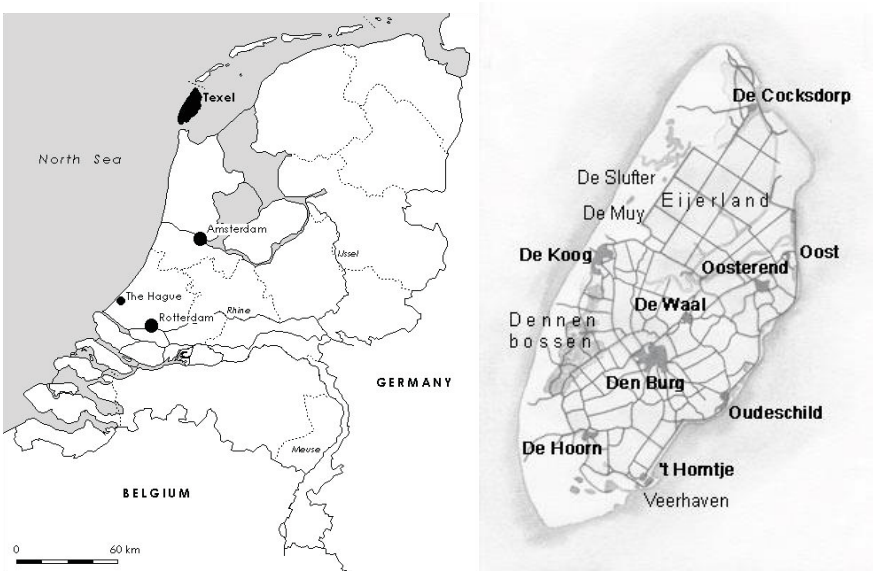
interpretation of the researcher that was derived from this variety of perspectives and interpretations of the interviewees.
Third, the researcher was unable to interview two very important individuals, the director of TexelEnergy and the director of Urgenda whom both did not have the time to do an interview. Fortunately two other individuals from both organisations were interviewed, which mitigates this shortcoming.

4. The historical reconstruction of developments concerning the energy ambition

This chapter presents a historical reconstruction and interpretation of recent years and developments concerning the Ambition Manifesto of Texel. For this purpose a timeline presents the most important developments, actors and documents. This timeline includes two phases that will lead the reader trough time and the accompanying developments. A brief introduction on the island of Texel initiates the chapter.

4.1 The island of Texel

Texel is one of the five Dutch islands that are located in the north of The Netherlands. It is the largest and most western situated island and is the only island which is part of the province of Noord-Holland. The other four islands are; Terschelling, Vlieland, Ameland and Schiermonnikoog. The islands are situated in an area that is a very valuable natural region; it is an important living space and hatchery for many bird species and plants. The 'Wadden sea area', or Dutch shallows, was placed on the UNESCO list of world heritages in 2009 because of this unique natural environment and ecological systems (Dutch Frisian Islands, 2012).



a. *b.*

Fig .6 *Location (a) and map (b) of Texel, (van der Duim and Caalders, 2004)*

Texel is an island approximately 160 square kilometres in size (van der Duim and Lengkeek, 2004) with 13.679 inhabitants on September 1st, 2012 (Gemeente Texel, 2012). There are several villages around the island, and the main village is Den Burg, with a population of approximately 7000 people (Duim and Caalders, 2004). Some of the other villages are Den Hoorn, De Cocksdorp, Oosterend, Oudeschild and De Koog, of which the latter and the Cocksdorp are the villages where most tourism

accommodations are deliberately concentrated. The local government decided in 1974 to concentrate tourism in and around these villages in order to minimize the pressure of tourism and its activities on the rest of the island. The municipality issued the first 'Basic Plan on Recreation' in 1974 which stipulated the maximum number of tourism beds as 47,000 (van der Duim and Caalders, 2004). Both the concentrated areas for tourism and the restricted number of tourism beds emphasize that the islanders have always been aware about the limited amount of space on the island and its vulnerability for tourism developments. This policy made it possible to keep control on tourism developments and tourism growth. The current number of beds is around 45.000, not including the many bed and breakfasts.

The reasons why tourists come to the island are varied, but what is definitely important are the natural, landscape and cultural values, tranquillity, abilities to perform (sports) activities, and a 'sense of freedom and uniqueness' that can only be experienced on an island. The sense of place and space is highly valued on Texel, not only by the tourists but also by the locals. Space, tranquillity, nature and landscape are the core values of Texel, and of the entire Wadden sea area.
Today, the former times of a '3 months lasting high season' are over as the tourism season has grown tremendously for years. Because of that the conservation of the attractive and unique character of the island gets high priority within the local community. The people of Texel realise that tourism is the main source of income, but they do not want that tourism has a devastating effect on their island.

In 1974 the decision is made to put a maximum on the number of tourism beds in the concentrated areas. This decision has laid the foundation to deal with the limited amount of space on Texel in a sustainable way. Nature and landscape are the capital of Texel and therefore just recently the town council has approved the proposition to stop counting (tourist) beds and no more extra beds will be allowed, except for certain innovative developments (Alderman municipality).

In earlier times Texel mostly thrived on agriculture and fishery. Especially the agricultural sector has economically, culturally, and politically dominated the island for centuries (van der Duim and Lengkeek, 2004).
But times have changed. While agriculture and fishery are still present on the island, the tourism sector has expanded tremendously and became the new main source of income. It really started for tourism around the beginning of the 20th century when a few first tourism accommodations began to appear and the 'VVV' (Vereniging voor Vreemdelingenverkeer) was opened in 1908 as a local tourist information office (van der Duim and Caalders, 2004). The real growth of tourism started to take off after the Second World War and especially in the 1960's (van der Duim and Caalders, 2004). Off course this had an influence on the local (economic) situation, and things started to change. Numbers no less than 80 to 85 per cent emphasize the economic dependence of Texel on tourism as Texel receives around one million visitors every year. The importance of the sector in terms of turnover rate and employment has continued to grow and tourism approximately employs 25 per cent of the total population in 2004 while indirect impact and dependency is much higher (van der Duim and Lengkeek, 2004).

The local population of Texel is diverse and the island is many times referred to as; 'The Netherlands on a small scale'. One of the interviewees makes a rough distinction between the several groups that exist within the population of the island.

The community of Texel can roughly be divided into three groups (saline agriculture entrepreneur):

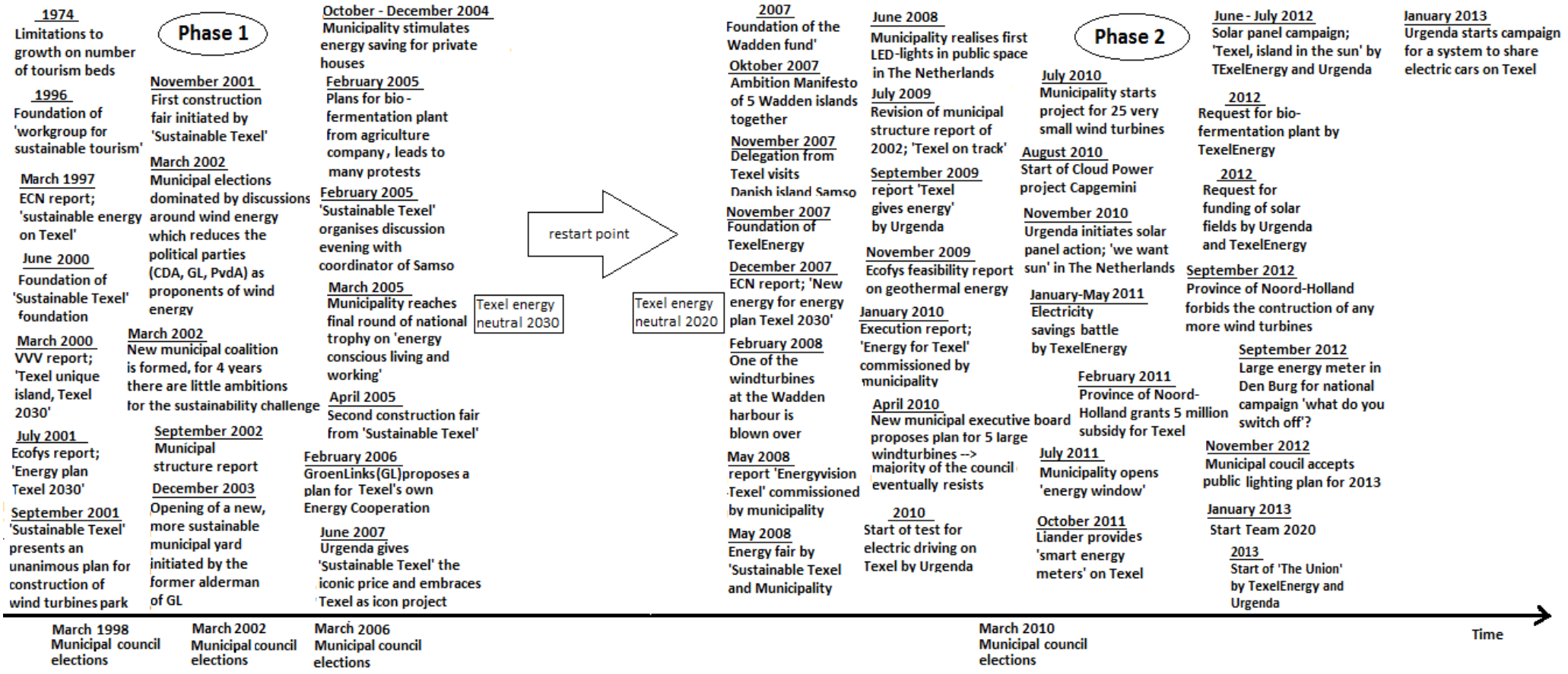
1. *The traditional farmers population that is suspicious for change*
2. *The 'import' people from the mainland of which many are entrepreneurial and active, who fell in love with Texel and decided to stay*
3. *The group of researchers that are related to the activities of the NIOZ, a national institution for sea research. And the civil servants are situated somewhere in between these groups.*

This rough indication helps to understand a little better how the community of Texel is constituted. The distribution between the groups entails different backgrounds and different interests. Unfortunately these groups can have problems with reciprocal tolerance. Because the community of Texel is a mix of people, there are forces within that community that makes cooperation and mutual understanding at certain times a very hard process. Especially in an island situation this can be very difficult and visible since the (physical) circumstances are different compared to the mainland. Complementary to this most interviewees argue that there exists a kind of native resistance that many people from the community have towards input or interference from the mainland. People of Texel have an independent nature that has been part of the community and their culture for many years. They have a strong sense of attachment to their island and they want to act and arrange things on their own and independent from the mainland.

In terms of sustainability Texel undergoes, and has undergone, numerous developments that fit into the circumstances and character of the island. The current Ambition Manifesto of the municipality did not appear suddenly, it is imbedded in other and previous developments that will serve as a substantiation to understand the energy ambition in its context. To understand why the political ambition was created, it is necessary to emphasize and reconstruct the (past) developments and involved actors that have laid the foundation for sustainability and sustainable thinking to take root on the island. The situation of today has its roots in a distant past of developments, and the contributions and activities of (leading) actors and individuals will be emphasized in the next paragraphs of this chapter.

4.2 The Timeline

The timeline shows important documents, actors, developments and events that are related to the Ambition Manifesto and sustainable development on Texel. It will be used as an instrument to make clear what has happened in the last several years. Chapter 4 entails an historical reconstruction that is linked to and based on this timeline. Nonetheless the possibilities of the timeline are limited and therefore it is a selective representation of past developments; not every development or event can be included.



4.3 The workgroup for sustainable tourism

The workgroup sustainable tourism started in 1996, an initiative from active individuals from the tourism sector and the municipality to strive for more sustainability in tourism.

The driving force behind this initiative basically came from the need of the community and several enthusiastic tourism entrepreneurs that wanted to do something with sustainability (employee 'Sustainable Texel')

On Texel the awareness prevailed to be careful about the island, and not to threaten the most important source of income for the island, tourism (former director 'Sustainable Texel')

There were increased concerns about the future, and how tourism caused more pressure on the island. The creation of the workgroup was an initiative to urge for sustainable development in the sector in order to let tourists continue to enjoy the island in the future, but also to protect this main source of income. This sense of taking care of Texel surfaced in the community and some tourism entrepreneurs. Because tourism is so important to the island, there were, and still are, (economic) interests to develop the sector in a sustainable way. During that time, the current alderman of a local, left-wing political party, GroenLinks (GL), played an active role in the formation of the workgroup. And because of that contribution the municipality was involved as an initiating actor for the workgroup.

I made them enthusiastic for the idea of a workgroup. I brought them together to develop the idea. A starting document was made, also together with the province, which we approached to help carry our economy and support this initiative (former alderman municipality)

The province of Noord-Holland was already, and still is, an important supportive actor for Texel for all kind of projects and developments. The workgroup therefore immediately and deliberately made the connection with the province to include this actor in the work of the workgroup.

The province provided the most financial support, while the municipality and business sector did this to a lesser extent. This financial support, mostly of the province, made more things possible for the workgroup (former alderman municipality)

The workgroup therefore gained support from tourism entrepreneurs, the province, the municipality, the VVV and the TESO-ferry, Texel's own ferry company. It was the first actor on Texel that began to work on sustainability and sustainable development in tourism. It was focused on aspects like the conservation of the natural, landscape and cultural values in order to preserve the beauty and unique character of the island, while at the same time the tourists, local (tourism) entrepreneurs and local inhabitants were informed and educated about the importance of maintaining these values. The activities and behaviour of leading (tourism) entrepreneurs was a driving force for the workgroup.

According to me the power of starting this whole process came down to several individuals. Just recently someone mentioned the three W's, including Jan Kuiper, the former director of EcoMare. These persons were Warnaar of 'the Krim', a very large holiday park; Wortel of the TESO-ferry; and

Wuis from the tourism industry, of whom I am not really sure what his role was. Anyway, a number of men with the insights, vision, but also the courage to connect people and to start things up; I believe that was the basis for everything about sustainability on Texel (programme manager Urgenda)

These individuals and some other involved actors, including the input of an active alderman from the municipality, formed a group that started to work on a more sustainable Texel. Two examples of projects conducted by the workgroup are; *'nature month May'* and *'Nature and environmental education on the ferry'* (StichtingDuurzaamTexel, 2012).
The most important tasks of the workgroup were;

To form an 'idea group' for sustainability, to create support and awareness and to execute practical matters that could give shape to the sustainability ideal of Texel (former alderman municipality)

Discussions with a professor of sustainability at the University of Delft were held in order to learn about the ways how Texel could shape their sustainable ideas, how these sustainable processes would go and how things could be developed (former alderman municipality)

The professor from Delft acted as a source of inspiration for the island and helped the workgroup and the subsequent organisation 'Sustainable Texel' to make sustainability more practical and give meaning to the local ideas about sustainability and sustainable development. Since the focus of the workgroup was on tourism, it started to educate and inform the tourists about preserving the (natural) core values of Texel. Information was provided on the ferry and involved tourism entrepreneurs increasingly started to take notice of the sustainability concept into their business concept. Through this pioneers work, but also because of the courage to connect actors for the same (sustainable) cause, the concept of sustainability became better known in the island community and the visiting tourists. A combined concern of several tourism entrepreneurs and involved actors marked a beginning movement to act on sustainability and sustainable development on Texel. Next to that, an important starting point that helped to operationalize the ideas for a sustainable tourism island was the policy of the municipality to set the maximum number of tourism beds at 45.000 in 1974. That decision made it possible for Texel to gain some control on tourism development and it helped the workgroup to act on the enforcement of the local sentiment that a great abundance of (mass) tourism is not desirable on Texel. There was consensus that the unique (natural) character and the core values of the island had to be maintained and protected.

But with the focus on tourism and the education on sustainability issues, the workgroup soon realized that their vision about sustainability could be drawn much wider than only the field of tourism. Aspects like mobility, energy and education were also of sustainable importance and the desire surfaced to broaden the operational space of the workgroup. Therefore the group passed into a new organisation four years after its own foundation.

4.4 The Foundation for a 'Sustainable Texel'

Sustainable Texel was founded for sustainability in a broad sense, in June 2000. Six different pillars of tourism, mobility, energy, education, providing information and spatial use formed the basis of the organisation (employee Sustainable Texel).

The scope of 'Sustainable Texel' was much wider than only the tourism sector and six pillars emphasized the most important focal points of the organisation. The sustainability concept could be applied in much more sectors and in more ways as was done by the former workgroup.
Since its start the board and the followers of Sustainable Texel covered a wide range of sectors and organisations on the island. This also included the associations of entrepreneurs, TVO (association for entrepreneurs) and TVL (association for accommodation providers), whom had more than 900 members together. Some years later both associations would merge into one entrepreneurial association, TOP (entrepreneurial platform).
Sustainable Texel is not really composed of like-minded organisations: TESO (the ferry), SBB (National Forestry Association), (W)LTO (Agriculture organisation), TVL, TVO, VVV (local tourist office) and Recron (association for recreational entrepreneurs in The Netherlands) (TexelPlaza, 2001). In the board the sectors/fields of agriculture, tourism, nature conservation, economic development, the TESO-ferry and culture (the museums) are represented. Also a direct link exists with the municipality and the province, which provide (financial) support to the organisation and its activities. Because there are many sectors and entrepreneurs connected to the organisation, these (short) links create opportunities to communicate directly to a lot of entrepreneurs and actors.

Much was focused on entrepreneurs because of the short links (employee Sustainable Texel).

Many external experts and guest speakers were brought to the island to support projects and to let the local people and many entrepreneurs of Texel become familiar with the concept of sustainability and its applications.

Sustainable Texel's role was to initiate projects which could not be taken up by the market because it were projects that involved high risks in the starting phase, projects that included many actors, projects that needed external subsidies, and so on (former director Sustainable Texel)

In 2001, the organisation commissioned a feasibility report for the use and application of renewable energy on Texel. The research was performed by the external, energy-related consultancy company Ecofys and the results appeared in July 2001. The report presented the results of a feasibility study to accomplish energy neutrality on Texel in 2030 by making use of renewable energy technologies and the island's (abundant) natural resources.

The following main conclusions were drawn in the report (Beer *et al*., 2001):

- Complete supply of the energy and heat demand is feasible for Texel by 2030, on the condition that a shortage on the heat balance can be supplemented.
- Texel has great potential to realise a large part of their energy demand with renewable energy in the short term. Wind energy has most potential, but when only a limited use of wind energy is allowed, large energy savings will be necessary.
- Without solid energy savings the energy demand of Texel will remain too high for sustainable energy production.
- The demand for motor fuel cannot be covered by sustainable options; a choice for electric transport can be made.
- Investment costs will be in the range of 125-140 million euros, without including extra investments for written off techniques.

The report showed that it would be difficult to reach energy neutrality, but that there are some good possibilities. For that the reduction of energy use should become a considerable part of the process, and regarding the technologies that exist, according to the research wind energy should contribute the most. A few months after this report Sustainable Texel came up with a plan to construct wind turbines on Texel;

Sustainable Texel launched a unanimous plan to construct a (small) wind turbine park on Texel in September 2001. In November 2001 Staatsbosbeheer (SBB) and Recron, both members of the board of the organisation, turned against this plan. Subsequently it became a large item for the municipal council elections in March 2002, as the theme controlled the elections and all political parties who were in favour of wind turbines (CDA, GL and PvdA) suffered big losses. The alderman of GroenLinks had to leave his position in 2002 because of the results of the elections (founder TexelEnergy).

Eventually the proposed wind energy plan would not survive. The theme of wind energy evoked a lot of resistance and (negative) emotions within the island community and in local politics. Many islanders were against the construction of (large) wind turbines on Texel. One of the main reasons for that is because wind turbines would deteriorate the unique, natural open landscape of the island. At that time Texel already had four medium size wind turbines that stood at the Wadden harbour since the late eighties. Yet they created nuisance among the tourists and were unwanted by the board of the Wadden harbour. When one of these (old) turbines eventually broke down in February 2008, they were removed in 2010 and would never be replaced. Wind energy was and still is a sensitive topic on Texel that evokes many (emotional) discussions in the community and local politics. People see them as a threat to the landscape of Texel. Additionally the failure of the turbine in 2008 is not perceived as a stimulus to make (any more) use of wind energy.

In November 2001 Sustainable Texel and several companies organised the first sustainable construction fair for the people of Texel, which was a great success with around 2000 visitors (TexelPlaza, 2013). The fair provided information and solutions about how the people of Texel could apply sustainability in and around their own houses, especially in relation to saving energy. Due to its success a second construction fair was organised in 2005 which also generated around 2000 visitors.
The goal of the fairs was to stimulate sustainable construction and therefore the different participating companies needed to cooperate, and could not act as competitors at the fair itself (TexelPlaza, 2005). The fairs made the people of Texel more aware about opportunities for their houses and more enthusiastic to apply for subsidies for energy saving measures.

A project that started in 2001 in relation to tourism was the Environmental Barometer (‘milieubarometer’) for recreational businesses. Recron, the overarching, nation-wide organisation for recreational businesses, also stimulated this on Texel. Recreational entrepreneurs received a list of requirements that needed to be met in order to receive a certificate. These requirements referred to things like saving energy and water, waste separation and signing an environmental policy statement (TexelPlaza, 2001). One of the first companies that received a golden environmental barometer in 2001 was ‘De Krim’ in the Cocksdorp, one of the largest holiday parks of the island. In 2003, there were eleven tourism companies on Texel that had received an Environmental Barometer (1 bronze, 4 silver and 6 gold), of which eight companies were a member of Recron (Bloksma, 2003).

The Environmental Barometer has contributed to the awareness among tourism entrepreneurs that doing some things more sustainably (e.g. dealing with your garbage waste and saving energy) could mean a reduction of certain business costs. It has contributed to the awareness of how some environmental consciousness could lead to economic benefits as well. Nonetheless, later on several tourism businesses would quit their participation in the Barometer because of decreased interests and the impossibility to compare their business to others on the island.

Sustainable Texel continued the work of the workgroup with a much wider scope. Two important ways to make this work in a small community is when support among the inhabitants is increased and many island sectors are involved. Especially in the first period a need for co-operators on the island existed to generate a 'movement' to get things going. The link with the municipality and the province was therefore very important, yet Sustainable Texel never became an organisation that completely depended on the financial support of these government bodies.
However, the composition of the organisation also caused difficulties. Because the organisation tried to be a platform where many of the largest sectors of the island were represented, internal disunity could be a blot on the progression and execution of certain activities.

When there is a combination between agriculture organisations, fishery organisations, tourism, the municipality and the VVV, nothing really happens; it is a platform for support were innovation by definition is ruled out on Texel, and this is exactly what happened to some extent inside Sustainable Texel (entrepreneur saline agriculture)

The different sectors in the organisation sometimes made mutual agreement very difficult since their interests at some point were very different.

At a later stage the organisation has struggled with their own position and the people involved and what so ever, but that were side issues (programme manager Urgenda)

Still it is widely accepted among the interviewees that Sustainable Texel made sustainability a better known concept on Texel. They performed pioneers work and initiated many projects in multiple sectors. Much was focused on educating and providing information to the public, but also their projects contributed to the general consciousness on sustainability of many people and businesses. The organisation also emphasised saving energy and increased the awareness of opportunities for renewable energy technologies applications on the island. The feasibility reports underpinned their interest in renewable energy for Texel. In February 2005 a coordinator of Samsø was even brought to Texel to discuss the case of Samsø and how Texel could deal with and pick up the opportunities of renewable energy technologies (TexelPlaza, 2005).
Sustainable Texel was and still is an important actor for creating awareness and working on sustainability projects on Texel. For that, the organisation received a price called 'the iconic price' in 2007 from Urgenda, a national organisation that was launched in the same year. But today the role of Sustainable Texel is different;

The organisation is not so active anymore as it used to be. In our busiest times we had four people working there on twenty projects, now that number is down to one person for a couple of hours a week (former director Sustainable Texel)

The number of projects is reduced and in the future the organisation will probably act more as a network organisation to make connections between actors for sustainability and sustainable development. The active and leading role of the organisation regarding stimulating the use and application of renewable energy and commissioning feasibility reports has also changed. The reduction of the organisation's size has contributed to this decrease and therefore Sustainable Texel has moved to the background concerning the energy ambition. In relation to the Ambition Manifesto, the following statement summarises the role of Sustainable Texel;

Sustainable Texel created awareness and support for the Ambition Manifesto, as well as some feasibility studies for renewable energy on Texel (former director Sustainable Texel)

Fig. 7 *North Sea beach on Texel*

Connected to the first years of Sustainable Texel, around 2000-2001, the first energy ambition of Texel was focussed on energy neutrality by 2030. This ambition would later become municipal policy and the precursor of the Ambition Manifesto.

4.4.1 Times have changed in terms of sustainable thinking

An important factor about the emergence of sustainability and sustainable development on Texel is that the concept in itself went through (societal) developments in such a way that it has become a more relevant concept in modern times. In previous years sustainability was quickly associated with 'green, left-wing activism' that was strange, was not important and was not really accepted. What we see now is a time where a company or even a government cannot escape from implementing sustainability because it has become part of what we believe and how we see our common future. Many reasons can be put forward for these developments, but it is for sure that if a company or a government wants to act on sustainability for whatever reason, it can get large international players around the table because it means business and (economic) viability. The concept has become an

important issue and many companies, institutions and governments in the world now think about sustainability and present themselves in the market as being an environmentally conscious corporation/institution.

The image of time has changed. In the period that Sustainable Texel was established it was a sort of 'alternative scene'. Nowadays it is trendy and modern en it has become real business. The whole environment has changed tremendously, because if you want sustainable lamps now you can do business with very large companies. In earlier times it was not like that and it was seen as a strange thing. Saving energy was not even an issue. But nowadays a lot is happening for that matter (director local tourist office)

In relation to the developments on Texel, this changing environment created more (social) space and understanding for Texel to have aspirations that fit into the concept of sustainability and the changing environment in society. The first energy plan and later the Ambition Manifesto are embedded in these developments and can be positioned inside this emerged awareness of the importance of being sustainable and taking it into consideration as a business, a region, or even a whole country.

Sustainability gained increased attention on a national and global scale, this contributed as well to sustainability and sustainable thinking on Texel (employee Sustainable Texel)

4.5 Reports and documents

A number of reports and documents are important to understand the development process of the Ambition Manifesto. They provide an insight in what has been investigated before, and can help to understand what are the underlying factors of the Ambition Manifesto and why it was created. The following section provides the content and meaning of these reports.

4.5.1 ECN report: 'Sustainable energy on Texel'

In March 1997, an ECN ('Energieonderzoek Centrum Nederland') study appeared that discussed a first time model based assessment of the availability and market potential of local renewable energy resources on the island of Texel in The Netherlands (Perrels and Diepstraten, 1997). The report was based on two years of research and included a study period up to 2020. Two important conclusions were drawn in the report.

First, wind energy could potentially generate two-third of the yearly need of electricity, while in reality no more than fifty per cent coverage would be a reasonable assumption according to limitations in spatial planning. In a calculation up to 2020, wind energy has the most potential for the conversion of energy.

Second, the use of solar collectors could be interesting to save energy and to deploy local labour for the construction. It is in line of expectations that the tightening of the energy performance standard ('energieprestatienorm') and an emphatic control on 'green tourism' can stimulate the penetration of solar collectors considerably (Perrels and Diepstraten, 1997). The energy performance standard indicates the energy efficiency of local residences (Encyclo, 2013).

The ECN report made clear that there was good potential for wind energy and solar energy on Texel in the future. The outcome of the report was rather positive, and next to some possible limitations or

difficulties it was one of the first reports to indicate what could be done with the high amounts of wind hours and sun hours on Texel, which are among the highest in The Netherlands.

4.5.2 VVV report: 'Texel Unique Island, Texel 2030'

The report 'Texel Unique Island' appeared in March 2000 on behalf of the management of the local tourism information office (VVV) to develop a *widely supported long term vision for tourism on Texel* (VVV Texel, 2000). The report was set up with the help of many actors and professionals from the tourism sector, as well as from other sectors, and was therefore widely supported and provided a long term vision about the future of the entire island rather than tourism alone. The report provided different scenarios for the sustainable future of Texel and explained how every scenario could be a starting point for future developments. It emphasized the protection and development of the core values of Texel. The report was presented to the town council to be considered for the development of future (tourism) policy. In this report a sustainable future on the island was explicitly put forward. It showed the concern for a preservation and development of the unique character of Texel while it served as an instrument for the municipality in policy making processes. The report was an apparent example of a bottom-up development from inside the local community.

4.5.3 Municipal structural report 2002

The first structural vision of the municipality that revealed the first aspirations of energy neutrality in 2030 appeared in 2002 and was the outcome of a very intensive and interactive process between the local government and island organisations. Besides that the report presented broad perspectives (e.g. agriculture, economy, tourism, environment, fishery and society) about the sustainable future of the island and how this should be accomplished, for the first time a political statement was made about energy neutrality on Texel. Under this first statement lie the ECN and Ecofys reports.

Fig.8 *The TESO-ferry of Texel*

4.6 The Ambition Manifesto

The Ambition Manifesto 'The Energy Future' ('De Energieke Toekomst') of the Wadden islands was launched in 2007. This section will emphasise the content and meaning of that ambition. The following section is composed out of parts from the ambition report (Ambition Manifesto, 2007);

We strive for sustainable development on our islands. Development in which taking care for the special nature and environment is most important, in which the unique character of the islands is guaranteed and fully utilized, and in which the dependency on the supplies from the mainland is decreased. Looking to the future is impossible without a central role for sustainability. Sustainability should be the basis of all aspects of life, especially in a vulnerable area as 'the Wadden area'

everything should be focused on it. Therefore sustainability entails much; from nature conservation to preserving employment and economy, from the provision of energy to recreation and tourism. In the meantime there is a widespread awareness that the use of fossil fuels is finite and that a change (transition) towards renewable fuels should take place.

The Ambition Manifesto is a plan of five Dutch islands together to become energy neutral by 2020 by making use of renewable energy technologies and taking measures to save energy. From the start, a considerable part of the ambition was to start saving energy and bring down the overall energy demand. Because a decreased energy demand means that less renewable resources and technologies will be necessary.

Only through very large reductions of the use of energy per inhabitant will it be possible to provide in the entire energy demand in the future (Ambition Manifesto, 2007).

It comes down to this basically; 1/3 of the energy demand must be saved, and 2/3 needs to be generated with renewable energy technologies (municipal official)

Also, because the islands are small and there are not enough financial resources to push the ambition on their own, external financial support is absolutely necessary. External actors are therefore offered the opportunity to come to the islands to conduct (pilot) projects for sustainable development. With this external input the island municipalities are looking for (in) direct contribution to sustainable development and their energy ambition, which for a large part should be financed by external actors.
The islands cannot complete this task all by themselves. For the small municipalities there is a need for (external) support because the entire plan is too big and comprehensive. This is explained by the following statement from the ambition report (Ambition Manifesto, 2007):

We challenge everyone to accomplish this ambition together with us (the municipalities of the islands). We think about actors like: the European Commission, the State, the provinces, research institutions, environmental groups, energy companies, other companies, but also our own civilians and everyone who cares about the islands and/or sustainability.

In relation to the Ambition Manifesto and the circumstances on Texel, the majority of the interviewees emphasise that important aspects of the island are the following;

- *Texel is delineated, manageable and clear; it is based on a human scale and things are visible within the unity of an island. Things are measurable*
- *The ties and lines are short between actors and individuals (many people know each other)*
- *There is a strong sense of attachment to issues concerning Texel by the people living there, it is a close community that has an independent nature towards the mainland*
- *Natural resources are abundant; Texel lies in between two seas and is among the places that receive the most annual sun and wind hours in The Netherlands*

- *There is a high degree of business activity on Texel*
- *Economic dependency on tourism is high, 80 to 85 per cent.*
- *The core values of Texel are nature, landscape (space) and tranquillity, and these need to be maintained and protected because they are the capital of the island*

Almost every interviewee emphasises that because Texel is an island, this energy ambition could have a chance of survival or can be successful. The general thought is: *An island, or Texel, is a good location to have such an ambition because of the mentioned island features. Here such an ambition has the most chance of success and if it is not possible here, where would it then be possible?*

The creation of the Manifesto made clear that this ambition is an enormous challenge. The municipalities also have the desire to let he islands be a place for innovations and (pilot) projects; Islands are small-scale worlds; well recognizable and well delineated, and because of that delineation they are well suited for tests and pilots (Ambition Manifesto, 2007). The innovations and new techniques that can be tested and might be realised on Texel can serve as an example for the rest of The Netherlands.

Related to the interviews with three individuals from the municipality of Texel; the former alderman, the current alderman and a municipal official, the following aspects are important reasons why the ambition was embraced politically;

- *To have a common plan with all other islands to achieve a goal that is highly ambitious;*
- *To have an ambition that fits into the concept of sustainability and that could be communicated to the outside world to generate (financial and external) support and input;*
- *To be independent and seize the (economic) opportunities for the benefit of the local economy and local employment, also in the context of the island circumstances;*
- *To gain maximum profit from the recently founded Wadden Fund and the province;*
- *To have get things going; to create (sustainable) movements*

The Ambition Manifesto can bring good opportunities to the island community and economy, and actors like the province, external companies and the Wadden fund are important in that matter. As Texel already envisioned energy neutrality by 2030 before, but the Ambition Manifesto links the five islands together and eventually tightens the ambition to 2020 after presenting it to the minister and a member of parliament.

Considering the report of the Manifesto, four main factors are indicated; economy, nature, sustainability, and sustainable energy and saving energy. The fifth factor, a self-sufficient fresh water supply, will not be pursued on Texel because of desiccation problems on the island.
With this energy plan the Wadden islands islands also want to contribute to global climate change. Islands are vulnerable places, and because climate change has a larger effect on islands, the Wadden islands want to meet these problems and show to others and themselves that they take their (energy) future seriously. Yet there is high uncertainty about how this envisioned energy transition can be achieved;

We realize that this plan is highly ambitious. An ambition of which it is not clear at this moment how it can be achieved. Also, it is an ambition that transcends the capacity and possibilities of our municipal organisations. Yet we are confident that it is possible and that we must do it (Ambition Manifesto, 2012)

In general the Ambition Manifesto comes down to this (Ambition Manifesto, 2007):

To be assured of a 'sustainable' source of income in the future, the islands will have to 'come along', we will have to deliver quality and distinguish ourselves. Sustainability can deliver a part of that quality and distinctiveness. Indeed, in a region that lives from its natural values, sustainability should be a fundamental principle. The Ambition Manifesto is most of all a communication tool. To the local community, to politics, but also to the provinces, to The Hague and to the world. To show them; 'we want this'. To get things in motion. You need such a 'peg' in this kind of process (municipal official)

It can be seen as a benefit that Texel includes no more than a small 14.000 inhabitants. The island has abundant natural resources and a fairly small community; therefore it is reasonable to state that in terms of renewable technology applications, we are not talking about a huge energy demand. Yet it is the tourism industry that increases this demand tremendously. In 2007, the yearly energy demand was 1.614.000 GJ (Giga Joule) (Elswijk, 2010). The following figure explains in which user groups this demand can be divided and which energy carriers are used to meet the demand.

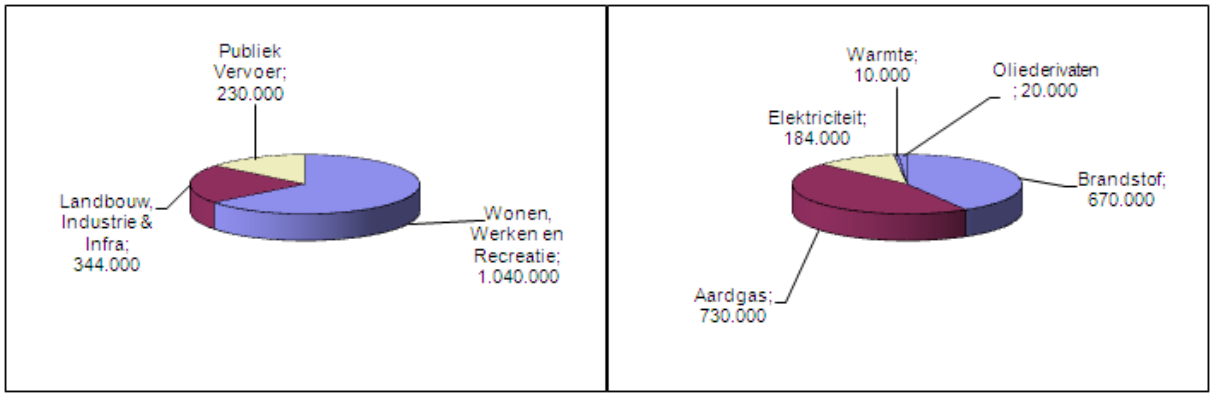


Fig. 9 *Energy users and energy carriers*

The current energy demand is met sustainably by 8,1 %, and therefore the municipality seeks for another 91,9% that needs to be filled in sustainably; this corresponds to 58 2MW (Mega Watt) wind turbines or 420 hectares of solar panels (Elswijk, 2010).

2007 Is a lively year for Texel. More actors appeared and got involved with the ambition. Therefore the 'playground' of the (energy) network started to move and developments that could enforce and have the ability to contribute to the sustainable future and energy ambition of Texel became more visible.

4.7 ECN report: 'New energy for energy plan Texel 2030'

In December 2007 another ECN feasibility report for an energy neutral Texel in 2030 appeared. The commissioner of this report was Sustainable Texel.

Remarkable in this report is that it concluded, apart from that it more or less presented corresponding conclusions (wind has most potential, energy savings are important, conscious energy behaviour is needed and local support is important) as the Ecofys and early ECN reports, that an ambition for *complete* energy neutrality will *not* be realistic in terms of renewable energy production within the borders of the island. According to the research Texel should be focused on saving energy and small scale sustainable energy generation, or energy could be imported from external sustainable energy productions in which Texel has invested (ECN, 2008). In essence it turned out that the energy demand on Texel will be too large, or that Texel is too small, to provide in this demand inside the borders of the island with the available contemporary techniques in the market (Weeda *et al*., 2007).

One of the interviewees argues that not enough was done with this (slightly negative) conclusion by Sustainable Texel. Possibly Sustainable Texel could look in other directions or search for (new) opportunities to focus on in the future. This ECN report focused on energy neutrality in 2030, but in the meantime the 'new' energy ambition for 2020 was created.

4.8 The Wadden fund

The Wadden fund was an important actor in terms of the creation of the Ambition Manifesto. It was founded in 2007 for the sustainable protection and development of the Wadden sea area as a natural area, and to stimulate the conservation of the unique, open landscape (Rijksoverheid, 2013). The reason for the fund to be established is because the national government wanted to drill for gas in the Wadden Sea; a heavily discussed issue between politics, science, business and nature organisations for decades (TexelPlaza, 2007). Also, in a response to these plans heavy protests came from environmental organisations and the people of the islands because the drillings would have devastating effects on the local (natural) environment.

Nonetheless these protests cannot stop the national government from executing their plans. In February 2007 the drillings started, but the economy and nature of Texel would benefit as well (TexelPlaza, 2007).

As many people resisted to the drilling plans, they demanded that the drillings would be carried out from land instead of from sea, and that they could share in the profits. For this reason the Wadden fund was established; a fund that would financially compensate the gas drillings and where money would become available for the sustainable benefit of coastal municipalities and the Wadden sea area, including its islands. More than 650 million euro, after a buy-out of the cockle fishery for 123 million euro, would become available in parts to the Wadden sea area, for a period of twenty years (TexelPlaza, 2007).

The establishment of the Wadden fund offered great opportunities for the islands, for the protection of their nature, but also for the energy ambition. It was something from which the islands could benefit. A joint energy ambition would give them one voice and a possible better chance to obtain more financial support. Therefore the Wadden fund was an important and direct stimulant to create the Ambition Manifesto;

A variety of businesses, but also the coastal municipalities of the Wadden Sea could benefit from the fund. Then we stated as islands; 'On the islands we do not have to invent everything on our own, let us choose one common goal; we all want the islands to be sustainable in 2020, for what it is worth, but we secure this in a Manifesto' (former alderman)

Thus, one of the reasons the Ambition Manifesto exists, is the Wadden fund. It is of huge (financial) importance for the sustainable developments of the Wadden sea area. A lot of money goes to nature conservation, but requests for all kinds of sustainable developments and projects can be done. The fund was a determinant factor for the fixation of the political energy ambition of five islands because with the (financial) support of the fund, more became possible.

4.9 Urgenda

Urgenda was founded in 2007 (Urgenda, 2012), and the following paragraph introduces the goal of the organisation in terms of a composition of statements taken from the interview with the programme manager of Urgenda on Texel;

Urgenda is an organisation that has the goal to influence and accelerate the Dutch society in its transition to sustainability. The sectors in which we work are varied, but it is most important that there is a movement towards sustainability. Urgenda is based on the thought to get things done and stop wasting too much time with irrelevant matters. Society can continue discussions forever, but then nothing is going to happen. We must act now with projects on a large scale that matter.

In June 2007 Urgenda handed over the 'iconic price' and a corresponding amount of 100.000 euros to Sustainable Texel because of the pioneers and progressive work the organisation had performed on Texel. Additional strengths of the organisation were that it was composed of divergent interest groups and that civilians and entrepreneurs were involved in the decisions about what projects would be executed (TexelPlaza, 2007). The price was an encouragement to work together in making the island an 'icon' for sustainability and sustainable development (Urgenda, 2012). Hereby Urgenda included Texel as one of their 'iconic projects' in The Netherlands. An iconic project is an area where (innovative) projects and sustainable developments will be set up in cooperation with local actors to serve as an example to the rest of the country; to show that sustainable action and sustainable thinking can work out and can have a positive effect on society (Urgenda, 2012).

One of the first projects Urgenda initiated on Texel were the multiple open sessions for discussions and thinking about sustainability for fifteen island individuals. This 'Texel Arena' included several 'lateral thinkers' and 'pioneers' from different sectors and experts brought in by Urgenda. Together they constructed a platform to build on a vision for the sustainable future of Texel. Six interactive sessions were organised in a period of 1,5 years that resulted in a final visionary report 'Texel gives energy' ('Texel geeft energie') which was presented in September 2009. It was a vision that included sustainable choices and actions which could be made on Texel for the future, even up to 2040.

Summarizing the report, three main tracks can be distinguished as future perspectives (Texel geeft energie, 2009);

1. **'Texel gives energy'.** On this track the energy ambition of 2020 is embraced and it is explored how the island can become an energy producer of different types of renewable energy
2. **Texel as 'recharging station'.** Here visitors can experience Texel as place to recharge and refresh their 'energy' during their stay. It is based on conscious experiences and recreation
3. **'Tested & Tried' on Texel.** Texel will profile itself as an experimental island where innovative pilots and experiments can be conducted, in all kind of ways

From those three tracks of the Urgenda report a considerable part has been taken over and included in municipal policy; the experimental area ('Tested & Tried') is municipal policy. It is embraced by several political parties and ended up in the programme of the municipal executive board at the elections of March 2010. The real energy ambition was already in that programme off course. Texel as recharging station is more difficult to understand and vague for many people. There are some developments, but it needs some extra coordination to become really something (municipal official)

The report from Urgenda and the fifteen cooperating individuals gave an impulse to the vision about the future and sustainability on Texel. Since its presence on Texel Urgenda tries to give the sustainable transition a boost. It facilitates and mediates between actors and has initiated some projects itself. Two big projects were *the electric mobility* project that started in 2010 and the *solar panel action* of 2012 in cooperation with TexelEnergy and Sustainable Texel. The mobility pilot project was to stimulate electric mobility and to let the people of Texel become familiar with the benefits of electric driving.

As Urgenda we have a test case electric transport on Texel. Entrepreneurs could buy an electric car because of the attractive offer complemented by subsidies (programme manager Urgenda)

The first focus of the project was directed to entrepreneurs, but it is their aim to expand electric driving among the local community in the future. The project fits very well to the aim of the energy ambition and the circumstances of the island, since not (yet) very long distances can be driven in an electric car. Many interviewees are positive about it and just recently in 2012 nineteen electric charging stations were constructed on the island. Around twenty-five electric cars are now owned by entrepreneurs. The mobility project is accepted among the community.

If the goal is exclusively focused on energy neutrality at the expense of other things, then I am not so happy about it, but that Texel for example is used as iconic project for electric driving, that fits perfect. Electric cars can drive here very well, and their radius is big enough that some people who almost never leave the island can have an electric car. I think people are positive about it (director Wadden harbour).

The success of the solar panel action in 2010 by Urgenda was because of the very attractive offer for the islanders due to a large-scale purchase of solar panels in China. This purchase included solar panels for the action 'we want the sun' in The Netherlands. The big purchase of solar panels in China

ensured a better price, and therefore a very attractive deal can be offered to the public (wijwillenzon, 2013). Throughout The Netherlands this activity ensured that more solar panels were constructed on the roofs of private houses. Many people of Texel also got enthusiastic about the attractive offer that was presented to them and were willing to buy solar panels that could be installed on their roof by local installers. The campaign in cooperation with TexelEnergy was held inside the villages of the island and had a very personal approach, something that positively contributed to its success.

For a part we facilitate the mob by offering attractive deals on which they can act, as was the case with the solar panels action (programme manager Urgenda)

The director of Urgenda bought solar panels in China for one million euros and everybody said it would not work out. Then they set up the structure for 'we want sun' and it started to work, also because of economic practical matters (saline agriculture entrepreneur)

Since its presence on Texel Urgenda became a better known organisation within the local community.

Its input and contribution for sustainable development and the energy ambition is strong and the local actors recognize that Urgenda has become an important actor that can support the island in its ambitions. It takes on the role as mediator and initiator and support actors and people wherever this is possible.

Urgenda works with a small group of pioneers on Texel who form a kind of 'think-tank' for new projects, that is the idea (programme manager Urgenda)

Urgenda works together with many actors like TexelEnergy, Sustainable Texel, entrepreneurs and the municipality. It tries to work from a personal approach and has offered attractive deals to the community. Overall, it is their goal to initiate projects, help others to make ideas become more explicit, work with pioneers on the island that form a sort of thinking platform, and facilitate and mediate wherever this is possible. Urgenda initiates ideas, but also recognizes that there are (many) people and organisations on Texel that have innovative ideas which can use some support. One of them is TexelEnergy. The director of Urgenda can be found once a week on the island and is defined as a very intelligent and inspiring person that has the ability to pull things off and support sustainable developments on Texel.

The development potential on Texel is huge and Urgenda constructed a platform for that; Marjan Minnesma (director Urgenda) has a lot of insight in these things. The speed at which she runs her business and the adaptive capacity of the local community is a problem though. She already thinks on a higher level and from the next perspective while we (the people of Texel) first have to start driving those electric cars. She thinks well ahead, also for new ways of transport (saline agriculture entrepreneur)

What is important to realise is that the arrival of Urgenda on Texel was because it is an island with huge potential for sustainable development in all kind of ways and in many sectors. The work of the former workgroup and Sustainable Texel contributed to this as well, but the island situation is

manageable and lends itself better for certain projects or experiments as the mainland does. That Urgenda came to Texel is mostly seen as a benefit by the interviewees. The organisation has the potential to bring in external knowledge and expertise while it can give a boost to sustainable developments and the energy ambition on the island. Urgenda represents a large network with connections all around the country and it is based on a resolute approach. External (financial) support can be brought in and (large) tangible projects have been initiated (e.g. electric mobility). Up to now they also contributed to awareness creation and information providing (e.g. energy savings battle in 2011 and energy meter in 2012).

Urgenda tries to support us in all kind of ways, increasingly by the way. More and more is focused on making this ambition a success; they are a real support for us (municipal official)

Urgenda tries to mediate between actors by looking for the connection. Sometimes this can go very smooth, while at other moments it is very difficult process. In order to increase the support and acceptance of the community and its actors, a personal approach is important, especially on a small island.

4.10 TexelEnergy

In 2006 the political party GroenLinks (GL), the party of the former alderman of 1998-2002, proposed a plan to create an energy cooperation on Texel, the 'Texel Energie Maatschappij' (TEM) (TexelPlaza, 2006). The idea of a Texel energy company was already considered before by Sustainable Texel in 2001 (TexelPlaza, 2001), but that idea never came off the ground. This 'new' plan was received fairly positive by the other parties, but it turned out to be difficult to make the idea more explicit. Things were not going that well in the municipal council and two men that were part of the council eventually picked up the idea of the energy cooperation. Both individuals were part of two different political parties where mutual problems existed at the time, and therefore the idea came up to initiate the cooperation independently from the municipality, at the end of 2006.

From the very beginning we said; we do NOT want a formal relationship with the municipality. We want to be an independent unit, that is private, that can decide quickly when it is needed and has no problems with administrative decision-making processes like the municipality does. But we do see ourselves as an instrument in the municipal energy ambition. We want to participate in that because it is very important for the local economy of the island (founder TexelEnergy)

They added a third person and started off a networking and lobbying operation for the focus on renewable energy technologies and the idea of an energy cooperation of Texel;

The three of us said; the next month we will each visit two persons from our network. These persons have to meet the following criteria; they must have heart for renewable energy, they must have a reasonable network on the island, and they must have the ability to share in the ideas and not only think about limited options. The latter was because we did not want a 'direction battle' about the best technology in the cooperation, we wanted to leave all options open (founder TexelEnergy)

Eventually twelve individuals of Texel were linked to shape the idea of an energy cooperation, a plan which was in the air for years, but now finally seems to be executed (TexelPlaza, 2007).

This starting group began to think and brainstorm about the cooperation. From the first session on two things were crucial: the organisation had to become a cooperation and the foundation date will be on the 7th of November 2007, six months after the first brainstorm session. It had to become a cooperation because the founders were very well aware of the fact that the sense of being independent and doing things on your own without the help of 'others' (e.g. the mainland) is a very strong sentiment among the island community. They would therefore become a cooperation where every inhabitant of Texel could buy a share. This relates to the principle that was used for the TESO ferry of Texel, the ferry business that was founded in 1907 and is not a cooperation like TexelEnergy, but owned by a limited liability company where most shares of that company circulate in the island community. The sentiment that the TESO ferry is mostly owned by the islanders is very strong on Texel.

The model of a cooperation is viable and accepted in the community of Texel (founder TexelEnergy)

The people are proud of the ferry and their ownership and it is a great historic example of how the community can cooperate to keep this ownership. The boat is considered to be the property of the community, and it will not be allowed to be taken over by others.

This sentiment of being independent, arranging things yourself and having the ability to participate in a new (island owned) initiative is what TexelEnergy used as a strategy to start the cooperation. In the five years it exists that strategy turned out to be crucial for its success and local acceptance. Every inhabitant of Texel can buy a 'share' for fifty euros, giving you a life-long single vote and membership certificate. This means that in theory 13,700 membership certificates are available, the same number as there are inhabitants on Texel (founder TexelEnergy)

For developing the idea of the cooperation and considering the use and application of renewable energy technologies on Texel, an important event took places at the end of 2007 when a delegation of people from Texel visited Samsø in Denmark, an island that had already reached a status of energy neutrality. They visited their energy academy, and were informed about how Samsø dealt with renewable energy technologies and how it managed to achieve its current state. Many individuals connected to the initiation of TexelEnergy and many entrepreneurs from Texel were present during that trip.

We mainly went to Samsø to look at their sustainable energy solutions. It was very inspiring. They had wind turbines at the horizon, heat plants for residues from agriculture, scrap burning plants and so on. All very original and a good experience to structure your mind as people from Texel. The group returned very positive to Texel, but according to me it was not something that had to be copied directly on Texel (director Wadden harbour)

The trip created awareness among the group and Samsø turned out to be an inspiring example of how renewable energy can become a part of an island economy.

At the trip to Samsø they saw that renewable energy could potentially be an economic carrier for the island. From that moment on there was enough support because also thirty entrepreneurs joined to

Samsø and a political viewpoint could be formed. That is not an achievement of politics, but an achievement of Rikus Kieft (one of the founders) and a number of people who constructed it that way (entrepreneur saline agriculture)

The fact that there existed another example of an island, although its circumstances were quite different, that has already reached the status of energy self-sufficiency, gave a strong impulse to the thought that renewable energy could become part of the future of Texel as well. Yet on Samsø this energy transition also worked out because of the work of active and leading individuals that had a clear vision concerned the future of their island and the (green) message and image they could send out in the future. The people of Samsø made good deals with investors and many of their wind turbines were placed in the sea. Their community is also a lot smaller than the community of Texel.

After its foundation in November 2007, TexelEnergy provided its first electricity and has around 1300 members in April 2008; their ('green') electricity comes from a local energy supplier from Alkmaar (Texelse Courant, 2008). TexelEnergy grows rapidly and in April 2010 it has over 2400 members and sold more than 5600 shares (Texelse Courant, 2010).
The organisation was born out of the idea to take the energy generation and distribution of Texel into their own hands, with the underlying thought that local inhabitants could participate. In the start-up phase of the organisation it is yet not the case that TexelEnergy generates much renewable energy. It depends on external (green) energy producers and has to learn about the Dutch energy business, a hard and complex learning process that would take the company about five years to complete.
The contribution of individuals involved in the start-up phase of TexelEnergy towards the creation of the municipality is important for the energy ambition. Because the cooperation was starting up and the founding fathers were looking for other enthusiastic and appropriate people to share in their ideas, their lobby and quest for support regarding renewable energy technologies among island individuals contributed to the political creation and tightening of the ambition. A kind of lobby for interested people to start the cooperation was indirectly also a lobby for the use and application of renewable energy on Texel.

This ambition was politically picked up in 2007 because of the lobbying work (for renewable technologies) that was performed by TexelEnergy and Rikus Kieft (one of the founders), no more and no less (entrepreneur saline agriculture)

This preparatory and lobby work made room for the energy cooperation to be established and the energy ambition to be tightened. Many entrepreneurs who also went to Samsø got enthusiastic about renewable energy technologies, shaped their political ideas about it, and acknowledged the opportunities there were in the case of Texel. Because of that the Ambition Manifesto is a report that emerges from the combination of a bottom-up and a top-down development; on the one hand the political interest and willingness to secure the energy ambitions in municipal policy, and on the other hand a movement from within the community (i.e. leading individuals) to pick up these ideals and start to act on it.

TexelEnergy works together on projects with other actors like Urgenda, Sustainable Texel and the municipality. It participated in research for renewable energy options like the geothermal research report in 2009 and contributed to increasing the local awareness like in the solar panel campaign of 2012 in cooperation with Urgenda. TexelEnergy is now investigating the options to produce (more) local renewable energy, because at the moment almost all of the energy they provide comes from external production companies. They have switched from production companies several times, and along the way the experience and knowledge was gained to become the full company it is today.
Also, due to their work and performance TexelEnergy won two awards in 2010 and 2011;

In 2010 TexelEnergy received the P-Nuts Award for being 'the most beautiful new utility company' of The Netherlands. This generated a lot positive publicity that caused a lot more interest from other parties in the cooperation. In 2011 we received the 'Duurzame Topper'-award from the Staatsuitgeverij and suddenly you are on a stage at the Environment/Energy fair in Den Bosch next to the CEO of Unilever, who also received the award (founder TexelEnergy)

A nice example of a large company that got interested in Texel and TexelEnergy, is Capgemini and the additional project 'Cloud Power'. Capgemini is a large international technology and consulting company (Capgemini, 2012), and the Cloud Power pilot project is an initiative of Capgemini to make energy use more efficient and sustainable.

Large international players come to Texel because they see the island as a nice scale to try out some (new) things (founder TexelEnergy)

Cloud Power makes use of a smart grid, where every grid-connected house can become a renewable energy producer and consumer in an efficient way with 'smart' electricity distribution, and strives for maximum utilization of renewably produced energy (AgentschapNL, 2011). The participators on Texel are; Alliander (grid administrator), the municipality of Texel (facilitator), Microsoft (software) and TexelEnergy (final user) (AgentschapNL, 2011). It is based on the assumption that the grid is available and owned by a regulated body that has the obligation to serve those connected, which means that participants in Cloud Power pay the regular fee for utilizing the grid under the market conditions but do not invest in new infrastructure (Vrinds, 2011). It is a 'community' of energy-users that strive individually and together for a more sustainable energy supply and a better organisation of their renewable energy generation and consumption (AgentschapNL, 2011). The (pilot) setup on Texel will need to prove that energy-efficiency and behavioural change of energy consumers can make sustainable energy supply an economic viable business (AgentschapNL, 2011).
The Cloud Power project is an example of a pilot project that fits well into the vision of Texel as a test area for innovations, new techniques, and (new) technologies. These kind of projects also work in both directions. Capgemini can test its technology on a small scale in a delineated area which can later be applied to other places. Hereby the technology contributes to the energy ambition of the municipality, while the project can also become beneficial for the island in terms of conscious use and saving energy in the future. TexelEnergy should become the executer of Cloud Power, and the inhabitants of Texel become the users of the intelligent system. When the test turns out to be successful Texel can serve as an example for other places of how this system works out in reality.

At this moment TexelEnergy also runs two requests for subsidies at the Wadden fund, together with Urgenda;

TexelEnergy and Urgenda have a subsidy request to fill up a number a hectares with solar panel fields. There is an elaborated plan for a bio-fermentation plant, also via TexelEnergy. It is an exciting moment right now if these projects get financial support (municipal official)

In relation to the municipal ambition, TexelEnergy has become a more important actor in the process. It has organised events, works together with many island (business) actors, has increased its local support, and contributes to the ambition in terms of projects, awareness creation and research. TexelEnergy positioned itself as the island's energy cooperation that will try to execute, or participate in many of the future energy generation projects. In cooperation and with the (financial) support of others where necessary.

TexelEnergy is the organisation that will have to act on the energy ambition, they are most of all the executers off course (municipal official)

The organisation has become a full-grown company in five years' time and is now challenged with the next steps in the energy ambition process; make a start and increase the generation of energy from renewable technologies. Most interviewees see it, together with Urgenda and to a lesser extent Sustainable Texel, as the organisation that will take on the lead for executing projects and making ideas and plans become reality in the (near) future.
Still, at the moment the cooperation has not yet achieved to generate renewable energy on a large scale. They are mostly a hatch that buys in external green energy and distributes it among their members on the island. The first five years were a bumpy ride for the company in figuring out how the Dutch (green) energy world works in real-life. Most of their problems had to do with the companies' liquidity shortage, and the complicated relationships with their energy providers. Sometimes this led to exciting moments for the companies' survival. It took them five years to reach the break-even point with a little external financial support. Now the company is a full grown business that has sold more than 7000 shares. It is important to realise that it takes time to build a cooperation like TexelEnergy, and that they are very dependent on local support and acceptance.

In 2013 a new initiative started. TexelEnergy, the Wind union ('Windunie') and Urgenda initiated the common cooperation 'The Union' ('De Unie') (duurzameenergieunie, 2013). The initiators of The Union will share their knowledge and provide all required services to other local energy cooperations in The Netherlands on a non-profit basis (duurzameenergieunie, 2013). With this initiative TexelEnergy, supported by Urgenda, takes a new direction in order to increase their production and provision of renewable energy. The new initiative is only started just yet, but it could lead to new insights, new developments, and increased implementation to join forces with other local energy companies. Now the cooperation has taken more into their own hands.

We now say goodbye to our latest energy provider because we want to take everything into our own hands. TexelEnergy is one, and probably the biggest, of the local energy cooperations in The Netherlands. But more of these cooperations are becoming visible and we will provide an overarching

facilitative company for them. This company will fill in the function as a provider for TexelEnergy, but also for all these new initiatives. This system, what first was done by our latest three providers, meets our needs and requirements completely (founder TexelEnergy)

Fig. 10 *TexelEnergy, located in Den Burg*

4.10.1 TexelEnergy and Urgenda

Since TexelEnergy and Urgenda appeared on stage, and got involved in the energy ambition, both organisations cooperate and work together. The connection between both organisations is strong as they both try to enforce and complement each other by combining some of their projects and overall work. Even though TexelEnergy mainly operates in the field of energy, and the scope of Urgenda is much wider, the director of Urgenda, Marjan Minnesma, directly, indirectly and personally supports TexelEnergy to make steps and achieve things regarding renewable energy generation and towards the sustainable future.

Marjan Minnesma is of great support to TexelEnergy. Filling in the energy ambition, that did not go fast enough for Urgenda (programme manager Urgenda)

Considering the ambition of energy neutrality, this 'little union' has become and continues to develop itself into a leading alliance for the future generation of renewable energy. They work together with many other actors, also separately, but for the start of the generation of renewable energy, both organisations work on the same goal. The joint requests at the Wadden fund for financial support of a bio fermentation plant and the solar panel fields testifies of this relationship.

TexelEnergy and Urgenda are allies, based on the content but also personal; it is a nice 'little union' because they are both resolute and want to realise things, and they do realise things (founder TexelEnergy)

Yet TexelEnergy and Urgenda will always remain largely dependent on the approval or cooperation of the municipal council and/or the province. They also need (external) financial support which enables them to execute (envisioned) pilot projects and experiments. A negative side-effect of this dependency is that it can slow down the execution of these projects and the progression of the

process to generate renewable energy on Texel. The cooperation and interaction with the municipality can be difficult.

TexelEnergy and Urgenda have tried together to pick up the municipality several times, but too often that has come to an end (founder TexelEnergy)

4.11 The Municipality

Local politics has a crucial role in this energy ambition because the real power to make decisions lies at the council of the municipality. In The Netherlands, every four years elections take place for the composition of the municipal councils. In recent years, these elections were held in March 1998, March 2002, March 2006, and March 2010. In the case of a municipality these elections are often linked to a number of (local) themes which are important issues in the local context and for the local community. It is important to realise that different local political climates have existed in the last fifteen years on Texel. In relation to sustainable developments and the energy ambition these political circumstances have influenced local initiatives and projects.
Roughly it can be stated that every four years there is a different political climate, as is also the case on the national level. The periods from 1998 to 2002, 2002 to 2006, 2006 to 2010, and 2010 up to now therefore emphasize (slightly) different political climates.
Between 1998 and 2002 and later between 2006 and 2010, a very active alderman in terms of sustainability and renewable energy of the left-wing political party GroenLinks (GL) was in function on Texel. The alderman was involved in (the initiation of) Sustainable Texel and worked actively to increase the local awareness about sustainable development and sustainable energy;

The alderman of GroenLinks has been a driving force for many things concerning sustainable energy on Texel (founder TexelEnergy)

In between 1998 and 2002 more was focused on sustainable thinking on Texel. During that time the workgroup was replaced by Sustainable Texel, and the first energy ambition for an energy neutral Texel in 2030 surfaced as municipal policy. This ambition was closely connected to the work of Sustainable Texel and the feasibility reports they had commissioned. Yet in 2002 the municipal elections were heavily influenced by discussions around wind energy, because local resistance against the construction of wind turbines emerged and some local politicians and political parties interfered in the discussion. The topic became a hot item for the elections and because of the results the political climate changed, and the alderman had to leave his position.
The political circumstances between 2002 and 2006 turned out to be different than the four years before. While the municipality did stimulate sustainable living and working on the island, supported initiatives and events of Sustainable Texel (e.g. the second construction fair), and informed the community about renewable energy applications, its overall interest in sustainable ambitions was considered to be much less than before;

The municipal executive board between 2002 and 2006 did not do very much about the sustainable challenge. The most important achievement was the opening of a sustainable, energy efficient municipal yard in December 2003, which was already initiated by the former alderman of GroenLinks (founder TexelEnergy)

During that time it was the aim to become energy neutral by 2030, but for four years not much was done concerning this challenge.
Then, an agricultural company did a request to the municipality for a construction permit for a bio-fermentation plant in 2005. This proposal marked the beginning of a long and difficult (political) process in which many political and communal resistance surfaced. Despite that the executive board of the municipality reacted positive to the plan and the construction was permitted by the province, local residents and nature organisations resisted heavily (TexelPlaza, 2005). They resisted against the possible increase of traffic and stench that would come due to the extra manure from the mainland that was needed to run the plant. National policy was involved in the proposal and eventually the national administrative court decided that the plant had nothing to do with agricultural matters, and therefore could not be constructed (TexelPlaza, 2007).

For bio-fermentation Texel ran into manure policy and the waste law (former alderman municipality)

In March 2006 new municipal elections took place and the former alderman of GroenLinks returned as alderman. Again a new political climate emerged. Now the executive board of the municipality immediately secured the sustainable (and renewable) ambitions into policy documents.

When the former alderman returned in 2006, he initiated again all kind of sustainable matters (founder TexelEnergy)

Not much was described and fixed politically during that time, that is why the sustainability idea after my first tenure as alderman led a dormant existence. When I returned as alderman after four years in 2006, we had our ambitions be determined by the council in policy documents (former alderman municipality)

During that time the Ambition Manifesto was created and fixed as a political ambition. In May 2008 the report 'energy for Texel' appeared and Sustainable Texel and the municipality organised the first energy fair on Texel; its motto was; 'in 2020 all energy we consume is produced on Texel' (TexelPlaza, 2008). The goal of the fair was to inform interested people about the possibilities for energy saving and sustainability (TexelPlaza, 2008).
The municipal execution report provided information about how the energy ambition could be interpreted in the upcoming years. It was a rough outline for the future that included projects that could be done and actors that could be involved, yet it also explained specifically how the ambition was perceived by the municipality and how the municipality perceived its own role and the role of others. In relation to the Ambition Manifesto the following applied:

The motives to formulate the energy ambition in this way can be found in profiling the Wadden islands towards the tourists (as a positive, green image), and to have and keep local employment in the tourism industry as well as in sustainable energy and energy saving (Leguijt et al., 2008).

It was also stated that the preference would go to energy production within the borders of the municipality and that trying to achieve 2020 is important, but that it would not be a real problem when more time is needed when 2020 seems unachievable. The Trias Energetica;

1. reduce energy demand (save energy), 2. efficient energy conversion (use renewable energy technologies), 3. sustainable interpretation (use fossil energy as clean as possible) was included as well (Leguijt *et al*., 2008) and formed one of the bases from which the ambition was formulated. The report showed how the municipality interpreted the ambition and that the deadline for 2020 is an aim, and not a harsh deadline.
The municipality also contributed to the research for other options in renewable energy, such as (deep) geothermal energy. In November 2009 the results of another Ecofys report appeared which was commissioned by the province, the municipality, TexelEnergy and an external company (Hagedoorn *et al*., 2009). The report presented that a geothermal heat plant could be an option for Texel in the future, but more research and technology development was necessary. (Deep) geothermal energy is still young in The Netherlands, but one of the reports' conclusions is that a geothermal power plant can possible provide around half of the energy demand of Texel (Hagedoorn *et al*., 2009). Yet, the project is very innovative, a geothermal power plant has never been built in The Netherlands, and (much) financial support is necessary because the costs are high (Hagedoorn *et al*., 2009).

In July 2009 the municipality presented a revised structure report; 'Texel on track'. The report was an update of the report of 2002 and focused on three main aspects; economy, space and environment, and a vital society (Texel op koers, 2009). In the report a small section is devoted to the ambition of energy independence; 'Texel is clean, quiet and energy independent' (Texel op koers, 2009). On Texel the energy will be generated sustainably and the island will serve as an example of a sustainable island (Texel op koers, 2009). Texel therefore wants to be the example of a sustainable island, and the municipality strives for energy saving, sustainable energy generation, waste prevention, and environmental friendly building (TexelPlaza, 2009). It is acknowledged that some communal concern exists about the preservation of the unique landscape, thus landscape integration of (renewable) technology installations is therefore important (Texel op koers, 2009).

In 2009 the discussions about wind energy continued and the plan for a bio-fermentation plant surfaced again (TexelPlaza, 2009). Both technologies were proposed for revision by the executive board of the municipality but no real progression was made. The council was against wind turbines, as was stated in the structure report of 2009, but the 'search areas' were maintained (TexelPlaza, 2009). Search areas are locations on Texel which might be suitable to construct wind turbines. In October 2009 the council agreed with the proposal to place a type of small wind turbines (max 17,5 meter) on Texel, the 'energyball' (TexelPlaza, 2009). Instead of two or three vertical blades like normal wind turbines, the energy ball has connected, horizontal blades that together look like a ball.
In July 2010 the municipality started a project to place 25 small wind turbines on Texel (TexelPlaza, 2010). This project turned out to be not very successful as up to this day almost none of the 25 small turbines are constructed. Also, some of them broke down after their construction.

In January 2010 the execution report 'Energy for Texel' appeared. This report was connected to the 'Energy vision' report of 2008 and the revised structural report of 2009. The execution plan from 2010-2020 was elaborated in the report. And for that, three kind of projects were needed to realise the energy ambition (Elswijk 2010):

1. A number of ‘big’ projects with proven technologies have to be conducted in order to generate a lot of megawatts
2. The energy transition must become visible to everyone (also tourists). This means that (smaller) projects that have great communicative value could be executed although they generate less energy
3. More research has to be done for new and innovative forms of renewable energy technologies

Because the research for geothermal energy and tidal energy showed that these technologies are not yet well developed, much is focused on the most proven technologies; wind, sun and biomass. The research for other possibilities will continue, but at this moment the profitability of both deep geothermal energy and tidal energy is not that well. Small scale geothermal energy and the use of heat pumps has some potential for the heat demand of private houses, but also here rises a difficult discussion;

The province wrote down somewhere that drilling holes in the ground for that purpose is not allowed in geological monuments, and it turns out that our entire island is declared a geological monument. Only some exceptions are made, but it is a tough discussion (municipal official)

In March 2010 new elections took place that caused a substantial political shift (TexelPlaza 2010). The coalition from 2006 to 2010 of CDA, GroenLinks and Texels Belang, which contributed to the political fixation of the Ambition Manifesto, loses its majority in the council (TexelPlaza, 2010). PvdA is the winner of the elections and the new coalition is formed by the VVD, Texel 2010, PvdA and D66 (TexelPlaza, 2010).
This new executive board embraced the energy ambition of the former board and wanted to continue the work that has been done before. They very quickly presented a plan to construct five wind turbines of 80 meters near the NIOZ-institute in April 2010 (TexelPlaza, 2010). The wind turbines would contribute significantly to the energy ambition since wind energy is seen as the only option that offers great potential. Again the (political) resistance was high and in October of the same year the plan is off the table (TexelPlaza, 2010).

However, because of the envisioned energy transition and ‘Energy for Texel’ report of 2010 the province of Noord-Holland decided in February 2011 to support Texel in their ambitions. The province provided five million euros to the island. This was a big financial contribution, and the municipality used half of this money to establish an energy window (‘Het energieloket’). Here private home-, and holiday home owners could apply for subsidies to take isolation measures and for the generation of energy in and around the house (Texelse Courant, 2011). The window opened on July 4th 2011 (Texelse Courant, 2011), and is a success until today.

Fig. 11 *The municipality of Texel*

The energy window turns out to be a great success. In reality the money we spend is multiplied by four because of the private investments. Roughly said this means that everyone gets around 25% subsidies. In the meantime we have reached 1000 of the 6000 private houses and 3500 holiday homes. That is a large amount. The initiative lives among the community (municipal official)

The energy window is a successful project. The public reacts to the possibilities it offers and because of that the awareness about saving energy, and saving money increases. The municipality decided to grant the other 2,5 million to TexelEnergy in order to conduct large projects (for the generation of renewable energy).

Fig. 12 *Solar panels on the roof of private houses, a more common image on Texel*

Just recently the municipal council approved a public lighting plan to make all public lighting on Texel more efficient with LED's. The public lights should also become self-supporting, and for that the municipality wants to make use of a solar panel field to generate the electricity. The municipality now requests co-financing of the Wadden fund and the province for half of the total investments of 3 million euros.

This lighting plan is something for the municipality off course. Probably it will only generate 0,75% energy reduction on the entire island consumption, but it is a step in the right direction. It is

something that professionally works out well and the municipality gives the right example. Additionally it is a good outward message of the municipality (alderman municipality)

This plan is mainly a communication tool and an effort to create awareness among the local people and visitors by giving the right example. The support from the Wadden fund and the province are important to make the included investments conclusive. They allow the municipality of Texel to do these kind of projects which would otherwise be too expensive.

4.11.1 The municipality of Texel and higher government bodies

The municipality is the lowest governmental level in The Netherlands that has the most interaction with civilians. What is important to realise is that it always will have to deal with policies that are made by higher government bodies such as the province and the national government. A (small) municipality can have objections to some of these decisions or policies, but it will never have the option to neglect or avoid it. In the case of Texel there are a number of policies from the province that are related to the application of renewable energy technologies. For example policies related to wind energy and geothermal energy. Since July 2012 the province stopped the provision of permits for wind turbines (Noord-Holland, 2012) and by the end of 2012 a total ban of large wind turbines must be enforced (NOS, 2012). Although wind energy is a complex issue on Texel, this decision and the declaration of Texel as a geological monument restricts the municipality (and therefore the energy ambition) in it possibilities. It limits the freedom of movement for the actors of the island and testifies that sometimes there is little to decide on the local scale.
Because of the need for (financial) support, or well-aligned rules and regulation for the energy ambition, the province will always be a crucial partner for the municipality of Texel. Subsidies have become available for local interpretation and projects, but also in the future this is needed to maintain the high ambitious level on Texel. Hitherto the province has contributed to the energy ambition considerably, just like the Wadden fund, but some of the interviewees argue that the province is not always that consistent:

We are arguing with the province at the moment. They have a wind policy that states; 'no extra wind turbines are allowed'. We have resisted heavily against this proposition, because, what do they want?, you know (municipal official)

We wanted to work with geological heat on Texel, but the province declared Texel to be a 'geological monument'. The province provided 5 million euro, we subsidize the heat pumps but we are not allowed to drill into the ground because of another rule they have. Be consistent I would say (former alderman municipality)

The power of the province is decisive as is stated by Moller *et al*. (2012); there is little to decide for local politics when it comes to the (inter)national market of electricity.

We have to take regulation from higher governments into account; when there are no stimulant policies from The Hague, we as a small municipality cannot really do anything about it. A municipality must try to offer as many possibilities as possible in the case of regulation, and we try to do that the best we can because it is a clear duty and role of the municipality. A municipality does not have to

come up with new initiatives and creative ideas because that is not what a municipality is for (alderman municipality)

Fig. 13 *Small wind turbine at 't Horntje*

But also the province is bound to the political direction of the national government and the amount of money that becomes available from The Hague. What is important to state here is that the smallest body in the governmental hierarchy, the municipality, has the least input and decisive power in regard to the province and the national government. This does not mean that all projects and developments cannot proceed, but it can impede the progression of particular projects or developments that are in conflict with the decisions or policies that apply in a higher governmental body. This leads to a situation where indeed there is little to decide for local politics, but that does not mean that exceptions or new, aligned regulation could be implemented.

It is a task of the municipality to continue to persuade the province to be consequent regarding the support they give to the ambition of Texel and the policies they have that make things impossible; the board of local politics has to do this because they make decisions, they set ambitions and they determine policy (former alderman municipality)

4.12 The renewable energy options

At the moment the energy ambition is mostly designated to solar energy, biomass and wind energy, also known as the most proven technologies. As wind energy is a problem, solar energy and biomass remain. Solar energy can be applied on a small (households) and a large (solar panel fields) scale, while energy from biomass includes several possibilities. But also biomass (bio-fermentation) has suffered from local resistance.
Unfortunately the possibilities for geothermal energy are also minimal, because there will be too much residual entropy for a small island and the current techniques of this technology are insufficient for Texel at the moment.

For deep geothermal energy you need the heat from the deep hot water. The electricity generation could be made profitable, but next to the electricity generation from this hot water you must be able to get rid of your residual heat, and that is not possible on Texel because we have no big industry or

large residential district or what so ever. With the current state of the art it will not work out (founder TexelEnergy)

Tidal energy is also not sufficient for the moment, because the developments of this technology are still in an early phase and therefore the costs will be too high concerning its (energy) outputs. The research to this technology continues on Texel, but it will not make a real contribution to the energy ambition anytime soon.

Tidal energy is also a difficult subject. It is very likely that a kind of test installation will be constructed in the Marsdiep soon. But in the cycle of the tide (low tide and high tide) you have a very small period in which the current reactors can be put into motion by the flowing sea water. This technology is in its start-up phase, it will not be profitable for the next ten years or so (founder TexelEnergy)

There might be possibilities in the future for Texel to invest in a wind park at sea from which they receive green energy, but it is not something that is really consistent concerning the ambition. Yet more local people are in favour of wind turbines at sea then for wind turbines on the soil of Texel. The difficulties for wind energy applications forces the involved actors to be focused on other things at the moment. The options are limited, but continued research and technology developments could make a difference in the future.

With only seven years to go, one must acknowledge that the energy ambition will not succeed if developments continue at their current speed. If the people of Texel want this aim to be reached, big steps have to be taken in the years to come and the ambition has to be approached and tackled from a whole different level; the short-term successes and promising developments should serve the envisioned end goal, a more sustainable island that provides in its own renewable energy.

5. The analysis of the energy ambition of Texel

This chapter analyses the developments concerning the energy ambition on Texel. Here, linkages are made with theory to interpret the current state of affairs and the island context concerning the energy ambition. This includes the roles of the involved actors, and how the envisioned energy transition has developed until today.

5.1 The energy transition of Texel in the pre-development phase

In the predevelopment phase of a transition, there is very little visible change on the societal level but there is a lot of experimentation (Loorbach, 2007). In terms of the developments in the last several years in relation to renewable energy on Texel, it seems very likely to assume that the energy ambition still abides in the pre-development phase of an (energy) transition. Many niche developments can be distinguished on the island, but so far this has not caused a massive expansion in the number of renewable energy projects that it threatens the incumbent energy regime. This has a number of reasons.

First of all these niche developments have mostly been initiated not very long ago and therefore the output of these developments is still small or not yet very visible. The municipal energy window and the early solar panel campaigns have been very successful, but the requests for the solar panel fields and a bio fermentation plant, the Cloud Power project, and the public lighting plan are still in their

initial phases. The (pilot) projects which can contribute to (visible) progression and results, have all been initiated not very long ago. Therefore it takes time for these projects to develop and they can make a contribution. The contribution of especially the latest niche developments will become noticeable in a couple of years from now when there are some actual results in renewable energy generation, or in large-scale energy savings. Niche developments like these and experiments regarding tidal energy and research for deep geothermal energy have emerged, but they are not yet consistent and large enough to cause destabilisation of the incumbent energy regime. Next to that the former proposals on a bio fermentation plant (2005) and the (re)placement of wind turbines on land (2001 and 2010) have never weathered the resistance and criticism that came from the local community and local politics. If these plans were executed, the generation of renewable energy would have been much greater and more visible than it is today.

Fig. 14 *The Wadden sea*

A pre-development phase of dynamic equilibrium is where the status quo does not visibly change but changes take place under the surface (Brugge *et al*., 2005). On Texel there are not many visible changes, even though the number of private solar panels has expanded enormously, when it comes to the energy transition. The (energy) status quo is maintained, while under the surface indeed some changes take place. TexelEnergy and Urgenda are working on projects that are possibly more acceptable than wind turbines, and in the last years more local awareness and acceptance has emerged. Lately the municipality also created the space to accept the proposals of Urgenda and TexelEnergy.

However, the impediment of former (wind and biomass) proposals have negatively influenced the progression of the energy ambition. Because such important projects ground in ambition, the interpretation and execution of the transition process does not seem to get passed a certain 'threshold' that can cause an acceleration of the developments. A tipping point can only be realised when (pilot)projects, experiments and research can proceed and when real contributing projects are executed. So far these developments have been too small in size and extent that there still is no noticeable competition between the upcoming niches and the current energy situation.

Brugge et al. (2005) state also that an important characteristic in the transfer from the predevelopment-phase to the take-off phase is that different ideas or perspectives from different fields cross-fertilize and converge into one, more or less consistent paradigm. On Texel the main private and public actors are still searching for the right way and the right direction to develop this ambition further, because many interviewees have stated that there has never been a clear vision about how this transition should be executed in the first place. On Texel one encounters a fragmented landscape of ideas and perspectives that are not very consistent, negativity and positivity exist throughout the entire island society. Sectors like the tourism industry have few connections to the ambition and the local community and local politics are divided in their opinions because not everyone agrees whether this ambition is a good thing. This disunity in the society of Texel has ceased the process and made the execution of some projects a difficult task. The opportunities for wind energy on land are cut off, which are at the same time the best solutions at the moment. There are a variety of renewable energy options and possibilities concerning the natural resources on Texel, but it is the island's society and its actors like the local community and local politics that decide how fast this process can develop and in what way it can develop. As it is now the envisioned energy transition of Texel needs to make use of wind energy in order to accomplish an energy neutral island, but large wind turbines on land are precisely what causes the most resistance. From that perspective, large, off shore wind turbines are probably the best solution to generate enough local acceptance concerning wind energy. Yet this option is contrary to the purpose of the energy ambition, and may be a lot more difficult and expensive to realise.

In the predevelopment phase of a transition, the regime often acts as an inhibiting factor. Typically, it will seek to maintain social norms and belief systems and to improve existing technologies (Brugge et al. 2005). Up to today many individuals from all kind of sectors are a little afraid of the change that comes with the envisioned energy transition. Not all belief in the possible benefits of this ambition, many believe that the way energy is provided does not have to change completely, and the enormous investments which are involved cause negativity and fears. The social norms and belief system around the current (fossil) energy situation is expressed through many local people which stagnates the envisioned energy transition. As many local people are aware of the extraordinary good possibilities on Texel concerning renewable energy, the ambition does not seem to cause the great enthusiasm to make Texel and independent, energy neutral island. However, it is a promising development that more locals are willing to invest and participate at the household scale.
The interaction between the controversial interests very often has caused inhibition and stagnation in the past. Therefore one encounters an energy transition process on Texel that is not experienced as such because it has continuously stalled on these reflexive issues. The process seems to circle around in everlasting discussions which on the one side is surprising because the natural conditions are very attractive, but on the other hand testifies that many things and project proposals of the energy ambition are unwanted and/or offer too little transparency in the possible benefits for the island and its inhabitants.
Nonetheless all kinds of small-scale (e.g. households) developments seem to work well in the last several years. It is not enough to accomplish the ambition, but it is a very good way to involve the local people and to make them aware about the possibilities of renewable energy. Maybe this will cause more solidarity and acceptance towards the (execution of projects for the) energy ambition in the future.

5.2 The socio-technical system and the energy ambition

Transition theory proposes a multi-level framework to analyse transition processes. We will look at the landscape level, the regime level and the niche level to analyse the energy ambition of Texel.

The Landscape

The 'external environment' or the landscape level of the energy ambition of Texel leads us to the regional and national level, the overarching societal setting in which this energy ambition is positioned. The societal landscape is determined by aspects like macroeconomics, politics, technologies, culture and worldviews (Brugge *et al*. 2005). When applying this to the Dutch situation one must realise that the Dutch state and the large energy companies make good profits from the exploitation of fossil energy. The Netherlands has a history in exploiting fossil energy and the Dutch economy is well adapted to this situation. Rotmans (2012) states that the current, rather rigid legislation and regulation is adapted to fossil energy and contemporary policy is characterized by liberalization and privatization, focused on both the market and subsidies. The Netherlands is rooted in the use of fossil fuels; since halfway of the former century the Dutch exploit their natural gas reservoirs. Much money is earned with this business every year and because of that the influence of dominant energy companies in all existing energy networks and organisations is very big (Rotmans, 2012). For these companies there are a lot of interests to maintain the status quo regarding the use of fossil energy as long as it is profitable to them, and the Dutch state depends on the exploitation of the gas reservoirs.

However, slowly the worldviews are changing and more awareness about the energy transition towards the use of renewable resources is emerging. This is also noticeable in the Dutch government. Because the European parliament now has policy that states that its member states need to increase their use of renewable energy technologies in the future, the Dutch government has the goal to strive for 16% coverage of sustainable energy in 2020 and a completely sustainable energy provision in 2050 (Rijksoverheid, 2013). The current energy production from renewable energy technologies of the total Dutch energy demand was 4.2% in 2011, of which the bulk of the renewable energy was generated from biomass plants (CBS, 2012). This 4.2% is a very low percentage compared to other European nations. In Germany they have reached a 20.8% coverage of renewable energy on the total energy production in the beginning of 2011 (Trouw, 2011).

Technologically the (Dutch) compass points at centralized energy generation via large power stations that contradicts the recent trends of decentralised generation of sustainable energy (Rotmans, 2012). The current societal landscape in The Netherlands maintains the incumbent (fossil) energy regime and therefore many local areas and regions in the country take developments into their own hands because they do not want to wait for policies from The Hague anymore (Rotmans, 2012). The national government is not the driving force behind the renewable energy transition at the moment, because of this complex societal landscape the most promising developments emerge on the local and regional level. The energy transition on a national scale seems to develop more from below (a bottom-up approach) than from above (a top-down approach). Texel and the other Wadden islands are one of these regions as the ambitions of the Wadden islands are much higher than the national standard. Much more is asked from the small amount of islanders than in most other parts of the country, making the area a pioneer in what it tries to achieve.

Yet it is also difficult for Texel to deal with this overarching landscape. Because the national energy transition did not yet get into gear, the local Wadden area largely relies on itself and the input of

interested (external) private companies. One cannot speak of a large input from policies from The Hague, and the policies of the province provide restrictions on the island. But at least for Texel the financial support of the Wadden fund and the province has been considerable as well.

The Energy Regime

'Regimes' constitute the 'dominant practices, rules and technologies' that frame particular societal domains (Meadowcroft, 2005). Within Texel the incumbent energy regime still holds a very dominant position. The practices, rules and regulation are aligned with this regime for many years. The interests of the incumbent energy regime are high and also on Texel this can be noticed. The envisioned energy transition towards locally produced and consumed renewable energy on Texel contradicts the current energy framework of the island and therefore has caused negative emotions and resistance. The established order of ideas and practices about (centralised fossil) energy prodcution is firmly secured on Texel as well because there exists a distinction among the local people in accepting the new ideas and practices that come with the envisioned renewable energy regime. Many from the local community and local politics of Texel perceive some renewable technologies as ugly, inappropriate for this local scale, not fitting well in the island landscape, and not profitable regarding the investments that come with it. These images ignore that these technologies are much cleaner than fossil energy and have the ability to offer opportunities for (economy of) Texel as well.

The local situation is dominated by the rules, regulation and practices of the incumbent energy regime, and large centralised (fossil) energy generation is part of that culture. Texel depends on imported energy, and the goal of this envisioned energy transition is off course not to degrade the core values of the island, but to enforce them and to make the island more independent, more sustainable, more economically viable, more competitive, and more unique.

The users, suppliers and producers of the fossil energy regime are the established order against which these local and regional developments have to compete. Hitherto the alternative renewable technologies are not yet able to cope with the incumbent energy regime on Texel, but it is very promising that the local people have become more and more interested in and aware about the attractive offers from the municipality, TexelEnergy and Urgenda. The increased support for TexelEnergy contributes to the feeling of solidarity and has reinforced the cooperation's (social) position. The local mind-set has definitely been influenced. Even though it is up to now that the incumbent energy regime remains the status quo on Texel, the fact that this ambition exists within the borders of an island makes the situation different. Texel depends on the mainland for its energy, but the delineated unity of this island also provides an environment in which the incumbent energy regime is not visible through large power plants on the island itself; it is literally and figuratively at a distance. In the delineated unity of an island it could be easier to arrange things differently concerning the dominant rules and practices of the incumbent energy regime, because other circumstances and another context exists compared to the mainland. The island situation is significantly different, and the opportunities regarding the natural resources are significantly larger than in the case of an average village in another part of the country.

Yet a main point of issue regarding many renewable energy technologies is that they are still more expensive than the generation of fossil energy. Despite the fact that developments go fast and the costs have decreased, the 'latest' technologies such as tidal, blue, and deep geothermal energy are

still very costly. The costs for solar panels for example are decreasing fast and can be reduced when a large-scale purchase is done like in the case of the project of Urgenda in 2010.

Shove and Walker (2007) state that it is the core task in a transition to figure out how currently dominant socio-technical regimes might be dislodged and replaced, and how new configurations might become mainstream. This is exactly what the energy challenge of Texel includes.
An important factor for that is local acceptance and a clear vision about the future of the ambition. Destabilisation of the regime creates windows of opportunity for niche innovations (Geels and Schot, 2007). Therefore short-term successes are needed to enforce the long-term vision and effectuate a destabilisation that can be expanded. Then also the niche innovations such as the research for renewable technologies, energy savings and projects such as Cloud Power can be expanded. The incumbent energy regime is not threatened and still many local people do not see why a new renewable energy regime would be any better for the island. Projects and developments sometimes got stuck in philistine issues such as disagreements in the municipal council, and the path that could lead to consensus and acceptable solutions has not yet been found. Transitions processes consume a lot of time, are extremely difficult to steer or influence, and are associated with turbulence and resistance from the existing energy regime.
The envisioned energy ambition of Texel includes drastic changes in the energy domain, and not every islander is happy about that. The incumbent energy regime on Texel is not very visible because nothing gets generated on the island, but the envisioned new regime does include visible installations and/or plants. The renewable energy niches that include all renewable technologies are becoming more visible and tangible against the old, and still dominant, rules and practices of producing and consuming (fossil) energy. These niches are the new order of a decentralised, small scale generation of energy close to the people whom produce and consume that energy.

The Niches

At this moment fairly small but promising developments take place on Texel, the majority in terms of saving energy. Niche developments are part of the energy ambition, as they are the configurations on which this energy ambition mostly depends. Niches are places where novelties emerge. These novelties can be new technologies, new rules and legislation, new organisations or even new projects, concepts or ideas (Loorbach, 2007). The first and most important novelty on Texel is the foundation of TexelEnergy, a new energy cooperation that has gained a lot of local support during the last years. From the first ideas of three men in 2006 it grew to an organisation that has thousands of members on the island today. The second novelty and something of great positive influence is the arrival of Urgenda in 2007. Their resolute approach has caused movement on the niche-level concerning renewable energy and provided opportunities for the local people and entrepreneurs due to their sustainable projects.
Good projects that have come up in the niches for renewable energy and energy savings are Cloud Power of Capgemini and TexelEnergy, the municipal energy window, the electric mobility project of Urgenda, the proposals for a bio fermentation plant and solar panel fields, the (failed) project of the municipality to construct 25 small wind turbines, and the on-going and performed research on relatively new technologies like (deep) geothermal energy and tidal energy. This tells us that the renewable energy niches are developing and that renewable energy projects slowly become more tangible on the island.

A strong feature of the energy ambition is that the island includes good possibilities to external (business) actors to test innovative ideas and to perform (pilot) projects that later could be applied on a larger scale anywhere else in the world. The possibilities are there to spread the focus on multiple techniques and technologies, because it is clear that a specific focus on one single technology, especially when considering wind energy, will not receive the full support of the local community. At this moment the niches in regard to renewable energy technologies are shaping, yet there is still no optimal utilization of the possibilities the island has to offer. This has a number of reasons. First of all it is clear now that local politics, the tourism sector and the local community have resisted heavily against possible landscape degrading technologies. Anything that is perceived as a threat for the natural core values, receives resistance. Second, it takes time and a lot of money to set up research and (pilot)projects, which is something that most of all should be taken up by the local and external (business) companies whom are able to do that. Capgemini runs a pilot project on Texel now, but a lot more similar projects could be done in the future. Other niches of renewable energy are blue energy, tidal energy and deep geothermal energy, which are insufficient, very expensive, and not profitable at the moment, but may become much more attractive in the future if more (pilot) projects/experiments and research takes place in the future. (external) Actors need to be willing to invest, accept higher costs, and encourage learning processes. Cloud Power could be seen as the example that shows how a coalition between several local and external organisations is possible and can create mutual benefit.

For now, (large) wind turbines offer the most potential, but the island situation forces the envisioned transition to be focused on other options and technologies. At the moment the focus is most of all on solar energy and biomass. The number of solar panels have increased enormously on Texel, which enhances the visibility of the energy ambition. The increased number of panels does not cause many decreases in the total energy demand of the island, but it certainly helps to create more support and make the local people enthusiastic about saving energy, and therefore saving money in the private spheres. This increase is a strong communicative feature that is of vital importance to the energy ambition. Solar energy is the driving renewable energy niche of Texel at this moment.
Nonetheless, in general the extent of these developments are insufficient at the moment to effectuate real changes towards a new, renewable energy regime. These technological niches provide opportunities to effectuate change in the future, and therefore it is important that (technological) developments, learning processes and research continue at the niche level. A transition can succeed if the right coalitions will be created of niche-players from inside and outside the regime, together with regime-players that are in favour of change; the latter is the essence of transition control (Loorbach, 2007). One of the major links for change exists between TexelEnergy and Urgenda on Texel, but the link with the municipality and (external) regime-actors like Alliander is important. Alliander is a good example of a regime-player in favour of change towards more privately produced and consumed renewable energy because they have an interest in a Dutch electrical grid network that is able to distribute electricity much easier between large numbers of small scale producers and consumers. This explains there involvement in the Cloud Power project, which is a good coalition between the right actors from inside and outside the regime. TexelEnergy operates in the niches of the incumbent energy regime while Alliander is part of that incumbent regime and is positive towards changes in the dominant rules and practices. Niche-innovations build up internal momentum, through learning processes, price/performance improvements, and support from

powerful groups (Geels and Schot, 2007). This is what happens with Cloud Power. Although Cloud Power is in development and has not proven much yet, it is the right approach to increase the power of very novel and very innovative niche practices. When powerful actors like Capgemini, the municipality and Alliander sit around the table, this creates positive influences in the internal momentum of the envisioned energy transition.

5.3 The Transition Arena

Transition management draws together a selective number of forerunners (creative minds, strategists and visionaries) in a transition arena in the pre-development phase of transitions for the development of a sustainability vision and thoroughly analysing the persistent problem(s) (Loorbach, 2007). During the 10 to 12 years the ambition towards the use of renewable energy now exists, a transition arena with forerunning actors and individuals was and still is present on Texel. Yet the development of a sustainable energy vision has always been a critical issue. This has a number of reasons.

As the constitution of the arena has changed and the roles of former actors and individuals have disappeared or have been taken over by others, the energy arena of Texel has been influenced time and again by the changing circumstances. Loorbach (2007) states that the transition arena includes policy making for the *long term*, with *frontrunners*, that seek for *system innovation* through *problem and goal searching*.

The most important factor is that until today the actors of the energy arena have not yet created a joint and shared energy vision that provides more clarity about how they are going to deal with the problems and difficulties that have emerged in the last years, and how they envision the transition process together in the *long term*. A mutual long term vision does not really exist on Texel, rather than the separate reports. Most of the interviewees state that leadership and a common master plan are needed for the future directions of this envisioned transition, and both are considered to be rather absent on Texel:

We have sometimes said to each other in the meetings; 'if you really want to achieve a transition here, you will need a kind of 'local dictator' with a vision in which we all believe and whom we are all willing to follow', then you can take big steps in the process and realise progression (entrepreneur saline agriculture)

Especially the role of the local government has been criticized by the interviewees, because many argued that the municipality in general lacks a clear structured vision about the future (direction) concerning this ambition. Because of its ambiguous role the municipality is sometimes presented as an unreliable actor where especially Urgenda and TexelEnergy sometimes encounter difficulties and/or slow decision-making processes. Some interviewees argue that the municipality 'has no clear vision in this ambition' and 'when things are left to politics, nothing happens'. There appeared two municipal reports about the energy vision in 2008 and 2010, but still most interviewees argue about the absence of a clear vision of the municipality in these kind of affairs. Urgenda has attempted with the 'Texel gives energy' report to include a vision on the long term as well.

The current *frontrunners* in the arena are Urgenda and TexelEnergy, and to a much lesser extent the municipality. In earlier times Sustainable Texel and the former alderman were frontrunners concerning a vision about the application of renewable energy, but now this role has to be appointed to the private sector. Because of their position the interaction and cooperation between Urgenda

and TexelEnergy increased, and the initiative for progression and development regarding this ambition shifted towards both actors. The reason why the municipality also needs to be seen as a frontrunner, despite to a smaller extent, is because it has been able to pull off a number of projects together with other actors, and it actively tried to involve to local community in the process. As the municipality can never have the role that TexelEnergy and Urgenda have, projects and initiatives have been started in order to try to make a contribution to the ambition. The reasons why policy sometimes seems to be focussed on incremental improvements instead of real *system innovation*, are fairly straightforward:

- The constitution of the municipal political coalition addresses differences in focus on the renewable energy challenge, as can be seen in the differences in the coalitional outputs regarding the energy challenge between 2002-2006, and 2006-2010
- Disunity and disagreement on the ambition have always existed in the political arena and in the local community, and politics is heavily influenced by their voters
- The municipality is bound to province policies
- The municipality nor has the financial or physical resources to initiate (large) pilot projects or experiments regarding the ambition, this has to be done by other (external), private actors, possibly supported or facilitated by the municipality

The developments of the energy ambition of Texel have constantly been led by the power of the resistances that have come from the local community and local politics. The actors and individuals inside the arena always had to deal with 'social barriers' of the island society regarding the interpretation of the energy ambition. Actors and individuals that strived for the increased implementation of renewable energy have always been present on the island, but so far no more than incremental improvements have been achieved. The real definition of the energy '*problem'* is absent and the real envisioned end *goal* can be defined better. Therein TexelEnergy and Urgenda have found each other's support, but the interaction with the third public actor, the municipality, remains something that can be improved.

Figure 15 shows the energy transition arena of Texel.

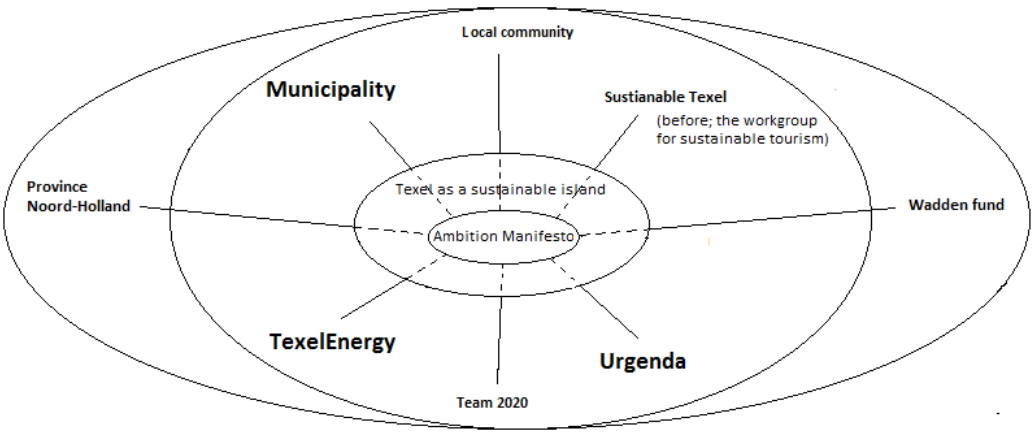


Fig. 15 *The main actors of Texel involved in 'the energy ambition arena'*

Rotmans (2012) states that major social changes often originate from small groups of people. A few leading individuals with visionary gifts and a smart strategy who receive enough space for innovation to realise this in reality can be enough for a successful transition to occur (Rotmans, 2012). On Texel leading individuals have initiated the rise of sustainable thinking in which the renewable energy challenge emerged. If the initiators of the workgroup for sustainable tourism and Sustainable Texel, the former alderman of GroenLinks, the founders of TexelEnergy, and the director of Urgenda were not actively involved for the cause of sustainability and renewable energy, the circumstances we can encounter on Texel today would have been very different. The 'Texel Arena' by Urgenda and Sustainable Texel gave an positive impulse to the process as the message of the report was heard in the community and local politics. Now a situation has emerged in which the most leading actors of that arena, TexelEnergy, but most of all Urgenda, want to act much faster than the municipality ever can, and much faster than what seems to be acceptable and to keep up with by the local people and local politics. The renewable energy technologies as a thread to tourism and the (natural) core values of Texel are constantly put forward in the discussions.
Still many people of Texel, including the municipal interviewees, now look into the direction of TexelEnergy as being the organisation that will have to be involved with and execute a large part of the future projects of the energy ambition. Now is the time for the local government to be actively involved in the process and to really step into its role as a facilitator. The municipality of Texel also does facilitate developments and projects (e.g. Cloud Power), but its role as public actor in the (energy) network is absolutely crucial to build bridges between the private, civil and public domain.
Therefore the transition arena seems present, but it needs to be structured and aligned in respect to its (main) involved actors. A common long term strategy can help to find this structure.

A promising development was the recent start and presentation of Team 2020, an initiative of Urgenda and TexelEnergy, in January 2013. This initiative is created to support the energy ambition and sustainability challenge on Texel, while it also will investigate how and if the municipality can outsource (parts) of this ambition to other actors that can act and decide much quicker than a municipality ever could. Despite it is a very recent developments, it shows that specific actors and individuals want to really start acting on the energy ambition.

Fig. 16 *The only (large) wind turbine of Texel*

5.4 An energy ambition within a larger sustainability ideal

The energy ambition of Texel cannot be seen apart from the overarching challenge to make Texel a more sustainable island. Within that goal the Ambition Manifesto has its place as it is used as a (communication) tool to achieve a more sustainable economy and to live in better harmony with the natural capital of the island.

The delineated unity of an island makes more things possible and is one of the reasons why the Ambition Manifesto was created in the first place; it is visible, it is measurable, there is a strong sense of independence among the islanders, and there are abundant natural resources. Texel wants to be a more sustainable islands and this is expressed in all kind of ways. When considering the energy ambition of Texel, one must realize that (innovative) developments take place and have taken place in more sectors than only the energy sector. Innovations can be encountered in mobility, due to the mobility project of Urgenda and a local initiative to make public transport more efficient, in agriculture, and in fishery. Experiments and sustainable (pilot) projects can be found in innovative dike reinforcements, saline agriculture, fresh water management, the TESO-ferry, innovative fishing techniques, the importance of local products and their sustainable production, and sustainability for spatial and nature quality. And because these innovations and projects exist as well, the energy ambition is only a part of a much wider field (of sectors) where sustainable development and innovation is important. A growing number of islanders now acknowledges the importance and opportunities of the energy ambition, but most emphasis is on the (sustainable) developments which take place all over the island. The energy ambition cannot be seen as an independent ambition in that sense, because it will always be intertwined with other developments in other sectors. The vision of the current municipal alderman indicates how he really perceives the energy ambition:

For me this energy ambition is not really connected to the numbers, it is about how we as a municipality and as a community strive for a wider, sustainable economy (alderman municipality)

The municipality interprets and approaches the ambition as a tool to strive for more sustainability in the production and consumption of energy, but the ambition has never been a 'sacred' ambition which should be accomplished at all costs. It has more been about trying to find out what is possible and acceptable on Texel. To search for the linkages and the way(s) to integrate the possibilities of the renewable energy technologies into the unique landscape of Texel is more important than the (possibly forced) application of renewable technologies because the deadline of 2020 is coming closer. This deadline is not a very important factor in this ambition.

The current situation has its roots in the work of the former workgroup and Sustainable Texel because the organisations already realised that sustainable developments could be drawn much wider over the sectors of the island. To strive for the use and application of renewable energy has for Sustainable Texel also been an issue that existed next to sustainable developments in other fields and sectors. These perspectives about striving for sustainable developments in all kind of still exists today:

I always say; '2020 is very close but if we still have to construct wind turbines in 2019 we are energy neutral, done'. The ambition is therefore not really focused on becoming energy neutral, but to think

very carefully about how we can continue to live and work in a more sustainable way (alderman municipality)

Meadowcroft (2005) states that transitions are understood as 'non-linear' processes, with 'multiple causality and co-evolution'. This non-linearity of the energy ambition of Texel is mainly caused because not everything is focused on the energy ambition alone. Until today the developments concerning renewable energy technologies have gone back and forth, and in general the people of Texel do not perceive this ambition as a number one priority. Complementary Rotmans (2012) states; 'people who live in a time of societal change (transitions) often do not recognize it as such, or at a very late moment, they cannot see through the complex spirit of time and focus on their daily activities; at a later stage they have the capacity to adapt rather noiseless to the radical change'. It is promising that beneath the surface more people have come to realise that not everything about this energy ambition is bad and threatens the (landscape of the) island, but the energy ambition in itself is not widely considered to be the main challenge of Texel for the future.

A good way to position the energy ambition into the wide field of sustainable development is to draw a small comparison between the energy ambition and the Wadden harbour and the way they run their business. At the Wadden harbour the sustainability concept already has been implemented in the business operations for years. Here we can see that the conscious use and energy savings are part of the business, but that it is not only about being energy neutral. Much more can be included to be more sustainable, such as protecting the Wadden sea area, making the visitors (more) aware about the vulnerability and beauty of the area, and the way of dealing with the Wadden sea area as a natural unique environment and a world heritage site. In a similar way the energy ambition of Texel can be seen as being part of the sustainable operations of the island, in which the island inhabitants consciously use and produce their energy.

5.5 The role of tourism

The enormous growth in the tourism industry has put more pressure on the island as the tourism season of Texel has broadened tremendously. The current alderman states that only for three months a year there is no tourism season on the island. An important factor why no real mass tourism, as we see in other regions and islands of the world, got a grip on the island is because there has been municipal policy since 1974 to set a maximum on the number of tourism beds.
The visitors come to the island to enjoy the nature, tranquillity, the sea, the unique landscape, and within that environment the luxury and comfort the tourism accommodations have to offer is important. Visitors have the opportunity to experience the natural surroundings in combination with good provisions of the tourism businesses. The '(island) experience of Texel' has become a driving force for tourism.

The 'experiencing moment' has become essential for the formula of tourism (saline agriculture entrepreneur)

The role of the tourism industry regarding the energy ambition is ambiguous. When the workgroup for sustainable tourism started, the focus was on protecting the most important source of income for the island. Therefore it was important that the tourism industry considered aspects like the natural environment and reinforced their position as conscious enterprises that link with the core values of

Texel. The workgroup strived for a more sustainable tourism sector and succeeded to get some movements. As more focus came on sustainability in tourism, the industry as a whole never changed a lot when it comes to the renewable energy ambitions. It has always been difficult to find or establish linkages between the tourism industry and the energy ambition.
First of all most resistance and fears for the loss of tourists and the image of the unique landscape concerning the application of wind turbines have come from the tourism industry. Due to that negativity the industry had a big influence on wind energy policy and initiatives.

When one considers the other renewable technologies of the moment that are applicable for tourism enterprises, solar (thermal) panels and saving energy (e.g. LED) are the most important. But it does not seem to go any further than that. It turns out to be very difficult to link tourism entrepreneurs to this ambition in such a way that it causes the energy demand of the industry to decreases heavily, or that the entrepreneurs en masse start to invest in renewable energy technologies concerning their business of the sustainable development of the industry. This has a number of reasons.
First of all this depends very much on the individual that runs the business. If the manager/owner of the business has no affection with being more sustainable and/or saving energy, it is not easy to effectuate change in the business operations of the company. Second, the pragmatic applications that come from the renewable energy technologies are not (always) sufficient for a tourism company. Energy needs to be available at all time and the uncertainty of renewable energy technologies create more difficulties and problems. It will never be sufficient enough to use solar energy alone. A good example is how the park manager of 'The Krim' explained it; 'we can never keep 10.000 litres of water warm by using solar (thermal) panels only'. Third, for a tourism company the necessary investments can be rather high and unattractive. The time is also not always ready for it and in the end most entrepreneurs are always looking to the financial picture. The financial gains are an important motivator and the financial incentive then has to be very attractive to convince the entrepreneurs to start doing things differently. Fourth, the level of comfort and luxury that is offered by the tourism businesses of Texel is of such high standard, that a (possible) decrease in these provisions due to the use of renewable energy technologies is not an option for most tourism entrepreneurs.

The majority of the interviewees argue that a lot more can be done to improve the lack of linkages between the energy ambition and the tourism sector specifically. Although the sector is not entirely negative towards sustainable development, also because sustainability has become a more important item for more tourists, the tourism interviewees acknowledge that most large tourism companies do not consider sustainability to be an issue that has much priority. And they are the big energy consumers within the sector. It is also difficult to position the tourism industry in relation to the energy transition arena. A number of small recreational businesses are definitely picking up the challenge to save energy and implement renewable energy, but this is not representative for the entire industry. It are the smaller (recreational) businesses that do the most regarding renewable energy at the moment i.e. it comes down to a number of (small) individual entrepreneurs.
As the tourism industry is the largest industry of the island, the sector has represented very little promising developments in the interpretation of the energy ambition until today. Besides the small increase in the use of solar panels and saving energy, most large tourism businesses cannot be linked

to the energy ambition. However, it is important to state that in the same way the energy ambition exists within a larger sustainability ideal, the tourism industry also considers much more than renewable energy technologies alone. It is also about, and maybe more, factors like landscape integration, adaption to the core values and how the tourism industry can profile itself within a world heritage site. Not all renewable technology applications are perceived to fit well into these values, and so far the tourism industry has been in favour of maintaining the landscape as it is, without changing too much in name of the energy ambition.

The incumbent energy regime provides the industry with the energy they need, and for now the reasons why the tourism businesses should change, and accept and possibly implement more renewable energy technologies are subordinate to the opinions and perceptions that favour the ways in which it has always been. It is not recognized whether this energy ambition could also be beneficial for the tourism sector and its businesses. Still there are some good exceptions on the island as The Krim, Hotel Greenside, and the Bremakker are examples of businesses that do invest in saving energy and implementing renewable energy. Yet these developments remain small drops on a hot plate.

It is a difficult question whether tourism businesses should not only decrease their own energy demand, but if (joint) businesses could also have a role of becoming investors in larger scaled generation projects, where they could extract (a part) of the generated energy. It is a challenge for the future to find out where mutual interest can be found and linkages can be created between the tourism sector and the energy ambition. Also here there is a need for public-private partnerships or collaborative action in order to make real changes possible. The tourism entrepreneurs could learn how certain developments or projects of this ambition can work in their advantage, and how they could be connected to them. There is also a need for support and guidance of the tourism entrepreneurs about subsidies and investment opportunities, but for that more detailed collaboration with for example TexelEnergy, the municipality and Urgenda is necessary. In this regard it is important to state that all tourism businesses have to deal with increasing energy prices and therefore increasing energy costs. There is also a need of (leading) businesses that can be followed by others, to effectuate some changes in the business operations of the sector that represent more socially and environmentally responsible ways of doing business by including renewable energy.

Nonetheless the Ambition Manifesto also includes many opportunities for Texel and most of the interviewees do see opportunities when it comes to tourism. The publicity and media attention testify that there is an interest for what the Wadden islands are striving for. Most interviewees believe that the ambition can increase, or at least can add to the marketing value of the island, and could have the power to create a good, positive feeling among the visitors. The energy ambition, which is a sort of ‘dot on the horizon’ could also be very good for Texel when it is communicated and explained transparently. Almost every interviewee wonders whether the tourists would really stay away when Texel constructs a few large wind turbines on strategic locations. It is the question whether some strategic positioned large wind turbines would really discount the attractiveness of the island. No big emphasis on wind turbines is desirable, but the strategic integration in the landscape and strategic integration in the bigger picture of the ideal of an energy neutral island can be beneficial for Texel as well. Texel that presents itself as an island that takes sustainable development to the next level in The Netherlands. The perspective that tourists do not like wind turbines on Texel mostly originates from the tourism industry. Some interviewees acknowledge that

the energy ambition can offer good opportunities which can attract more and other tourism to the island. Though the tourists will never come to Texel alone because it is energy neutral.

One third of our tourists are German and Germany is a lot more developed than we are in this field. Germans like to have a holiday in a sustainable place but they sometimes wonder what is actually happening here on Texel. They ask us; 'what happens on Texel concerning the energy ambition, we do not see any wind turbines'? The solar panels are becoming more visible right now, but the Germans have their doubts about the developments here (municipal official)

The conscious use of energy and thinking about sustainable alternatives has been developed too little in the tourism industry of Texel. It could become a part of the business operations within the tourism companies, as a basic principle from which the companies run their business, and without any losses in comfort and luxury. For the tourism sector it is important that the visitors see Texel as a place where they consciously think about the landscape and nature, about the spatial use, and about the world heritage site.

Another specific contribution to tourism can be made when one considers the work and presence of the actors TexelEnergy and Urgenda. The mobility project of Urgenda belongs to the most innovative projects in the country and in the particular case of TexelEnergy their work and projects can also serve as input for more (energy-based and/or business) tourism. In fact, on a small scale this 'energetic tourism' already takes place on the island. It is their plan to build an energy neutral (example) building that includes an energy academy. In the future, they want to inform (business) travellers and interested tourists about how renewable energy became part of Texel and how they have dealt with the energy challenge. Because a thriving tourism industry already exists and therefore the market is already there, information and knowledge about the developments and projects of the energy ambition can be provided to a large (business) audience.

5.6 Looking from the network governance perspective

Texel includes a good context for the presence of many networks. The unity of the island ensures a situation in which the public, private and civil actors are frequently associated with each other, and where the physical and figurative distance between them is relatively small. Almost all actors involved in the energy ambition are established on the island and there is mutual dependence between them in regard to the energy ambition. The interactions between actors like the municipality, Sustainable Texel, the province, the VVV, (tourism) entrepreneurs have been visible on Texel for quite some years. Not per se for the energy ambition specifically, but more along the lines of sustainable policy directions and interests. Therefore it is not uncommon that certain individuals are (closely) connected to more than one of the network actors. Concerning the energy ambition, the network of involved actors has changed over time.

Figure 17 presents this change.

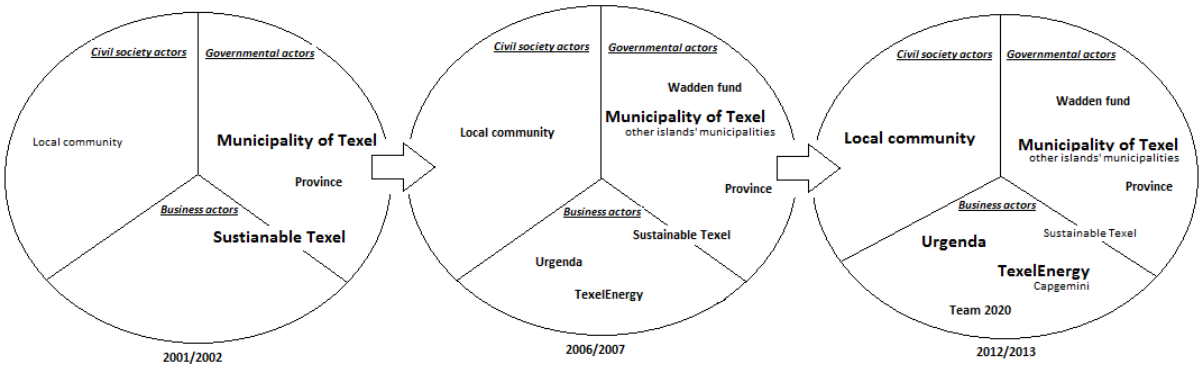


Fig. 17 *Development and changes of the network of public, private and civil actors concerning the energy ambitions of Texel*

Through the early network in which Sustainable Texel had an important role, the first ambitions regarding renewable energy surfaced. Sustainable Texel can be considered to be both a business actor as a governmental actor, because it was closely linked to the municipality, but it never totally dependent on the municipality. The energy ambitions were also definitely not an accomplishment of politics alone, but the feasibility reports and views on the possible (financial) support of the province from Sustainable Texel made sure that this matter became more politically evident.

The specific network concerning the envisioned energy transition moved and changed constantly during the last decade. More actors got involved, especially when Urgenda, the Wadden fund and TexelEnergy entered the stage in 2006/2007. The role of Sustainable Texel decreased, while the local community got more involved, also negatively through widespread resistances. From 2007 the (tightened) energy ambition process continued to move back and forth through deliberate interventions coming from several societal actors. Progression of projects like the possible replacement of the Wadden harbour wind turbines and the proposal of the bio fermentation plant of 2005 encounter stagnation and resistance, which thwarts the progression of renewable projects.

The pattern of interaction in this ambition process has shifted more towards the private domain of (business) actors which stand loose from the municipality and the municipal ambition. The last 'circle' of figure 17 presents the most important involved actors of today in which Urgenda and TexelEnergy increasingly become more important (and dominant). The network has shaped into its contemporary form and the municipality has increasingly become a network actor, yet it still maintains its position as a decisive actor that holds a firm grip on this energy ambition. The municipal council always maintained the power 'to make or break' the continuation of projects and developments. Though the opportunities that have been offered lately for the solar panel fields and a bio fermentation plant are very promising.

Up to this day the direction and vision of this ambition is rather unclear. This has a number of reasons that connect to what Sorensen and Torfing (2005) stated about fully realising the potential efficiency gains of governance networks;

- The *tensions and conflicts* over the implementation of renewable technologies inhibit the ambition. The resistance of mostly the local community, the tourism industry, and local politics have created these tensions. Conflicts concerning the real-life interpretation of the

energy ambition have led to stagnation and sometimes it seemed that the feeling of solidarity was not present at all

- *Ineffective leadership*. As many interviewees argue that a real master plan and a real leader are missing, this ambition seems to wander around for years in positive and negative influences. The municipality cannot be the designated leading actor, the leading role still needs to be filled in like by a leading group of actors/individuals like in the case of Samsø.
- Although progression has been made and the local mind-set seems to change more positively than before, there are not many visible results for the decline of the energy demand and a real increase in the productive contribution of renewable technologies. Sorensen and Torfing (2005) state this as *the frustration of the lack of visible results*. Some interviewees underpin this invisibility, and although this transition takes time, more could already have been achieved than what is the case today.
- Difficulties arise out of *external events like the province policies that disturb the process and destabilize the network*. Obviously this ambiguous role of the province of being a (financial) supporter on the one hand and an inhibitor by their policies on the other, influences the (energy) network. The governance network of Texel concerning the energy ambition has therefore lost some of its (possible) effectiveness.
- The underlying rules in the network that still exist today is that the municipal council maintains the absolute control and power of this energy ambition, despite nowadays an environment has emerged in which the importance and 'power' to execute projects and give direction to the ambition come from (main) private actors like TexelEnergy and Urgenda.

The concept of network governance shows that Texel has a specific energy network in which the most important actors come from all societal domains; the public, private and civil domain. Their deliberate interaction is absolutely necessary for this transition to be successful; it is through this network that this energy ambition can be governed to some extent and can make little steps forward. The current network constitution that includes a variety of cross-sectional actors is important because without the right coalition partners this transition will be a lot harder to accomplish.
The Cloud Power project is a nice example of a public-private partnership. Here, the local government is not the transition manager, but a network partner that needs to create administrative and legislative conditions. The other actors include local and external private actors that have enough capacity to perform the (pilot)project. This partnership is an example of collaborative action and mutual interests which could generate benefits for the island.

By making use of network governance theory the role of each network actor that we can identify in figure 17 indicates that there are interdependencies between them. Urgenda and TexelEnergy need the public actors like the province and the municipality for financial input and project support, but the same is true the other way round for especially the municipality. Without the presence and work of the private actors this ambition would become an even greater challenge.
Another important issue is the presence of knowledge and information at each of the network actors. Sorensen and Torfing (2005) argue that governance networks are seen as important instruments to gather knowledge and information that can support policy decisions. On Texel this happens as well as this knowledge and information needs to be gathered at the multiplicity of actors

to increase support or to renounce a certain course. Collaborative action has also taken place for research, organising events, and projects such as Cloud Power. Private actors, social alignments and citizens each have important resources, as well as the power to obstruct policy interventions; it is only through collaborative action that societal policy problems can be resolved (Klijn, 2008).

However, one of the biggest issues so far concerning this ambition is the absence of collaborative action between the private, public (and civil) actors in regard to the execution of projects that (considerably) contribute to the generation of renewable energy and the visibility of the envisioned transition. Political resistance, both local and regional, and local (community) resistance have been dominant and determining factors in which private actors such as Sustainable Texel, Urgenda and TexelEnergy have had to comply so far. The envisioned transition moves as fast as is locally desirable and how willing the local people and politicians are to accept and support the technologies and applications that come with such an ambition. The latest actor, Team 2020, testifies that TexelEnergy and Urgenda in particular want to pull the energy challenge into the direction of (private) actors that can move and decide more quickly than the municipality ever can. Team 2020 is a recent initiative to influence the network, to speed up and give positive contribution to the process.

The energy ambition of Texel is a public ambition, but it is the interaction and collaborative action between the private and public domain that can make it a success. In recent years the (local) government (of Texel) has become more dependent on societal actors to achieve their goals because of the increasing complexity of the challenges they face (Klijn, 2008).

6. Discussion and Conclusions

This chapter presents the discussion and conclusion of the thesis results. The discussion presents the main findings that will be linked to the findings of other researchers. It will also discuss the results concerning the research objective and the theoretical framework. Subsequent the final conclusions finish the chapter, and will provide some brief recommendations and suggestions for further research.

Discussion

The research objective of this thesis was; *to examine the energy ambition process and its actors and developments on the Dutch tourism island of Texel, including the role of the tourism sector in this specific context.*

Chapter 4 provided a historical reconstruction of the past developments, while the analysis of chapter 5 indicated how the process has developed.

The historical context that was provided by chapter 4 served as the basis for the understanding of the process developments in the analysis of chapter 5.

The main findings of the thesis are:

- The envisioned energy transition of Texel still abides in the pre-development phase of a transition. The main reasons for this are local resistance towards 'landscape polluting' technologies, the absence of a (common) long term master plan and a clear vision, the ambiguous roles of the municipality and the province, the absence of an effective leader, the general lack of financial resources, and the relatively short time that the Ambition Manifesto exists. Local tensions and conflicts over the implementation of renewable energy technologies and the necessity of the ambition have inhibited the progression of the process.
- The energy ambition must most of all be understood as a communication tool to the outside world that cannot be seen apart from the much wider ideal to make Texel a more sustainable island. This means that Texel strives for a more sustainable economy i.e. a more sustainable place to live, to work, and to visit.
- The focus of the energy arena/network of involved actors has shifted more towards the private actors that are able to bring the process to the next level. At this moment the constitution of the arena is better to act on the energy challenge than it was several years ago. The involved private actors have gained more thrust and a more solid position within the island society i.e. TexelEnergy and Urgenda have become leading private actors in the energy ambition.
- The interaction and collaborative action between the private, and public (and civil) domain is absolutely crucial for the success of the ambition; the facilitating/mediating role of the (local) government as a network actor is very important in a time of transition.
- On Texel, some specific active and visionary individuals have been a driving force for the progression and developments of sustainable thinking and the (interpretation of the) energy ambition.
- The incumbent energy regime is not (yet) destabilised by the (upcoming) renewable energy niche developments. The renewable energy niches are shaping as most developments take

place on the niche level, but the local production of renewable energy is still very low. Still much unclearness exists on how this energy ambition needs to be achieved.

- A transition should most of all take place in the minds of the local people, and should be picked up by the local people. When the local community really wants this energy ambition to be achieved, they can achieve change by adapting their (energy) behaviour; they could have a (more) open attitude towards (new) projects, could be more solution-oriented, and could become a driving force together that strives for the application of renewable energy technologies on the island.
- There are not many linkages between the energy ambition and the tourism sector. The tourism industry is afraid that the interpretation of the ambition will cause a decline in tourism numbers, and in general the concept of sustainability (and the energy ambition) does not receive much attention from the tourism entrepreneurs. At this moment most of all the smaller (recreational) businesses try to become more sustainable and think about renewable energy, but the large companies do very little about it.

As it may seem that this thesis presents no more than difficulties and arising problems during envisioned (energy) transitions, it most of all provides us with more insight about how a transition process can evolve in real-life in a particular island context, and what (numerous) factors and actors interfere and have a positive and/or negative influence. The main findings indicate how one can understand the current state of affairs of this ambition on Texel.
This thesis therefore tries to act as an instrument to generate a little more insight about how an envisioned energy transition in a (tourism) island context can develop, and what difficulties may be encountered. It tried to make clear how the interaction and participation of private, public, and civil actors and individuals has been a crucial element in the progression of the ambition. The complexity of the envisioned energy transition of Texel can be found in the different interests of the public, private, and civil domain. The thesis results testify that a transition process indeed is a multi-domain, multi-actor, and multi-level process as stated by Loorbach and Rotmans (2006).

Because transition processes are very different, are dependent on the involved actors and are linked to a specific context, the energy ambition of Texel and its developments is an unique, individual process. Martens and Rotmans (2005) state that a transition is no fixed pattern, nor a blueprint, is not uniform and not deterministic: there are large differences in the rate and scale of change and the period over which it occurs. The results of this thesis apply to the case of Texel alone. They cannot be generalised to other regions because of the individual, and context specific character in which these results were found. Nonetheless the main findings confirm the complexity of transition processes, and do present some similar outcomes which were found in other studies.
The (social) barriers encountered on Texel, can be found in other studies as well. Oikonomou *et al*., (2009) states that wind turbines can have an optical harmful effect, especially in areas (islands) which are highly developed due to tourism. Moller *et al*., (2012) also state that renewable energy installations like wind turbines are seen as a threat to tourism and nature conservation, and islanders are sometimes overwhelmed by the capital investments needed for such developments. The study of Praene *et al*., (2012) on Reunion island in France states that the cost-competitiveness is a major barrier to purchase a RET device, and that there is not enough availability of qualitative and coherent information between the different key players involved in administrative procedures, support

measures, and energy strategy; the clear development of a network infrastructure in accordance with a long-term strategy has yet to be defined. The energy ambition of Texel struggles with the same problem. Although we can speak of a transition arena that includes pioneers like TexelEnergy and Urgenda, a clear long-term (energy) strategy that originates from the key players of the network, and a well-defined network structure is still insufficient.
The issue of renewable energy in island communities is indeed highly complex, given the many conflicting interests, the limited space, the particular demographics of many insular communities, as well as the often good potentials particularly for marine and wind energy (Moller et al. 2012). Moller *et al*., (2012) also state the difficulties that arise on islands and the implementation of renewable energy are often bound to national and regional policies in which the local government has very little to decide. The province of Noord-Holland and the determination of restricting policies confirm this statement of Moller *et al*., (2012) in the case of Texel.

The results show that a socio-technical transition largely depends on the acceptance and support of the local community, and is heavily influenced by the interference of local politics. Yet it is remarkable that the progression of the process and the initiation of many developments can be linked to the work and activities of only a small group of leading individuals on the island. Major social changes indeed seem to originate from small groups of (leading) individuals, as Rotmans (2012) stated.
That Texel still abides in the pre-development phase of a transition is an interpretation of the researcher, based on an estimate from the thesis results. This interpretation gives meaning to the technological state of development of the ambition, but because it is a concept derived from transition (management) theory, it may be too focused on this specific perspective to explain transition processes. Termeer and Dewulf therefore justly indicate that multiple theories will continue to be needed simultaneously for dealing with complex societal sustainability issues. It cannot be stated that the developments of the envisioned energy transition of Texel can all be explained by using transition (management) theory, especially when the energy ambition connects and intertwines with so many other (sustainable) developments on the island. Therefore the inclusion of the network governance concept provided results from another (additional) perspective. It created extra insight about the development of the (energy) network of Texel and indicated how the full potential of a governance network can be realised. It also made clear that there is a governance network in relation to the ambition. Therefore this concept complemented the findings that emerged from transition theory. As in the case of the energy ambition of Texel, socio-technical transitions are multi-dimensional phenomena that can be studied from various angles by different disciplines (Geels, 2010). The use of other theoretical concepts could result in different findings and different interpretations. Therefore one must realise that the main findings result from looking through the lens of transition (management) theory, and to a lesser extent of network governance

Transitions to a sustainable society are indeed discovery journeys into the unknown that are about exploration, learning, discovery and change (Loorbach, 2007). This thesis tried to make clear how this process has developed on Texel, but in the end it remains a simplistic representation of a complex reality.

Conclusions

In this thesis research has been done on the island of Texel concerning the envisioned transition to an energy neutral island by making use of renewable energy sources and technologies by 2020. The energy ambition of Texel is a multilateral phenomenon that intertwines with other developments and processes. It is not a process on its own, but should be understood as part of a wider ideal to make Texel a more sustainable island, because Texel most of all wants to become a more sustainable island.

When in 2007 the municipal Ambition Manifesto appeared, this marked a restarting point for Texel on the years before when it was their ambition to become energy neutral by 2030. The Ambition Manifesto of 2007 was a report that displayed how the municipal councils of the five islands envisioned and perceived the energy transition, but this time all the other Dutch Wadden islands also got involved. The Ambition Manifesto is mainly a communication tool to the outside world that states what the Wadden islands attempt to achieve, and that they are in need of much (external and financial) support to realise their plans.

Until today the process of the ambition has been moving back and forth, with promising developments and positive influences as well as much resistance and negativity against the execution of certain projects, and the interpretation of the ambition. Especially the perceived landscape polluting installations (e.g. wind turbines) received much resistance from the tourism sector, the local community and local politics. Because of these resistances and stagnation of projects, this has led to a situation in which the generation of renewable energy has not yet really came off the ground. Texel does not produce a lot of local renewable energy yet, but on a smaller scale, on the household scale, good progressions have been made. The public and private actors tried for years to include and enthusiasm the local community, and to make them more aware about the possible benefits that these technologies have to offer. These are promising developments and they are absolutely necessary to increase the local feeling of solidarity and common sense of responsibility to make the envisioned transition a success.

At this moment most focus of the process is on saving energy, but every involved actor is aware that more and larger projects are necessary to make a real difference. Every involved actor knows that with the current state of the art large wind turbines offer the best solutions, but the fierce discussions time and again stagnated the progression for this matter in the last decade. Next to that the province of Noord-Holland just recently approved policy that no more wind turbines on land are allowed in the province area. Therefore the ambition of Texel is currently designated to other options, like solar energy and biomass.

Still a lot has happened on the island, and at this moment, the following things can be found on Texel:

- A local energy cooperation (TexelEnergy) that has managed to become a mature company, has increased its support by the locals, and has evolved from an instrument to a very important actor in the energy ambition for the (future) execution of renewable energy projects
- A national organisation, Urgenda, that wants to change society in a sustainable way is of great support to the energy ambition and overall sustainability ideal of Texel

- The ambiguity of financial input and restricting policies of the province, and the possibility to request for project funds at the Wadden fund
- A local municipality that embraces the Ambition Manifesto and wants to act on making Texel an example of a sustainable island, but has acted both in a supportive and inhibitory way due to the different opinions in the political arena concerning (interpretation of) the energy ambition
- A community that has difficulties in really adopting the energy ambition, but that shows that the mind-set slowly changes and that they are willing to invest in attractive (energy saving) offers from the involved actors. Yet technologies such as wind turbines that are perceived as conflictive with the unique island landscape of the island have always been a thorny issue.
- Abundant and attractive natural resources that are a perfect starting point for the aim of energy neutrality
- A history of striving for sustainability and sustainable development initiated by the pioneers work of the workgroup for sustainable tourism and Sustainable Texel
- A large tourism industry and great local dependence on tourism that contribute to the fears of enduring too much decline in tourism due to the energy ambition. Yet the large number of annual visitors also offers opportunities to communicate the ambition and its additional developments to a large audience.

Within the unity of an island there is much interaction between public, private and civil actors. This creates opportunities and tensions at the same time. In the case of Texel the transition arena/energy network of the main involved actors has changed, and the focus increasingly shifted towards the domain of private actors. Sustainable Texel, who pioneered for a more sustainable island, moved to the background in the energy network while other actors entered the stage and gained weight and thrust. When TexelEnergy and Urgenda entered the stage in 2007, this changed the network in such a way that the focus of the municipal ambition increasingly moved towards these private actors that have the goal to speed up the process and to actually realise projects that make a good contribution. TexelEnergy and Urgenda are the real pioneers of this energy ambition, because they have the ability to create solidarity among the local community, and (now) have the ability, with the help of the municipality, to execute contributing projects. Although the municipality also created progression and does good things for this ambition, it will never be able to do the kind of things Urgenda and TexelEnergy can do. This difference in roles and opportunities that exists between the public and private domain has caused that the importance and contribution of these private actors has become more important and dominant regarding the envisioned transition. As the achievement of this ambition will always come from the interaction and collaborative action between the private actors and the public and civil actors, the circumstances of Texel indicate that private actors like TexelEnergy and Urgenda will have to fill in this ambition, and give a real interpretation to it, provided that they get the (political) space to do so.

Because of political disunity concerning this ambition, the municipality always had an ambiguous role. Disunity and disagreement in the political arena concerning this energy ambition has caused that other (private) actors often perceived the municipality as an unreliable actor. And local politics has continuously been led and influenced by the general public opinion.

Today still much uncertainty and haziness exists about the future and how this envisioned transition is ever going to be achieved. Still not many islanders are very busy with the energy ambition, and it seems very likely to believe that the wider sustainability ideal that affects all sectors of the island is the real ambition of Texel; to strive for a more sustainable economy and a more sustainable place to live. The energy ambition is subordinate to this wider ideal.
A transition is a change of power (Rotmans, 2012), and although they are hard and difficult processes and it is a challenge to achieve real changes in behaviour in a short time frame, the environment of involved actors and developments has evolved in such a way that many things have become possible on Texel. Concerning the energy ambitions of first 2030 and later 2020, one must realise that the developments can only be steered through the deliberate interference of a multiplicity of actors. The currently involved private, public and civil actors need each other in the process to implement policy and reach consensus for future directions, future developments, and the execution of (pilot) projects. The interdependencies between the public, private and civil actors in the (governance) energy network are clearly visible on Texel.
Nonetheless the energy ambition of Texel is still young in its current form, and transition theory tells us that every transition process can be very different and that it can take up to one or two generations (25-50 years) to be completed. On the island, the incumbent energy regime and the aligned social practices are still dominant, but beneath the surface the renewable energy niches are shaping. Some good examples are the successful solar panel campaigns by Urgenda, the energy window of the municipality, and the Cloud Power project by Capgemini and TexelEnergy.

In relation to the tourism industry it is hard to find the linkages with the energy ambition. It depends very much on the person that runs the business and in general the large businesses do not seem to give much priority to sustainability or this ambition. Yet on a smaller scale some recreational companies do implement renewable energy and try to be more sustainable. Much from the energy demand of Texel originates from the tourism industry, but the implementation within the companies does not seem to go further than some solar energy. For this a number of factors matter:

- Within the tourism sector much depends on the person who runs the business. If this entrepreneur has no or little interest in sustainable developments such as the use of renewable energy, then not much will happen
- The use of renewable energy is not always applicable for a tourism company because energy should always be available to the guests. The volatility of renewable energy is not very attractive for tourism entrepreneurs
- Entrepreneurs always look at the financial picture. In the end it does cost a lot of money to implement renewable energy technologies. Sometimes this money is not available either. On the other hand, many companies have to deal with rising energy costs
- More sustainable energy in the sector is possible, but it should never be at the expense of the luxury and comfort (quality) that the tourism companies offer on Texel
- The proposed large-scale projects related to wind energy are seen as a threat by many tourism entrepreneurs to their source of income and the attractiveness of the island

The energy ambition can benefit enormously from a decreased energy demand in the tourism industry, but up to now many interviewees acknowledge that a lot more could be done regarding the

tourism industry and linking it to this ambition. But also in the tourism industry the energy problem falls under the umbrella of approaching sustainability through a much wider scope. Energy use is part of the business operations, but it is not the most important factor. Therefore one must realise that the implementation of renewable energy in the tourism sector can increase sustainable development, but that it exists among other factors that also contribute to sustainability.
Still, some interviewees argue that the energy ambition can also provide a positive contribution to tourism. The (nationwide) publicity and media attention this ambition generates is important, and Ambition Manifesto could be used more for marketing purposes. In addition, the ambition can provide new opportunities in tourism, such as energy (business) tourism that already takes place on a small scale. It is important to realize that this ambition from the tourism viewpoint can make a contribution to sustainable development in the sector, but that it would never become the main reason for tourists to visit Texel.

One of the most important conclusions of the envisioned energy transition of Texel is that this process has been initiated and developed by the perseverance and courage of (pioneering) individuals. The history of the island testifies that these active individuals are needed to get things going, to create solidarity and to create a sort of 'movement' that can be followed by others. Also the envisioned energy transition process of Texel originated from a small group of people with visionary gifts and the perseverance to strive for the implementation of renewable energy technologies in a place in The Netherlands where the natural resources are so excessively present.

Now the time also seems more appropriate than several years ago to really start acting on this energy transition. It has taken time for the current (social) circumstances to emerge, yet TexelEnergy and Urgenda have settled and all seems right that enough weight and power is created to take the next steps towards generating renewable energy on Texel. The establishment of Team 2020 and 'the Union' of TexelEnergy and Urgenda are promising developments that have the ability to contribute to the (speed of the) transition, but they can never accomplish enough when the local support remains too low. The decisiveness and the power to realise this ambition must increase, otherwise there is a risk that reality catches up with the actual developments.
Eventually this envisioned transition seems to be more of a challenge in terms of social acceptance, instead of a technological change. A real transition should take place in the minds of the islanders and should also be picked up by the islanders. Although the mind-set changes, this level of solidarity and common responsibility has not been achieved yet. If the people of Texel really want this energy ambition to be achieved, the envisioned transition should be approached on a whole different level and with a different (common) attitude. At the current speed of developments it will be an impossible task before 2020. Short-term visible results that prove that change is possible, have been too largely absent. The energy ambition of Texel is in need of more short-term successes that contribute considerably to the generation of renewable energy.
Texel has set a challenging energy ambition for the future and therefore has become a frontrunner in a country that is falling behind in Europe when it comes to the application of renewable energy technologies. It shows of courage to envision such a challenging transition, yet it is also a position that challenges an incumbent energy regime that has taken root in the Dutch society. Despite the abundant possibilities that the natural resources of the island have to offer, it is also a quite radical envisioned transition within a relatively small delineated area.

Recommendations

From the data results a number of recommendations can be given; these include some specific needs and conditions that are necessary for the energy ambition process to reach the next stages of development:

- Install a time of recalibration in which the aim is revised and maybe reset by taking a look at the circumstances that have surfaced today, and include the lessons which are learned from the past decade. Reconsider and review the ambition in order to better align its goal to the local circumstances, and the negativity and resistance that has surfaced. The tensions that emerged during the years could be avoided by creating a more acceptable and more specific ambition which includes the interests of the main involved actors from the public, private and civil domain. It seems better to recalibrate than to keep the ambition at such a high, challenging level that it could be possible that reality overtakes the ambition developments at some point in the future.
- Reach consensus about the future direction of policy and what renewable technology applications are to be implemented in what way. For this, research has to continue and (pilot) projects and experiments in which multiple public and private actors participate (like Cloud Power) need to be expanded. The involved actors can work towards an expansion of the (pilot) projects and experiments that reinforce Texel's position as a prominent experimental area in The Netherlands. This can bring in more activities and innovations that can make a good contribution to the energy ambition as well as the local economy.
- Create one common master plan/long term vision with the involved actors that is widely seen and accepted as a common plan on how to deal with the energy ambition. More visible, short-term successes are needed that at the same time reinforce the long term vision.
- Provide the political space/freedom as much as is (locally and politically) acceptable for the leading (private) actor(s) to give meaning to the ambition and execute (pilot) projects and experiments. Create (more) partnerships between public and (external) private actors that are willing to invest and test (their) innovative projects. Collaborative action between the societal domains is very important. Support these actors by all means and insist on a more unambiguous role of the province and its policies. The facilitating role of the local government is crucial in times of transition.
- Ensure effective leadership. Many interviewees have stated the absence of an effective leader in the form of an actor(s)/individual(s) that has the ability to lead the process to the next stages, has the ability to connect people and actors, and ensures an environment in which many of the locals are willing to follow.

Suggestions for further research

There are two main suggestions for further research that can be distinguished from this thesis.

The first suggestion is to perform a research among a representative research population of the tourists of Texel to find out what they think about this energy ambition specifically. Their opinions about the use and application of (new and proven) renewable technologies, and the effect it will have on their behaviour and the island landscape can give a lot of input and information for future developments and policies. There is much indistinctness and uncertainty about what the tourists

really think about the energy ambition, and if they would really never return to Texel when the island constructs some (strategically placed) wind turbines for example. To include the perceptions and opinions of the tourists into the process is to include more knowledge and information that can serve as a starting point for the future and can help to preserve and develop the island in a sustainable way without losing sight of the energy ambition.

The second suggestion is to conduct a research among the island inhabitants to find out what is acceptable to them concerning the energy ambition. The study could find out how the local people perceive this energy ambition, and what they would like to see different in the approach of the main involved actors.
Different scenarios from a scenario study could provide acceptable solutions or the most viable way to approach the envisioned transition. The study could provide information on how the local people and the main involved actors could reach consensus about the future (direction and approach) of the energy ambition.

Bibliography

Agentschap NL. (2011). Cloud Power Texel, Utrecht, Nederland

Ambition Manifesto Wadden Islands. (2007). *'The energetic future'*. Pp. 1-12

Beer, J.G., Chang, M.F., Folkerts, L. (2001). Energieplan Texel 2030, Utrecht, Ecofys BV

Bergmann, A., Colombo, S., Hanley, N. (2008). Rural versus urban preferences for renewable Energy developments. *Ecological Economics*, Vol. 65, pp. 616-625

Berkhout, F., Smith, A., Stirling, A. (2003). Socio-technical regimes and transition contexts. *SPRU Electronic Working Paper Series,* No. 106, Brighton: University of Sussex

Berno, T., Bricker, K. (2001). Sustainable Tourism Development: The long road from theory to practice. *International Journal of Economic Development*, Vol. 3, No. 3, pp. 1-18

Bloksma, N. (2003). PMZ voor de toeristische branche in Nederland: De ontwikkeling van een praktische methode. Den Burg, Stichting Duurzaam Texel

Bode, S., Hapke, J., Zisler, S. (2003). Need and options for a regenerative energy supply in holiday facilities. *Tourism Management*, Vol.24, No.3, pp 257-266

Boeije, H. (2010). *Analysis in Qualitative Research*. London: SAGE Publications Ltd

Brugge, R., Rotmans, J., Loorbach, D. (2005). The transition in Dutch water management. *Regional Environmental Change*, Vol. 5, pp. 164–176

Carmichael, B.A., Morrison, A. (2011). Tourism Entrepreneurship Research. *Tourism Planning and Development*, Vol. 8, No. 2, pp. 115-119

Chen, F., Duic, N., Alves, L.M., Carvalho, M.G. (2007). Renewislands—Renewable energy solutions for islands. *Renewable and Sustainable Energy Reviews*, Vol. 11, pp. 1888-1902

Dewulf, A.R.P.J., Termeer, C.J.A.M., Werkman, R.A., Breeman, G.E. and Poppe, K.J. (2009). Transition management for sustainability. towards a multiple theory approach, in Poppe, K.J., Termeer, C.J.A.M., Slingerland, M.A. *Transitions Towards Sustainable Agriculture and Food Chains in Peri-Urban Areas*, Academic Publishers, Wageningen

DiCicco-Bloom, B., Crabtree, B.F. (2006). Making sense of qualitative research. *Medical Education,* Vol. 40, pp. 314–321

Dincer, I. (2000). Renewable energy and sustainable development: a crucial review. *Renewable and Sustainable Energy Reviews,* Vol. 4, pp. 157-175

Duic, N., Carvalho, M.G. (2004). Increasing renewable energy sources in island energy supply: case study Porto Santo. *Renewable and Sustainable Energy Reviews*, Vol. 8, pp. 383-399

Duim, R. van der, Caalders, J. (2004). The Margins of Texel. *Journal of Sustainable Tourism*, Vol. 12, No. 5, pp.
367-387

Duim, R. van der, Lengkeek, J. (2004). All Pervading Island Tourism: The Case of Texel, The Netherlands. In Boissevain, J., Selwyn, T. *Contesting the Foreshore; Tourism, Society, and Politics on the Coast*. Amsterdam: Amsterdam University Press

Elswijk, M., (2010). Energie voor Texel, Uitvoeringsprogramma Energievisie Texel 2010-2020. Associatie Technologie Overdracht (ATO), pp. 1-34.

Geels, F.W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, Vol. 31, pp. 1257–1274

Geel, F.W. (2004). From sectoral systems of innovation to socio-technical systems Insights about dynamics and change from sociology and institutional theory. *Research Policy*, Vol. 33, pp. 897–920

Geels, F.W., Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy*, Vol. 36, pp. 399-417

Geels. F.W. (2010). Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy*, Vol. 39, pp. 495–510

Ghobadi, G.J. (2012). Evaluating the Use of Renewable Energy for Developing Tourism Industry. *Middle-East Journal of Scientific Research,* Vol. 11, No. 2, pp. 144-149

Glasbergen, P. (2007). Setting the scene: the partnership paradigm in the making. In Glasbergen, P., Biermann, F., Mol, A.P.J. *Partnerships, Governance, and Sustainable Development, Reflections on Theory and Practice*. Cheltenham, UK. Edwards Elgar Publishing Limited

Gössling, S., Hall, C.M., Ekström, F., Engeset, A.B. and Aall, C. (2012). Transition management: a tool for implementing sustainable tourism scenarios? *Journal of Sustainable Tourism*, Vol. 20, No. 6, pp. 899-916

Gray, B. (1989). *Collaborating: Finding Common Ground for Multiparty Problems*. San Francisco: Jossey Bass

Gray, B. (2007). The process of partnership construction: anticipating obstacles and enhancing the likelihood of successful partnerships for sustainable development. In Glasbergen, P., Biermann, F.,

Mol, A.P.J. *Partnerships, Governance, and Sustainable Development, Reflections on Theory and Practice*. Cheltenham, UK. Edwards Elgar Publishing Limited

Haberstroh, M. (2004). Tourism and Renewable Energy, in the Sign of the Sun. International Consultant on Sustainable Tourism Branding, Destination Management, Marketing.

Hagedoorn, S., Willemsen, G., Bogaard, L., Heijnen, N., Thilliez, M., Kooper, K., Kleinegris, L. (2009). Geothermische elektriciteitscentrale op Texel. Haalbaarheidsstudie Ecofys, Utrecht, Nederland

Hajer, M., Versteeg, W. (2005). performing governance through networks. *European political science,* Vol. 4, pp. 340-347

Hjalager, A.-M. (2010). A review of innovation research in tourism. *Tourism Management,* Vol. 31, pp. 1-12

Hoogma, R., Kemp, R., Schot, J., Truffer, B., 2002. *Experimenting for Sustainable Transport: The approach of Strategic Niche Management*. Spon Press, London/New York

Jiricka, A., Salak, B., Eder, R., Arnberger, A. and Probstl, U. (2010). Energetic tourism: exploring the experience quality of renewable energies as a new sustainable tourism market. *Sustainable Tourism IV*, pp. 55-68

Johannesson, G.T. (2012). "To Get Things Done": A Relational Approach to Entrepreneurship. *Scandinavian Journal of Hospitality and Tourism*, Vol. 12, No. 2, pp. 181-196

Jordan, A. (2008). The governance of sustainable development: taking stock and looking forwards. *Environment and Planning C*: *Government and Policy*, Vol. 26, pp. 17-33

Kaygusuz, K., Kaygusuz, A. (2002). Renewable energy and sustainable development in Turkey. *Renewable Energy*, Vol. 25. No.3, pp. 431-453

Kemp, R., Rotmans, J. (2002). Managing the Transition to Sustainable Mobility, paper for international workshop "Transitions to Sustainability through System Innovations", University of Twente, 4-6 july, 2002, (forthcoming in B. Elzen, F. Geels and K. Green (eds.). *Transitions to Sustainability through System Innovations*)

Kemp, R., Loorbach, D., Rotmans, J. (2007). Transition management as a model for managing processes of co-evolution towards sustainable development. *International Journal of Sustainable Development and World Ecology*, Vol. 14, No.1, pp. 78-91

Kern, F., Smith, A. (2008). Restructuring energy systems for sustainability? Energy transition policy in the Netherlands. *Energy Policy*, Vol. 36, pp. 4093-4103

Klijn, E-H., Koppenjan, J., Termeer, C.J.A.M. (1995). MANAGING NETWORKS IN THE PUBLIC SECTOR: A THEORETICAL STUDY OF MANAGEMENT STRATEGIES IN POLICY NETWORKS. *Public Administration*, Vol. 73, pp. 437-454

Klijn, E-H., Koppenjan, J. (2000). Public management and policy networks: foundations of a network approach to governance. *Public Management*, Vol. 2, No. 2, pp.135–158.

Klijn, E-H. Skelcher, C. (2007). DEMOCRACY AND GOVERNANCE NETWORKS: COMPATIBLE OR NOT? *Public Administration,* Vol. 85, No. 3, pp. 587–608

Klijn, E-H. (2008). Governance and Governance Networks in Europe. *Public Management Review*, Vol. 10, No. 4, pp. 505-525

Kolbert, E., (2008). The island in the wind, A Danish community's victory over carbon emissions. *Reporting & Essays*, The New Yorker, pp. 1-9

Kostakis, I., Sardianou, E. (2011). Which factors affect the willingness of tourists to pay for renewable energy? *Renewable Energy*, Vol. 38, pp. 169-172

Lawhon, M., Murphy, J.T. (2011). Socio-technical regimes and sustainability transitions: Insights from political ecology. Working Paper, Clark University Graduate School of Geography

Leguijt, C., Benner, J.H.B., Struick, R.J. (2008). Energievisie Texel en uitvoeringsplan 2008 - 2011 hoofdroute naar een duurzame energievoorziening. Gemeente Texel, Nederland

Loorbach, D., Rotmans, J. (2006). Managing transition for sustainable development. *International Center for Integrative Studies (ICIS),* Maastricht University, Maastricht, the Netherlands

Loorbach, D. (2007). *Transition Management: New Mode of Governance for Sustainable Development*. Utrecht: International Books

Loorbach, D., Rotmans, J. (2010). The practice of transition management: Examples and lessons from four distinct cases. *Futures*, Vol. 42, pp. 237–246

Loorbach, D., (2010). Transition Management for Sustainable Development: A Prescriptive, Complexity-Based Governance Framework. *Governance: An International Journal of Policy, Administration, and Institutions*, Vol. 23, No. 1, pp. 161–183

Martens, P., Rotmans, J. (2005). Transitions in a globalising world. *Futures,* Vol. 37, pp. 1133-1144

Meadowcroft, J. (2005). Environmental political economy, technological transitions and the state. *New Political Economy*, Vol, 10, No.4, pp. 479-498

Meadowcroft, J. (2009). What about the politics? Sustainable development, transition management, and long term energy transitions, *Policy Science,* Vol. 42, pp. 323-340

Merriam, S.B. (2009). *Qualitative Research; A Guide to Design and Implementation*. San Fransisco: Jossey-Bass

Michalena, E., Hills, J., Amat, J.-P. (2009). Developing sustainable tourism, using a multicriteria analysis on renewable energy in Mediterranean Islands. *Energy for Sustainable Development*, Vol. 13, pp. 129-136

Möller, B., Sperling, K., Nielsen, S., Smink, C., Kerndrup, S. (2012). Creating consciousness about the opportunities to integrate sustainable energy on islands. *Energy*, pp. 1-7

Moore, C.M., G. Long., Palmer, I. (1999). 'Visioning', in L. Susskind, S. MacKearnan and J. Thomas-Larmer. *The Consensus Building Handbook,* Thousand Oaks, CA: Sage, pp. 557-90

Noor, K.B.M. (2008). Case Study: A Strategic Research Methodology. *American Journal of Applied Sciences,* Vol. 5, No. 11, pp. 1602-1604

Oikonomou, E.K., Vilias, V., Goumas, A., Rigopoulos, A., Karakatsani, E., Damasiotis, M., Papastefanakis, D., Marini, N. (2009). Renewable energy sources (RES) projects and their barriers on a regional scale: The case study of wind parks in the Dodecanese islands, Greece. *Energy Policy,* Vol. 37, pp. 4874–4883

Omer, A.M. (2010). Environmental and socio-economic aspects of possible development in renewable energy use. *Journal of Agricultural Extension and Rural Development*, Vol. 2, No. 1, pp. 1-21

Perrels, A.H., Diepstraten, F.J.M.A. (1997). DUURZAME ENERGIE OP TEXEL, Duurzame energie-opties als ontstekers voor regionale ontwikkeling, ECN, Nederland

Praene, J.P., David, M., Sinama, F., Morau, D., Marc, O. (2012). Renewable energy: Progressing towards a net zero energy island, the case of Reunion Island. *Renewable and Sustainable Energy Reviews,* Vol. 16, pp. 426– 442

Robson, C. (2007). *How to Do a Research Project: A Guideline for Undergraduate Students*: Oxford, UK, Blackwell

Rotmans, J., Kemp, R., Asselt, M.B.A. (2000). Transitions and transition management, the case of an emission-free energy supply. International Centre for Integrative Studies, Maastricht, The Netherlands

Rotmans, J., Kemp, R., Asselt, M. (2001). More evolution than revolution: transition management in public policy. *foresight*, Vol. 3, No.1, pp. 15 - 31

Rotmans, J. (2005). Societal Innovation: between dream and reality lies complexity. Rotterdam, Erasmus University Rotterdam

Rotmans, J. (2012). *In het oog van de orkaan, Nederland in transitie.* Boxtel: Aeneas, uitgeverij van vakinformatie bv

Saarinen, J. (2006). Traditions of sustainability in tourism studies. *Annals of Tourism Research,* Vol. 33, No. 4, pp. 1121-1140

Sharpley, R. (2000). Tourism and Sustainable Development: Exploring the Theoretical Divide*. Journal of Sustainable Tourism*, Vol. 8, No. 1, pp. 1-19

Shove, E., Walker, E. (2007). CAUTION! Transitions ahead: politics, practice and sustainable transition management, Department of Sociology and Department of Geography, Lancaster University, Lancaster, England

Smith, A., Stirling, A., Berkhout, F. (2005). The governance of sustainable socio-technical transitions. *Research Policy*, Vol. 34, pp. 1491–1510

Smith, A. (2007). Translating Sustainabilities between Green Niches and Socio-Technical Regimes. *Technology Analysis and Strategic Management*, Vol. 19, No. 4, pp. 427-450

Smith, A., Stirling, A. (2008). Social-ecological resilience and sociotechnical transitions: critical issues for sustainability governance. *STEPS Working Paper 8*, Brighton: STEPS Centre

Sørensen, E., Torfing, J. (2005). The Democratic Anchorage of Governance Networks. *Scandinavian Political Studies*, Vol. 28 , No. 3.

Stoker, G. (1998). Governance as theory: five propositions. *UNESCO*, Blackwell Publishers, Oxford, UK

Suurmeijer, J., Fischer, C., Gooiert, A., Westra, A., (2011). Duurzame Waddeneilanden, 'Op weg naar de energieke toekomst in 2020'. Grontmij and ekwadraat, pp. 1-58

Termeer, C.J.A.M., Dewulf, A.R.P.J. (2012). Towards theoretical multiplicity for the governance of transitions: the energy-producing greenhouse case. *International Journal of Sustainable Development,* Vol. 15, Nos. 1/2, pp. 37-53

Texel geeft energie (2009). keuzes en acties voor 2040, Urgenda, Rotterdam

Texel op koers (2009). Structuurvisie 2020; Ruimte voor ontwikkeling, samen zorgen voor de toekomst (Actualisatie van De Toekomst van Texel, Structuurvisie 2020, september 2002), Gemeente Texel, Nederland

Tsagarakis, K.P., Bounialetoub, F., Gillas, K., Profylienoub, M., Pollaki, A., Zografakisc, N. (2010). Tourists' attitudes for selecting accommodation with investments in renewable energy and energy saving systems. *Renewable and Sustainable Energy Reviews*, Vol. 15, pp. 1335-1342

Uemura, Y., Kai, T., Natori, R., Takahashi, T., Hatate, Y., Yoshida, M. (2003). Potential of renewable energy sources and its applications in Yakushima Island. *Renewable Energy*, Vol. 29, pp. 581-591

Verbong, G., Geels, F.W. (2007). The on-going energy transition: Lessons from a socio-technical,

multi-level analysis of the Dutch electricity system (1960–2004). *Energy Policy*, Vol. 35, pp. 1025–1037

Vergragt, P.J. (2005). Back-casting for environmental sustainability: from STD and SusHouse towards implementation. In: Weber, M., Hemmelskamp, J.*Towards Environmental Innovation Systems*. Springer, Berlin, Heidelberg, pp. 301–318.

Verschuren, P., Doorewaard, H. (2005). *Het ontwerpen van een onderzoek*, Utrecht: Uitgeverij LEMMA BV

Vrinds, H. (2011). Harnessing energy from renewable sources for self-sufficient electricity communities. Capgemini. The Netherlands

VVV Texel. (2000). Texel Uniek Eiland, Een geïntegreerd toekomstbeeld voor 2030. Den Burg. Texel

Weeda, M., Smit, R., Mourik, R., Feenstra, Y. (2007). Nieuwe Energie voor Energieplan Texel 2030, ECN, Petten

Yaw, F. (2003). Cleaner technologies for sustainable tourism: Caribbean case studies. *Journal of Cleaner Production*, Vol. 13, pp. 117–134

Appendices

Appendix A The interview blueprints (in Dutch)

Actors interview

Geschiedenis op het eiland (omtrent het Ambitie Manifest en duurzaamheid)

- Eerdere ontwikkelingen/stappen in het proces van voor het AM
  - Duurzaam eiland / achtergrond Texel
- Waarom Ambitie Manifest er gekomen en met welk uiteindelijk doel?
  - Wat zijn de voorafgaande ontwikkelingen?
  - Wie zijn daar bij betrokken (geweest)?

Huidige omstandigheden / rollen

- Wat doet uw organisatie / omschrijving rol en verantwoordelijkheden
  - (Energie)beleid (lokaal tov nationaal & internationaal)
- Wie zijn op dit moment bij het transitie proces betrokken?
  - Innovaties/vernieuwers/voorlopers
  - Is er een platform /arena?
  - Partnerships
- Wie zijn de hoofdrolspelers (buiten alleen de gemeente) en hun rol/praktijken
  - Hebben zij inspraak op richting transitie en beleid?
    - Of gemeente aanjager en (enige) bepaler?
- Hoe staan de huidige ontwikkelingen? (huidige fase)
  - Hoe zou u de huidige fase van ontwikkeling v/h proces omschrijven?
  - Wat zijn belangrijke mijlpalen / dingen die al bereikt zijn?
    - De belangrijke momenten/hoogtepunten van de afgelopen jaren tot nu
  - Welke projecten en experimenten (energiegericht en technologieën) zijn en worden er gedaan? (mbt niches)
  - Is er een korte en lange termijn plan en visie?

Toekomst

- Wat zijn belangrijkste doelstellingen voor de toekomst?
- Wat zijn de belangrijkste uitdagingen voor de toekomst?
- Hoe kan volgens u dit abstracte idee (manifest) meer praktisch worden gemaakt voor de burgers/bedrijven/organisaties/toeristen van het eiland?
  - Hoe kan dit proces echt in de versnelling komen zodat grootschalige verandering(en) gaan optreden
  - wat moet daarvoor gebeuren of wat is daarvoor nodig?

Rol toerisme

- Zijn er actoren/stakeholders vanuit het toerisme die actief meedoen? (in arena/projecten/partnerships) en/of worden die actief betrokken (door u of anderen) bij het proces?
  - Hebben die dan invloed op de richting / beleid van het proces, hebben zij inspraak?
  - Wat kunnen zij doen of wat zouden zij moeten doen (acceptatie en implementatie)
  - Is er bereidheid om mee te doen vanuit de sector naar uw mening?
- Zijn er (opmerkelijke) ontwikkelingen in het toerisme?
  - Hoe gaan ze om met de veranderende omstandigheden?
    - Ziet u dingen gebeuren/veranderen?
- Zal het toerisme op het eiland veranderen volgens u? (hoe dan?)
  - Duurzaam toerisme/de bewuste toerist / groen eiland, imago/ energie toerisme
  - Meer/minder/bewuster toerisme

Tourism interview

Geschiedenis op het eiland (omtrent het AmbitieManifest en duurzaamheid)

- Eerdere ontwikkelingen (hoe is het gegaan, wat is er gebeurd?)
  - tijdlijn
- Hoe is dit plan vanuit uw optiek ontstaan?
  - Achterliggende gedachte/doel
  - Achtergrond op Texel (omtrent duurzaamheid en toerisme)
  - Eerdere belangrijke stappen in dit proces (Texel 2030; stichting duurzaam Texel , Texel Energie, Urgenda etc.)

Huidige omstandigheden toeristische sector t.o.v. AM

- Wat vindt u van het Ambitie Manifest?
  - Uw visie vanuit bedrijf en vanuit het toerisme als geheel
  - In hoeverre of op welke manier is de toeristische sector betrokken bij dit plan?
    - Duurzaamheid/energieverbruik/grootste economische sector
- Welke rol is weggelegd in dit transitie proces voor de toeristische sector of uw bedrijf?
  - Meedoen projecten / partnerships
  - Implementeren RES in sector/bedrijf
  - Richting proces beïnvloeden / beleid (voor de sector t.o.v. RES)
  - Arena / omgeving voor interactie met andere actoren en stakeholders
- Zijn er (opmerkelijke) ontwikkelingen in de toeristische sector/bedrijven in relatie tot het AM?
  - Hoe gaan de toerisme ondernemers ermee om?

    - Niche ontwikkelingen
    - Koplopers
  - Wie zijn op dit moment bij het transitie proces betrokken?
    - Innovaties/vernieuwers/voorlopers
    - Is er een platform /arena?
    - Partnerships
  - Wie zijn de hoofdrolspelers (buiten alleen de gemeente) en hun rol/praktijken
    - Hebben zij inspraak op richting transitie en beleid?
      - Of gemeente aanjager en (enige) bepaler?
- Levert u of de toeristische sector een (actieve) bijdrage aan het doel van AM?
  - Praktijken/initiatieven/projecten/meedenken en ontwikkelen sector in relatie tot transitie?
    - Bv. toepassen RES in sector/bedrijven
  - Bent u daartoe bereid? (financieel, meedenken)
    - In eigen bedrijf of in project of voor de sector op het eiland
- Wordt de toeristische sector of uw bedrijf (actief) betrokken bij het proces door anderen? (zoals gemeente, Urgenda, Texelenergie, VVV, Stichting Duurzaam Texel)
  - Bewust gemaakt van de plannen/beleid, betrokken bij beslissingen en discussiepunten, aangegeven wat toerisme kan doen (ook in eigen bedrijf)
- Beinvloeden deze plannen en doelstellingen de toeristenstroom en samenstelling naar het eiland volgens u (in de afgelopen jaren iets verandert? Nu anders? Of in de toekomst anders?)
  - Wat weer gevolgen kan hebben voor de bedrijven (pos & neg)

Toekomst

- Wat zijn de kansen en bedreigingen vanuit de doelstellingen van het AM?
  - voor de toerisme sector/bedrijven
- Zal het toerisme op het eiland veranderen? (hoe dan?)
  - Duurzaam toerisme/de bewuste toerist / groen eiland, imago/ energie toerisme
  - Meer/minder/beter toerisme
- Wat is er voor nodig om de sector /bedrijven mee te krijgen (als dit nog niet echt het geval is)
- Wat is de haalbaarheid van deze ambities?
  - Wat is ervoor nodig om ze waar te maken?
- Wat zijn de belangrijkste uitdagingen voor dit plan en de sector t.o.v. de toekomst?
  - Meeste belangrijke/ hoofdpunten

Appendix B Visited websites

- www.texel.nl (municipality of Texel)
- www.texel.net (local tourist office)
- www.texelsecourant.nl (local newspaper)
- www.urgenda.nl (foundation Urgenda)
- www.stichtingduurzaamtexel.nl (Sustainable Texel)
- www.texelenergie.nl (TexelEnergy)
- www.waddenhaventexel.nl (the Wadden harbour)
- www.waddensea-worldheritage.org
- www.teso.nl (the ferry of Texel)
- www.waddengoud.nl (hallmark for sustainable services / products of Texel)
- www.zotexels.nl (pure and authentic tourism accommodations of Texel)
- www.ecomare.nl (Seal intake centre and marine centre of Texel)
- www.texel-plaza.nl (local media website)
- www.c2cisland.org (cradle to cradle islands)
- www.ecn.nl (Energy research Centre of The Netherlands)
- www.rijksoverheid.nl (the Dutch State)
- www.wijwillenzon.nl (foundation for solar panels by Urgenda)
- www.capgemini.com (large consulting, technology and outsourcing company)
- www.duurzameenergieunie.nl (renewable energy provider TexelEnergy)
- www.nos.nl (national media concern)
- www.Noord-Holland.nl (province Noord-Holland)
- www.CBS.nl (central office for statistics)
- www.trouw.nl (Dutch newspaper)
- www.ecyclo.nl (online encyclopaedia)