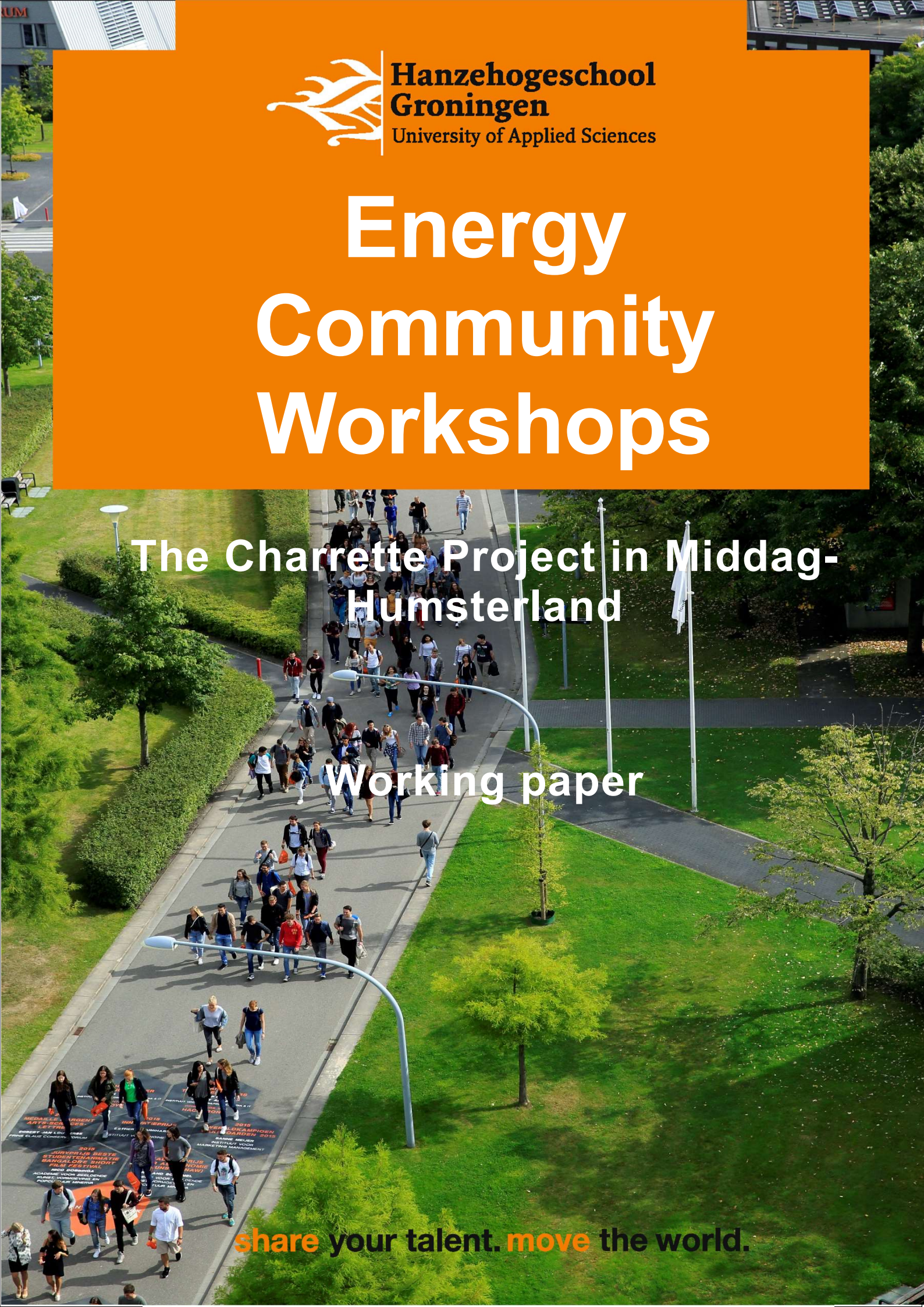
Hanzehogeschool Groningen
University of Applied Sciences

Energy Community Workshops

The Charrette Project in Middag-Humsterland

Working paper



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Foreword

This working paper is a deliverable of ESTRAC *Transforming Regions*, a joint initiative of knowledge and research institutes TNO (ECN), Hanze University of Applied Sciences, University of Groningen and New Energy Coalition.

This is a working paper, and hence it represents research in progress. The author would like to thank all those involved in the Middag-Humsterland charrette project, including colleagues and other reviewers for contributing with valuable comments; the content however solely represents the analysis of the author.

1. Introduction

The transition towards renewable energy on the local and regional level is hot and happening. Many local initiatives see the day. For example, it is estimated that in 2020, according to the Local Energy Monitor, there were more than 600 energy cooperatives in the Netherlands, with approximately 97,000 members (Lokale Energie Monitor, 2020). Simultaneously, there is another development on the local and regional level: more and more local or regional plans are being created by local and regional governments, shifting the perspective to the local and regional energy planning context. Potentially local initiatives and local or regional energy planning are two sides of the same coin; however, they do not always amalgamate. For example, a study by Wyse and Hoicka (2019) in the Canadian context indicates that community energy and local energy plans both deal with energy activities in a local context, yet how they are connected remains unclear (883).

On the interface of these two energy related developments that take place on the local and regional level is the case study presented in this report: a collaborative energy project in Middag-Humsterland, a rural area in the province of Groningen (Figure 1). In this project (entitled 'Endelk'), community workshops or charrettes were organized to address the issue of energy transition in a rural area with a highly valued cultural landscape (Gebiedscoöperatie Westerkwartier et al. 2018). Both aspects - community initiative and planning - emerge while dealing with the main challenge in the area: is energy transition possible without destroying the landscape? The project was initiated and coordinated by a so-called area or regional cooperative (Gebiedscoöperatie Westerkwartier), a cooperative representing a wide variety of stakeholders in the greater area Westerkwartier of which Middag-Humsterland is a part. The initiative for organising charrettes to discuss energy transition was not part of a formal planning process – rather it was framed as an opportunity to make a grassroot or bottom-up energy plan that was to feed into the planning processes on renewable energy in the municipality Westerkwartier and province of Groningen.

Figure 1: Middag-Humsterland, province of Groningen. Powerpoint Endylk; http://middaghumsterland.info/

The main aim of this working paper is to investigate the approach that was used in this case in detail, both in terms of methodology (the charrette) and in terms of content (energy transition in a valuable landscape), and to discuss some of the outcomes, results and lessons learned. In terms of methodology, charrettes are multiday collaborative workshops in which stakeholder groups meet to work on a set of shared problems. As they typically focus on a particular area, in this case the region of Middag-Humsterland, they are an example of an area based or regional approach that includes the engagement or involvement of stakeholders. Content wise, this allows for a

discussion on the role of energy transition and landscape, articulating the spatial consequences and impacts of the energy transition.

Two main sets of questions lead the way. A first set of questions is related to the methodology of the charrette approach: how was the charrette process implemented and how was the engagement and involvement of stakeholders arranged? Did the charrette approach succeed in supporting stakeholders to make an energy transition plan? A second set of questions relates to the issue of landscape and energy: how can the impact of renewable technologies in the landscape by minimized? What are the possible solutions? And indeed, is energy transition possible in a valuable landscape like Middag-Humsterland?

The Middag-Humsterland charrette project is an example from practice, a case study using participatory approaches in regional energy transition planning. In the first part of this working paper the charrette as an approach or methodology will be discussed, zooming out to the broader context of planning, participation and community engagement approaches. In the second part the case study itself is presented highlighting both methodological findings as well as results relating to energy and landscape. The third part will address and discuss some of the key issues that have emerged.

2. The charrette approach: some general principles

2.1. Introduction

Allegedly the word 'charrette' is derived from the Old French word for 'cart' of 'chariot'. According to anecdote '…in the 19th century, professors at the École des Beaux-Arts collected architecture students' final drawings in a cart for jury critiques while students frantically put finishing touches on their work' (Lennertz and Lutzenhiser 2014: v) (Figure 2). More specifically, '…the École des Beaux-Arts would issue problems that were so difficult few students could succeed within the time allowed. It was not unusual for student architects to continue working furiously in teams at the end of the allotted term, up until a deadline, when a pushcart or charrette would be wheeled among the students to pick up their work for review while they, each working furiously to apply the finishing touches, were said to be working 'en Charrette', in the cart (Lennertz and Lutzenhiser 2014: v). To miss the charrette would mean a zero grade (Roggema 2014: 15).

Figure 2: Students working 'en Charrette', École des Beaux-Arts. Wikipedia

2.2. Definition

The term charrette metamorphosed into the contemporary use of a method for conducting design-based workshops, in which the principle of working right up until a deadline, within strict time limits, is a key characteristic (Jellema and Mulder 2016: 13; Condon 2008; Roggema 2014). Today, the charrette is a well-known instrument or mechanism for the design and planning in urban (and rural) communities to tackle a wide variety of challenges or problems in places. Also often dubbed 'design charrette', it is both the process and the end-result that matters, typically based on the interplay or ensemble of community involvement and placemaking (Scottish Government 2010). Indeed, charrettes are typically held in situations with high stakes, in volatile yet workable

political situations (hot but manageable issue), associated with complex design problems, but in real project situations (Lennertz and Lutzenhiser 2006; Roggema 2014a).

In its contemporary meaning, the 'charrette' may be defined as '…a multiple-day collaborative design and planning workshop held on-site and inclusive of all affected stakeholders' (Lennertz and Lutzenhiser 2014: v) or as '…an interactive design workshop in which the public, local professionals and stakeholders work with a specialised design team to generate a specific community masterplan' (Scottish Government 2010: 6; Kordas 2020:4). In further definition, a design charrette is a time-limited, multiparty design event organized to generate a collaboratively produced plan for a sustainable community (Condon 2008: 1).

In short then, charrettes are collaborative, interactive sessions in which a group of designers draft, in a co-design process, a solution to a complicated design problem (Condon 2008). Typically, it is a focused, multiday session that uses a collaborative approach to create realistic and achievable designs. Although originating from the field of design, charrettes take place in many disciplines. Charrettes can help to create trust and build consensus by allowing participants to be part of the decision-making process, aimed to collaboratively solve a seemingly impossible problem within an absurd limited amount of time (Condon 2008).

2.3. The origins of the charrette

Lennertz and Lutzenhiser provide a comprehensive overview of the origins and development of the charrette as a mechanism or instrument in planning (2014; see also Kordas 2020; Condon 2008). These origins can be traced back to North America where charrettes emerged in the context of urban planning, as a method to engage engineers, architects, planners, regulators and others (including citizens) in the design of future cities. For example, the U.S. National Endowment for the Arts Design Arts Program sponsored design charrettes in the 1980s and 1990s. Typically, these charrettes were linked to the New Urbanism movement that advocate dense urban form, mixed uses and walkability (Kordas 2020: 7). This was motivated by the urge to offer holistic (place based-, site - and neighbourhood-) understandings of communities to solve city problems – or as Condon frames it: to counter-attack the disintegration of (American) cities. This happened in a time when generally speaking, the engagement of the public in the planning of their communities increased.

Originating in the North American context, the charrette approach spread to other countries and jurisdictions, such as Scotland, and the Netherlands (Kordas 2020; Roggema 2014). According to Kordas, there has been limited academic empirical inquiry into the frontline practices through which participation in planning takes place (Kordas 2020). Exceptions (preceding Kordas' own work on Scottish situation, see below) are Bond and Thompson 2007 (New Zealand); Onyango and Hadjri (2009) and MacLeod (2013); and in addition, more generally on participative planning: Flyvbjerg (1998), Forester (2006), Healy (2006) and Roggema (2014). Despite the limited academic interest, there is considerable documentation to give insight in theory and practice of charrettes. In fact, a few handbooks and guidelines have been drafted – three of them will be shortly discussed below.

First, again, relating mostly to the US-North American urban context is Condon's *Design Charrettes for Sustainable Communities* (2008) (Design Centre for Sustainability, UBC) which basically is a recipe or self-help book for professionals, officials, citizens, and stakeholders. Noteworthy is that Condon clearly states that design charrettes are not planning exercises – and they do not produce plans but drawings or 'visions for space'. Condon identifies two types of charrettes: the so-called *visioning charrettes* best described as 'spectaculative explorations' and *implementation charrettes* that are to deliverable 'implementable plans' or local area plans. Typically, the charrettes themselves are the common denominator to describe 4 to 8 sequential meetings with a group of 30 to 50 people, including designers. These meetings usually follow a setup of talking, doodling, and drawing. Crucial is the strict deadline, and an end presentation to a broad public. In practice, based on Condon's work, three important principles can be identified to characterise these *formal* charrettes. First, there is a thorough preparation phase with a group of people larger than the final charrette people in pre-charrette workshops, ending in a final design brief in which goals and objectives are stated as well as performance indicators are identified. Second, related, the charrettes and the preparation activities are linked and based on existing policies – this information is carefully collected and mapped out. Third, after the charrette, the findings are presented in a preliminary report,

and later in a concept and final plan. This final plan then enters the planning process – accelerating the public review process and eliminating the need for alternative schemes. This is related to the fact that charrettes bring stakeholders with opposing views together, inviting people to move beyond NIMBY-responses. Because of the narrow link between method of the charrette (design with everyone) and content and ambition (sustainable urban communities), and the link to the official planning process, the normal public review process may be altered as after a charrette process, opposition to plans ideally is limited.

A second handbook was developed by Lennertz and Lutzenhiser of the National Charrette Institute (NCI), part of the American Planning Association: *The Charrette Handbook. The Essential Guide to Design-Based Public Involvement* (2nd edition, 2014). The NCI was established in 2002 by experienced practitioners as a non-profit research and educational organization as they felt the need for standardized and effective methods for collaborative planning. In a way its foundation was a response to a changing planning practice in the US – where commercial developers rather than public authorities became the dominant actors in the planning of cities. The NCI advocates a holistic, community engaged, planning process for and of communities. They operate with a strict definition of the NCI charrette system, that is actually linked to teaching and curricula for planning agencies, firms and individual practitioners.[1] The NCI Charrette system is based on a three-phase multiple day, collaborative planning workshop. The first phase focuses on research, engagement and the charrette presentation, establishing both the information and the people that are involved. This preparation may take between six weeks to nine months. The second phase of the charrette system is the charrette itself: the collaborative workshop that takes between four to seven consecutive days with a multidisciplinary charrette team, stakeholders and public meetings. In the third phase, the plan is further refined and finalized, presented to the final public review and ideally, leading to the adaptation of the plan. Charrettes are held on-site and includes affected stakeholders at critical decision-making points (Lennertz and Lutzenhiser 2014: 3). Core values to the charrette system are community health, collaboration, transparency, shared learning, and direct, honest and timely communication (Lennertz and Lutzenhiser 2014: 10). Lennertz and Lutzenhiser (2014:5) define the charrette system as a process that produces a feasible plan, allowing meaningful involvement of stakeholders, increasing trust in government, saving time and money, and resulting in exceptional designs for places.

The third is not a handbook but a (PhD) research into the acceptance and subsequent mainstreaming of charrettes in the Scottish planning practice by Kordas (2020): *Whose Vision, Whose Places, Whose Future? Charrettes in the Scottish Planning System*. Between 2010 and present, the Scottish government provided funding for charrettes as collaborative planning and design workshops. This must be seen in the light of overall need to increase citizen participation in the planning practice. The Scottish Sustainable Communities Initiative, launched in 2008, led the initiative aiming to transform design, increase the quality and environmental standards of new housing. In Scotland, the interactive, public design workshops that were organised were unique in their approach to community engagement and participation, while at the same time creating places that are designed and built to last, ensuring a high quality of life for those involved. Typically, the charrettes followed a common format, including a site tour, technical meetings with public and specialised groups and public presentations for large audiences. Throughout the process, design teams worked on master plans to incorporate ideas and concepts generated during meetings. These events were led by a professional company with a long-standing international tradition of charrettes. The public and community groups, planning authorities, national agencies, schools and universities, and Scottish government participated in the charrette meetings. Over the years charrettes projects have been conducted in Scotland as for example is demonstrated in the Charrette Series Report, published by Scottish Sustainable Communities Initiative, that highlights three cases in the neighbourhood of Aberdeen (Scottish Government 2010).

In sum, originating in a strictly urban American context we see that charrettes are part of planning and design practice both in North America and Scotland. While charrette practices seem to differ in how formal and strict the set-up is, they all share a number of features. Usually, charrettes are part of a planning process; they run over a longer period of time; and at the heart of the process is a multi-day workshop (the charrette) were the collaborative planning takes place. Essential elements are a thorough preparation, a link to existing policies, a

[1] There is a NCI Charrette System TM certificate training.

plan that is ready to enter the formal planning process, and the engagement and participation of a broad range of stakeholders, based on the link between these stakeholders and the area under consideration.

2.4. Charrettes in the Netherlands

In the Netherlands charrettes have also emerged in planning and design practice, along with a number of similar approaches as for example design ateliers, living labs, 'schetsschuiten' etc. Specifically dealing with charrettes, in the Dutch context charrettes have particularly emerged and practiced in the field of (renewable) energy. In the Dutch academic and professional context, roots can generally be traced back to the early 2000s. At that time, the Grounds for Change project was initiated to investigate the relation between places (spaces) and renewable energy (Van Dam and Noorman 2006). Characteristic of these energy related charrettes is the focus on the spatial dimension and relation of renewable energy. Well-known advocates and practitioners of the charrette approach in the context of energy are Roggema and Noorman, all of them involved in the original Grounds for Change initiative (Van Dam and Noorman 2005; Roggema 2014). In this particular context, charrettes are defined as interactive, interdisciplinary design sessions in which experts and professionals work together with the inhabitants of a certain area on the energy transition. Usually, these charrettes are two or more days of intensive design workshops with a mixed group of participants working collaboratively towards designing future visions for an area (Roggema 2014). Emphasis is placed on combining different types of knowledge, working in a creative atmosphere, alternating between plenary discussion and smaller teams, using maps and other visual tools. The expertise of experts and professionals is matched with local and regional knowledge through a process of co-creation, resulting in a joint sense of ownership, and a higher public support in the implementation phase (Roggema 2014). With the designer taking a central role, the charrette process is aimed to create a different mind-set to allow bottom up and 'out of the box' thinking. As such, they contrast with ordinary planning and design processes that take place within regulated frameworks and procedures (Roggema 2014). Closely connected to the Dutch professional context, a wide variety of charrettes have been employed over the years varying from charrettes organised as part of the aforementioned energy and space manifestations (Grounds for Change, North of the Netherlands) to international examples in Canada, China and US (Noorman and De Roo 2011; Roggema 2014). These charrettes all differ in subject (urban or water management; climate change; energy) and context (urban-rural), in length (2 days to an entire week), in complexity and the participants involved (specialists only to general public) as is illustrated in Roggema's 2014 academic publication.

Also relevant in this context are 'regional design ateliers' that were organised in 2016 as part of the development of regional energy strategies (RES) discussed by Kempenaar et al. (2021). Regional design ateliers are multiple one day meetings in which regional stakeholders, under the guidance of a team of spatial designers, explore and discuss spatial issues and challenges (Kempenaar and Van der Brink 2018; Kempenaar et al. 2021). The results generally feed into (strategic) spatial planning processes (ibidem). Design Ateliers serve different purposes as they can be used to determine the common denominators in a region, but they can also be used to define a problem or set the agenda, support decision making or connect stakeholders with actions (De Zwart 2015). Ateliers are labelled 'soft spaces' in which stakeholders and designers are able to freely explore spatial issues and solutions – the fact that they do not have formal decision-making power creates circumstances that enables a genuine dialogue in which information and knowledge is shared (Kempenaar 2019: 2). This enables collective conceptualization and envisioning that opens up new perspectives and out of the box ideas. The focus of many of these regional design ateliers is the planning for energy transition, in particular directed towards the accommodation and integration of the energy transition with other land-uses and spatial issues (Kempenaar et al. 2021; De Boer and Zuidema 2015; Oudes and Stremke 2018). In the case of the regional energy strategy Ateliers, the workshops helped to create awareness amongst regional stakeholders on the impact of the energy transition on places. However, through the practice of the Ateliers it also became clear that many aspects were not addressed, mainly due to the fact that understanding the energy transition proved complex (Kempenaar 2019).

Finally, in this consideration of charrettes in the Dutch context, some recent experiments of Hanze University of Applied Sciences in Groningen with charrettes should be addressed. Several charrettes were organised under the guidance of the professorship Energy Transition, led by Noorman, who as a professional already had extensive

experience with organizing and moderation of charrettes, dating back to the Grounds for Change project in the early 2000s. A series of charrettes were organized on the island of Ameland in 2017-2018 as part of a broader energy and sustainability initiative on the island, and in effort to involve and engage a wider group of people. The charrettes were held in all the four villages of the island as well as one island-wide charrette. The meetings were shaped according to the main principle of charrette ('under high pressure great things develop'), including the participation of experts, designers and local people. The end result was a number of popular publications that was presented to the council and the wider population of Ameland. Although they contributed to a greater understanding of renewable energy initiatives and increased involvement of local actors, the charrettes and their end result were not part of a formal planning procedure or decision-making process (Van Dam and Van der Windt (forthcoming); Geerdink et al. 2018; Geerdink et al. 2020).

In sum, in the Dutch (and international – see Roggema) context, the charrette has been altered to include a wider context or geographical setting (not restricted to urban areas). While like in the original charrettes, sustainability is overarching, these charrettes often have a specific topic or focus (energy, water management). Usually, they are taking place outside the formal planning procedures, allowing for more out of the box thinking. In particular in the Netherlands, charrettes have emerged in the context of renewable energy and its relationship with space; in this, there is an extensive experience and longstanding tradition to involve local people and experts in creating visions and ideas on the implementation of renewable energy technologies in rural and urban regions as is illustrated e.g. on the island of Ameland.

2.5. The wider context: participatory approaches and energy planning

As mentioned, in the Netherlands, charrettes and similar approaches have been used in particular as valuable tools in exploring some of the principles in spatial and energy relations. In the context of broader energy planning approaches, two contextual aspects are worth considering. First, we observe that the significance of energy in planning practices is increasing. There is a trend of local communities, including municipalities and regional governments, to develop local and regional energy plans (Wyse and Hoicka 2019). For example, in Canada 244 of such local energy plans were identified (ibidem, 890). Although in the Netherlands similar local energy plans do not exist as such, many local governments have started to consider energy in their (spatial) planning and other policies. Second, concerning the interaction with stakeholder groups, charrettes need to be seen in the light of broader participative planning tools that are available in planning and beyond. Nowadays, most planning practices include some kind of organised interaction between stakeholder groups and planning authorities. Charrettes are an example of such collaborative or participatory approaches to planning (Kordas 2020: 6). Jellema and Mulder (2016) discuss charrettes in the context of public engagement in energy research (2016). Based on Arnstein's ladder of participation and the public participation spectrum of IARP22, Jellema and Mulder (2016) have developed a framework for participation categories based on the 'intensity of engagement' varying from discussing, consulting, involving, collaborating to supporting. Charrettes are placed in the category of 'collaborating' – working together on research initiation and/or execution; co-ownership of the project (5).

Hence, with charrettes we operate at the interface of participation and community involvement and local energy planning, evolving around the question on how to meaningful integrate, involve and engage stakeholders and their perspectives in these processes of local energy planning. This is a challenge in itself, one that is complicated further by the fact that perhaps more than with other broader issues of sustainability, energy is a highly technical or technological field. One of the key challenges that comes out of this is the role/interaction between technical expert knowledge in this (participation) process.

In the wider inter- and transdisciplinary setting, there is broad range of approaches (tools, methods) both in science and professional practice available to assist plan making and participation processes (e.g. see ESTRAC Decision making report, Wetzels et al. 2020). They cover a broad range from top -down energy modelling to bottom-up local initiatives. Additionally, Bouw et al. (2020) have reviewed a wide range of tools and models available to be used for local energy planning by municipalities. Here we will highlight two examples of available tools and approaches, one from science, one from professional practice, as they show similarities with the

[2] IARP2: International Association for Public Participation.

charrette approach. The first example from science is provided by Heaslip and Fahy (2018) in their study of an Irish island. In this study, they tested a transdisciplinary method for community energy planning using Homer software for optimizing energy in microgrids in combination with social data gathered by surveys, interviews and focus group meetings. In this research project, there was for instance via community energy workshops a constant interaction between highly technical data and energy scenarios provided by experts and the Homer model with the localized, detailed knowledge and preferences as expressed by local people. The preferred scenario that was selected by the participants was the one that managed to include local narratives in the best possible way. One of the conclusions was that indeed, technical optimal solutions are not always the most preferred scenario by the population.

The second example is derived from Dutch professional practice. The Smart Energy Cities approach was developed in the Netherlands by a public-private partnership (Ministry of Economic Affairs and Ministry if the Interior and Kingdom Relations, Netbeheer Nederland, TKI Urban Energy and TKI ClickNL) to assist municipalities and neighbourhoods in making plans for the energy transition, in particular in finding alternatives for natural gas (Wetzels et al. 2020). The approach was developed and tested in 16 neighbourhoods in the Netherlands where professionals were teamed with municipalities, residents and housing associations.

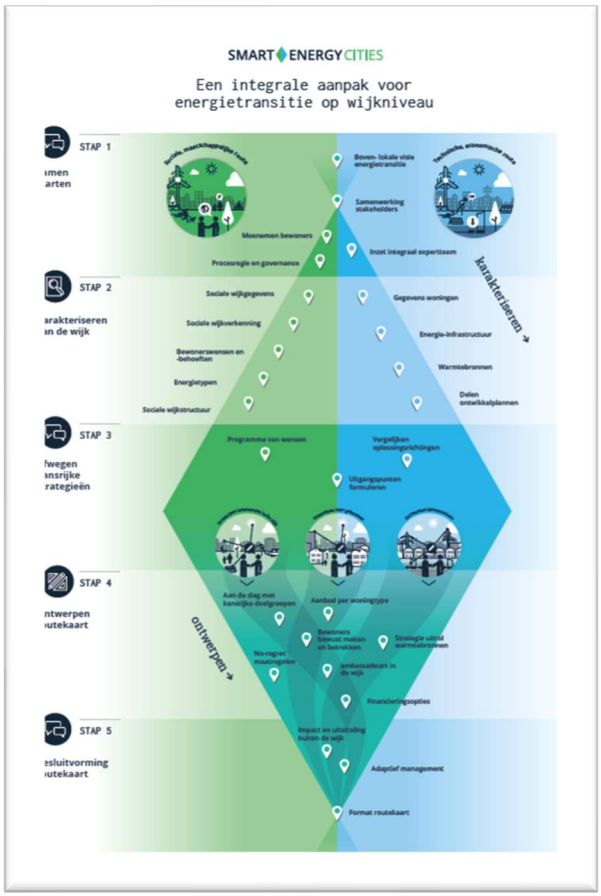


Figure 3: Smart Energy approach.

Smart Energy City is an integrated approach that combines a social and societal approach with technological and economical innovations. (see Figure 3). Both tracks or trajectories are simultaneously developed to result in a roadmap for the energy transition. The approach takes participants through two phases: a first phase to characterise both the societal (e.g. demographics) and technical components (e.g. current energy use) and a second phase to develop and design new plans. The roadmap generally consists of specific actions for certain types of houses; steps to be taken to develop a new energy system; a communication strategy and an investment program for the first 1 to 2 years. This approach is strongly focused on process, governance and decision-making including the inclusion of stakeholders. The Smart Energy City approach also facilitates adaptive management:

for example, a neighbourhood can start with no regret measures for a small number of houses and decide later about whether or not new heating systems should be adopted. The end result is an integrated and adaptive roadmap for a long-term period.

What both the Smart City approach and the Irish island example have in common is that they combine a participatory trajectory with a more technical trajectory. In these trajectories, there is high interaction between researchers and stakeholders. Technical information is collected and used in an interactive, co-creative decision-making process, with stakeholders, who may also be involved in collecting data. Indeed, charrettes may be considered a specific form, or further particularisation of this interactive co-creative methodology, one that includes (spatial) designers. These workshops – ateliers – have their own dynamics, adding the spatial dimension to the discussion.

2.6. Research framework and methods used

2.6.1. Towards a framework for an interactive approach in energy planning

Based on the considerations presented, a basic framework for an interactive approach and methodology has been developed (Figure 4). This framework is based on the charrette-method, refined with elements of the Smart Energy City approach and Heaslip and Fahy's research on the Irish island (2018).

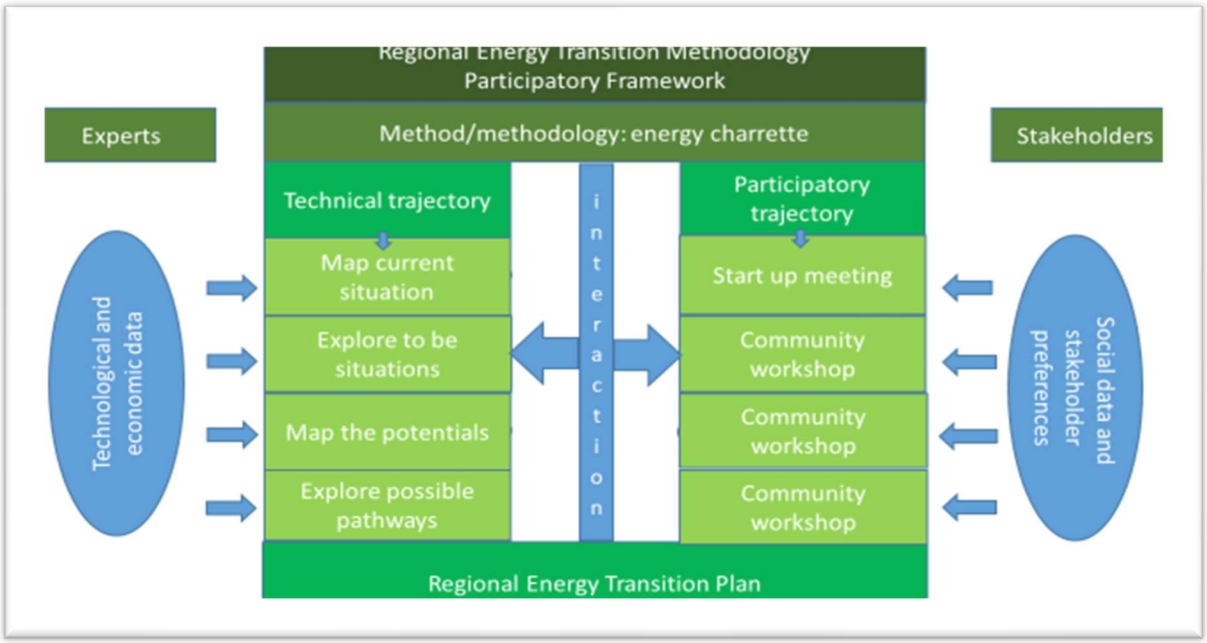


Figure 4: Basic framework for participatory methodology (energy workshops/charrettes)

This model will act as a framework to discuss the case study presented in this report: the charrette project conducted in Middag-Humsterland. In this study two important things come together - participation and a place-based approach – that we have translated in the two aims that lead this research.

First of all, we aim to investigate how the charrette approach has been used. Designed as a participatory tool that not only includes professional stakeholders but also local people, inhabitants, residents, community, and citizens, we question how the charrette in Middag-Humsterland has performed in terms of process, participation and outcome.[3] This includes a reflection on how this compares to general practice of conducting charrettes as provided in the previous chapter, and we will reflect on how this compares to the conceptual framework for participatory methodology as presented in the framework.

[3] https://www.epa.gov/international-cooperation/public-participation-guide-charrettes.

Second, in relation to the area-based concept, we will specifically look at the energy-spatial interaction. We aim to investigate how the energy transition relates to a rural area with a valuable and highly valued landscape. What are the considerations of the participants on this matter? Is it possible to develop plans and ideas for energy transition without disrupting the landscape? What are the spatial consequences and impacts of technologies on the landscape? We will discuss these matters against the backdrop of new policies being formulated such as Regional Energy Strategy for the province of Groningen and other national energy policy and planning, if relevant.

2.6.2. Method used: participation, observation, document analysis

We use a single case study approach/design to investigate a participatory approach to regional energy transition. This allows for an empirical analysis of a contemporary phenomenon in depth and in a real-life context (Yin 2018; Van der Waal et al. 2020). The case selected is a participatory project in the region Middag-Humsterland.

For this study, we adopt a mixed-methods, qualitative research approach to analyse the charrette approach. Data collection took place between 2019 and 2021. First, a general document analysis was conducted – using project related internal and external public documents, such as reports, website, news items, etc. The analysis offered insights in the development, discourses and issues. Second, we used ethnographic techniques to gain further understanding of the initiative (Hasanov and Zuidema 2018: 87). We participated and observed the project in 2019. The employment of such ethnographic techniques was crucial for acquiring deep insights and understanding of the project.

3. Introduction to the case study

3.1. Introduction

Middag-Humsterland is a region located in the province of Groningen. This name is rooted in the past as historically, in the Middle Ages, Middag and Humsterland were two islands surrounded by the Lauwerszee and rivers (Delvigne 2018; see Figure 5). Technically the region is the 'National Landscape Middag-Humsterland', implying that that region is defined by its unique landscape, and not – as we typically would do - by administrative or jurisdictional boundaries - i.e. the region is not a separate administrative unit. Until 2019, the region was part of two separate municipalities (Middag as part of Winsum and Humsterland as part of Zuidhorn). Today, after municipality reorganisation, the entire region is part of the municipality Westerkwartier.

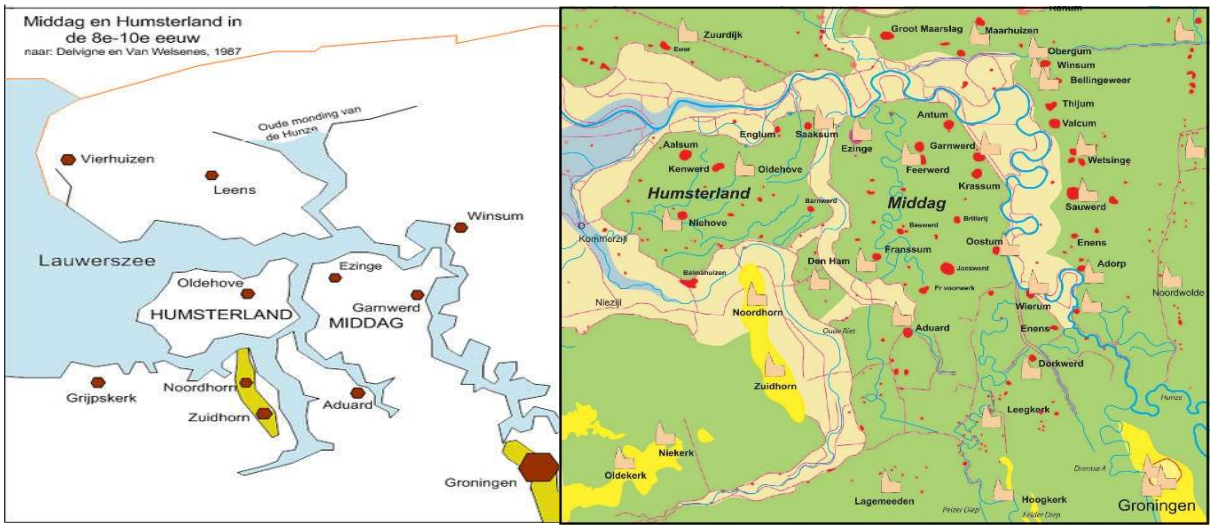


Figure 5: Two maps of Middag and Humsterland. Left: 8th-10th Century, based on Delvigne and Van Welsenes 1982/87 (source unknown); right http://landschapsgeschiedenis.nl/deelgebieden/12-Middag_Humsterland_en_Reitdiepgebied.html

In 2005/2006 Middag-Humsterland was appointed one of the 20 national landscapes in the Netherlands; today (2021) the area is also nominated as UNESCO world heritage site. A national landscape was[4] defined as an area with an internationally rare or unique, and nationally distinctive quality, of the landscape, in cohesion with particular natural and recreative functions (Rijksdienst voor het Cultureel Erfgoed, 2019). Middag-Humsterland was selected a national landscape for its value of being the oldest cultural landscape in the Netherlands, shaped by the interaction of people, sea and fresh water, and selected specifically for its topography (relief) of mounds ('wierden, terpen'), marsh levees and dikes; the irregular pattern of square parcellation or settlement structure ('blokverkaveling'); and the openness of the area (Belvédère, Minsterie van VROM, 2006; Landschapsconvenant 2015).

[4] The national landscape as a separate policy 'category' with resources etc. ceased to exist in 2011, 2012. However, the term continues to be used.

3.2. The charrette project Endelk, Middag-Humsterland

In the course of 2017/2018, the charrette project for the Middag-Humsterland region was initiated by a group of local people, part of the regional cooperative Westerkwartier, in close cooperation with the Hanze University of Applied Sciences.

In the area there was an increasing sense of urgency felt in relation to the use of sustainable and renewable energy. In particular two developments lead up to the project. First of all, in the municipality of Zuidhorn discussion and tension had emerged in relation to the instalment of wind turbines and solar parks for electricity generation. Farmers from the region issued a request for the instalment of small EAZ wind mills[5] on their yards, while other residents in the area objected the plans of these famers as they were concerned about landscape qualities. Research was commissioned by the municipality to Libau, the advisory committee for spatial quality for the Province of Groningen (Libau 2017, 2021). This resulted a proposal to allow installation of maximum 2 EAZ wind minds near agricultural buildings and small-scale solar panel parks near farms and villages. Large wind turbines were not permitted (Gemeente Zuidhorn 2017). A second development is the launch of the Vision Middag-Humsterland (Gebiedscoöperatie Westerkwartier 2017), a document prepared by several organisations and representatives of the area. The Vision formulates the preservation or conservation of the only national landscape in the province of Groningen as a leading concept for future developments. Partly stimulated by the discussion on wind turbines and solar panels, energy is one of the areas of interest identified in the documents. In the Vision, the ambition is formulated to be self-sufficient in terms of energy, using innovative solutions to enhance the key qualities of the landscape. In line with this, a clear opposition to large wind turbines, many small wind turbines and large infrastructural interventions is documented. Despite the fact that the Vision Middag-Humsterland is one of the few document available that considers the region in full, and that is enthusiastically 'accepted' by the local governments of Zuidhorn and Winsum, it should be noted here that this is document is not a formal planning or policy document of these governments.[6]

One of the outcomes of the process surrounding the drafting of the Vision document is that a working group Energy Transition emerged. In this working group citizens of the area started to cooperate. This working group is (to be) closely associated or part of what is called (in the Vision Document) 'the Community Middag-Humsterland' facilitated by the Gebiedscoöperatie Westerkwartier ('area or regional cooperative' founded in 2013 as a cooperative business of entrepreneurs, schools and universities of applied sciences). The working group Energy Transition immediately became active in seeking funding for a project to develop energy scenarios and finding possible locations for a variety of technological options. The project should deliver a concrete plan for implementation; funding is secured via the Creative Industry Fund programme for New Energy in the Landscape (a national fund).

The final project proposed is 'Endelk: Contouren van een energie neutral region'.[7] The key question of the project is to investigate if it is possible to implement energy transition in the oldest cultural landscape in the North of the Netherlands, an area that is declared a National Landscape. The overarching aim as formulated in the project proposal is to become an energy neutral region in which the benefits of the energy transition are used for preserving, maintaining and – if possible - strengthening the historical cultural landscape.[8] This fits the social 'character' of the area, where high levels of self-organisation exist (i.a. the regional cooperative). The idea is to link the energy transition to the inhabitants, entrepreneurs and users of the landscape by creating a local commodity (inspired by the example of Samsø), with the ultimate aim to increase social cohesion in the area.

The Endelk-project is based on the charrette approach, that foresees in an interactive and co-creative process in which experts, local people and (landscape) designers collaborate. The aim formulated in the beginning of the project is to use an integrated and interactive design process as the foundation for a concrete implementation project. Guiding principle is to maintain or strengthen the landscape through a participatory approach. Three main

[5] These EAZ (abbrevatioon of 'Énschede aan Zee') windmills are 15 meters in height (21 meters); they typically have green masts and wooden blades. They were developed specifically to be installed on farmyards. https://www.eazwind.com/
[6] See Foreword of the document for the considerations of the municipalities on the status of this document.
[7] This translates as: 'Finally, contours of an energy neutral region 'Endelk is local dialect for the Dutch word 'Eindelijk' - Finally
[8] The aim for energy neutral region was formulated in the project proposal. During the implementation of the project, it was discussed many times what the implications of this principle are.

tasks are defined for the project: first of all, establish an 'energy profile' for the region[9], including an assessment of the zero situation, and the identification of opportunities, threats, and ambitions in terms of energy. Second, build a sustainable local community, coined 'commonity', and third design (visualize) an energy neutral Middag-Humsterland by using an integrated and interactive design process. The project should in the end deliver a plan (defined as a 'houtskoolschets' – a 'charcoal sketch') for the energy transition of the area to take place.

3.3. Project design: activities and timeline

The project formally started and was executed in the Spring of 2019 with a number of core project partners: Gebiedscoöperatie Westerkwartier (overall project management); Hanze University of Applied Sciences (experts and researchers of the professorship Energy Transition); and LAOS landscape architects.[10] In the original charrette approach, three charrettes were planned plus two additional meetings: a kick-off meeting and a festival. In short, the *planned* sequence of events is the following[11]:

1) A kick-off meeting (Niehove) was programmed to introduce the charette project as well as to introduce the core topics: energy and landscape. Also, in order for participants to gain more insight in the 'energy challenge', the We Energy Game was played (see text box further in the document).

2) The focus of the first charrette (Garnwerd) was 'exploration', meant to identify the key values, to set the ambition, to explore options and to start the thinking about possible scenarios.

3) The plan for the second charrette (Oldehove) was to develop different scenarios and select a preferred scenario.

4) In the third charrette (Ezinge) the preferred scenario was to be further designed and drafted.

5) The end result (the 'houtskoolschets-plan' with preferred scenario) was to be presented in a public festival and in an end-publication (booklet) (Ezinge - Allersmaborg).

The time in between the charrette meetings or workshop was used for the preparation of the charrettes, including doing research and working on assignments that were identified during the charrettes.

[9] Energy profile is interpreted in the project proposal as a zero scan of a number of basic energy indicators such as energy demand, energy supply, etc.
[10] This line up of partners deviates from the project application that was submitted.
[11] This is the planned sequence of events; in reality this plan was not executed in full, as will be addressed later in the document.

4. Results: process and output

4.1. Introduction

This section will explain and discuss some of the key results and provide an interpretation of developments during the total project process. This starts with a short consideration of some overarching issues related to the charrette process (such as the general workflow and participation). After that, the main charrette output will be discussed in detail and length, including the tools used, the results, etc.

4.2. The process

4.2.1. Workflow of the meetings

In the general set up, all the (charrette) meetings followed a comparable workflow (see Figure 6). Meetings started with a general introduction in which the chair of the meeting looked back and summarized what was done so far and explained the set-up of the meeting. This was followed by an introduction to 'the problem' by the moderator and break-out sessions in teams. These teams would change occasionally: sometimes teams worked in their separate field of expertise (e.g. creating an energy generation, heat solutions and a landscape group); sometimes people were mixed in interdisciplinary teams. After the break-out sessions, the groups would report back in a plenary session, which usually was followed by discussion and concluding remarks. The chief moderator of the sessions was the professor Energy Transition of the Hanze University of Applied Science.

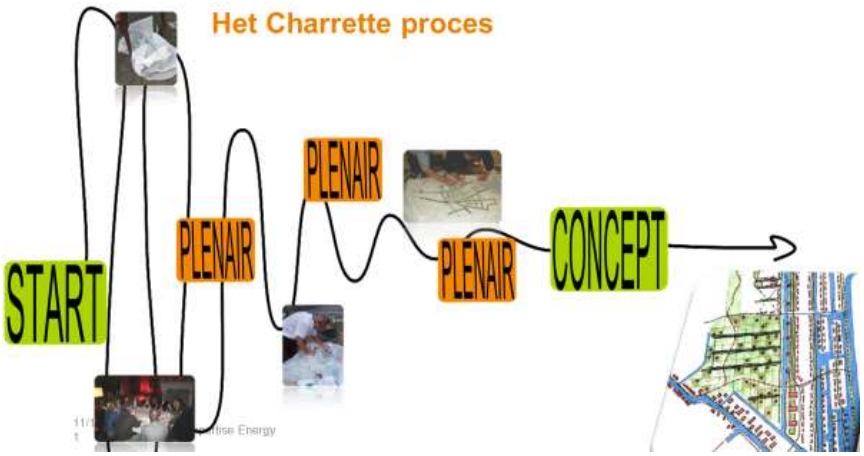


Figure 6:The charrette process (credits: Klaas Jan Noorman)

4.2.2. Participation

Although participation was integrated in the overall approach, also a separate communication plan was developed (as part of the funding application). On forehand three basic strands or tracks were followed. First, upfront it was decided that for the charrette itself a small group of local representatives would be invited to actively participate in the charrettes. These invited local people were members of the energy working group or directly related and/or previously active in energy related issues. Second, to address the wider public a larger group of people was invited to be briefed after each charrette on the results and progress. Third, in addition these direct participatory activities, there was a more general line of communication about the project in local newspapers, via website etc.

It was decided that ideally the actual charrette sessions would be organized with 20 to 25 people. For the charrettes, experts, local representatives and students were invited. Experts included researchers from the Hanze University and representatives from relevant organisations such as the municipality and province. The group of residents from the region consisted of five to six people, as mentioned most of them were members of the energy working group. Six mechanical engineering students from the Hanze University of Applied Sciences also participated in the charrette process supervised by a lecturer who also acted as one of the experts. Not all invited experts and local representatives were available for all the charrette events. Thus, throughout the sequence of sessions, there was some variation in the attending experts and local people. All meetings were recorded in writing, resulting in internally distributed reports.[12] In addition, a cartoonist was present to draw cartoons for the 'light touch' to be used for the debriefs to the general public at the end of the meetings and for the end publication.

Next to the actual charrettes, a broader participation of the public was envisaged by organising a number of additional events. First, as mentioned, after each charrette debriefs were organised for a wider group of people. In reality, only a few new guests would attend these debriefs, which was disappointing to the organisers. Other public events such as the kick-off meeting and the end-Festival attracted a wider audience. However, generally speaking, the attendance of the general public was much lower than expected. As this issue was an important point of discussion throughout the process, this will be discussed further later in this document (5.2.2).

4.2.3. The charrette format

As mentioned, the charrette process followed a particular order/sequence in which each charrette built on the previous charrette – going through different phases: starting with (charrette 1) setting the baseline, explore options, possibilities, possible pathways; via (charrette 2) developing scenarios and selecting a preferred scenario to (charrette 3) developing the preferred scenario. As also mentioned in the final execution of the project this set up was slightly altered: in charrette 2 a preferred scenario was not selected and for charrette 3 different (stakeholder) perspectives were used in a role play (see section 4.3.5)

On forehand the charrettes did not have a strict format and set up; nor was there a strict format or methodology for data collection. Within the overarching approach of charrettes, several tools, methods and techniques were used. Except for the We Energy Game, played during the kick-off meeting, none of these tools were formalized or standardized; rather the format and methodologies used were based on the existing expertise and experience of the experts and local people. However, this process motivated several experts to start more standardized tools, methods and techniques to be used in similar project/processes elsewhere.[13]

Tool: We Energy Game

The We Energy Game provides insights about the provision of affordable energy from renewable sources for an entire town or city. The game is based on a model that relates scores to different components of the energy system. These scores are based on realistic impacts of each variable, referring to the (amount of) energy, emissions and impact. The challenge of the game is to find the optimal balance. The We Energy Game was developed to provide energy cooperatives and stakeholders with practical insight into the possibilities to actually achieve energy neutrality. During the game participants negotiate about the use of renewable energy sources in order to make a town or city energy neutral. In addition, considerations and interests in several areas are included (production, people, planet, profit, space, and regulation). By playing the game, participants become aware that there is not a single solution and that sustainability is not just a technical issue, but a social one as well. For example, even though there is great support for solar panels, the sun doesn't always shine. This means that other resources are needed. Wind provides a lot of energy, but also encounters local resistance. Biomass could be a good solution, but its environmental footprint is greater. Thus, each source has its advantages and disadvantages. The We Energy Game is used particularly to create awareness.

[12] Project internal reports are available on request.
[13] See project Buren geeft Energie and final ESTRAC report (forthcoming)

4.3. Charrette findings - output

This section will address the main output of the charrette process/project. This is done based on the different consecutive steps taken during the project, corresponding as much as possible with the chronological order of events, except when this was at odds with readability.

4.3.1. Set the guiding principles, key values and ambition: the landscape in the lead

An important first step in most charrettes is the formulation of shared values, principles and ambition as this is to serve as a guiding principle for the design process. This was already done in the project proposal document and continued in the first charrette with a discussion on values, principles and ambition. Throughout the charrette process, these were repeated, confirmed and fine-tuned. Roughly four key (shared) values were formulated.

First, landscape is in the lead, the landscape is the main guiding principle for any development to be considered. Participants frequently stated that 'landschap is leidend, niet lijdend' (translated as: 'landscape is in the lead; and should not be suffering'[14]). Participants are well aware that this energy transition has large consequences for spatial use and landscape, assuming that the default impact of energy transition interventions is deterioration of the landscape. The main challenge that was formulated is to come up with solutions that strengthen and enhance the landscape instead. This should be possible according to one of the participants who challenges the group by addressing the often-used analogy with historical windmills. In the 16th Century people did not like windmills so they were left out in the famous Dutch landscape paintings – now these same windmills are icons of the Dutch landscape, even adding value to the landscape. This participant obviously hopes for the same to happen with modern windmills – but there is little support of that thought in the rest of the group. This becomes clear in many on the discussions, where the majority of the participants continue to indicate that wind turbines should be avoided in the area.

Figure 7: Left: the landscape value map of the region (by Libau). Right: overview of the landscape (credits: LAOS landscape architects, end presentation).

A second value that is articulated by the group is that of ownership ('zeggenschap') of the people living in the area. It is emphasized that this energy project is an initiative of the people of Middag-Humsterland. Citizens are to be in control; and dialogue with the people from the area is important. A third value is that developments should be 'future proof': different pathways should be sustainable, flexible enough to absorb changes, and robust enough to sustain. In line with this temporarily solutions should also be considered. Finally, energy development should be an integrated part of other developments and on a general level, contribute to economic development and liveability in the region. In addition, the energy transition should be linked to other issues such as adaptation to climate change. In this respect, spatial planning policy is recognized as to align different activities (including clustering of activities that are perceived as 'bad or disturbing').

Key values
Landscape is leading, not suffering
Ownership ('zeggenschap') of citizens

[14] The Dutch words 'leidend' and 'lijdend' sound the same but have a different meaning – leidend means leading; lijdend means suffering.

Future proof, sustainability of different pathways, flexibility and robustness
Integral, integrated (other sectors)
Energy neutrality based on options/possibilities/potentials of the landscape; see how far we get
Contribute to economic development and liveability and in sync with other (spatial) developments

Table 1: Key values as defined by the participants of the charrettes.

The values identified are also reflected in the ambition that is defined next. On forehand three ambitions were discussed. First, a minimal option is presented that reflects the present situation, in which 90% of the energy used in Middag-Humsterland is imported from outside the region, however, now based on renewable energy sources. Second, the average option is autarky and self-sufficiency: only use energy that is locally produced. Third, the maximum option that is considered is to export energy to the city of Groningen (re-establishing the historic links between the city and environs that Groningen is famous for - 'stad & ommeland'). In the discussion, option 2 'energy neutrality' is recognized as the common denominator, however, this should be based on the options and potentials of the landscape. 'See how far we get' is an important addition to this ambition. In any case, the extent of self-sufficiency should not move beyond the point where the quality of the landscape is compromised. Participants recognize that Middag-Humsterland should prepare for the future, in particular considering the potential role of the region in the Regional Energy Strategy for the province of Groningen, a policy document that was under construction at the time of the charrette project. However, there are clear limits to this as there is general consensus that Middag-Humsterland is not to be considered as an energy landscape in the sense that it produces a surplus of energy e.g. for the city of Groningen (note that 'energy landscape' here has a profound negative connotation).

4.3.2. The zero situation: insight in the energy profile for Middag-Humsterland

In addition to the identification of key values and shared values, mapping the current energy situation was an important step to take in the initial phase of the project. In this project, given its focus on landscape, this zero-situation scan included information about the landscape, and the people who live there. This zero situation of the landscape and people was explained by the landscape architects by highlighting some of the key landscape features of the area, summarized in the Landscape Quality map (see Figure 7) (Libau 2021).[15] In addition, some basic data on the population and economic structure of the area were presented. In terms of energy, both during the kick-off meeting and first charrette, the zero-energy situation was introduced and explained to the participants along with some core principles of energy. Researchers of the Hanze University of Applied Sciences had collected and prepared data to provide some general basic information e.g. on energy demand (gas, electricity). Due to time and resource restrictions, this was mainly generalized data based on publicly available sources, such as the CBS database. This information provided insight in what was coined the general challenge (de 'opgave' in Dutch architecture jargon) for the region, that is the amount of energy that needs to be generated given present energy use. It became clear that addressing future heat demand is the most urgent issue. As it is, the present conventional energy situation in Middag-Humsterland is comparable with the rest of the Netherlands: 20% of the total energy use is electricity for lighting, appliances etc. while 80% of total energy use is for heating of houses, which is now almost totally based on gas as an energy source. This is likely to change in future: the same amount of heat is required but this will have to come from different energy sources, either generated by electricity or by using other heat sources (e.g. biogas, residual heat). In the Middag-Humsterland case with a rather heterogenous housing stock, this means that solutions have to be tailor made. In addition to clarifying this energy challenge, the energy experts also defined some general energy principles to take into account. The three main principles identified for the purpose of this charrette were: 1) reducing the total demand for energy is a no regret option; 2) optimising efficiency of conversion, storage and transport, within the constraints of the capacity of the present (electricity) network; and 3) keeping energy generation as local and small as possible – on the lowest spatial level to limit the number of large wind turbines and solar parks. Although some of this information was already part of general understanding of the participants, these principles and the basic information played an important role in creating awareness, increasing the knowledge base and contributing to overall the learning among the participants.

[15] This often-used map has been developed and produced by Libau, the advisory committee for spatial quality for the Province of Groningen. Libau was not part of the charrette project.

4.3.3. Exploring options

Next step in the process was to investigate how, given the present energy profile, future energy demand is going to be met: what technology options are available and relevant for the Middag-Humsterland context? Clearly, providing heat to houses in a sparsely populated rural area is quite a challenge, in particular if district heating systems are considered. On forehand, mainly due to the spatial consequences and landscape impact of some of the technologies and the availability of them, residual heat, biomass and large wind turbines are excluded as viable technological options for the area.

4.3.3.1. Exploring options: energy production and their spatial impact

As this project is on the interface of landscape (space) and energy, the issue of what exactly is the spatial impact of different technologies became one of the leading issues for the exploration of different technology options. What is the spatial claim of a technology measured in kWh per hectare? How much land do you need for the annual generation of 1 kWh and what are the differences between different technologies? During and between charrette 1 and 2, partly based on previous projects[16], this was visualised hands-on by using cards indicating the amount of land (in hectares) needed for the production of one unit of energy. This made it possible to compare the spatial impact of different technologies (solar, wind, biomass). For example, through this procedure it became very tangible that for example if all the energy demand would have to be generated using biomass, a large part of the Middag-Humsterland area would be needed to produce this biomass, limiting other land uses. It also demonstrated that only a few large wind turbines (that have high visual impact) are needed to produce the electricity needed to meet the total energy demand. In comparison, a lot of small EAZ windmills would be needed to produce the same electricity- this also has considerable spatial impact over a larger area but by most people this is considered 'less' severe, compared to large wind turbines. Although people generally are aware of these principles, making this tangible helped understanding the spatial and landscape consequences of technologies.

Figure 8: Example of one of the maps used in the charrette

4.3.3.2. Exploring options: possible interventions on the house level

Emerging in the charrettes was a general call for data that would enable participants to compare different options not only in their spatial impact but also e.g. in economic terms. In line with this also a more general need was expressed for understanding the relations between energy generation and interventions people can do at house level. For example, what are the consequences of a particular intervention at the house level and for the type of

[16] Notably the IABR project https://iabr.nl/nl/projectatelier/pa2016_groningen; researchers of Hanze University used similar principles in the We energy game.

technology that can be installed to generate electricity, and vice versa? If people at the house level decide to replace the conventional heating system based on gas by an electricity demanding heat pump, the total demand for electricity will increase. How will this then be generated? This may be done by solar PV on roof, in solar parks or by wind turbines. These type of issues, and in particular the interdependencies between them, were addressed in the charrettes. Clarifying the available options and relations was one of the key challenges for the experts of the Hanze University. For this they developed a proto-type for a model at the house level that can be used to make this type of type of information more accessible. During the second workshop this proto-type was introduced to the participants as a poster presenting some of the key options.[17]

4.3.3.3. Exploring options: developing a heat network in rural area

In addition to the model that was developed, also another innovative option was presented in the charrettes: the introduction of a low temperature heat network in a rural area. Generally, within the broad discussion of heat networks, so far rural areas are often excluded as by definition, this would be too expensive. Yet, given that a heat network in itself may have limited impact on the landscape, it was considered a viable option that needed further exploration. The heat network proposed is based on existing technologies, combining a buffer at the (individual) house level and additional buffering clusters on the (collective) village level (see for impression Figure 9). Experts and students of the Hanze University explained the general principles of a heat network plus advantages, coining this as a solution that allows to use sources that are not economically or technically feasible for individual houses/dwellings. Additionally, (low temperature water) heat pumps and collective heat pumps are shortly considered and explained.

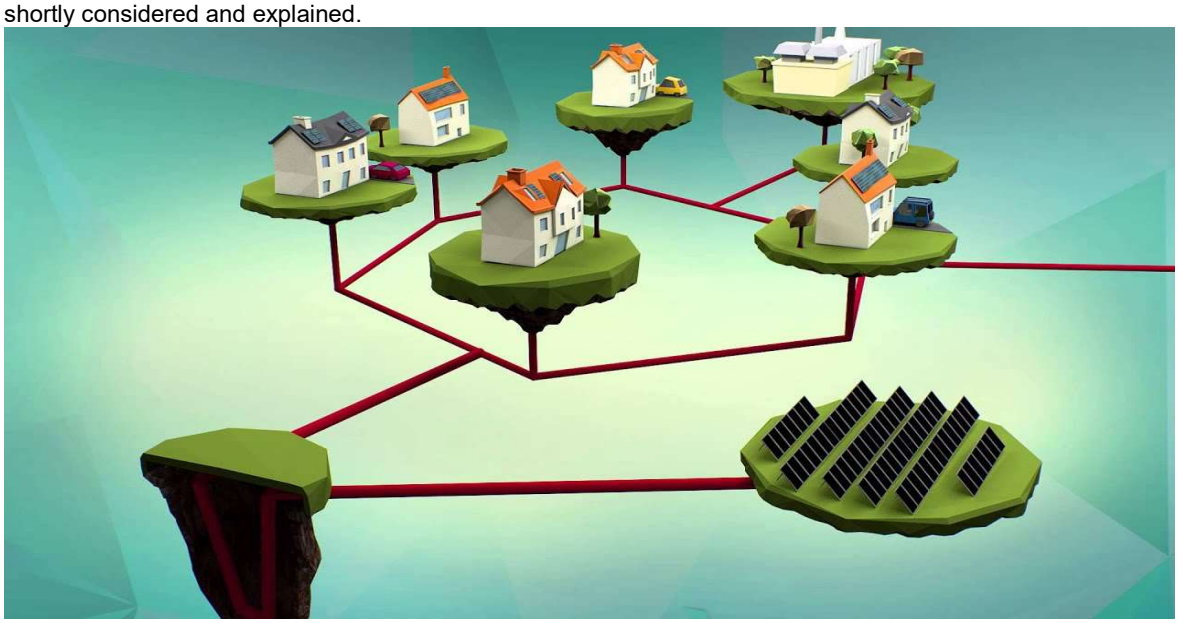


Figure 9: Impression of a heat network (source unknown)

Particularly students explored some innovative ideas combining existing technologies (e.g. Aquifer Thermal Storage) with individual house buffering and collective buffers. The potential advantage of this system is that energy surplus in the summer can be stored to be used in winter. This reduces the number of required solar panels and wind turbines. Also students proposed to use low temperature (water) heat pumps as their efficiency is higher than an (air) heat pump; in particular in the winter less electricity is used, and higher temperatures can be achieved, making additional insulation and floor heating less essential. Finally, using a large collective heat pump that links several houses might be cheaper than installing an individual heat pump for every house. In addition, it was suggested to use available rooftops on farmhouses to install solar panels and solar collectors. The panels are linked via heat pumps to provide heat while the collectors provide for warm water.

4.3.3.4. Exploring options: experimental technologies

In addition to the heat network other innovative, experimental technologies were introduced, mainly by some of the local participants who had spent considerable time and effort to collect information for this on the internet. The

[17] This proto-type was later developed in the WeEnergyHouse game (see project Buren geeft Energie and final report ESTRAC)

selection of these technologies was based on their (expected) low impact on the landscape. Examples of these new technologies are landscape friendly ways of harvesting wind e.g. by using the roofs of houses (ridge blade) or the small-scale EAZ wind turbines; aqua thermal options (TEO) by using the waterways in the areas (the typical 'maren'); and kite energy. Last but not least, it was suggested that solar panels be installed representing one of the typical landscape paintings of the famous De Ploeg group, who frequently painted the landscapes of Middag-Humsterland. In this way, it was suggested, a solar park could actually add something to the landscape instead of disrupting it.

4.3.4. Developing scenarios

In constant iteration with the exploration of technological options, possible scenarios gradually started to emerge. At the basis of these scenarios are a number of dilemmas that were formulated throughout the process: 1) large scale versus small scale 2) concentrated or dispersed 3) individual or collective: individual means more freedom of choice – collective may be less expensive 4) experimental or proven technologies? Out of this discussion, three scenarios were developed under the lead of the energy experts and the landscape architects.

1) Large-scale concentrated scenario for energy transition

The first scenario is based on the idea that there is one central location for the generation and conversion of energy for the entire Middag-Humsterland region. This scenario foresees that electricity is generated by combining a solar park and wind park at one location. From this central location, electricity is transported to the villages. In these villages, individual houses are insulated to label A, and heated by heat pumps. In this scenario, the heat demand in the 'buitengebied' (the rural area outside the villages) is more difficult to arrange, although; partly electricity generated by solar pv on the roofs of farms can be used for heat pumps.

The total required space needed for this scenario is estimated to be 30 hectares, to be found on one central location, limiting the quantitative impact on space and landscape. The preferred location is an area with limited attraction (limited landscape values) or amenities (experiential value, defined here by the number of roads with sight on the park), such as for example an area that is already affected by or in the vicinity of existing high voltage power lines. An important principle here is that although at the central location the impact on the landscape is significant, total impact is minimized and restricted to this central location.

In terms of spatial and landscape integration and design, the main (design) principles are 1) 'multiple use of land' by combining solar and wind in the same area plus combine this with other land uses such as recreation, agriculture (grazing by sheep) or nature (meadows for birds); and 2) avoiding irreversible interventions so that it is possible to restore the original landscape if wind turbines or solar parks are no longer needed. It is suggested to make the qualities of the area 'experienceable'; connect and respect the existing (carrying) spatial structures (e.g. 'verkavelingspatroon'); to keep distance to vulnerable build up sites and landscapes; avoiding disruption of significant visual sight lines in particular in relation to the mounds; maintain or increase biodiversity (e.g. integrated herbal rich meadows in solar field for meadow or grassland birds); and integrate/fit existing landscape structures ('landschappelijke inpassing') by using existing landscape elements such as reed beds ('rietkragen'), thickets (bushes) and shrubberies.

This scenario requires a limited amount of space. In addition, it is expected that also a limited number of parties will be involved. One party (a company, a collective) may be fully responsible for this intervention. However, this also poses a risk in terms of citizens' engagement and solidarity among people. Most local people may not feel 'connected' to the generation facility – comparable with how things now are with gas. In contrast, the people that live in the proximity of this location are highly affected by such a plan. Residents living in the vicinity should be fully compensated and/or share benefits and revenues directly.

Thinking 'out of the box' the idea was vented by one of the experts that this scenario lends itself well to reverse the message: instead of minimizing and hiding the impact, the central location could be exploited as 'the engine of Middag-Humsterland', promoting it as an energy recreation park 'beleefpark' where there is room for experiments. This idea did not resonate with most of the resident participants and some of other experts.

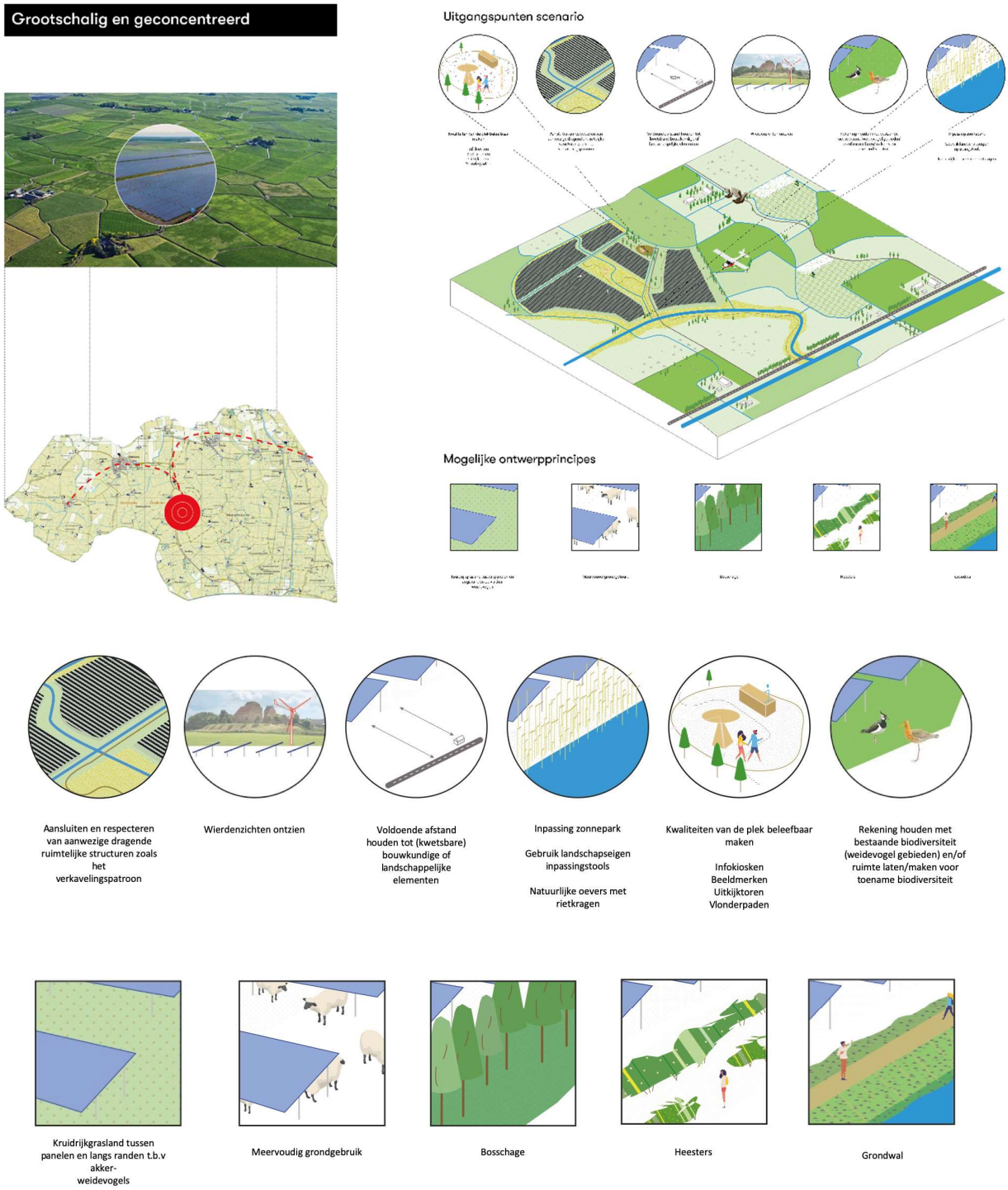


Figure 10: Impressions of large scale concentrated scenario (credits: LAOS landscape architects)

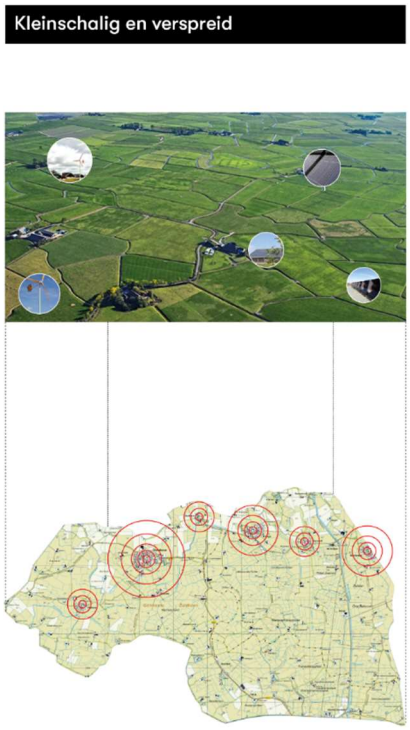
2) Small scale – dispersed scenario

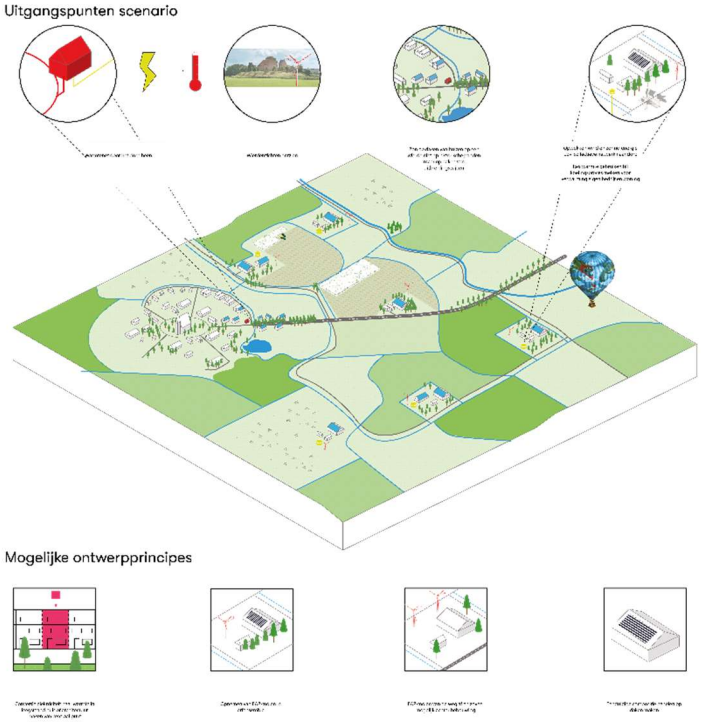
In the small scale – dispersed scenario different technologies are to be combined in multiple locations in the area. This scenario assumes a diversified generation of electricity using small scale technologies for electricity generation close to the villages and a heat network that is linked to villages. This means that small wind turbines and solar PV on the roofs generate most electricity for a low temperature network to service the villages and neighbourhoods and to limit the transport of heat. In addition, heat pipes are used as a high temperature heat source.

In the villages groups of houses may be linked to a decentral heat pump with seasonal buffering in summer for individual houses (e.g. in the shed or ‘kruipruimte’) and for small collectives (central buffering). What precise

intervention is done at house level is determined by the type of house and the needs and requirements of the residents. In principle, houses are insulated to energy label B.

In this scenario the involvement and engagement of the local residents is high. The collective actions (heat network, collective buffering) require cooperation and collaboration on village level. A minimum number of participating houses is necessary to make this work; peak in demands may lead to congestion on the net. On the individual house level, it allows for maximum individual freedom as what is done on house level is decided by residents themselves. People have to make the investments and the return on investments is long term. However, in this scheme revenues are foreseen both for individual house owners and for the community at large.
In terms of spatial design and integration, in itself installing a heat network through the villages has little *visual* impact for the landscape.[18] The generation of electricity by wind and solar technologies is to be located near villages. Options are limited for villages that have a protected status. Clustering of activities in villages is necessary to avoid 'cluttering', again, as noted for the other scenario, to avoid disruption of significant visual sight lines in particular in relation to the villages on the mounds ('wierdenzichten ontzien'). This also means that solar panels should be placed on roofs of post-war houses and not on the historic buildings in the village. For heat conversion facilities, existing or new buildings could be designed and 'promoted' as a special feature. In this scenario the dispersed farmhouses also have a role to play: residual heat from dairy farms can be used for the heating of houses and offices. In addition, EAZ wind turbines installed near farm and yard complexes generate electricity for direct use; preferably they are placed far from the road and behind the building.





[18] A potential problem could be the fact that digging is not allowed below 30 cm due to the protected status of the mounds.

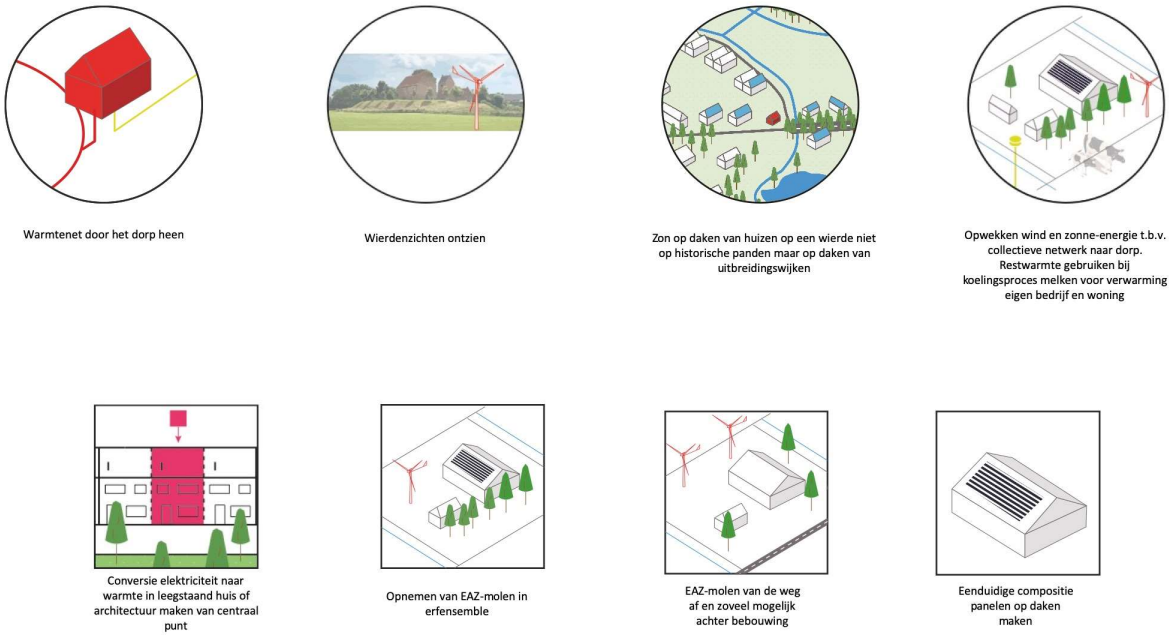


Figure 11: Impresssions of small scale dispersed scenario (credit: LAOS landscape architects)

3) Experimental scenario

The third scenario focussed on exploring several new technologies such as storing energy in dikes; re-using of heat etc. Technological innovation could be used as a signboard for marketing the area: Middag-Humsterland as testing ground for knowledge on how a sustainable rural area/countryside functions in the future. This third 'out of the box' scenario based on technological innovation has not been developed as far as the other two scenarios. Although attractive and some new ideas develop – it is also clear that with only new technologies it would not work. In the end the philosophy of the scenario and the concrete new technologies were as much as possible integrated in the other two scenarios.[19]

Figure 12: Impressions of the experimental scenario (Gebiedscoöperatie Westerkwartier)

[19] It is proposed to develop a pilot for Middag-Humsterland to test new technologies; this idea does not materialize further.

4.3.5. Assessment of the scenarios

For the third charrette it was decided to further explore expected consequences and impact of both the scenarios using different perspectives and considerations of different groups of stakeholders as organizing principles. The initial idea was to select a preferred scenario. However, this did not happen. By the time the third charrette was organized, due to time and resource limitations, none of the scenarios were developed in sufficient details to allow a well-informed decision. Instead, the two main scenarios were discussed in a sort of role play, guided by three different perspectives of 1) the residents of the area, 2) the municipality and 3) the grid operator.

First, the group of residents re-emphasized the main underlying principle that guided both scenarios: the better technologies and interventions fit the landscape, the better it is. Any intervention should be aimed at maintaining structures of the landscape. The landscape thus clearly sets the limits of what is technically possible. Generation techniques whether it be solar PV or collectors or EAZ wind turbines must be integrated/fitted in the landscape, and participants applauded ideas to for example design solar parks in such a way that it appears that panels are below water or design solar panels with the paintings of De Ploeg as a new asset for the area. However, others note that this energy transition should not be 'romanticised' too much – at the end of the day, a landscape with renewable technologies is an industrial landscape. Although on forehand, from an economic-technological perspective, a heat network in a rural area is not considered to be a feasible option, this option is clearly considered as the main heat technology in both scenarios.[20] The instalment of an efficient heat network with buffering and smart control, to be organised both on the collective and the individual (house) level. Indeed, it was suggested that cooperatives may play a role in organising local involvement: bring people together based on values that are shared in the region e.g. social values (everyone should be able to participate/inclusive), sustainability values (locally produced and green) or economic values (circularity). Finally, this group supports the idea of energy coaches and kitchen table discussions to assist residents. For residents, well developed plans are needed; an energy coach may help to 'unburden' them in the decision-making process. On the other hand, the idea of doing things themselves, taking the initiative, close to home, is also appealing to most local participants.

The second perspective is provided by the municipality as a stakeholder group. They define their role as to bring different interests and parties together. In the energy transition, the municipality also has new roles to play e.g. acting as a project developer that is willing to take risks. In technological terms, from a municipality perspective, the large-scale scenario is more interesting as the number of parties involved is limited compared to the decentralised scenario; this is an advantage in terms of funding and permits. Innovations and experiments may be subsidized. Scaling up of local initiatives is a key issue. The municipality group supports the idea of cooperatives – they are important partners for municipalities in particular to link common collective interests, such as the landscape. Cooperatives also are important 'to keep money' in the area, preventing that with external project developers, money and investments leave the area.

The third perspective discussed is that of the network operator. This stakeholder (a representative was actually present) responds mainly to the organisational issues raised. They argue that indeed cooperation between parties is necessary. There now is a more level playing field, where new rules apply, however, it does not take away public responsibility. Indeed, the government has responsibility in citizens' initiatives e.g. to guarantee safety. The grid operator group stresses the importance to include the rural areas ('buitengebied').

4.3.6. Make a plan: the end result

The end result of the project, the 'houtskoolschetsen' (charcoal sketches) are a sketch of two possible scenarios both of which contain elements and features that capture the imagination – but are no fully developed plans for implementation. In line with this, the final end result is not presented as a plan but as publication that is to appeal to a broad public. This end publication [44] loosely follows the steps that were taken in the project. The metaphor of a trip/travel is used throughout the publication (exploration, direction, what do you need to bring etc.) while the charrette project itself is explained as 'we have already done some exploration'. As such, it is a highly informative publication, offering an explanation of some of the key concepts of energy transition, focusing on Middag-Humsterland. This includes key data on the region and energy (landscape, people, how much space is needed for

[20] This is (partly) due to the fact the focus was on heat networks; other options were not considered in similar detail (see discussion section).

energy generation) and explaining some of the key principles (reduce the use energy and limit the loss of energy through storage, transport or conversion). The publication also presents the technological options considered in the charrettes, such as the low temperature heat network as well as the two scenarios. The booklet ends with an overall summary of what can be done (see Table 2). In conclusion the composers of the book state that not every citizen needs to be an energy expert, but basic knowledge is useful. The section ends with a general invitation for people to join on the future trip.

Heat and electricity	**'Low hanging fruit'**	**Wild ideas**
Insulation: always!	Insulation increases the available options for electricity and heat	Theme park: the engine of Middag-Humsterland
Low temperature network in rural area	Use the roofs of farms	Solar park designed as a painting of De Ploeg (with coloured panels)
Heat and electricity generation on roofs (of farms)	Train energy coaches in the region to inform and support local people	One large wind turbine at sea for Middag-Humsterland
Experiment with ridge blad, heat collectors in roof tiles, residual heat of dairy farms	Promote the use of energy efficient devices	Solar cells on biking roads
Central storage of seasonal heat surplus	Solar energy is easy to generate and accommodate in the environment/landscape	Wind turbines that fold at day time
Storage is important as sun and wind are not always available		
Make energy available when it is needed		
Small wind turbines near farms		
Combine wind park with solar park in area with low amenity value		

Table 2: Summary of the possibilities that were explored in the charrettes

With the presentation of the publication (Fakkert and Boeré 20010), and a public 'New Energy' festival in Ezinge, the charrette project ended in the summer of 2019. Post project, the project coordinator presented the results of the project at the Municipality Westerkwartier. Overall, particular towards the end, the charrette project was framed as a first step in a long process in which participants have learned a lot, acknowledging that at the same time many questions have remained unanswered (in for instance in the final publication). This, and other issues, will be discussed in the next section.

5. Discussion

5.1. Introduction

In this section two lines of discussion will be presented. First of all, discussion on, and consideration of, some of the key issues that have emerged in this charrette project namely a) the landscape and energy relation; b) the charrette process; c) the end product. Second, in a more general discussion we will reflect on a) the charrette process compared to how charrettes are usually conducted (similarities and differences); and b) how this charrette process compares to the general energy workshop framework that was presented upfront.

5.2. Discussion 1: the key issues in this charrette project

5.2.1. The landscape-energy relation

As we know from literature as well as everyday experience and discussions, the relation between landscape and renewable energy is complex and multifaceted. For example: the spatial claims of energy have increased significantly as the total amount of surface hectares needed is much higher than conventional (fossil) energy sources. Related to that is the increased visibility of energy interventions and technologies in the landscape; and the increasing competition with other land uses (De Boer and Zuidema 2015; Stremke and Dobbelsteen 2013; Späth and Rohracher 2014; Sijmons et al. 2014).

In the context of this project, a few points for discussion have emerged. First of all, landscape was the starting point of this project – maintaining the landscape was the prerequisite for any development, on forehand excluding certain technologies, such as large wind turbines. The project showed that even with this shared condition, two quite different landscape-based scenarios could be developed that each have a different impact on the landscape. In the large-scale scenario the majority of the landscape is protected or spared except for the location where the main electricity generation is, but on the central location that is used for generation the impact is considerable. In the small-scale scenario, the interventions are more evenly spread over the area, concentrated near villages and farmhouses, and not as 'brutal' as one large intervention. This scenario includes small solar or wind parks near villages. In this scenario, more people are directly affected – but per 'technology unit' (e.g. wind turbine) there is less impact. In the end, the participants of the charrettes did not indicate a preference for one or the other scenario. In fact, in the end, the main dilemmas were even further emphasized: are we going to follow a 'chocolate chip' (spread/disperse) scenario or does a 'chocolate bar' (concentrate) scenario better fit the area? Are we going to show what we have by making technologies visible or are we going to fit them in?

Second, by 'translating' the application of technologies to concrete land use, expressed by the amount of space needed in required hectares per unit energy, it became clear what the spatial and landscape impact of these technologies in reality is. In general, energy discussions are often about costs and costs efficiency; however, based on creating favourable prerequisites for support and acceptance of technologies, it is very well possible that other principles or values are leading in the discussion. If landscape and residents' cooperation are a leading principle in discussion, it has consequences for the positions people take and it will influence what they find acceptable or not. This is not to claim that costs are not important when people take decision (quite the contrary) – but when considering the common goods (landscape etc.), cost efficiency is not always leading the discussion. This is not only relevant when talking about clearly defined highly valued landscape such as Middag-Humsterland, but it is also true for 'ordinary' rural landscapes that have no special status, but that are considered valuable for those who live there nonetheless.

Third, it is also clearly demonstrated that if technologies are to be implemented this should be done respecting (fitting in, blending with) the landscape. This project demonstrated that this is possible, and some important principles for good practice were explored: use existing landscape structures (in particular relevant since some of these technologies may be temporary so when they are removed the basic landscape structure remains); combine different land uses; take landscape structures and biodiversity into account etc. What helps in these discussions is design and visualisation of ideas and plans. In that respect, designers and landscape architects are invaluable and indispensable 'tools' that help facilitate discussions.

5.2.2. The charrette process and participation

This project in general and the charrette approach in particular were explicitly designed as a participation process. However, this is less straightforward as might be expected. Throughout the project/process the issue of participation is discussed many times, in the project team and also in the wider group, during the charrettes. For example, discussion emerged on the issue of the participation by local people in the project and in the charrettes. As originally planned, only a few local people actively participated in the workshops, on invitation. These were people that were interested in the subject matter and part of the energy working group. A larger group of people were invited for the more public events. This group was also linked to an existing network of people that had already expressed interest in the subject. Altogether the participants only represent a small segment of the total population, and, given their already expressed interest in energy related issues, they are probably not representative of and for the Middag-Humsterland population. In addition, it was felt by most participants that participation and involvement of the wider public was lower than expected. One of the explanations given for the relatively low participation and involvement is that people in the area may suffer from 'participation fatigue': they are asked to participate in many activities.[21] So despite the original definition of the project that included the ambition to increase social cohesion by creating a community ('commonity'), the core project team concluded that the project did not succeed in establishing this. It was acknowledged that this ambition was probable too high.[22]

In this context, two (related) issues were raised and discussed (mainly within the project group), both dealing with legitimacy and the assumed complexity of the energy transition: how representative is the group of participants for the total population of the area, and how detailed or accurate is or should the data and information provided (be)? On the one hand, some experts accept these conditions for a fact stating that 'we aim to optimize participation and data, accepting that since this is no formal plan, we should not let ourselves be hijacked by lack of information and incomplete participation', as one of the experts formulated. On the other hand, some other experts and participants consider the incomplete data and information and limited participation as a real problem: the small group that did participate (members of the working group energy) had certain expectations; using incomplete data leads to disappointment with this group. This latter position is associated with the argument that some technical experts often mention: the limited understanding of people of the complexity of the energy transition may jeopardize the legitimacy of interventions. This is related to the assumption of some experts that in energy transition pathways, with increasing complexity, the support and acceptance will diminish. A dilemma linked to that is that in these processes those actors or stakeholder that are affected are usually not present to make decisions; and those making decisions are not the ones affected by the decisions.

Finally, this is also related to a difference in attitude of experts and participants: do you wait with all actions (including this charrette exercise) until the ideal-perfect situation has emerged or do you start exploring, knowing that you a not fully informed or equipped. In other words: do you want detailed calculations or are rough sketches enough for the time being? In this project, the pragmatic solution was to work with data available with the aim to optimize this data during the process/project. By most, this lack of data was not seen as a big problem, largely due to the stage this process was in (awareness phase) and the deliverable that was expected (not a fixed plan but a 'houtskoolschets'). In hindsight however, the question remains what could have achieved had more and more accurate data been available.

[21] Participation fatigue is a well-known phenomenon in participatory trajectories; it often 'appears' when people are asked to participate but have no decision-making rights. See for example: https://platformstadenwijk.nl/2021/06/28/participatiemoed/
[22] Internal project evaluation (document available on request)

5.2.3. The end product: energy plan or the charcoal sketch ('houtskoolschets')

According to the original project plan, the project had promised to deliver an 'energy transition plan' for Middag-Humsterland, a concrete plan for implementation, an energy 'bestemmingplan' (land use plan) to be more precise. However, in common discourse and understanding that emerged during the project, is it clear that this plan was to have no official planning status, nor were the precise requirements for what such an energy plan would entail clearly defined. In practice, the ambition to produce a plan for implementation is reformulated to producing a 'houtskoolschets' - given time and resources this is what the project realistically is able to deliver. Literally translated this means a charcoal drawing; however, the term is often used metaphorically in professional discourse (in the Netherlands) without strict definition. Words associated with 'houtskoolschets' are 'rough sketch, contours, first insights'. Additionally, the 'storyline' or key narrative used in line with this is 'that the project, the charrettes and the houtskoolschets are meant to allow 'out of the box thinking', while on a joint journey with the area/region as starting point, using a road map defined by the project activities, and the working group as ambassadors, to inform, validate and design (Gebiedscoöperatie Westerkwartier et al. 2018). As the charrette project is not a part of a formal government-initiated process, the freedom of interpretation is 'allowed' or even 'applauded'; however, it also creates uncertainties about both the status of the process and the final outcome. Although none of the participants openly challenges the proposed outcome of 'houtskoolschetsen', there is frequent discussion on what the group is supposed to deliver. In fact, what exactly is a 'houtskoolschets' is never 100% clear to the participants, locals and experts alike – leading to different expectations, among experts and participants. In any case, the project did not deliver a plan for implementation. The final end product is a publication, a public booklet that presents the charrette process and its results. Much is explained, also on the basic principles of energy, and some of the technology options are explored. It is highly informative; however, it is not a plan. Although generally speaking those that have participated express satisfaction with what has been achieved, there are also some critical notes or even disappointment about the end-result. This is at least partly related to uncertainty about the expected status of the process and the plan. This informality and permissiveness may have led to disappointment about process and end-result by some of the participants, including some of the experts.[23]

Concluding, as this charrette project and process was an activity outside the formal planning phase of local government, it allowed for free out of the box thinking, emphasizing the basic dilemmas surrounding energy and landscape and leading to an increase in awareness and the free exploration of technology options that potentially would fit the area. However, also some serious doubts were expressed in terms of legitimacy of the project, particularly because of the low participation rates of local people, the fact that they were not representative per se (not being elected democratically) and the fact that the charrette process and end-result were not part of any formal planning procedure, leading to non-commitment and disappointment. This indicates that not only some of the technology issues are rather complex to deal with, but also designing and executing such a project is difficult. For future reference, several suggestions for improvement can be made: 1) it is important to be clear on the status of the process and if possible, to link it up to an official planning process; 2) be clear and precise on expected project outcomes and results; 3) make time and resources available for adequate baseline data collection and standardize methodology; and 4) ensure relevant participation of stakeholders.

5.3. Discussion 2: on the charrette approach in general, including methods and tools

5.3.1. Compared to charrettes approach in general

In this section we discuss to what extent this charrette fits the common 'model' of what a charrette is or should be. This project used the charrette approach that we may consider as a specific form of a participatory approach or an interactive design workshops. Our observation is that in general, in broad terms, indeed the approach used resembles the charrette approach as it is commonly executed and implemented. It shares some of the key defining characteristics of charrettes in being interactive, design orientated, and participatory. Importantly too, it shares the area-based approach – a principle that underpins all charrettes, although in this case the context of this charrette is not urban in nature, but rather it is set in a rural context with a narrower focus on renewable energy instead of sustainability.

[23] Internally this leads to (unfinished) discussions on the methods used in this project.

There are also a number of significant differences between the charrettes as described in the handbooks and other documentation (see 2.3). First, although the energy charrette in Middag-Humsterland covered multiple days and sessions, it was not an intensive consecutive multiple day event. Whereas most charrettes cover 4 to 8 consecutive days, this charrette consisted of 3 separate day events, spread over a longer period of time plus two additional broader, more public meetings. This means that some of the high-pressure atmosphere is taken away as in between pressure is 'lifted' allowing time to further develop ideas etc. However, this is of course very relative – 3 months for any kind of plan making is still a short period. Second, as mentioned: this charrette did not intend to make a formal plan, ready for implementation, nor was it part of an official planning procedure. In many cases in the US and Scotland, charrettes are part of a pre-planning phase preluding the formal planning phase, aimed to reach consensus with stakeholders on issues of sustainability beforehand. The charrettes in Middag-Humsterland appear to have been organised far before any planning stage in a phase that could be best described as 'informal exploration' in the pre planning phase. This however is also its strength – allowing for free, unrestricted, out of the box thinking, without any restrictions. In that respect, it resembles the visionary charrette as described by Condon in the first chapter. Third, there are differences in the composition of the charrette group, in particular in relation to those involved directly in the charrette process. In some of the cases and the handbook, the first line of stakeholders usually includes official representatives of local and regional governments, as well as other relevant management boards (e.g water board etc.); these could all be labelled professional experts and stakeholders. Often, the general public usually is part of the 'wider circle' to be informed by the plans made by these experts; they are not part of the design process as such. Related to this, usually designers, architects, lead the charrettes; in contrast, the charrettes we conducted were led and designed mainly by (energy) experts - although landscape architects were part of the team and landscape was a leading principle. In effect, despite the high-quality visualisations that were produced by the landscape architects, the design dimension was less pronounced than in other charrette sessions. Finally, a major difference with charrettes in the US and Scottish context is that here charrettes all seem to be linked to an intensive preparation process, preceding the charrettes – in which for example all the policies are plotted etc. The context for the Middag-Humsterland charrette was in that respect quite different. Preparation was far less organised and structured; and in no way was it directly linked to official policy and its document (it was considered, but not as setting the stage on forehand). This 'limited preparation' was however partly compensated by the time in between the charrettes. Also, the participants were not restricted by existing policies and rules – setting the stage for free thinking.

All in all, it can be concluded that although in 'spirit' the energy charrettes as they were organised in Middag-Humsterland resemble and compare with the more general charrette approach, allowing for out of the box thinking, there are some significant deviations. The most significant difference is the fact that in Middag-Humsterland, the end result was not a consented plan that was to feed into a formal planning process.

5.3.2. Reflection on the conceptual framework, including methods and tools.

For a final reflection, we look to see if the charrette process used in Middag-Humsterland uses the trajectories proposed in the model or conceptual framework for participatory methods. Indeed, the set-up of this charrette followed the conceptual framework as presented. First, in relation to the technical trajectory, the sequence of steps can be recognized: the zero situation was established (map the current situation), ambitions were defined (explore to be situations), options were presented (map the potentials) and scenarios were developed (explore possible pathways). Technical and economic data were used in these steps, mainly delivered by experts. However, given the status of the project (not part of official planning; limited time and resources; many uncertainties etc.), the data collected and used can best be described as preliminary and rough data as no full research was done, and no precise data was available to establish the zero situation. In that respect, the technical trajectory can best be characterised as an 'explorative' trajectory. One other deviation of common technical trajectories is that the scenario development in this case was based upon and strongly related to spatial and landscape principles, whereas usually in technical energy projects, only energy related scenarios are considered. Given the highly explorative character of the charrettes, some new, out of the box concepts were considered, for example on small collective and rural heat networks; something that otherwise might not have been done. However, it should be noted that at the same time there is some randomness in this as it was linked to the expertise of experts (and no full assessment of alternative options was done).

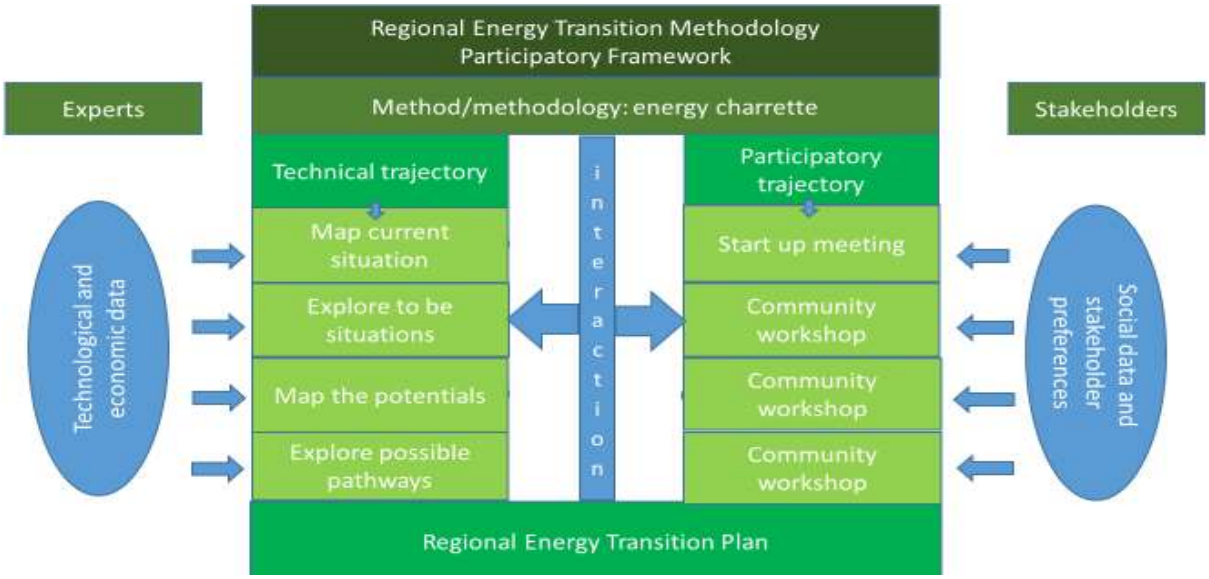


Figure 13: General participatory framework

The participatory trajectory followed the steps as presented in the model – with social and stakeholder preferences being addressed in the workshops. However, as mentioned, we have to take into consideration that this was a small group of selected stakeholders – clearly not representative of the total population or all stakeholder groups. Nevertheless, with this small group of people, the interactive component worked quite well in a constant exchange of expert information and stakeholder input e.g. in their relation to the landscape. As most of the tools and methods used by the experts in the process were in a premature stage of development, the sessions and the interaction with stakeholders contributed or stimulated the further development of these tools and methods, leading to the standardization of them.[24] In that way, the interaction between experts and stakeholder was beneficial for both parties.

Finally, as mentioned, no formal regional transition plan was delivered – however, 'rough sketches' of what would be possible were produced and presented as first step in a longer journey towards final plan making. In that respect, this project should be classified as 'awareness raising' project, characterised by much uncertainty and complexity, and no clear-cut answers. In a way, this is a reflection of the stage of the energy transition that we are all in.

[24] See Buren geeft Energie and Final report ESTRAC.

In conclusion, we see that the charrettes in Middag-Humsterland follow the general set up of the general participatory model (see Figure 13) and as such they are in line with the main principles of the smart energy approach and other similar approaches (e.g. Heaslip and Fahy). However, there are also some significant differences – with on the one hand some 'negative' deviations such the fact that the results of the Middag-Humsterland charrettes are less binding (e.g. compared to the smart energy approach) and on the other hand some positive deviations such as for example the high level of interaction with local stakeholders and the 'room' for non-energy issues such as the landscape.

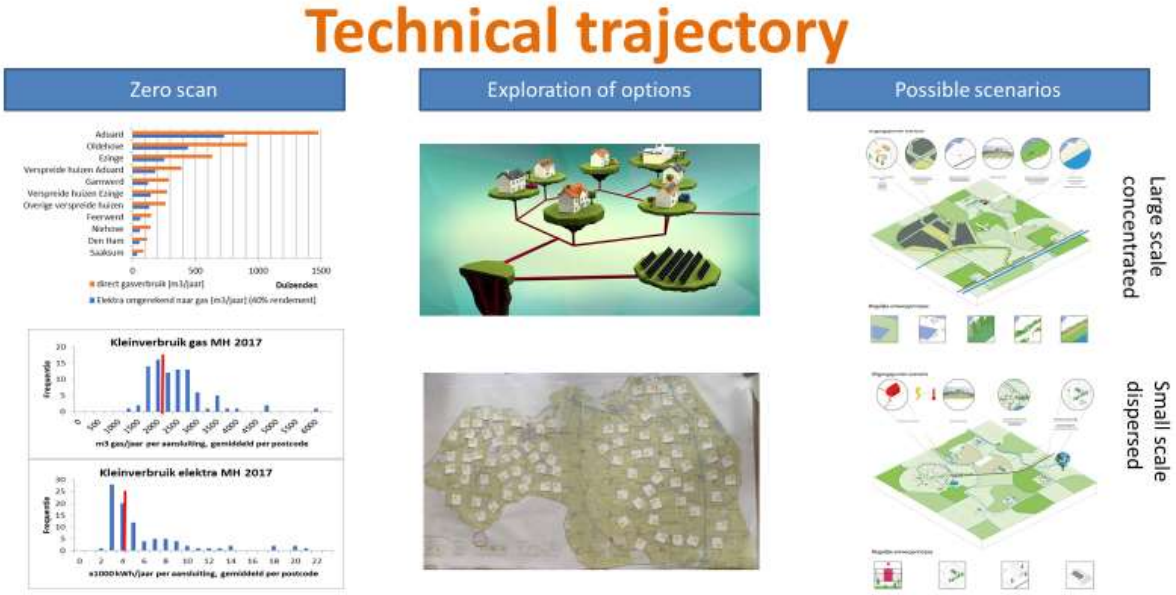


Figure 14: Technical trajectory with zero scan, exploration of options and possible scenarios.

6. Conclusion & reflection

The charrette approach is a highly participative, collaborative method to involve a diversity of stakeholders in the planning of (sustainable) spatial units or – better – sustainable places. Originating in the urban context of the United States the approach has been successfully imported in the Netherlands, albeit with some alterations. The most significant difference is its departure from a rather strict format as part of a formal planning process to a more explorative, informal process in the pre-planning phase.

Both versions of charrettes share their involvement of different groups of stakeholders, that may include experts and professionals but also community members, or local people. What all these participants have in common is a shared concern for the particular spatial unit (place) that is being considered, whether this is a neighbourhood in a city, a village in the countryside, or a larger rural region: the place is the starting point of all considerations. As such, the charrette approach is a good example that participation and an area-based approach may go hand in hand. This is in line with what we see in literature where the strong bonds of people with place and community, lead to strong engagement in these type of processes. It is also a good illustration of the role that strong bonds of people with place or place attachment can play in constructively overcoming NIMBY responses – as was illustrated by the case in Middag-Humsterland: people are willing to think about the implementation of renewable technologies, even in highly valued landscapes, if they are given the opportunity to be involved in the early stages of any planning process or even well before any planning takes place at all.

However, one of the challenges in engaging with ‘the public’ is the complexity of the energy transition: there is not one technical solution that can be rolled out – rather there are many technologies available, many stakeholders involved, many decisions to make. What we have seen in this project is how the interaction between technical-data and a social participatory process may work towards creating more awareness, and ultimately knowledge among ‘the public’ so that they too can make informed decisions. Though limited in scope and formal output (small group of participants, a ‘small’ region, no final plan) this charrette project has led to a meaningful discussion about options, possible scenarios and pathways. The final answer for the transition pathway of Middag-Humsterland has certainly not been found, but first steps have been taken, including as a serious by-product the advancement of some of the tools and methods that can be used in the interactive process.

What the case of Middag-Humsterland also demonstrated or added to the discussion is its profound focus on the relation between energy transition and a valuable landscape. Alarmed by energy transition interventions elsewhere – the drastic impact on the landscape - but also convinced that energy transition is a must, a group of local people initiated this project to address the dilemmas and issues that come with it. Given time and resources this charrette process was ‘only’ a first exploration, but it provided some interesting insights in what people find acceptable in such landscapes and what not. What we see here is a prelude of what is happening elsewhere in the Netherlands: the resistance and protest on the impact of technologies on the landscape (or broader: the environment), leading to sometimes heated debates and controversy (e.g. on social media). This case also illustrated the growing awareness that energy has to compete with other important spatial claims – housing, nature, agriculture, consequences of climate change, etc.

To conclude, some additional reflections can be made. First, in this case study, the regional demarcation was based on a spatial unit defined by historic roots[25] and the valuable landscape. Middag-Humsterland is not an administrative jurisdiction with an ‘independent’ formal planning authority as it is part of a municipality

[25] Although in fact, the former islands of Middag and Humsterland were never ‘a region’ before – an interesting case of region formation in itself.

Westerkwartier and the province of Groningen, in the vicinity too of the city of Groningen. As such, it is now included in the Regional Energy Strategy of the Groningen province region in which Middag-Humsterland so far has been appointed only a very limited task. However, it is important to keep an eye on this – e.g. to see how people/citizens of Middag-Humsterland (or other places for that matter) are included in this process.

Second, the question is justified if the ambition for regional self-sufficiency works. It sounds attractive at first sight, as 'romantic' notion, and it certainly helps to make the energy challenge more manageable, however in reality there are many reasons why in certain areas this ambition is unfortunate, and unwanted. Many reasons related to efficiency and costs, but also for other reasons – other spatial claims, nature and landscape values etc. – regional energy self-sufficiency may not be the best option. Many would agree that a region such as Middag-Humsterland – given its rural character, low population density and high landscape values - probably should be spared from major interventions. However, there is a principle at stake here: what about other rural, empty areas with low population densities, maybe with less highly values landscape values but a population that is equally attached to the place? Or cities for that matter that already face many other spatial claims and challenges? This is discussion we have seen emerging – not in the last place in Groningen and Drenthe – further complicated here by feelings of 'resource region' towards national government in The Hague, but we have also seen opposition to plans in Amsterdam – where people oppose wind turbines in the vicinity of a neighbourhood. It is reductive/short sighted to discard issues like this to the NIMBY mechanism (see e.g. Devine Wright 2009). Very often it is a matter that people do not feel they have adequately engaged and involved in the planning for these things (e.g. being overruled by the government in the case of Groningen or commercial developers). It calls for a more coordinated approach by national, regional and local governments, and alignment with other spatial claims. The Regional Energy Strategy that was under development at the time of the charrettes is a step in the direction of that – however, without meaningful inclusion of people in decision making process this too is bound to lead to conflict and discussion.

Finally, to end with a more speculative note, the most significant energy related technological intervention in Middag-Humsterland seems to 'just' have happened – the construction of the new high voltage power line of Tennet – required for the increasing national demand for electricity, was implemented shortly after the charrettes took place. It is unclear if the participants of the charrettes were aware of the spatial and landscape consequences of this intervention. In any case it illustrates that when making plans for a particular place, its relations with other places should always be considered.

7. References

[1] Lokale Energie Monitor (2020), https://www.hieropgewekt.nl/lokale-energie-monitor. (15.11.2021)

[2] Wyse, S. M.; Hoicka, C. E. (2019). 'By and for local people': assessing the connection between local energy plans and community energy. *Local Environment*, https://doi.org/10.1080/13549839.2019.1652802

[3] Gebiedscoöperatie Westerkwartier and Hanzehogeschool Groningen (2018). *Endelk: contouren van een energie neutrale regio. Bouwen aan een regionale commonity (project proposal)*. Noordhorn.

[4] Lennertz, B.; Lutzenhiser, A. (2014), *The Charrette Handbook. The essential guide to design-based public involvement*. American Planning Association/National Charrette Institute, 2nd edition. Chicago, Washington.

[5] Jellema, J.; Mulder, H.A.J. (2016). Public Engagement in Energy Research. *Energies*, *9*, 125. https://doi.org/10.3390/en9030125

[6] Condon, P. M. (2008). *Design charrettes for sustainable communities.* Washington D.C.: Island Press.

[7] Roggema, R. (ed) (2014) *The Design Charette: ways to envision sustainable futures*. Dordrecht Springer

[8] Roggema, R. (2014a) 'The Design Charrette', in Roggema, R. (ed.) *The Design Charrette: Ways to Envision Sustainable Futures*. Dordrecht: Springer. Ch.2

[9] Scottish Government (2010). *Scottish Sustainable Communities Initiative. Charrette Series Report*. Edinburgh: Scottish Government

[10] Kordas, M. (2020), *Whose vision, whose places, whose future? Charrettes in the Scottish Planning System.* University of Glasgow, PhD Thesis.

[11] Bond, S.; Thompson-Fawcett, M. (2007). Public participation and new urbanism: a conflicting agenda? *Planning Theory and Practice*, 8(4), pp.449-472

[12] Onyango, J.; Hadjri, K. 2009. The impact of the Design Charrette in the Process of Creation of Sustainable Community: the case of Tornagrain. In Corrigan, N. Sayce, S. and Taylor, R. (eds.) *Sustainability in practice from local to global: making a difference.* Kingston Upon Thames: Kingston University Press, pp. 131-142.

[13] MacLeod, G. (2013). New Urbanism/Smart Growth in the Scottish Highlands: Mobile Policies and Post-politics in Local Development Planning. *Urban Studies*, 50(11), pp. 2196-2221.

[14] Flyvbjerg, B. 1998. *Rationality and power: democracy in practice*. Chicago; London; University of Chicago Press.

[15] Forester, J. (2006).'Challenges of deliberation and participation, *Les ateliers de l'éthique*, 1(2), pp. 19-25.

[16] Healey, P. (2006). *Collaborative Planning: Shaping Places in Fragmented Societies.* 2nd edition. Basingstoke: Palgrave Macmillan.

[17] Van Dam, F.; Noorman, K.J. (eds.) (2006) *Grounds for Change: Bridging Energy Planning and Spatial Design Strategies, charrette report.* IGU Groningen, Netherlands, 2006

[18] Roggema, R.; Van den Dobbelsteen, A., Stegenga K. (eds.). (2006) *Pallets of Possibilities, Bridging to the Future*. Provincie Groningen.

[19] Noorman KJ; De Roo G (eds) (2011). *Energielandschappen,-de 3de generatie. Over regionale kansen op het raakvlak van energie en ruimte.* Provincie Drenthe and Rijksuniversiteit Groningen, Assen and Groningen.

[20] Kempenaar, A.; Puerari, E.; Pleijte, M.; Van Buuren, M. (2021). Regional design ateliers on 'energy and space': systemic transition arenas in energy transition processes. *European Planning Studies*, *29*(4), 762-778. https://doi.org/10.1080/09654313.2020.1781792

[21] Kempenaar, A.; Van den Brink, M. (2018) Regional designing: A strategic design approach in landscape architecture, *Design Studies*, 54 , pp. 80-95

[22] De Zwart, B. (2015). *Republiek van Beelden, De Politieke Werkingen van het Ontwerp in de Regionale Planvorming.* PhD thesis. TU Eindhoven, Eindhoven.
[23] Kempenaar, A. (2019). *Fuelling energy-transition with regional design ateliers.* Conference paper.
[24] De Boer, J., Zuidema, C. (2015). *Towards an integrated energy landscape. Urban Design and Planning* 168(5), pp.231–240. https://doi.org/10.1680/udap.14.00041
[25] Oudes,D; Stremke S. (2018). Spatial transition analysis: Spatially explicit and evidence-based targets for sustainable energy transition at the local and regional scale. *Landsc. Urban Plan.*, 169 (2018), pp. 1-11. https://doi.org/10.1016/j.landurbplan.2017.07.018
[26] Van Dam, K.I.M. and H. van der Windt, Islands as playing and breeding grounds for incumbents, entrepreneurial technologists, policymakers and engaged citizens: energy transition on Ameland as an example. (manuscript, December 2021)
[27] Van Meerwijk, A.; Geerdink, T.; Brus, C.; Willems, M.; De Boer, S. (2020). *Learning History, Duurzaam Ameland.* Research report ESTRAC/TNO/Hanze University of Applied Sciences.
[28] Geerdink, T. Brus, C. Willems, M. Van Meerwijk, A. De Boer, S. (2020), *Evaluation study of the transition to a Duurzaam Ameland*, ESTRAC, TNO.
[29] Wetzels, W.; Van Dam, K.; Geerdink, T.; Meerman, H. (2020). Decision making on regional energy transition Models, tools and approaches. TNO 2020 P10053
[30] Bouw, K.; Noorman, K.J. Wiekens, C.; Faaij, A. (2021). Local energy planning in the built environment: An analysis of model characteristics, *Renewable and Sustainable Energy Reviews*, Volume 144, 2021, 111030, https://doi.org/10.1016/j.rser.2021.111030.
[31] Heaslip E.; Fahy, F. (2018). Developing transdisciplinary approaches to community energy transitions: An island cases study. *Energy Research and Social Science*, 45, 153-163 http://dx.doi.org/10.1016/j.erss.2018.07.013
[32] Smart Energy Cities https://www.smartenergycities.nl/(17.11.2021)
[33] Yin, K.R. (2018). *Case Study Research: Design and Methods,* 6th edition, Sage: Thousand Oaks, CA, USA, 2018
[34] Van der Waal, E.; Van der Windt, H.J.; Botma, R.; Van Oost, E.C.J. (2020). Being a Better Neighbor: A Value-Based Perspective on Negotiating Acceptability of Locally-Owned Wind Projects. *Sustainability* 12, 8767 https://doi.org/10.3390/su12218767
[35] Hasanov, M.; Zuidema, C. (2018). The transformative power of self-organisation: Towards a conceptual framework for understanding local energy initiatives in the Netherlands. *Energy Research and Social Science, 37, 85-93,* https://doi.org/10.1016/j.erss.2017.09.038
[36] Delvigne, J. (2018). *Middag-Humsterland, op het spoor van een eeuwenoud wierdenlandschap.* Bedum: Profiel.
[37] Rijksdienst Cultureel Erfgoed (2019), *Regionaal Beleid.*
[38] Belvédère Ministerie van VROM (2006). *Nota Ruimte Katern over nieuw ruimtelijk beleid in 2006.* https://www.parlementairemonitor.nl/9353000/1/j4nvgs5kjg27kof_j9vvij5epmj1ey0/vi3ahmkuwtza/f=/kst36445.pdf (accessed: 17.11.2021)
[39] Landschapsconvenant. *Landschap Goed voor elkaar. Afspraken in de samenwerking voor behoud, herstel en ontwikkeling van het landschap.* Middelstum, 2015
[40] Libau (2017), *Naar een koers duurzaam Middag-Humsterland, ruimtelijk scenario duurzame energieopwekking* https://www.libau.nl/actueel/koers-duurzame-energie-middag-humsterland/(accessed: 17.11.2021)
[41] Libau (2017). *Gebiedskwaliteitenkaart Middag-Humsterland* https://www.libau.nl/actueel/gebiedskwaliteitenkaart-middag-humsterland/ (accessed: 17.11.2021)
[42] Gemeente Zuidhorn, *Toepassingsmogelijkheden wind- en zonne-energie in National Landschap Middag-Humsterland,* Raadsvergadering 26 juni 2017
[43] Gebiedscoöperatie Westerkwartier et. al. (2017). *Visie Middag-Humsterland; behoud en ontwikkeling van het enige nationale landschap in de provincie Groningen*. Zuidhorn: Gemeente Zuidhorn, Provincie Groningen.
[44] Fakkert, I. and T. Boeré e.a. (2019) *Energietransitie in Middag-Humsterland. Kan dat eigenlijk wel?* Werkgroep Energie Middag-Humsterland, Gebiedscoöperatie Westerkwartier.

[45] Stremke, S; Van den Dobbelsteen, A. (eds.) (2013). *Sustainable Energy Landscapes: Designing, Planning and Development*. CRC Press, Taylor & Francis Group, Boca Raton, FL, USA.

[46] Späth, P.; Rohracher, H. (2014). Beyond localism: the spatial scale and scaling in energy transitions. In: F.J.G. Padt; P.F.M. Opdam; N.B.P. Polman; C.J.A.M. Termeer (eds.). *Scale-Sensitive Governance of the Environment*. John Wiley & Sons, Oxford, UK, 2014, pp 106-121 http://dx.doi.org/10.1002/9781118567135.ch7

[47] Sijmons, D.; Hugtenburg, J.; Feddes, F.; Van Hoorn (2014). A. KWh/m2. Landschap en Energie. Ontwerpen voor transitie. Nai010 uitgevers, Rotterdam.

[48] Devine-Wright, P. (2009). Rethinking NIMBYism: the role of place attachment and place identity in explaining place-protective action, *J. Community Appl. Soc. Psychol.*, 19 (6), pp. 426-441

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