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“Mind the Gap”

Understanding the Role of Risk Perceptions in Climate Policy Implementation Gaps

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Preface

Dear reader,

If you would go back to 2016, the year I graduated from my international school in Shanghai and told me I would be writing a piece that uncovers the social and technical obstacles faced in the energy transition, I might have laughed, shrugged my shoulders, and continued with my day. At the time, I had no idea what I wanted or who I wanted to be. I felt disoriented and confused; short-sighted, I enrolled in the "Water Management" track offered by HZ University of Applied Sciences. It was not until my semester abroad in South Korea that I would extensively learn about the term "spatial planning". Discovering the urgency behind spatial planning and how it could contribute to greener, healthier, and more vibrant living environments which can sustain themselves for years to come, flipped a switch within me. Until then, I had not grasped how vital the role of spatial planner was and had inconspicuously underappreciated the built environment that surrounded me, always overlooking the efforts of spatial planners, which I had just assumed as a given.

Now, two years have passed since I started my journey at the University of Groningen in spatial planning, and my passion for the environment has only grown. Yet, I found myself wondering, why is it that people do not take the risks of climate change seriously? Surrounded by my like-minded peers and teachers, we all knew that this urgency was real and the risk ahead of us were simply a matter of time. I learned that the energy transition played a major role in spatial planning and became aware of the complexities we face in implementing climate policy, seeing the multifaceted challenges which need to be overcome in order to move the energy transition forward. In my thesis, I discovered the broad diversity of individual factors that shape how people perceive and respond to climate change and renewable energy, where climate change has become a highly polarized topic, with social and political divisions shaping how we approach the issue. I found that this clash of interests among different groups and political ideologies creates obstacles in our quest for a unified response. On the local level, the challenges become even more intricate. Climate policies need to be tailored to each municipality's encountered circumstances, such as available resources, and the characteristics of communities. However, such decentralized approaches leads to varying policies across regions, creating inconsistencies in finding a collective response. In combination with people's fragmented value orientations and risk perceptions that view the danger of climate change as distant and uncertain, the implementation of climate policy demands lengthy discussions with municipal authorities. Yet, finding common ground and bridging the gap in this heterogeneous turmoil can prove unsuccessful, resulting in heated debates and conflicting opinions on the best course of action.

In this thesis, I present you my culmination of countless hours of research and introspection, hoping to shed light on earlier-mentioned intricacies that lie before us. As I take you on this journey through the obstacles and opportunities within the energy transition, I invite you to ponder the choices we make as individuals, as communities, and as a society to realize a greener, healthier, and more sustainable world. I would like to give thanks to Stefan, my supervisor, for the great feedback and guidance he provided me within the last half year. Also Rozanne, for her attentive work and watching me cross the finish line. My family and friends, for their constant support and never-doubting belief that I can do it. And lastly to Roel, for showing me what moral support really means, as I found comfort, encouragement, and compassion in you. With you by my side, I found the strength to write a piece which I am immensely proud of.

With utmost gratitude,

Jessica Formen

Abstract

In the race to meet the targets set by the Paris Agreements, the Netherlands finds itself short of the finishing line. To reach its reduction target of 49-55% GHG emissions by 2030 compared to 1990 levels, a gap of 5-16% arises to reach its reduction target. To study this gap, the research question was: *How do the risk perceptions of residents in the municipalities Midden-Groningen and municipality Het Hogeland slow down the implementation process of climate policies in Groningen province?* A novel approach, combining the cultural theory of risk and value-belief-norm theory, created a multi-dimensional framework for a more nuanced understanding of the intricate connections between values, risk perceptions, and climate policy implementation. Firstly, the case studies' provincial and municipal energy documents were compared to identify the severity of the implementation gap through a document analysis, and secondly, the top parties in the Dutch provincial 2019 election were also compared through a voter behaviour analysis to identify parties' value orientation as a representation of Midden-Groningen's and Het Hogeland's values. The findings from the first comparison show a climate policy implementation gap in Groningen province, particularly in the municipality of Midden-Groningen and, to some extent, in Het Hogeland. Results indicate that due to contextual characteristics and residents' overall low sense of urgency and willingness to act against climate change, Midden-Groningen faces more complications in moving the energy transition forward. In the second comparison, the study determined the degree of altruistic, biospheric, and egoistic value orientation from the value-belief-norm theory and also identified the dominant risk perceptions from the cultural theory of risk in these municipalities. The results show that Midden-Groningen residents have lower biospheric and altruistic values but higher egoistic values than Het Hogeland. These result in risk perceptions that see the natural environment as tolerant and resistant to invasive human actions. Recommendations have been provided on how planning practitioners within both municipalities can overcome these challenges. These boil down to two orders of suggestion, which are (1) for Midden-Groningen to become more proactive as the initiator in the energy transition and (2) for the transfer of policy and knowledge between Het Hogeland and Midden-Groningen. The study concludes that bridging the climate policy implementation gap between municipalities and province requires concerted efforts to understand and address the intricate interplay of values, risk perceptions, and context-specific challenges on the local level.

Keywords: Climate policy, implementation gap, energy transition, value orientation, risk perception, sense of urgency, willingness to act

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Chapter 1: Introduction

1.1 The urgency of climate policy implementation

Droughts, sea-level rise, heat waves, and other climate events are becoming more frequent in today's warming climate (IPCC, 2022). As a result, the Paris Agreement created in 2015 aims to maintain this global rise in temperature below 2°C above pre-industrial levels and wants to limit the rise of temperature further down to 1.5°C (UNFCCC, 2015). Since then, there has been a significant increase in climate policies that focus on reaching emission targets through the implementation of climate policy (Nascimento et al., 2021). However, concerns still arise in meeting the Agreement as there is slow development in emission reductions (ibid). This slow development is often due to complex factors that hinder the progress of climate policy implementation (Wolf et al., 2020), which can be linked to literature on policy implementation gaps. These can occur when moving from "what is required from a jurisdiction's respective abatement target to the target being met" (Perino et al., 2022, p. 214). As a member of the Paris Agreement, the Netherlands also experiences these implementation gaps (PBL, 2022). In recent years, the Dutch government has published many progress reports and policy documents containing actions to keep GHG emissions in check. However, the efforts put into these documents are not sufficiently reflected nor translated into on-the-ground responses necessary for climate policy implementation (PBL, 2021; 2022).

For example, the Netherlands' Climate Act includes the required regulations to reach the climate targets for 2030 and 2050. For 2030, the target is to reach an emission reduction between 49% to 55% compared to the emissions levels from 1990 (PBL, 2021). In attempts to achieve this target, the central government has released policy documents, such as the "Climate Agreement" in 2019, the recent "Climate Policy Programme" in 2022, an elaboration of the "Coalition Agreement" in 2021, and an amendment of the "Climate Plan 2021-2030" from 2020 (Raad van Staat, 2022; Verschuuren, 2022). It becomes clear that significant efforts are put into publishing these documents. However, more practical actions are required to reach climate targets. Other documents, such as the "Climate and Energy Outlook" reports of 2021 and 2022 from PBL's Netherlands Environmental Assessment Agency, mention that climate policies need to be more concrete to implement policies faster (PBL, 2021; PBL, 2022). Based on the current policies to come, the PBL estimates that emission levels are projected to be reduced by 39% to 50% by 2030, leaving a 5% to 16% gap compared to the original target (PBL, 2022). Also, the Advisory Division of the Council of State by virtue of the Climate Act, shares that climate targets are far out of reach (Raad van Staat, 2021; 2022). The Advisory Division argues that whilst current policies and policies to come are highly ambitious, it becomes more important to convert these into implementation agendas if targets are going to be met by 2030 (ibid). Thus, uncovering the implementation gaps to prevent falling beyond the planet's tipping point is highly relevant.

1.2 The roadblock of policy implementation gaps

Climate policy can be described as policies focusing on climate mitigation and adaptation. Respectively, these include policies that aim to reduce GHG emissions, mitigate the rate of global warming and anticipate the effects of climate change, adapting by taking appropriate measures to minimize the impacts of climate change (Newell, 2021). For climate policies to be implemented, the institutional contexts play a significant role in accomplishing a policy's purpose. In the

Netherlands, the institutional context follows a long tradition of cooperation, forming a multi-level governance approach where the implementation of policies occurs at the lowest level, the municipalities (Government of the Netherlands, 2011). Provinces are tasked to translate policies into the regionally encountered circumstances, which includes drawing up provincial climate policies (ibid). This entails that, while still staying in line with national guidelines, climate policy is context-dependent from province to province. Consequently, municipalities must implement necessary measures to achieve provincial policies and national climate targets (ibid). Thus, the outcomes of climate policies are increasingly dependent on the actions occurring on the local level (Zuidema, 2016).

However, implementing climate measures at the local level often hinges on a sense of urgency and the local willingness to act among residents in a municipality (Zuidema, 2016). These variables are influenced by (1) an individual's value orientation and (2) risk perception, which raises the complexity of the implementation stage as there is high social fragmentation of people's values and creates different risk perceptions towards climate change (Millner and Ollivier, 2015). Since individuals' underlying values are highly heterogeneous, variations in risk perceptions towards climate change emerge, creating different answers on approaching the climate crisis. Thus, it could be argued that these differences influence the climate policy implementation gap, as residents may have values and risk perceptions that are not in line with what climate policies strive to achieve. This study defines the policy implementation stage as "the stage of the policy-making process that involves translating the goals and commitments of a public policy into concrete and operating actions" (Ryan, 2015, p.520) and the implementation gap as the effectiveness of the implementation process; "the difference between a jurisdiction's targeted reduction path and the actual reductions achieved with the current set of climate policy instruments (towards the policy outcome)" (Perino et al., 2022, p. 214). This implementation gap indicates that the implementation stage can be labelled a "wicked" problem (Hudson et al., 2019). Wicked problems are described as not having a straightforward solution (Rittel and Weber, 1973), meaning there is contested agreement on how to overcome the implementation gap since there is no "one size fits all" solution (RIPA, 2019). Thus, when a municipality implements climate policy, its governance approach must consider the locally encountered circumstances, making each municipality context-specific. Hence, when deciding with residents on how to deal with the problem, wickedness arises as there is room for multiple explanations of the same problem and debate whether it is a problem in the first place. Thus, meeting climate policies is difficult as implementation processes can be lengthy and heavily negotiated, potentially ending in non-implementation (Khan, 2016).

1.3 A novel approach to policy implementation gaps

It has often been helpful to study the variables on the level of an individual that can act in favour or against implementation, such as an individual's pro-environmental behaviour (Herrera-Mendoza et al., 2016). It has been highlighted that an individual's values can shape the acceptance of climate policy (De Groot and Steg, 2007; Steg et al., 2011), precisely the extent of one's altruistic, biospheric, and egoistic values. These values are key elements of the value-belief-norm theory from Stern et al. (1990) and also have been studied to determine an individual's risk perception towards climate change (Slimak and Dietz, 2006). However, the cultural theory of risk also has been proven to shed light on how individuals perceive climate change risks (Cambardella et al., 2020). The theory claims that four risk perceptions emerge: individualist, hierarchist, egalitarian,

and fatalist, differing in their corresponding values and behaviours toward nature (Douglas and Widalsvky, 1982). Based on these characteristics, an individual falls into one of the four risk perceptions and can act in favour or against climate policy implementation. In turn, an individual's values can act as an anchor, out of which (a multitude of) risk perceptions emerge. This heterogeneity of values between individuals creates different risk perceptions that can "influence the feasibility and acceptability of climate adaptation planning, policymaking, and implementation" (McNeeley and Lazrus, 2014, p.506). Hence, values shape risk perceptions, which is why this research fused these two theories, forging a novel multi-dimensional framework for a more nuanced understanding of the intricate connections between values, risk perceptions, and climate policy implementation.

Based on the most dominant risk perception in a community, different degrees of perceived urgency and willingness to act emerge, which may contribute to the implementation gap between the policy outputs at the local level and policy targets at the provincial level. Several reasons exist for late and implementation failures, such as dispersed governance, poor collaborative and coordinated policymaking, and overly optimistic policy expectations (Hudson et al., 2019; Peters, 2018). The avant-garde combination of theories can add a fresh and insightful perspective to this body of literature, specifically on the complex value dynamics that guide an individual's risk perceptions towards climate change and how this can hinder climate policy implementation. Thus, this approach enables a more holistic understanding of risk perception across the local level as it can be seen as a broad analysis of how climate risks are perceived (zoom out) but can also offer a deeper look at the values that emerge from these risk perceptions, offering insight how these may create resistance toward climate policies (zoom in). This unique theoretical framework was applied to the province of Groningen, specifically the municipalities Midden-Groningen and Het Hogeland.

1.4 Research objectives and research question

This research is interested in values and risk perceptions that emerge amongst residents at the municipal level and whether those align with what provincial climate policies aim to achieve. A mismatch, i.e., the lack of urgency in a municipality and their insufficient actions to achieve provincial policy, could be held accountable as a reason for climate policy implementation gaps.

This research aims to offer two knowledge-based contributions towards (1) the theories used in this study and (2) the planning practitioners across provincial and municipal governments. Firstly, since the cultural theory of risk in combination with the value-belief-norm theory has not been applied to the policy implementation stage (to this author's knowledge), this research aims to provide new insight into how values and risk perceptions can lead to policy implementation gaps. Secondly, it provides insight as help for planning practitioners and decision-makers to clear up distorted information regarding the severity of climate change and to create more awareness regarding the urgency of climate risks, specifically towards the residents in the selected cases. Furthermore, it would be beneficial to determine various recommendations for planning practitioners to create more awareness, such as tailoring their engagement and communication strategies to context-dependent characteristics, including adapted educational campaigns and other community outreach efforts. In that manner, solutions can also be offered that ensure that the province of Groningen stays on its most sustainable trajectory.

Therefore, this research is going to identify the most dominant value orientations and risk perceptions of climate change amongst inhabitants in the municipality of Midden-Groningen

(MG) and Het Hogeland (HH) in the province of Groningen and analyse how these may slow down the implementation process of climate policies. This leads to the following research question: *How do the risk perception of residents in municipality Midden-Groningen and municipality Het Hogeland slow down the implementation process of climate policies in Groningen province?*

Secondary questions include:

1. The implementation gap between the province and the municipalities:
    - What are the climate policies in the province of Groningen?
    - What are the climate policies in the municipalities Midden-Groningen and Het Hogeland?
    - What are the variations in climate policy implementation gaps between the province of Groningen and the two respective municipalities?
2. The value orientation and risk perception between municipalities:
    - Which (combinations of) values are dominant in the municipalities Midden-Groningen and Het Hogeland?
    - Which risk perceptions result from the dominant value combinations in Midden-Groningen and Het Hogeland?
    - What are the differences between risk perception and value orientation in Midden-Groningen and Het Hogeland?

To answer these questions, the researcher adopted a qualitative cross-case analysis and followed two rounds of comparison, first identifying the severity of the implementation gap through a document analysis and, secondly, identifying the dominant values and risk perceptions through a voter behaviour analysis within the municipalities. The cases were selected based on the Regional Energy Strategy (RES) in Groningen province, which aims to produce 5.7 TWh of sustainable electricity by 2030. Since HH closed its implementation gap in producing 1.76 TWh of sustainable electricity, and MG still has 0.17 TWh left to achieve its goal of 0.95 TWh; the two cases showed sufficient contrasts to perform a qualitative cross-case analysis.

Chapter 2: Theoretical Framework

2.1 Risk Perception

The lives of every individual on this planet are constantly surrounded by varying degrees of danger. Such exposure cannot always be avoided, meaning one cannot live without experiencing risks. Therefore, living and facing risks go hand in hand, yet whether one is concerned with this precondition of life and chooses to act depends on the individual. The definitions of risks are always quite similar, the risk impact multiplied by the risk likelihood (Aven, 2010; Crozier and Glade, 2005; Zsidisin et al., 2004). Nevertheless, the way that risks are perceived shows large diversity in human beings, and therefore, a closer look at risk perception is required. As discussed later, risk perceptions are unlikely to result from an entirely rational mindset (Oltedal et al., 2004). This is because of (1) one's underlying value orientation and (2) one's cultural and societal surroundings (Aguilar-Luzon et al., 2020; Oltedal et al., 2004).

2.1.1 Value Orientation

Individuals are often unconsciously guided by their underlying value orientation (Al Mamun et al., 2022) as they influence the emergence of specific beliefs and attitudes toward environmental problems (Hiratsuka et al., 2018). Thus, determining the urgency of climate change at the local level can be approached by closely observing the value orientation of local communities. As Aguilar-Luzon et al. (2020) describe, "Values act as filters that modulate the information that the person will evaluate so that if the available information about the situation, object, or the behaviour itself is consistent with the individual's values, that person will develop more positive beliefs toward that situation, object, or action" (p.3). Hence, if one agrees with the dangers of climate change, one is more likely to adopt a greener and more sustainable behaviour to combat the impacts of climate change (Ghazali et al., 2022).

To study how a specific value orientation can drive this motivation towards a higher willingness to act against climate change, the value-belief-norm theory offers a plausible way to study differences in environmental risk perceptions (Slimak and Dietz, 2006). The VBN theory divides values into three value orientation groups, egoistic, altruistic, and biospheric orientations (Stern et al., 1999). Individuals with solid egoistic values are likely to place self-interest higher than what is considered "good" by society, making egoistic values more prominent to show preferences toward maximizing one's profit (Ghazali et al., 2022). Altruistic values refer to concerns about others' well-being, including non-human species, making it more likely for people to look out for each other due to high social cohesion (Hiratsuka et al., 2018). Biospheric values refer to a strong appreciation towards the natural environment. Here, individuals are more inclined to behave environmental-friendly and think about the consequences other behaviour styles might have (Al Mamun et al., 2022). Hiratsuka et al. (2018, p.75) claim that "the VBN theory proposes that these value orientations affect ecological worldviews, that is, people's general beliefs about the relationship between humans and the environment … (which in turn) influence pro-environmental behaviour through awareness of adverse consequences for the environment and one's perceived ability to avert these threats which are believed to create the feeling of a moral obligation to act pro-environmentally". Likewise, Calvo-Salguero et al. (2008) researched how value orientation relates to environmental behaviour. They found that those with higher biospheric and altruistic values were likelier to carry out pro-environmental activities. In contrast, those with higher egoistic values were more likely to have a negative relationship with their environment. Hence, the VBN theory's values can offer insight into how environmental risks can be perceived.

2.1.2 Cultural Risk Perception

Besides value orientation, the individual's cultural surroundings and the embedded sociocultural norms can also shape risk perception (Douglas and Widalvsky, 1982). Here, "cultures, in defining what attitudes and behaviours are appropriate, develop the logic and grammar through which communities interpret and adapt to their environment" (Pendergraft, 1998, p.644). Thus, cultures are socially constructed by people as they attempt to make sense of the world they live in (by defining what attitudes and behaviours are appropriate) and rationalize preferred ways of living within that context (leading to differences in interpreting and adapting to their environment) (Pendergraft, 1998). Thus, there is no universal culture; instead, several cultures arise due to diversities in sense-making and ways of living. Douglas and Widalsky understood that these diversities existed and began to think about how differences in cultural settings could create differences in risk perceptions (Rippl, 2002), leading to Douglas and Widalvsky (1982) developing the cultural theory of risk.

2.2 Cultural Theory of Risk

The cultural theory of risk is based on the fundamental belief that the worldviews of a particular sociocultural context can influence an individual's risk perception (Douglas and Widalvsky, 1982). Dake and Widavsky (1990, 1991) describe worldviews as the social, cultural, and political standpoints towards the world, which Leiserowitz (2006, p.49) outlines as the "orienting dispositions that guide individual responses in complex situations". As mentioned above, depending on how humans construct their cultures, various ways of living emerge that differ in their interpretation and adaptation of environmental risks, meaning that risks are socially and culturally framed (Rippl, 2002). The theory suggests that individuals understand the world in different but patterned ways and, based on that, choose to fear whatever threatens their way of living (Leiserowitz, 2006; Rippl, 2002). Douglas and Widalvsky developed the grid and group typology to make sense of different types of culture, where four risk perceptions and their different values, interests, and preferences emerge (1982). The four risk perceptions are the individualist, hierarchist, egalitarian, and fatalist, presented in Figure 1.

The term *grid* refers to the degree individuals view their lives to be controlled by external rules (Goebbert et al., 2012). Douglas and Wildavsky (1982, p. 192) define grid as "an explicit set of institutionalized classifications (which) keeps (individuals) apart and regulates their interactions". The term *group* refers to the degree individuals view their lives to be socially cohesive (Goebbert et al., 2012). Douglas and Wildavsky (1982, p. 206) define group as ''the individual's life is absorbed in and sustained by group membership''. *High group* indicates a strong attachment to social communities, whereas *low group* indicates lower attachments and more individualistic mindsets. *High grid* indicates that ways of living are determined by the imposed rules in the social structure, and *low grid* indicates the absence of rules, enabling more freedom. Each risk perception along these dimensions carries assumptions about how an ideal society should be constructed and which risks should be recognized to safeguard their reality.

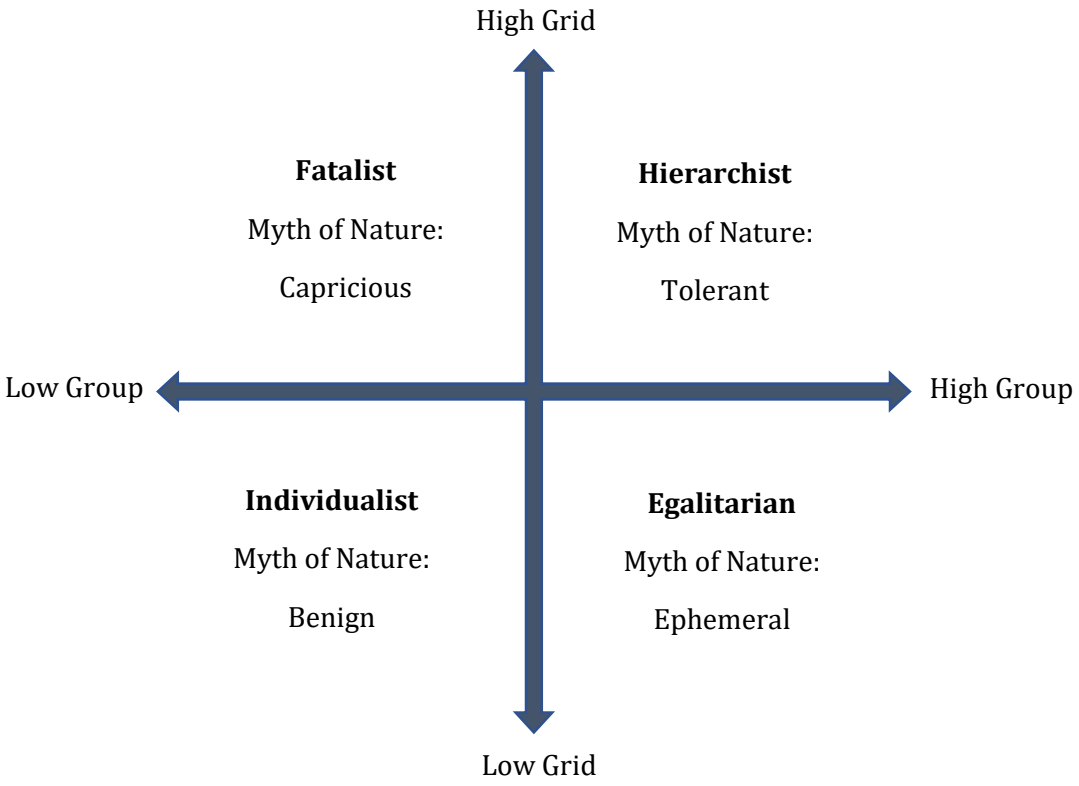


Figure 1: The four cultural solidarities (Douglas and Widalvsky, 1982) derived from the cultural theory of risk with their corresponding myths of nature (Thompson, 1990) along the grid and group typology

The cultural theory of risk has been applied to other climate studies, e.g., in the emergence of climate policy preferences based on the values across the four risk perceptions (Jones, 2011; Leiserowitz, 2006). The theory has also been further operationalized by various researchers, such as Thompson (1990). Thompson related four different myths of nature, which are nature benign, nature tolerant, nature ephemeral, and nature capricious to each of the risk perceptions. These nature myths are connected to the values of the four risk perceptions, providing information on how each perception sees the natural environment around them (Poortinga et al., 2002). In other words, these nature myths can similarly be seen as the biospheric values mentioned in the VBN theory. Biospheric values within the VBN theory have been used to investigate how they can influence the acceptance of pro-environmental measures, e.g., using recycled products, implementing car pricing policy, and promoting energy conservation at the workplace (Hein, 2022; Hiratsuka et al., 2018; Al Mamun et al., 2022). As seen in the figure, myths of nature reveal how the different risk perceptions manage and assess the risks of climate change and ultimately link to the biospheric values one carries. Figure 2 provides more details about the different characteristics that each myth carries.

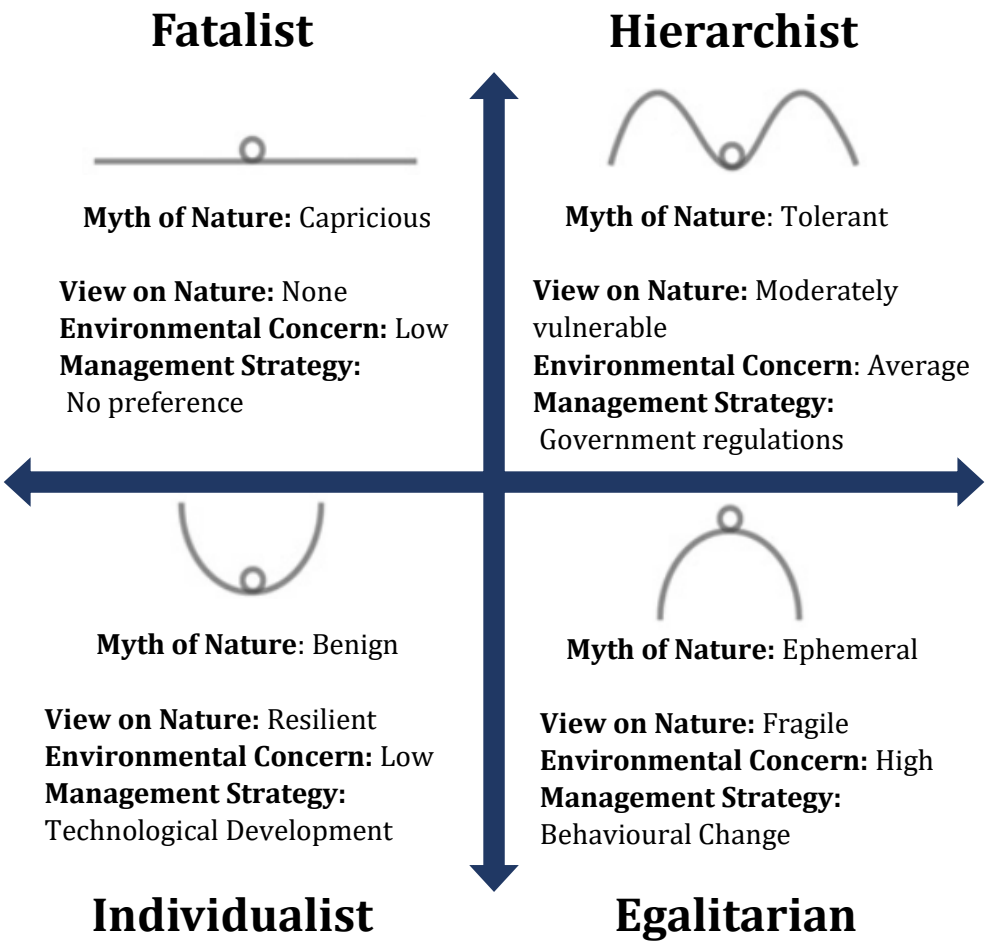


Figure 2: Myths of nature adapted from Poortinga et al., (2002) where the ball represents the natural environment

2.3 The risk perceptions

The discussed risk perceptions below are ideal typologies. Individuals can fall under a multitude of these perspectives but may also fit a particular box.

2.3.1 The Individualist

Value orientation

Individualists are marked by a low group and low grid typology. Low grid means that individualists are not fond of imposed rules by relevant authorities (Hood, 1998) as they strongly value their autonomy, which is one of the major reasons why rules are considered risks (Leiserowitz, 2006). Furthermore, individualists feel little desire to be part of a community and have apathy towards collective decision-making (Goebbert et al., 2012). Hence, *altruistic values* are not commonly present within individualists as they can be described as self-concerned and more interested in bettering their way of life. Figures 1 and 2 show that nature benign is connected to the individualist. Individualists assume that nature is stable and can resist invasive actions, enabling them to maximise the consumption of natural resources (Cambardella et al., 2020). This characterizes their strong *egoistic values* as they are often profit-driven and interested in obtaining personal benefits, resulting in an attitude that neglects the natural environment. Individualists believe that nature is not easily disturbed, characterized by their low concern for nature (Poortinga et al., 2002). As Figure 1 shows, the ball cannot roll anywhere as it is safely

situated within bounds. Thus, an individualist's *biospheric values* are non-existent. Their unsustainable actions are justified as they believe technical innovations will solve environmental problems and offer economic prosperity opportunities (Wildavsky and Dake, 1990).

Risk perception towards climate change

Individualists perceive climate risks as relatively low, which is already indicated by their low biospheric values. Due to their belief that nature is resilient towards human activities, nature is expected to automatically (re)adjust when anthropogenic disturbances in the environment occur; therefore, nature becomes self-regulating (Jones, 2011). Cambardella et al. (2020, p. 653) argue that "individuals with this perspective will react with much less urgency to a threat from climate change, believing that investments should be made in technology that will eventually solve climate problems as long as governmental regulation does not interfere with innovation". This means climate risks are not taken as seriously as the hierarchist and egalitarian, as technological innovations can fix these risks. Thus, individualists believe that responses against climate change should be based on climate policies that foster innovations without the government regulating the market, i.e., trading emission permits and lifting more restrictions for global trading (Thomspon, 2003).

2.3.2 The Hierarchist

Value orientation

Hierarchists are marked by a high group and high grid topology, meaning they favour rules in organising their employed structures that should also be socially cohesive (Jones, 2011). Hierarchists see themselves as socially bound (Goebbert et al., 2012), illustrating that *altruistic values* are significant to hierarchists as they show concern for others' well-being. However, hierarchists also show strong preferences for imposed regulatory frameworks due to the value placed on social order and stability. In this manner, hierarchists believe that frameworks are an ideal way to do what is best for its people and ensure social welfare (ibid). Thus, the *egoistic values* of a hierarchist are lower than the *egoistic values* of the individualist as hierarchists try to act in favour of others' well-being. However, the hierarchist is connected to the tolerant myth of nature, meaning nature is tolerant to human actions within strict limits and that operations within these limits must be tightly managed (Cambardella et al., 2020). Thus, it is believed that the environment can be exploited for natural resources to certain extents, indicating that *biospheric values* are still not of the most significant importance. This also shows elements of *egoistic values* since hierarchists act in their self-interest, driven by economic gain. A hierarchists observes the natural environment as moderately vulnerable and believes that nature can survive disturbances to certain degrees (ibid). Nonetheless, a hierarchist sees the environment's natural resources as scarce but not necessarily depleting (ibid). Thus, the ball depicted in Figure 2 is portrayed within clear slopes but can roll out if pushed above the tipping point.

Risk perception towards climate change

Hierarchists perceive climate risks as moderately concerning, as indicated by their moderate level of biospheric values. It is believed that the natural environment can collapse without managing environmental limits (Cambardella et al., 2020). Furthermore, hierarchists believe the best way to tackle climate change is through top-down regulations, e.g., climate policies that revolve around carbon regulation (Verweij et al., 2006). Unlike individualists who believe that technological innovations can substitute scarce resources, hierarchists believe more is required in regulatory terms (ibid). This covers climate policies that set clear guidelines and restrictions on the consumption of critical resources and strict emission standards for polluting activities (ibid).

2.3.3 The Egalitarian

Value orientation

Egalitarians are marked by high group and low grid typologies. Being low grid, egalitarians are not fond of strict rules or following lines of authority (Cambardella et al., 2020). Instead, individuals emphasize the importance of cooperation in decision-making through bottom-up approaches (McNeeley and Lazrus, 2014). They believe that decisions should be made collectively with the most satisfactory level of consensus, meaning that participatory discussions are often promoted (Leiserowitz, 2006). Thus, *altruistic values* are essential to egalitarians as their strong group identities favour equality, ensuring everyone benefits in decision-making (Goebbert et al., 2012). Nature ephemeral is connected to the egalitarian, meaning they assume that nature is highly vulnerable and collectively attempt to preserve the natural environment (Cambardella et al., 2020). Egalitarians are aware that if the natural environment was to collapse, groups with lower economic prosperities were to suffer more. Because egalitarians emphasize equality, they reject the concentration of wealth by those in charge (Goebbert et al., 2012). In turn, *egoistic values* are relatively non-existent. Egalitarians believe in leaving the environment in its most natural state, as resources are limited and depleting, illustrating a significant environmental concern (Poortinga et al., 2002). Therefore, *biospheric values* score highly in their value orientation. As depicted in Figure 2, the ball is situated on top of the slopes and is easily toppled if any change in the equilibrium occurs. Lastly, egalitarians see technological developments to solve environmental issues unfavourably, which is considered a source of environmental degradation (Poortinga et al., 2002).

Risk perception towards climate change

Egalitarians perceive climate risks as dangerous, as their high biospheric values indicate. Thus, egalitarians believe behavioural changes are crucial (Cambardella et al., 2020; Poortinga et al., 2002), forming environmental groups to advocate for environmental protection and communicating the potential risks of technological innovations (McNeeley and Lazrus, 2014). Egalitarians see by-products of industrial processes, e.g., GHG emissions, as significant contributors to climate change and perceive the profit-seeking owners as high risks to their biospheric and altruistic values (Goebbert et al., 2012). Hence, egalitarians believe private businesses and political institutions must reform their current practices by taking more precautionary approaches, i.e., refraining from polluting activities and decentralizing decision-making towards the encountered localities to combat climate change (Thompson, 2003).

2.3.4 The Fatalist

The fatalist risk perception was not included in this research. Like other studies, such as by Goebbert et al. (2012) and McNeeley and Lazrus (2014), the fatalist perception is often excluded in climate studies as their argumentation to life is “Why bother?” (Verweij, 2006). As Goebbert et al. (2012) explain, “Fatalists believe that they have little control over their lives; they view their fate to be more a matter of chance than choice” (p.135). Hence, fatalists do not act based on their values; instead, they ignore any risks and do not attempt to engage with them to minimize risk impact (Johnson and Swedlow, 2020). This means the fatalist carries on with life and “perceive(s) their relationship to nature to be the luck of the draw” (Cambardella et al., 2020, p.653). Hence, measuring a fatalist’s value orientation is difficult as values have little meaning to them and see the risks of climate change as passive (Cambardella et al., 2020).

2.4 VBN theory and cultural theory of risk

Based on the above arguments, this study created a multi-dimensional theoretical framework by combining the value-belief-norm theory and cultural theory of risk. The table below showcases the risk perceptions and their degree of altruistic, egoistic, and biospheric values alongside their view of climate change. The equilibrium refers to the balance in the natural environment.

Table 1: Risk Perceptions of cultural theory of risk and their value orientations from the VBN theory

	Altruistic values	Egoistic values	Biospheric values	View towards climate change
Individualist	Low	High	Low	The climate is resilient towards human activities. The equilibrium is self-regulating and adjusts after invasive actions.
Hierarchist	High	Low to Moderate	Moderate	The climate is tolerant towards human activities, and risks are manageable within certain limits. To maintain the equilibrium, rules and regulations are required.
Egalitarian	High	Low	High	The climate is highly fragile. Business as usual will inherently lead to the equilibrium's collapse. Behavioural change and fundamental reforms are required.

Chapter 3: Operationalization

3.1 Connection between value orientation and environmental behaviour

In light of the reviewed literature, sufficient evidence suggests that the extent of altruistic, egoistic, and biospheric values can shape an individual's risk perception, thereby reflecting one's sense of urgency and willingness to act. Moreover, reinforcing relationships between one's underlying value orientations and the resulting connections with nature and environmental behaviours also emerge.

The term pro-environmental behaviour can be considered an umbrella that overarches an individual's activities to safeguard the environment (Steg and Vlek, 2009). Research shows that depending on individuals' values, such activities are more prominently performed, especially if one has values that strongly take the direction of biospheric and altruistic values (Balunde et al., 2019). Existing literature has provided examples of pro-environmental behaviour associated with biospheric values. These include individuals who are more likely to recycle (Van der Werff et al., 2014), reduce car usage and welcome policies that intend to reduce car usage (De Groot and Steg, 2007), accept measures at the domestic level, such as reducing carbon emission policies (Steg et al., 2011) and endorse renewable energy systems within households (van der Werff and Steg, 2016). Hence, strong biospheric values indicate an overall aim to safeguard the natural environment through adopting pro-environmental behaviour.

3.2 Connection between environmental behaviour and voting behaviour

Often, voting behaviour can be considered an essential part of an individual's pro-environmental behaviour, such as voting for a left-wing and green-oriented party (Balunde et al., 2019). As Balunde et al. (2019) reason, "(voting) action should be regarded as an indirect environmental action that reflects the attitudes and desires of the individual to maintain a long-term social-environmental framework that allows citizens to behave in ways that are respectful of the physical and social environment" (p.2). In other words, if someone casts a vote in favour of a greener party, it allows the individual to steer the current governance framework towards a more long-term environmentally favoured framework that corresponds with the individual's embedded desires. This allows them to continue practising their pro-environmental behaviour in a framework that suits them. The action of voting itself, the freedom one is given regarding whether one wants to vote, and the question of who to vote for form the foundation of democracy (Burkell and Regan, 2019). Hence, the importance of voting, next to other factors, stems from the ability of an individual to use their autonomy in their decision-making process. Moreover, the decision-making process is where the consideration of political parties occurs, and the risk perception of the individual is likely to factor into one's final choice.

This research assumes that an individual's voting choice reflects one's value orientation, shedding light on the individual's risk perception. Existing studies have connected voting behaviour to VBN values, including, Balunde et al. (2019), who found that people who voted for pro-environmental parties in the 2019 national Spanish elections were more likely to have scored higher on biospheric and altruistic values and lower on egoistic values. Also, Solano et al. (2015) found in the 2011 Peruvian elections that individuals who voted for left-winged parties had a larger sense of altruistic values and were more willing to help others. In contrast, individuals who voted for neoliberal parties had a larger sense of egoistic values and were likelier to show patterns of patriotism and perseverance. Other studies also have connected voting behaviour to underlying values, such as Caprara et al. (2006), who found that individuals in the 2001 national Italian

election who voted for centre-left oriented parties were likelier to value kindness and friendliness (altruistic values). In contrast, individuals who voted for centre-right parties were likelier to value power and achievements (egoistic values). Therefore, it can be argued that value orientation can influence an individual's attractiveness to certain parties, making it more likely for an individual to vote for a party that is in line with their interests. Value orientations shape several personal features, e.g., long-term interests and risk perceptions of the future. Thus, an individual's voting cast is likely to reflect these features as they would choose a party that fits the individual's underlying value orientation. Consequently, elections provide a helpful way to collect such information.

3.3 Policy Understanding

Next to how value orientation can influence an individual's voting choice, the term policy needs to be further elaborated. A policy is a process that goes through various stages in its lifecycle, which are "(1) problem emergence, (2) agenda setting, (3) consideration of policy options, (4) decision-making, (5) implementation, and (6) evaluation" (Jordan, 2001, p.4649). Throughout these stages, complex policy aspects emerge that can be described as the policy's building blocks (Rogge and Reichardt, 2016). These building blocks can be seen as the components of a policy, such as the policy objectives, policy plans, policy instruments, and policy outputs (ibid), which can address the policy's end and means.

Firstly, the ends are often emphasized through policy objectives, that in the case of climate policy, usually strive for a sort of ambitious sustainability transition that may be based on a mutually shared vision (Schmidt et al., 2012), e.g., the Paris Agreement target of 40% GHG reduction by 2030. Secondly, the means of a policy are often expressed through policy plans to achieve the policy objectives, which Rogge and Reichardt (2016) define as "plans that outline the general path that governments propose to take for the attainment of their objectives and include framework conventions, guidelines, strategic action plans and roadmaps" (p.1623). Hence, policy plans give shape to how policy objectives are going to be met. Thirdly, policy instruments are tools or techniques a governmental structure used to achieve policy objectives under the direction of policy plans (Howlett, 2005). These can include educational programs, coordinative bodies, participatory processes, laws, and regulations (Biesbroek and Delaney, 2020). Lastly, policy outputs are the actions undertaken to meet policy objectives, possibly through policy instruments. These can range from the enforcement, execution, and implementation of appropriate measures within projects or programs tailored to achieve policy objectives (ibid).

Thus, this study's definition of policy for measuring the climate policy implementation gap between municipality and province is founded on the various building blocks that make up a policy, meaning municipalities' policies will be compared and evaluated based on the different policy components, i.e., policy objectives, plans, instruments, and outputs.

3.3 Conceptual Model

In order to visualize the concepts discussed within the introduction, theoretical framework, and the current chapter, a conceptual model is drafted to provide a summarizing figure of the relationships between these concepts. As displayed in Figure 3, the underlying value orientations and the degrees of egoistic, altruistic, and biospheric values form the starting point of the conceptual model. Taken from the VBN theory, they shape the resulting risk perceptions and corresponding myths of nature rooted within the cultural theory of risk. The emerging risk perceptions are expressed differently within individuals and are grouped into the hierarchist, the individualist, and the egalitarian. As a result, the sense of urgency for climate change and the

willingness to act against these consequences hinges on the risk perception or combinations of risk perceptions that an individual may have. In turn, the individual's environmental behaviour and voting behaviour reflects the underlying values and risk perception.

To summarize, the connections between these concepts and the embedded value orientations within an individual can indicate one's voting behaviour as their voting choice reflects their perceived risks and interests for the future. Now relating this phenomenon to the climate policy implementation gap, this study argues that votes for more conservative and right-winged parties on the local level can indicate the opposite of pro-environmental behaviour. Hence, when these parties are more dominantly voted for, it can indicate that residents' low volumes of biospheric values cause resistance against climate policy implementation. Such actions can slow down the progress of climate policy implementation, resulting in a growing gap between the municipal and provincial levels due to the low sense of urgency encountered amongst local communities. Therefore, this environmental and voting behaviour that is not in line with the policies of provincial authorities may form a potential reason why the Netherlands cannot meet its climate targets.

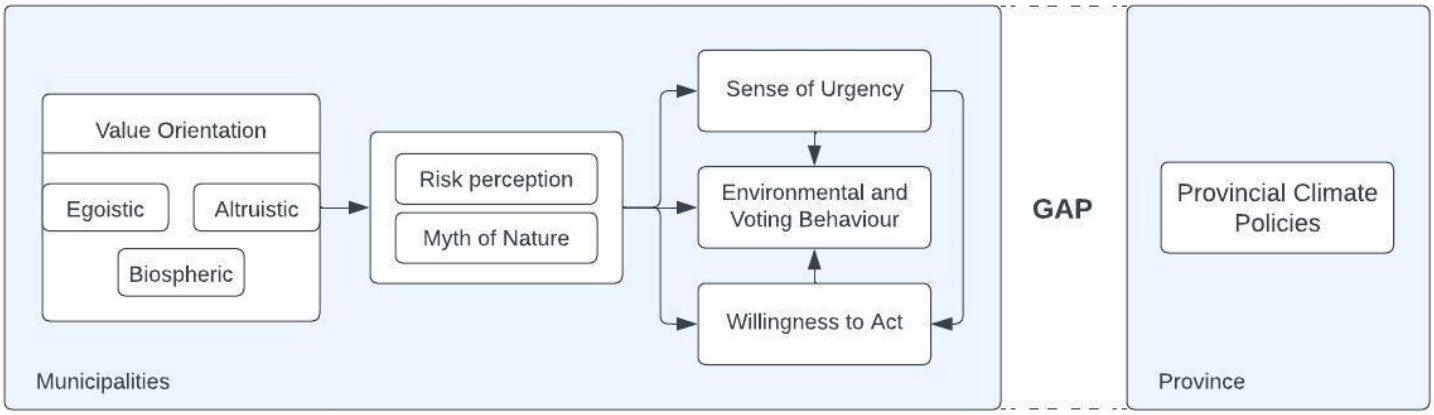


Figure 3: Conceptual Model

Chapter 4: Methodology

4.1 Research design

The qualitative research was based on a case study format to follow an in-depth and exploratory analysis within the real-life context of two chosen cases (Crowe et al., 2011). The selected research design was comparative and was conducted amongst the two case studies to observe how value orientation and risk perception may slow down the implementation process of climate policy. A comparative research design is valuable because it provides a framework that allows the researcher to create a systematic evaluation, which is based on the differences and similarities that are found in the cases' contextual and encountered circumstances, enabling them to form a conclusion beyond a single case (Esser and Vliegenthart, 2017). Two comparisons were carried out to identify (1) the severity of the implementation gap and (2) the values and risk perceptions in the municipalities.

The first comparison is between the provincial climate policies in Groningen and the municipal climate policies in MG and HH. This includes investigating the building blocks that make up the policies of these municipalities to meet provincial targets. Documents that will be analysed from the province of Groningen will be centred around the years 2016-2019, as most of the province's climate policy documents were published throughout these years. This means that any other reports from the municipalities of MG and HH need to be taken from years after to observe cause-effect phenomena. If the province released provincial objectives in 2018, there needs to be a time lag so municipalities could publish their policies to reflect the dominant value orientations and risk perceptions of that time. The longest time lag between provincial and municipal policies is six years (2016 to 2022), and the shortest is one year (2018 to 2019). Having both long- and short-time lags allow the researcher to observe smaller and larger implementation gaps and an overall impression of how the municipalities deal with implementing provincial policies in the short- and long-term. The information found here shows that implementation gaps exist between the municipalities and province, as seen in Figure 4. Moreover, the first comparison allows to identify areas of strength and weakness and to dive deeper into the contextual conditions of the municipalities, as they can influence the performance of each municipality. These range from housing density, geographical context, and energy poverty. Understanding these circumstances helps interpret the variations in climate performance and the degree of the climate policy implementation gaps between the province and the municipalities. Thus, it allows the researcher to answer the three sub-questions under "The implementation gap between the province and the municipalities" in section 1.4.

The second comparison is between the two municipalities' value orientation and risk perception. Through a comparative research design, the researcher can understand the connections between the *variables* (the theory) and the unique set of *information* that is tied to the cases (the data) (Keman and Pennings, 2014). These are the connections between the *variables*, the extent of egoistic, altruistic, and biospheric values and the (combinations of) risk perception, and the *information*, the severity of the policy implementation gap. These results can help assess to what extent value orientations and corresponding risk perceptions can indicate smaller or larger policy implementation gaps. Thus, it helps to discuss whether a lower sense of urgency and willingness to act contributes to an implementation gap between municipalities and provinces. This is performed by analysing the voting behaviour in both municipalities by linking the values of the parties that came out on top in the provincial election in 2019 to the values of voters, representing the dominant values in that municipality. While ideally, an election before 2016 would have been more depictive of the risk perception at that time, the 2019 provincial election was chosen since

both municipalities did not exist independently until 2019. Both were formerly comprised of three smaller municipalities, making an election before 2016 unsuitable. Thus, the researcher can answer the three sub-questions under "The value orientation and risk perception between municipalities" in section 1.4.

As the research is set up, the researcher can identify the severity of implementation gaps between province and municipalities in the first round and consequently understand values and risk perceptions in the second round, as seen in figure 4. Thus, by comparing the data on implementation gaps and risk perceptions between the two municipalities, cross-case analysis can be performed where connections can be established to identify differences in how risk perception influences the implementation gap, helping uncover underlying mechanisms contributing to the observed outcomes. By adopting a comparative research design, the researcher can find relevant information on how risk perceptions slow climate policy implementation.

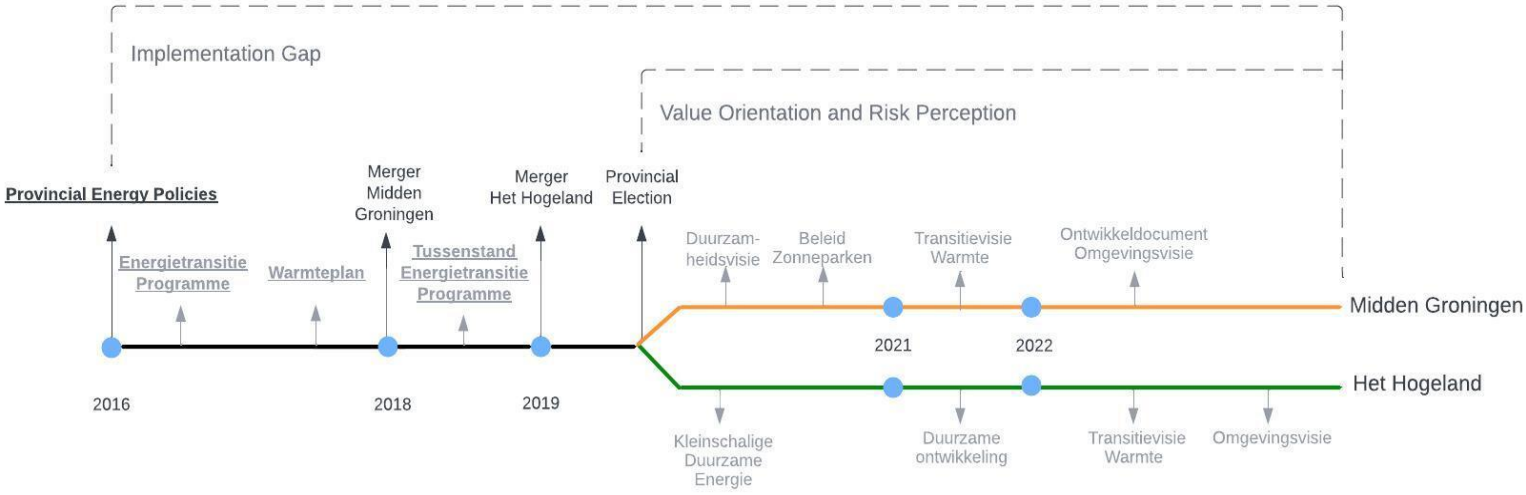


Figure 4: Timeline of events

4.2 Case selection

The selected cases must fulfil specific characteristics for the research design to work. The list below presents the criteria needed for answering the main research question:

1. There needs to be a difference in the performance of reaching provincial climate policies between the two municipalities.
    a. There needs to be one municipality with large discrepancies between the local and provincial levels.
    b. There needs to be one municipality with minor discrepancies between the local and provincial levels.
2. There needs to be an evident difference in the voting behaviour between the two municipalities.
3. The province and municipalities have published at least three reports to ensure data availability is not an issue.
4. There need to be action plans written by the municipalities published after the province of Groningen drafted the climate policies.
5. There need to be similarities within the municipalities, i.e., the size of the population and average income per household.

The selected cases were the municipalities MG and HH in Groningen province. To fulfil Criteria 1, choosing a province with an ambitious climate policy would allow finding more evident differences in policy implementation gaps, as it could be argued that achieving ambitious policies on the local level could be more difficult. Hence, Groningen province seemed to be a suitable candidate since, compared with the other 11 provinces in the Netherlands, it aims to be energy-neutral by 2035, 15 years earlier than the Dutch national target (Provincie Groningen, 2019).

Furthermore, ambitious regions can face challenges translating their policies into effective responses. Thus, for finding two municipalities that fit 1a and 1b, multiple variables, e.g., the total CO2 emissions released and total energy consumption, were explored to detect a high-performing and low-performing municipality. However, difficulties arose across these variables, as one municipality would have a higher energy consumption and others a lower energy consumption, yet the higher-consuming one would consume its energy through more renewable energy sources. While similar complications were encountered, the selection ultimately fell upon the municipalities of MG and HH. It was decided to use the "Regional Energy Strategy 2.0" (RES 2.0) in Groningen as it summarized each municipality's performance in reaching its energy goals in Groningen. Since Groningen wants to generate 5.7 TWh of electricity sustainably by 2030, the RES showcased that MG had the largest gap (-0.17 TWh to reach 0.95 TWh) of their expected sustainable energy generation (RES, 2023). Hence, municipalities that achieved their targets and were similar to MG in socio-economic and demographic characteristics were chosen as suitable high-performing cases (see Criteria 5). This is how HH was selected as the other case, as it has successfully reached its ambition of generating 1.76 TWh.

For Criteria 2, section 4.1 already explains why the 2019 provincial election was taken since neither municipality independently existed until 2019. The results of the 2019 provincial election across HH and MG also show large differences in the parties voted for, making them suitable for cross-case analysis. Criteria 3 and 4 are concerned with the data availability of relevant policy documents and with the assurance that municipal documents are published after provincial documents to observe the cause-effect phenomena in section 4.1. Section 4.3 demonstrates sufficient sources for successful policy analysis to meet Criteria 3 and presents the release date to meet Criteria 4.

4.3 Data Collection

Table 2 shows documents from the first round of comparison, and Table 3 shows documents from the second round of comparison. Whilst myriads of document types exist in governance structures, Cardno (2018) highlights the importance of narrowing down the document types used to avoid confusion, as they can have significant variations in language. Thus, energy-related policy documents proved viable as they likely contain the policy building blocks to reach the target (Ollier et al., 2022). To determine provincial policy, the overarching energy transition document of the province was selected along with the later update of the same energy transition. Furthermore, the heating plan of the province was chosen as this topic forms an essential part of the energy transition. To determine the municipal policies, the overarching sustainability visions and their respective heating plans were selected. For both MG and HH, context-relevant documents were also selected that were presented on their respective websites. Moreover, documents by the RES Groningen were also used to determine the provincial and municipal climate policies, including the sustainable energy targets within the region and the municipal performances of implementation processes.

Table 2: All documents used to study the implementation gap between the province and the municipalities

Author	Title	Date
Province Groningen	"Vol ambitie op weg naar transitie" Programma Energietransitie 2016-2019	Mar 2016
Province Groningen	Warmteplan van de Provincie Groningen	Nov 2016
Province Groningen	"Vol ambitie op weg naar transitie" Programma Energietransitie 2016–2019 de Tussenstand	May 2018
Midden Groningen	Duurzaamheidsvisie Midden-Groningen 2019 - 2022	Jul 2019
Midden Groningen	Beleid Zonneparken in Midden-Groningen	Nov 2019
Midden Groningen	Transitievisie Warmte Midden-Groningen	Sep 2021
Midden Groningen	Strategisch ontwikkeldocument Omgevingsvisie Midden-Groningen	Feb 2022
Het Hogeland	Beleid Kleinschalige Duurzame Energie Opwekking Het Hogeland	Jul 2019
Het Hogeland	Duurzame ontwikkeling in Het Hogeland	Juli 2021
Het Hogeland	Warmtetransitieplan Het Hogeland	Unclear, 2022
Het Hogeland	Omgevingsvisie Het Hogeland	Nov 2022
RES Groningen	RES 1.0 Groningen	Jul 2021
RES Groningen	RES 2.0 Groningen	Apr 2023

In the second round of comparison, the value orientation and risk perception between the municipalities were analysed through the voting behaviour of the 2019 provincial election. It was decided to determine the values of the political parties from their national electoral programs in 2017, as national elections are taken more seriously than provincial elections in the Netherlands (Lefevere and Van Aelst, 2014) and may contain more in-depth information about parties' interests. These contain the viewpoints that an individual may need to inform themselves on the beliefs of a particular party and clearly describe the party's policy preferences. The investigated parties were the most dominantly voted for, the top five parties in each municipality. Table 3 presents which programs determine the value orientations in MG and HH.

Table 3: All sources used to study the value orientation and risk perception between the municipalities

Author	Source
De Kiesraad	Provincial election results of 2019 in Midden Groningen Provincial election results of 2019 in Het Hogeland
ChristenUnie (CU)	Hoopvol Realistisch Verkiezingsprogramma 2017-2021
Partij van de Arbeid (PvdA)	Een verbonden samenleving verkiezingsprogramma 2017

Socialistische Partij (SP)	Programma voor een sociaal nederland Voor de verkiezingen van 15 maart 2017
Groenlinks (GL)	Tijd voor verandering verkiezingsprogramma Groenlinks 2017-2021
Christen-Democratisch Appèl (CDA)	Keuzes voor een beter Nederland Verkiezingsprogramma 2017-2021
Groninger Belang (GB)	Groninger Belang Verkiezingsprogramma 2019-2023
Volkspartij voor Vrijheid en Democratie (VVD)	Zeker nederland vvd verkiezingsprogramma 2017-2021
Forum voor Democratie (FvD)	Verkiezingsprogramma FVD 2017

4.4 Data Analysis

To study the implementation gap between the province and the municipalities, a document analysis was used, which can be described as a qualitative research tool for examining the nature of a particular document, enabling the author to provide meaning towards a targeted topic (Bowen, 2009), in this case, climate policies which focus on the energy transition. As MG and HH were selected based on their RES performance, it made sense to confine the analysis to energy policy building blocks. A document analysis can be defined as "a research tool for collecting, reviewing, interrogating, and analysing various forms of written 'text' as a primary source of research data" (O'Leary, 2017, p.496), allowing the researcher to identify the relevant energy policies and assess their implementation level. Following a categorization and coding scheme was decided to extract desired data. This method works by establishing several codes per category and exploring the code's context to interpret how the code was used. As Cardno (2018) mentions, "From a qualitative perspective, there is a need to consider what may lie in, beneath and around the text in terms of themes that might be conveyed by or inferred from the words themselves" (p.633). Through this structured matrix, the desired data was organized into the relevant categories allowing the researcher to detect patterns within the data. The established codes per category can be seen in table 4. Other climate and energy policy studies, such as by Dehhaghi et al. (2022), Ollier et al. (2022), and Sun et al. (2023), similarly followed methods that searched codes and explored context to review climate and energy policies in Iran, Europe, and China.

Table 4: All codes used to measure implementation gap and value orientation

Implementation Gap	**Value Orientation**
Non-renewable energy: non-renewable energy, fossil fuel, coal, gas, heating	Supportive values: support, social acceptance, cooperation/ cooperative, participation, communication, urgency, social cohesion, values
Solar energy: solar energy, solar power, PV, roof, solar park(s), renewable energy, heating	Non-supportive values: resistance, hesitation, protest, opposition, NIMBY, controversy, concerns, doubts, urgency, social cohesion, values
Wind energy: wind energy, wind power, wind turbine, renewable energy, heating	
Other: emissions, greenhouse gas	Other: tradition, culture, history

The codes on the left measured the implementation gap, and the right side collected an impression of the value orientation conveyed within policy documents, manually extracted with the ATLAS.ti 22 software. The researcher investigated each quote with a code and decided whether it was more in line with a policy objective, policy plan, policy instrument, or policy

output, then placed the code in its category. The explanations of these building blocks in section 3.3 were used as a guide for code placement. Worth mentioning is that some codes fell under multiple categories and that not every code was used. Furthermore, based on the themes where codes surfaced, the researcher noted the most encountered themes and inductively structured the results. An implementation gap in climate policy was identified if codes showed lesser or a lack of policy building blocks in one municipality compared to the other and if policy instruments and outputs did not seem to deliver the desired policy objectives.

To study the connection between value orientation and risk perception between the municipalities and how voting behaviour can indicate a particular value orientation, the second round of comparison and its document analysis of the viewpoints from political parties was conducted. However, rather than using a specific number of codes per category, the analysis here was based on categories only that would collect the expressions of a political idea. Hence, categories indicated the degree of altruism, biospherism, and egoism, as seen in the table below. To reduce the ambiguity of these categories, they were set to resemble the description of values in section 2.1.1.

Table 5: Operationalization of value orientation

Category	Operationalization
Pro-altruism	Content that put forward the well-being of disadvantaged or marginalized groups addressed societal issues, promoted equality, and sought to protect other vulnerable population groups, i.e., gender equality, LGBTQ+ rights, housing, or educational opportunities.
Con-altruism	Opposite content of pro-altruism, i.e., the denial of LGBTQ+, anti-immigrant or refugees stances, prioritizing housing for people with Dutch citizenship, and other restricting measures to freedom.
Pro-biopsherism	Content that puts forward a commitment to sustainability and climate change issues, i.e., promoting renewable energy, protecting biodiversity, closing coal plants, reducing gas consumption, public transport improvement, or reducing emissions in specific sectors.
Con-biospherism	Opposite content of pro-biospherism, i.e., supporting measures that would lead to an increase in GHG emissions, expansion of Lelystad's airport, lifting speed restrictions on highways, denying the impacts of climate change, or opposing climate change mitigation policies.
Pro-egoism	Content aimed to distribute resources and benefits for specific interest groups or industry groups over the common good, i.e., deregulation and corporate tax cuts, as these could disproportionately benefit economic elites and support privatising public services, i.e., healthcare, education, or utilities.
Con-egoism	Opposite content of pro-egoism, i.e., distributing resources and benefits within society with more equitable outcomes, such as supporting and establishing social safety nets and advocating further investments into public and common goods.

Political ideas were collected in the six categories for each party listed in Table 3. The researcher reviewed the collected statements to ensure no statements were placed in the wrong categories. Afterwards, the total frequency of, e.g., pro-biospheric statements was noted for each party. The percentage of all biospheric, altruistic, and egoistic statements from all eight parties was calculated depending on the different frequencies. Based on the percentage, the researcher could better understand which parties scored higher on specific values and vice versa. The percentage was chosen as an indication of a party's values as some parties had over 150 statements and others under 50, thus allowing to disregard the contrast in frequency size, making descriptive statistics a suitable method. Parties that evidently supported biospheric ideas and explicitly expressed such statements were bound to have a higher percentage, and vice versa. As a result, parties with higher percentages were grouped into high biospheric values, parties with moderate

percentages were grouped into moderate biospheric values, and parties with low percentages were grouped into low biospheric values. While this approach is mixed in nature (qualitative analysis and descriptive statistics), it allowed the researcher to cover more than just one single sector and gather expressions of cross-sectoral ideas, e.g., energy, housing, and transport, providing a more straightforward impression of the parties' overall preferences and interests. Moreover, due to the simplicity of this categorization approach, the chance of human error was reduced compared to other complex schemes with more indicators.

4.5 Ethical considerations

No personal data was used, and information for this study was derived from publicly available data points, making this document analysis low risk in the ethics that need to be considered. Data was collected from sources with open access, e.g., official policy and strategy reports and provincial election results of 2019, meaning little vulnerability of observation units emerged. This means no human subjects were involved in collecting data, and ethical approval of their data was not required. As all data sources were open access, no confidential information was used, and the researcher did not have to receive permission from the analysed organizations to utilize their written texts for research purposes.

Chapter 5: Results

5.1 Energy policies

The province and municipalities have developed multiple energy policies, which were inductively grouped into four themes: (1) residual heat, (2) gas-free heating, (3) small-scale and large-scale energy generation, and (4) participation, acceptance, and support.

5.1.1 Residual heat

The province of Groningen is committed to saving energy by 1.5% annually. Two avenues to realize this objective are further explored.

Saving energy through using residual heat
Firstly, the province is interested in saving energy by planning to use industrial residual heat and has expressed explicitly that Eemshaven's heat should be exploited (Province of Groningen, 2016a). The Eemshaven is the largest seaport in the Northern Netherlands and is known for having the largest onshore wind farm in the Netherlands (Province of Groningen, 2016a). Given the limited capacities of the heat network, residual heat should be transported to warm the built environment since this decreases gas consumption.

As the Eemshaven is in HH, the municipality benefits from the close distance between the industrial port and its villages. In turn, HH's policy plans on energy-saving mention the opportunities of Eemshaven quite frequently, such as using its residual heat and exchanging it with buildings within the area (Het Hogeland, 2022b). Furthermore, HH seeks to build on this circularity perspective and plans to combine the heat exchange with the port area in Delfzijl to expand residual heat usage (Het Hogeland, 2022a). A potential policy output on residual heat is being investigated, a possible heat transport pipeline from Eemshaven and Delfzijl to the municipality of Groningen. This would allow many homes within the municipality of Groningen and villages in Het Hogeland and Eemsdelta municipalities to use the residual heat for their homes (ibid). If the project proves financeable, the heat transport pipeline could contribute to sustainable, reliable heating and an affordable energy bill for residents from around 2030.

In MG, the policy plans are also focussed on using residual heat from industrial companies, not from Eemshaven, but from innovative leading companies home to MG (Midden-Groningen, 2019a). Hence, MG's energy-saving policies revolve around using residual heat from companies, e.g., Holthausen Groep, EAZ Wind, and ESKA to make the housing stock more sustainable. Moreover, MG benefits from (greenhouse) horticulture in its municipality, providing another source of residual heat. Nevertheless, potential policy outputs for the supply of residual heat have only been taken with the ESKA factory, and uncertainties arise about whether the heat network is sufficiently developed enough to transport heat (Midden-Groningen, 2021). Furthermore, policy outputs for sharing residual heat are limited since various industrial companies are in unsuitable locations where residual heat exchange becomes unfeasible due to the costly work required to realize heat exchange (ibid). Hence, within the municipal boundaries, MG explains that possible heat supply is restricted to a few companies.

This shows that policy plans and outputs seem more feasible in HH, partly due to more opportunities given by Eemshaven, making the implementation gap in residual heat exchange larger for MG, as seen in Table 6.

Table 6: Differences in saving energy through residual heat

Groningen Province	
• Policy objective: Saving energy by 1.5% every year. • Policy plan: Saving energy using residual heat from industrial activities in Eemshaven and other relevant companies.	
Midden-Groningen	**Het Hogeland**
• Policy objective: none specified for residual heat exchange. • Policy plan: (1) Exploit the opportunities from industrial companies home to MG. • Policy instrument: none specified for residual heat exchange. • Policy output: First steps to use residual heat (only) with ESKA and highly uncertain.	• Policy objective: none specified for residual heat exchange. • Policy plan: (1) Exploit the opportunities given by Eemshaven for residual heat exchange. (2) Combine residual heat exchange with the port area in Delfzijl. • Policy instrument: none specified for residual heat exchange. • Policy output: A potential heat transport pipeline from Eemshaven and Delfzijl to the municipality of Groningen for residual heat exchange.
Contextual differences	
• Limited opportunities for residual heat exchange due to few companies and insufficiently developed heat networks requiring expensive restructuring.	• There are more opportunities for residual heat exchange due to more industrial activities within Eemshaven.

Heating from small-scale and large-scale sources through collective heat networks

Secondly, the province plans to heat the built environment through collective heat networks with several energy sources (Province of Groningen, 2016b). The policy plan focuses on discarding gas usage to heat buildings and instead (partly) heat these by improving its heat network. The province expresses that the network should be supplied with large-scale sources (e.g., residual heat from companies) but makes clear that small-scale sources (e.g., heat from hybrid pumps) are equally important as they could contribute to more than half of all sustainable heat production in Groningen (ibid). The province states that boosting small-scale heat projects and connecting these to the local networks is the responsibility of the municipalities, as the province's role is limited in small projects (ibid).

There is a clear difference between the collective heat networks between the municipalities. HH has created a document solely for small-scale energy and heat generation, where policy plans focus on collective systems for exchange, explicitly addressing the energy and heat consumption of smaller consumers (Het Hogeland, 2019). With their policy objective of removing all buildings from natural gas before 2035, the municipality has investigated the housing densities in its 52 villages through a housing density analysis (policy instrument), as collective heating networks become interesting with a housing density of 20-25 houses per ha (Het Hogeland, 2022a). They found that shared heating systems are unsuitable in many villages. However, HH reasoned that their density analysis was performed within neighbourhood borders and that in some areas where neighbourhoods mix, a higher housing density occurs, where collective heating networks can still be established (ibid). Hence, after reclassifying these areas, the municipality feels optimistic about pursuing shared heating systems (policy outputs).

Meanwhile, MG has not drafted plans for small-scale energy and heat generation for potential exchange amongst smaller consumers. Their objective of reducing natural gas consumption by 50% by 2030, which is already less ambitious than HH, has been challenged as MG argues that it lacks a legal framework for collective heat networks (Midden-Groningen, 2021). MG explains that there is a lack of policy instruments to convince doubters to connect to a heating network, which is also only financially attractive if most residents can be connected, and no new gas network must be installed (ibid). Further, in their housing density analysis, MG mentioned that very few neighbourhoods fit the criteria for a collective heating network. It is unsure if policy outputs for shared heating systems will be pursued, primarily since no plans exist.

This shows that policy objectives, plans and outputs seem more ambitious in HH, indicating that HH may be more willing to realise a built environment that is heated through such networks than MG, as captured in Table 7. This leads to a smaller implementation gap in HH.

Table 7: Differences in saving energy through collective heating systems

Groningen Province	
• Policy Objective: Saving energy by 1.5% every year. • Policy Plan: Heat the built environment through collective heating systems from several residual heat sources (large-scale and small-scale).	
Midden-Groningen	Het Hogeland
• Policy objective: Reduce natural gas consumption in homes by 50% before 2030. • Policy plans: none specified for collective heating systems. • Policy instruments: Housing density analysis shows unfitting conditions for collective heating systems. Unsure if neighbourhood borders were or are going to be reclassified. • Policy output: none specified for collective heating systems.	• Policy objective: Remove all buildings from natural gas before 2035, but latest 2050. • Policy plans: (1) Focus on small-scale energy and heat generation. (2) Establish collective heating systems for exchange, explicitly addressing the consumption of homes and smaller businesses. • Policy instruments: Housing density analysis shows collective heating systems are possible where neigh-bourhoods mix. • Policy output: Reclassifying neighbourhood borders to pursue collective heating systems.
Contextual differences	
• Experiences doubting citizens who are hesitant to connect to a collective heating network.	• HH does not state similar concerns but questions what a collective heating network may look like.

5.1.2 Natural gas-free heating

The province of Groningen is committed to their policy objective of having all homes, companies, and other buildings off-gas by 2050 with an interim goal of heating 20% of homes without natural gas by 2030 (Province of Groningen, 2016a), which is also related to the previous sub-chapter on heating. Two avenues to realize this objective are further explored.

Exploring sustainable energy supplies to eliminate the need for natural gas

Firstly, the province plans to become natural gas-free through alternative and sustainable energy sources, such as by further exploring the possibilities of using sustainable gases (biogas and hydrogen (H_2)) for heating (Province of Groningen, 2016b). With HH's policy objective of reducing natural gas consumption by 40% by 2030 and due to the advantageous position of Eemshaven, HH's sustainable energy supply policy plans heavily revolve around the potential of Eemshaven, which is also known as the "hydrogen valley", as it produces large concentrations of H_2 (Het Hogeland, 2022b). Moreover, multiple promising projects to realize policy outputs are underway, e.g., Engie, RWE, and Vattenfall, that investigate the possibilities of H_2 for heating (Het Hogeland, 2022a). Furthermore, Eemshaven is also being expanded, meaning it may yield extra H2 once completed. However, this production is still insufficient, has an uncertain future, and the techniques to use H_2 for heating are underdeveloped (ibid). Nevertheless, HH remains hopeful about the possibilities that H_2 gas offers and expresses that it will continue to pay special attention to using H_2 and residual heat from Eemshaven (ibid).

In comparison, the opportunities for H_2 in MG are more constrained. MG's less ambitious policy objective is to reduce natural gas consumption by 20% by 2030, and its policy plans on sustainable energy supply in terms of H_2 are limited to a few regional companies, one being the Holthausen company as a leader in the field of H_2 transport (Midden-Groningen, 2019a). No other potentials for H_2 are mentioned in documents from MG. Similarly, both municipalities state their interests in using biogas for heating but recognize the limitations of this energy source (Het Hogeland, 2022a; Midden-Groningen, 2021). These align with the concerns that the RES (2021) has pointed out: the limited availability of local biomass to produce sufficient biogas and municipalities' current lack of legal authority to disconnect a neighbourhood from natural gas.

Hence, HH has a more ambitious policy objective and more outputs to realize the objective, as seen in Table 8. However, the transition towards sustainable gas alternatives comes with uncertainties for both municipalities if a natural gas-free Groningen is to be realized by 2050, making the implementation gap differences between HH and MG not as apparent.

Table 8: Differences in gas-free heating through sustainable gas alternatives

Groningen Province	
• Policy Objective: Heat 20% of homes without natural gas by 2030. All buildings of gas by 2050. • Policy Plan: Become gas-free through alternative energy sources, such as sustainable gases (biogas and hydrogen).	
Midden-Groningen	**Het Hogeland**
• Policy objective: Reduce natural gas consumption by 20% before 2030. • Policy plans: Exploit the hydrogen opportunities of regional companies. • Policy instrument: none specified for hydrogen gas. • Policy output: none specified for hydrogen gas.	• Policy objective: Reduce natural gas consumption by 40% before 2030. • Policy plans: Exploit the opportunities given by Eemshaven as "hydrogen valley". • Policy instrument: none specified for hydrogen gas. • Policy output: Innovative projects researching hydrogen gas as a heating source seen by Engie, RWE, and Vattenfall.

Contextual differences	
• Limited opportunities for hydrogen gas, so far only with Holthausen.	• More opportunities are available due to the higher volume of hydrogen gas production in Eemshaven.

Affordable alternatives for sustainable gases

Secondly, the province emphasises that alternatives to natural gas in the transition to natural gas-free living must remain low in price so that residents can afford to heat their homes (Province of Groningen, 2016b). The province is adamant that energy poverty should be a high priority, as the average income in large parts of Groningen is below the national average (RES, 2021).

Both HH and MG have voiced concerns about the emergence and magnification of energy poverty in their municipalities, resulting in energy poverty policies in either case (Midden-Groningen, 2021; Het Hogeland, 2022a). Both similarly express that affordable alternatives to natural gas for gas-free living should be available to everyone. However, the urgency to combat energy poverty is felt more firmly within the documents of MG. Unlike HH, MG has drawn up further plans that allow neighbourhoods with lower incomes to have "first serve" privileges to guarantee access to residual heat and natural gas alternatives (Midden-Groningen, 2021). The CBS (2022) data shows that the average income per household in MG is lower than in HH, which is €1404 per month and €1904 per month. For both municipalities, the average income is low compared to the national average, around €2833 (CBS, 2022). Furthermore, MG provides more data on energy poverty than HH, stating that the municipality has a relatively large group of low-educated people who do not (or cannot) perform paid work, quickly become unemployed, and suffer from debts (Midden-Groningen, 2021). The municipality estimates that around 6000 people live in energy poverty, with half having long-term low income with little chance of bettering their financial situation (ibid).

Besides, energy poverty is not just an issue encountered in the policies that aim for a gas-free heat transition but also within policies that focus on energy-saving. Measures to realize energy-saving policies, such as energy-efficient appliances and refurbishing homes for improved insulation, are costly. Therefore, energy poverty is a primary contributing factor that may slow down MG to move the energy transition forward. Meanwhile, HH mentions that energy poverty is more at risk in its northern part, where homes owned by private individuals and housing corporations are mixed up but does not provide more energy poverty data (Het Hogeland, 2022a). Hence, HH's implementation gap to combat energy poverty is slightly larger than MG's, despite HH suffering from less energy poverty. Table 9 shows HH has no policy building blocks for energy poverty, whereas MG has one policy plan.

Table 9: Differences in combatting energy poverty in gas-free heating

Groningen Province	
• Policy objective: none specified for energy poverty. • Policy Plan: Alternative sources of natural gas must remain affordable so that residents can heat their homes.	
Midden-Groningen	**Het Hogeland**
• Policy objective: none specified for energy poverty. • Policy plans: For lower-income neighbourhoods to have "first serve"	• Policy objective: none specified for energy poverty. • Policy plans: none specified for energy poverty.

privileges to guarantee access to residual heat and natural gas alternatives. • Policy instrument: none specified for energy poverty. • Policy output: none specified for energy poverty.	• Policy instrument: none specified for energy poverty. • Policy output: none specified for energy poverty.
Contextual differences	
Energy poverty: • Average income: 1404€ per month	Energy poverty: • Average income: 1904€ per month

5.1.3 Large-scale and small-scale energy generation

The province of Groningen is committed to their objective of sustainably generating energy, e.g., from solar, wind, geothermal, biomass, ambient heat, and other sustainable sources, by 2050 and 60% by 2035. Two avenues are further explored.

Room for large-scale energy generation
Firstly, the province plans to create room for sustainable energy as it expects that wind and solar energy will be necessary to achieve the energy transition objective (Province of Groningen, 2016a). Hence, the province works with its municipalities and other relevant stakeholders (residents, landowners, businesses) to find suitable locations for large-scale and sustainable energy possibilities (ibid).

In HH and MG, significant differences in policies focussing on large-scale sustainable energy production arise. MG's sustainable energy policy plans strongly refer to large-scale solar parks (Midden-Groningen, 2019b). This can be seen by their document that is solely directed towards solar parks in MG, where the municipality has investigated the potential, scale, and characteristics of solar parks and identified suitable locations to implement these (ibid). MG's approach to its energy transition is, therefore, heavily based on the establishment of solar parks. In turn, the municipality has calculated that it needs an approximate area of 1900ha to produce the required sustainable energy levels for homes and businesses (ibid). Thus, in the period to 2025, the municipality plans to have provided an area of 600ha and find room to implement solar parks for the remaining 1300ha at later stages. However, large-scale solar parks are difficult to hide in the landscape and often face protests in MG (Midden-Groningen, 2022). MG's landscape is vast and open, reporting that it struggles to realize the RES target of generating 0.95 TWh of sustainable electricity. It also mentions that it has to deal with resistance to new solar parks, which has become a controversial topic throughout the municipality (ibid). Further, MG states that despite being reluctant to use agricultural land for large-scale solar parks, it is inevitable not to follow through and is investigating the possibilities for dual use (Midden-Groningen, 2019b).

For HH, the policies on sustainable energy generation on a large scale are very different from MG. Firstly, HH expresses no room for large-scale solar and wind parks near any of its 52 villages (Het Hogeland, 2019). HH explains the importance of culture and history in its villages, where the development of large-scale energy production would not fit the atmosphere of the villages and their surrounding landscapes; therefore, it only welcomes small-scale energy production (ibid). Hence, HH makes clear that it will not implement large-scale measures not to infringe on the identity of the villages and protect areas with high cultural and historical value (ibid). Furthermore, HH also states there is no room for large-scale solar and wind parks on agricultural land. The municipality expresses the value of its marine clay polders and its tradition with seed

potato cultivation, where they want to stimulate high-quality and innovative agricultural practices and not pursue large-scale and commercial solar parks (ibid). Therefore, large-scale solar or wind parks are primarily welcomed in the areas surrounding Eemshaven (ibid). With the largest Dutch wind park on land located in HH, the municipality is one of few municipalities in the province that contains one of three "building blocks", which the RES 2.0 defines as "concrete initiatives of wind and solar energy projects within the Groningen region that have not yet been realized but will be realized with a high degree of probability" (p.5), yielding a total of 1.2 TWh. MG does not have a building block in its municipality.

Thus, as HH rules out large-scale sustainable energy generation near the built environment, HH does not experience the issues (resistance and protest) that MG faces and states that the NIMBY effect is low in its municipality (ibid), creating a more significant implementation gap for MG as depicted in Table 10.

Table 10: Differences in finding room for large-scale energy generation

Groningen Province	
• Policy Objective: All energy needs to be sustainably generated by 2050 and 60% by 2035. • Policy Plan: Find suitable locations for large-scale and sustainable energy possibilities.	
Midden-Groningen	**Het Hogeland**
• Policy objective: RES - generating 0.95 TWh of sustainable electricity • Policy plans: Implement more large-scale solar parks, possibly on agricultural land. • Policy instrument: Area analysis to identify suitable locations to fill 1900ha with solar parks. • Policy output: MG has built several large-scale solar parks.	• Policy objective: RES - generating 1.76 TWh of sustainable electricity • Policy plans: (1) Large-scale solar parks only surroundings of Eemshaven. (2) No large-scale solar parks on agricultural land due to cultural and historical values or near built environment to not infringe the identity of the villages. • Policy instrument: none specified for large-scale energy generation. • Policy output: Largest onshore windfarm in the Netherlands.
Contextual differences	
• MG's landscape is vast and open, making large-scale solar parks challenging to hide in the landscape and met with protest. • MG faces resistance to new solar parks, which has become controversial. • Contains no RES building block.	• HH rules out large-scale sustainable energy generation near the built environment and does not experience resistance and protest. • Contains one of three building blocks to realize RES target.

Small-scale energy generation at a decentralized level

Secondly, the province has released a policy plan to stimulate local initiatives for small-scale solar parks and wind turbines and exchange this small-scale generated electricity at a decentralized level (Province of Groningen, 2016b). The essence of the decentralized policy is that the electricity generated locally is used locally as best as possible and is transported as little as possible, meaning small-scale generated electricity from local consumers is shared within neighbourhoods (ibid). Again, the province mentions the responsibility of municipalities to realize this policy (ibid).

MG and HH mention policy plans for the potential of solar roofs and opt to further implement solar panels on homes and agricultural sheds (Midden-Groningen, 2019b; Het Hogeland, 2019). Additionally, both municipalities have policy plans on developing more small-scale solar parks, for which both provide space under the conditions that it matches the surrounding nature, the scale of the village, and the energy consumption of nearby residents (ibid). However, HH does not want large-scale solar or wind parks near its villages, so the municipality focuses on small-scale initiatives. In turn, its document on small-scale sustainable energy generation provides much information on how HH aims to realize the policy, where it is also mentioned that there is sufficient support amongst local individuals for small-scale energy measures due to the little village and nature disturbances (Het Hogeland, 2019). For example, HH has set concrete and tangible objective for long-term planning, such as creating 18TJ extra from renewable sources each year, plus having 40% of energy come from local sources (ibid). To generate energy as locally as possible, HH states that it follows an initiating role for decentralized tasking while also directing significant attention to participatory processes (discussed in the section below) (ibid). To transport energy as little as possible, the municipality is working with Enexis (grid operator), reporting that the energy transition requires a new approach to the energy network and distribution (ibid). Together with Enexis, HH is investigating energy-storing possibilities and smart grids that focus less on moving electricity from a central source to the end user but more on the smart exchange of energy among themselves (ibid). Nevertheless, the municipality reports that uncertainties arise regarding how these local networks will look.

However, such efforts for small-scale energy generation are lacking within MG. To generate 25% of sustainable energy before 2030 and as locally as possible, MG also mentions that it aims to involve residents in formulating proposals for such implementation (discussed in the section below) (Midden-Groningen, 2019b). To transport energy as little as possible, more focus is directed to large-scale solar parks and connecting these to the local electricity network, expressing that the connection is the responsibility of the grid operator (Midden-Groningen, 2019b). Thus, while MG is also thinking of having an energy grid that can sustain the higher loads of renewable energy, the cooperation aspect with the grid operator is less emphasised than HH. In principle, a large part of the municipality is suitable for small-scale solar parks; however, as mentioned above, MG faces difficulties in social acceptance of solar parks regardless of large or small-scale, leading to increased resistance to installing solar fields in open space (ibid). As HH has more ambitious policy objectives and more policy plans in small-scale energy generation, as shown in Table 11, the implementation gap for MG is more significant than for HH.

Table 11: Differences in small-scale energy generation at a decentralized level

Groningen Province	
• Policy Objective: All energy needs to be sustainably generated by 2050 and 60% by 2035. • Policy Plan: Stimulate local initiatives for small-scale energy and exchange this small-scale generated electricity at a decentralized level.	
Midden-Groningen	**Het Hogeland**
• Policy objective: Generate 25% of sustainable energy before 2030. • Policy plan: (1) Build more solar roofs on homes and agricultural sheds. (2) Build more small-scale solar parks under the conditions that it matches nature, the villages, and energy consumption. (3) Connect solar parks to the grid.	• Policy objective: Generate 18TJ of sustainable energy every year. Generate energy from 40% decentralized and small-scale sources (less than 15 kWp) and 60% from central and large-scale sources (more than 15 kWp). • Policy plan: (1) Plans to find space for only small-scale solar parks due to

• Policy instrument: Participatory processes for the formulation of proposals. Limited cooperation with Enexis, which is responsible for connecting solar parks to the grid. • Policy output: Solar roofs on homes and sheds.	cultural values. (2) Build more solar roofs on homes and agricultural sheds. (3) Build more small-scale solar parks under the conditions that it matches nature, the villages, and energy consumption. (4) Connect solar parks to the grid. • Policy instrument: Participatory processes with HH as an initiating role. Cooperation with Enexis for possible energy storing measures and smart grids focused on the smart energy exchange amongst end users. • Policy output: Solar roofs on homes and sheds.
Contextual differences	
• Difficulties in socially accepting small-scale solar parks lead to increased resistance to installing solar fields in open spaces.	• Sufficient support amongst local individuals for small-scale energy measures due to the little village and nature disturbances leading to a low NIMBY effect.

5.1.4 Participation, acceptance, and support

The province is committed to having 50% local ownership across small-scale sustainable energy generation measures that produce less than 15 kWp and wants to see whether ownership can help increase acceptance and support for energy projects (Province of Groningen, 2016a). Furthermore, the province highlights the importance of participation in its gas-free heat transition. Two avenues are further explored.

Acceptance and support through local ownership
The province wants to target local individuals for their objective of 50% local ownership. It plans to engage with society, i.e., residents, and landowners, about available space for potential small-scale sustainable energy generation measures (Province of Groningen, 2016a).

Both municipalities plan to involve individuals in small-scale energy production to achieve local ownership (Midden-Groningen, 2019b; Het Hogeland, 2022b). MG states that sufficient support for solar parks amongst residents, who reside near energy initiatives, must first be established as a condition for cooperation and ownership (ibid). MG expresses that support can be gained through transparency and involving local actors, e.g., in identifying suitable locations, which can stimulate these actors to invest in these energy initiatives. However, as already made clear above, MG faces difficulties in the social acceptance of solar parks. Meanwhile, HH expresses that local ownership can be achieved through better coordination between municipalities and residents, participatory processes, and outreach efforts to increase awareness of the necessity for sustainable energy (Het Hogeland, 2022b). HH also mentions that it wants to keep the heating network under local ownership and involve local companies in the implementation (ibid). However, both municipalities doubt the extent to which local parties can invest in small-scale energy projects since both municipalities have an average income below the national standard, which can impede the objective of 50% local ownership.

Nevertheless, despite achieving or not achieving local ownership, acceptance and support is larger in HH than in MG. MG says that as a municipality, it is urgent to give substance to sustainable

development (Midden-Groningen, 2019a). However, it states that this urgency is not replicated among inhabitants, elaborating that they feel hardly any urgency for the energy transition and show a lack of interest in sustainability (Midden-Groningen, 2019b). Moreover, MG mentions that much information about the energy transition is too abstract for its residents, resulting in little understanding of what they should or could do (ibid). Lastly, MG explains that social cohesion is low in large parts of the municipality (ibid), which is what one requires for collective solutions. Oppositely, HH mentions that social cohesion is high in large parts of the municipality, adopts a cooperative approach that works well with residents, has a low NIMBY effect, and stipulates that it has experienced sufficient support amongst local energy initiatives with little protest and resistance (Het Hogeland, 2019; 2021).

Thus, while unsure if either case can reach 50% local ownership, acceptance and support are more present in HH, making the implementation gap easier to close for HH compared to MG, also Table 12 shows that HH has more policy plans and instruments than MG.

Table 12: Differences in acceptance and support through local ownership

Groningen Province	
• Policy Objective: 50% local ownership across small-scale sustainable energy generation measures that produce less than 15 kWp. • Policy Plan: Create dialogues and participatory processes with society about available space for potential small-scale sustainable energy generation measures to stimulate local ownership.	
Midden-Groningen	**Het Hogeland**
• Policy objective: none specified for local ownership. • Policy plans: (1) Involve individuals in small-scale energy production to achieve local ownership and (2) establish sufficient support for solar parks amongst residents. • Policy instrument: Participatory processes for the formulation of proposals. • Policy output: none specified for local ownership.	• Policy objective: none specified for local ownership. • Policy plans: (1) Involve individuals in small-scale energy production to achieve local ownership and (2) improve coordination between the municipality and residents. (3) Keep the heating network under local ownership and involve local companies in implementation. • Policy instrument: Participatory processes and outreach efforts to increase awareness of the necessity for sustainable energy. • Policy output: none specified for local ownership.
Contextual differences	
• Residents show low urgency, little understanding of energy transition, and a lack of interest in sustainability. • Low social cohesion.	• Residents show sufficient support for small-scale energy initiatives and follow a cooperative approach that works well in HH. • High social cohesion.

Participation in the heat transition

The province highlights the role of participation in the heat transition, where the province works together with heating companies, municipalities, housing corporations, and other local actors to determine heating arrangements that are attractive for residents and businesses (Province of

Groningen, 2016b). The province emphasizes the need to raise awareness about gas-free heating and include residents and businesses to showcase that change is vital and possible (ibid).

The policy plans for participation in the heat transition within MG and HH are similar but approached very differently. Both municipalities' policies on participation mention the importance of including inhabitants in formulating proposals for implementation to ensure acceptance and support (Midden Groningen, 2022; Het Hogeland, 2022a). Hence, in both heat transition documents, MG and HH went through extensive participatory processes to collect the wishes and concerns of inhabitants through residents' organizations and gathered additional insight from housing corporations, grid operators, and other relevant stakeholders in shaping their heat transition plans (ibid). To realize their heat transition plans, both municipalities mention that customization is necessary to support each village (52 in HH and 37 in MG). HH and MG reason that no one-size-fits-all approach would work in their municipalities as different areas have variations in homes and residents, requiring investigating heating opportunities on a case-by-case basis (ibid). In turn, HH has embraced this diversity and has decided to write 62 village heat plans before the end of 2028 with residents and businesses that will contain the best suitable alternatives to natural gas (Het Hogeland, 2022a). HH focuses significantly on cooperation and not just participation and chose to write more village heat plans than villages since some solutions, e.g., the collective heat network described earlier, require reclassification of village borders (ibid).

On the other hand, MG argues that it is unrealistic to write specific plans for each neighbourhood and has created a general strategy that contains six clusters, identified based on the characteristics of its various neighbourhoods (Midden-Groningen, 2022). These clusters differ in housing density, year of construction, energy consumption, income per household, and other relevant factors (ibid). To this author's knowledge, it is not sure whether this general strategy will be written together with residents of MG. Here, the idea is that neighbourhoods will be divided into one of the six clusters where rough guidelines for gas-free living will differ between clusters (ibid). MG claims that the heat transition can be adjusted to the local circumstances through such an approach and that these circumstances will be further examined in implementation plans (ibid).

While this approach allows, according to MG, to deal with context-dependent characteristics of each neighbourhood, HH's policy instruments prove to be more detailed and attentive to its local inhabitants, as seen in Table 13, which may result in MG facing more troubles in closing its implementation in comparison to HH.

Table 13: Differences in participation in the heat transition

Groningen Province	
• Policy Objective: none specified for participation. • Policy Plan: Create dialogues and participatory processes with society to determine attractive heating arrangements for residents and businesses.	
Midden-Groningen	**Het Hogeland**
• Policy objective: none specified for participation. • Policy plans: Include inhabitants in formulating proposals for implementation to ensure acceptance and support. • Policy instrument: Participatory processes for the formulation of the	• Policy objective: none specified for participation. • Policy plans: Include inhabitants in formulating proposals for implementation to ensure acceptance and support. • Policy instrument: Participatory processes for the formulation of the

heat transition plan. Cluster analysis for heat transition based on six clusters. • Policy output: none specified for participation.	heat transition plan. Individual heat plans for 62 locations with local parties before 2028. • Policy output: Some village heat plans have been finished.
Contextual differences	
Housing density: • 28313 homes • 37 villages	Housing density: • 22979 homes • 52 villages

5.1.5 The implementation gap

In the policies' building blocks discussed above, it becomes clear that the implementation gap in energy policies between municipality and province is more evident in MG than in HH. Throughout the various themes, patterns emerge, such as the benefits HH experiences due to the proximity of Eemshaven, which allows more opportunities for residual heat exchange, hydrogen gas as an alternative for natural gas, and renewable/ sustainable energy generation. Meeting renewable energy generation objectives seems easier for HH than in MG because the largest Dutch wind park on land is in Eemshaven, allowing it to rule out the implementation of large-scale wind and solar parks near the built environment alongside agricultural land. Oppositely, MG cannot afford to not place large-scale wind or solar parks near the built environment or agricultural land. Consequently, it must implement controversial, large-scale, and renewable energy generation near its villages, which explains the resistance it is experiencing amongst its local inhabitants. Other contributing factors to the implementation gap also appear, such as the vastly different approaches the municipalities follow in their heat transition, the differences in energy poverty, and, more simply, the differences in ambition reflected in their energy objectives. The variations in performance between the municipalities are captured in tables 6 to 13, alongside other contextual factors discussed in earlier policies, which increase the gap between province and municipality. Figure 5 provides an illustrative understanding of the implementation gaps between HH and MG. If an arrow points towards a blank space between building blocks, e.g., two and three, it shows that this municipality has at least two building blocks and several of them.

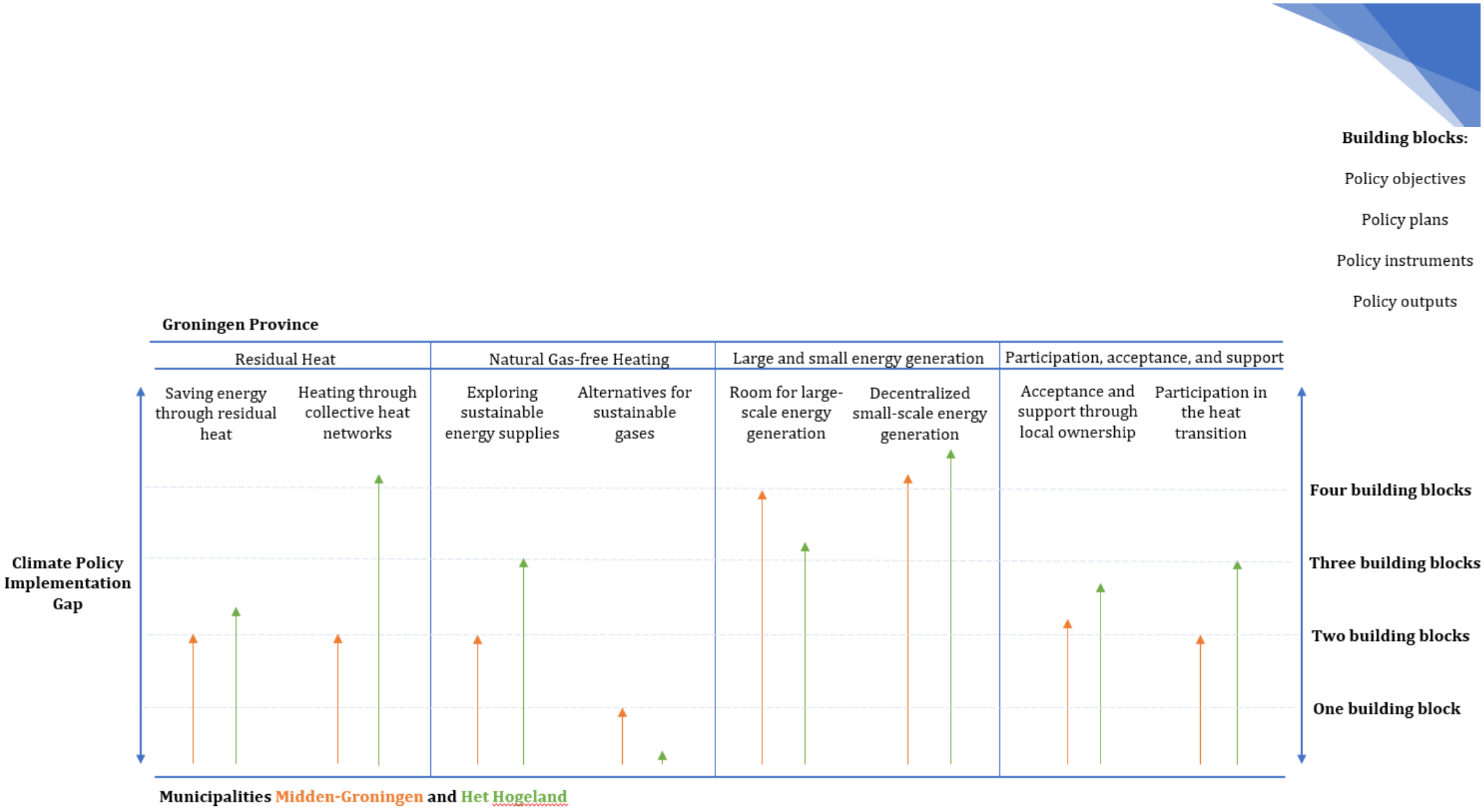


Figure 6: Indicative implementation gap (purely illustrative)

5.2 Value orientation and risk perception

Climate policy implementation can strongly depend on residents' perceived sense of urgency, as it shapes their willingness to act (Zuidema, 2016) and creates varying acceptance or resistance to climate policy. These variations lead to socially fragmented stances towards climate change, creating contested agreements on implementing climate policy since there is no "one size fits all" solution (RIPA, 2019). Thus, when a municipality attempts to implement climate- mitigating or adapting measures, the locally encountered circumstances will always need to be considered, including the beliefs and interests of local communities. Consequently, when deciding with local communities on how to deal with climate policy, which is a policy objective in itself, debates may emerge that can be heavily negotiated, which can end in non-implementation and an increasing implementation gap (Khan, 2016). Both sense of urgency and willingness to act can be linked to value orientation, as seen in the conceptual model in Chapter 3, as values can shape one's stance towards climate change. Thus, to determine how value orientation may contribute to a growing climate policy implementation gap in HH and MG, the top five parties in the provincial 2019 election were analysed based on their value orientation to represent the value orientation within HH and MG. These results were then linked to the cultural theory of risk to identify the dominant (combinations of) risk perceptions of climate change within the municipalities to unveil how these may slow down the process of climate policy implementation.

5.2.1 Value orientation in Dutch parties

Taken from their viewpoints, table 14 shows the percentage of con- and pro-altruistic, con- and pro-biospheric, and con-and pro-egoistic statements. The red colour range was used for stronger values of con-biospherism, con-altruism, and pro-egoism. The green colour range was used for stronger values of pro-biospherism, pro-altruism, and con-egoism. The last row shows the total number of statements collected. Appendix A contains an overarching table that condenses the major themes that each party advocates for, categorized into the six groups as described in the methodology.

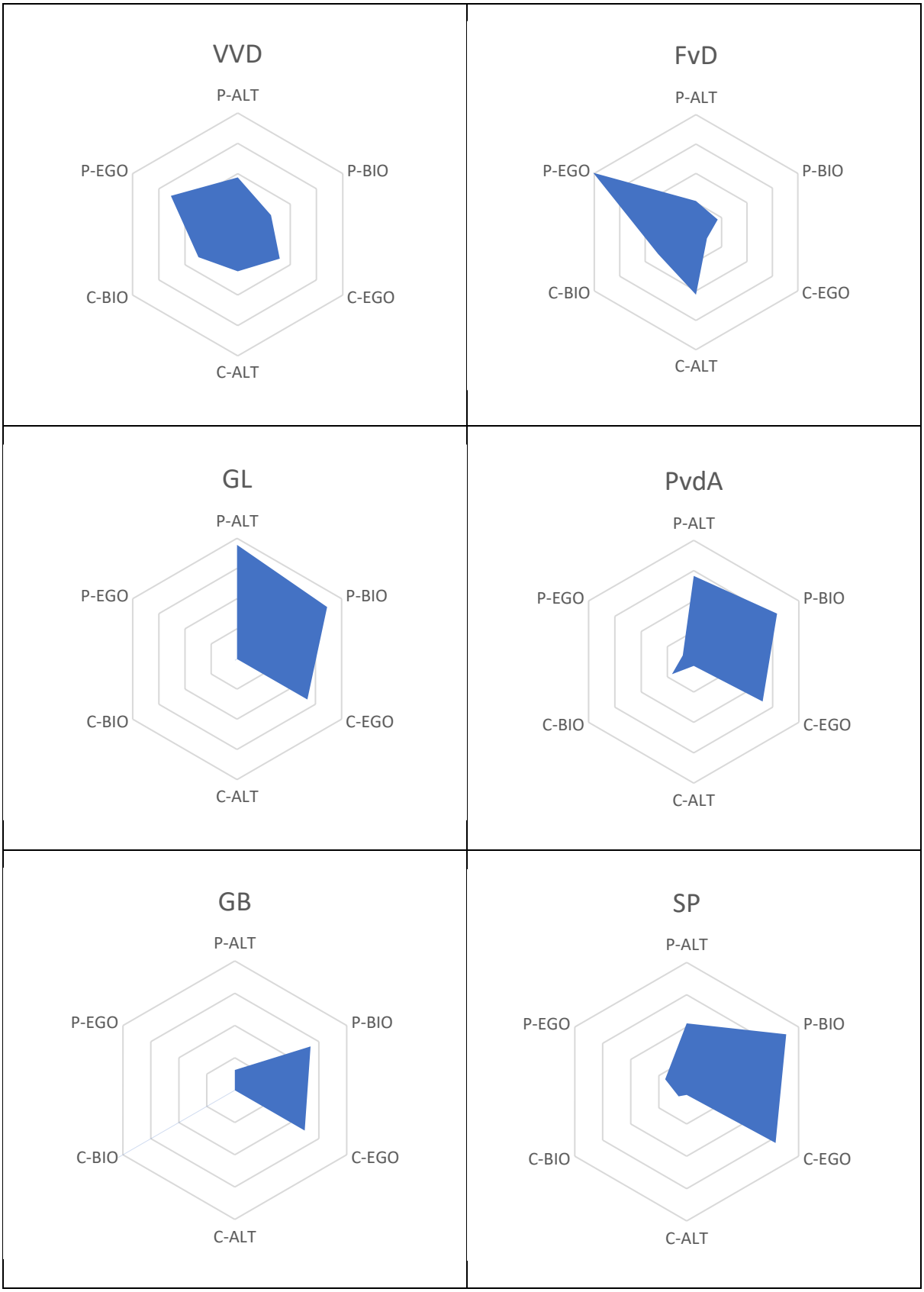
Table 14: Percentage of value orientation statements

	VVD	**FvD**	**GL**	**PvdA**	**GB**	**SP**	**CU**	**CDA**
P-ALT	19%	11%	38%	28%	6%	21%	31%	41%
C-ALT	12%	21%	0%	1%	0%	1%	9%	10%
P-BIO	13%	9%	34%	32%	27%	36%	26%	8%
C-BIO	15%	15%	1%	8%	42%	3%	7%	4%
C-EGO	16%	4%	27%	26%	25%	32%	21%	29%
P-EGO	25%	40%	0%	4%	0%	8%	6%	8%
Total	181	47	119	145	48	104	269	158

- VVD has strong values in pro-egoism, as it promotes freedom for private businesses and industrial activities to boost economic growth and favours privatization and deregulation. In turn, such viewpoints often conflict with nature as they neglect environmental quality and lead to increased pollution, reflected in their con-biospheric values. It scores moderately in pro-altruism and con-egoism, focusing less on pro-biospheric values.
- FvD immensely values pro-egoism and strongly values con-altruism and con-biospherism. Note the low total statements collected. The party is focused on radical viewpoints that sometimes deny the impacts of climate change. It places significant meaning on patriotism and is strictly against refugees and immigrants. Further, the party pushes for weaker influences of the EU and more power to the Dutch state.

- GL is in comparison to FvD and VVD on the opposite side of the political spectrum. With strong values of pro-biospherism, pro-altruism, and con-egoism, the party strives for equality, social cohesion, and individual well-being. As a very environmental-focussed and progressive party, GL pushes for an ambitious green agenda through a diverse range of topics from renewable energy and protection of ecology to sustainable farming practices.
- PvdA is very similar to GL with its strong values of pro-altruism and con-egoism but places some attention on opposite values. Like GL, it strives for equality, social cohesion, and individuals' well-being and pushes for an ambitious green agenda in mostly the same topics as GL. However, PvdA has some con-biospheric statements; for example, it favours expansion of road infrastructure and investments into air- and seaports.
- GB, a provincial party, highly values con-biospherism while also favouring pro-biospherism. Note the low total statements collected. While GB wants energy to come from the safest minimum of gas extraction, it also does not want any wind turbines and limited solar parks, raising the question of how energy should be generated in Groningen. With few answers, GB stands out in its contradicting biospheric viewpoints. It directs attention to con-egoism, focusing on regional and local bottom-up approaches.
- SP is like GL and PvdA's strong values for pro-biospherism and con-egoism. It has weaker values on pro-altruism as it, for example, does not specify its viewpoints on parental aid, which, in contrast, GL and PvdA advocate for. It has little values for con-altruism and con-biospherism but moderate pro-egoistic values since SP, for example, wishes for more power to the Dutch state, rejecting taxes and regulations levied by the EU.
- CU has strong values for pro-altruism, like GL and PvdA, as many of their viewpoints on social cohesion and individuals' well-being overlap. It also values pro-biospherism and con-egoism but to a lesser extent than GL, PvdA, and SP. For example, all three wish to stop or build fewer road networks, whereas CU does not specify this aspect, leading to some con-biospherism. CU also has some degrees of con-altruism, such as not letting individuals practice their religion freely, e.g., no face covers, but also shows pro-egoism, e.g., more power to the Dutch state and less from Brussels.
- CDA is somewhat like CU, as both are Christian parties, but CDA has stronger values for pro-altruism and con-egoism. Like GL, PvdA, and SP, it strives for social cohesion and individuals' well-being. However, their lack of pro-biospheric statements is similar to FvD and VVD. Like CU, its con-altruistic values are mostly traditional gender norms. Its pro-egoistic values focus on less corporate tax and more temporary work contracts.

The figure below visualizes the extent of parties' value orientation through radar charts. The outer border forms 42% percent, as this was the highest percentage calculated, as seen in Table 14.


VVD
P-ALT
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C-ALT
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FvD
P-ALT
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GL
P-ALT
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P-EGO
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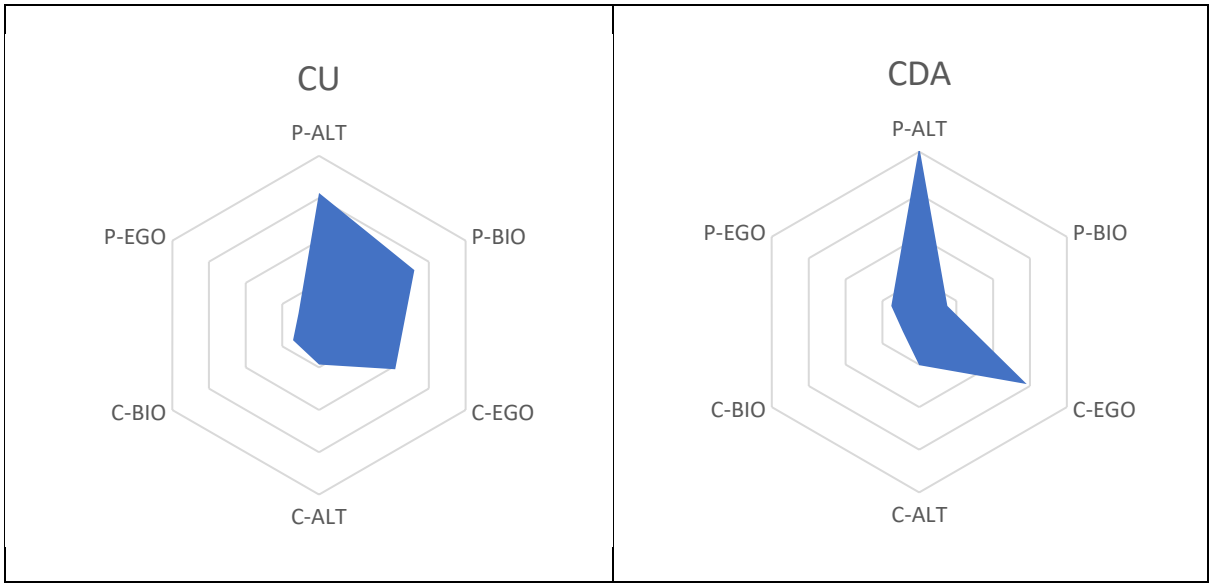

Figure 7: Value orientation within analysed Dutch parties

5.2.2 Value orientation in Het Hogeland and Midden-Groningen

In the provincial 2019 election, fourteen parties were voted for in HH and MG. Due to the given timeframe, it was decided to limit the analysis to the top five candidates. Further, the research identified the most dominant (combinations of) value orientation and risk perception(s); hence the top five parties reflected the most imperative and prevailing values. Figure 7 shows that the top five parties comprise more than half of the chart, meaning the dark grey area comprises nine non-investigated other parties. All voter data was analysed through the Kiesraad data.

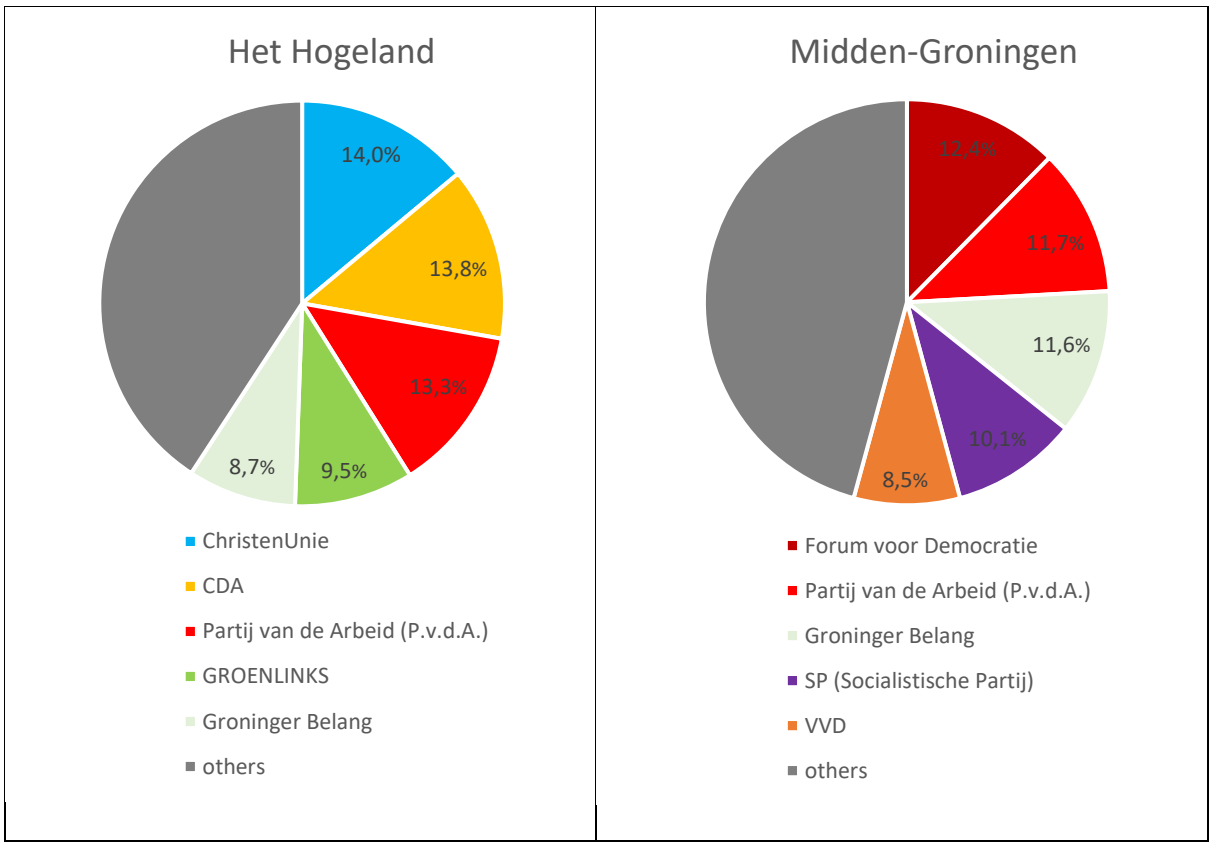

Figure 7: Voter data in HH and MG with parties listed in order from most to least votes based on all valid votes (Kiesraad, n.d.)

In HH, out of 37766 eligible voters, 23088 individuals voted, which is 61% of the eligible population, and 22977 votes were counted as valid. In MG, out of 48,393 eligible voters, 24,807 individuals voted, which is 51% of the eligible population, and 24,657 votes were counted as valid.

Altruistic values

Out of the top five parties in HH, three parties (CU, GL, PvdA) are centre-to-left oriented, and two parties (CDA, GB) are centre-to-right oriented, out of which almost all five have strong to very strong values for pro-altruism, with GB as the exception. This is because GB does not specify many altruistic viewpoints, whereas the other four go into far detail about their pro-altruistic interests. With CU and CDA as the top two, some con-altruistic elements emerge, whereas the rest have little to no con-altruistic statements. As both are Christian parties, stronger beliefs in traditional gender norms and opposition to non-Christians may arise, sometimes seen as con-altruistic. For example, both parties favour restrictions for immigrants and rights to practice religions that can be seen as one's restriction to freedom. This indicates that while residents may have some stances that go against the meaning of altruism, residents share overall strong altruistic values meaning they are socially cohesive and look out for each other's well-being.

Meanwhile, out of the top five parties in MG, three parties (FvD, VVD, GB) are right-wing oriented, and two are left-wing oriented (PvdA, SP). Compared to HH, pro-altruistic values are weaker as two out of the top three, FvD and GB, do not specify many pro-altruistic viewpoints. In second place, PvdA values pro-altruism strongly, but still not as far as CDA and GL, which were voted for in HH. VVD and SP share moderate pro-altruistic values, which indicates an overall mix of pro-altruistic values in MG. However, it can be said that the orientation for pro-altruism amongst residents in MG is weaker since more substantial levels of con-altruism also emerge. Both FvD and VVD were voted for in MG, which are absent in HH. These parties rank highest in con-altruism, as they are very strict against immigrants, with FvD even pushing for the right to ridicule other religions. This indicates that MG performs higher in con-altruism and lower in pro-altruism than HH, meaning residents in MG may feel less inclined to help each other due to lower social cohesion and may be more self-concerned.

Biospheric values

Moving to biospherism, almost all five parties in HH have strong values for pro-biospherism, with CDA being the exception as it focuses little on the natural environment. Particularly CU, PvdA, and GL strive for ambitious green agendas as seen in Appendix A. GB, at the bottom of the five parties, also has pro-biospheric values but to a lesser extent aiming for an improved environment within Groningen, e.g., more public transport and reduced gas extraction. Regarding energy, four parties, CU, PvdA, GL, and CDA, push for higher stimulation and participation in local energy initiatives, more energy-neutral housing, more renewable forms of energy generation (not CDA), and other pro-energy-related aspects. This indicates that residents in HH appear to be more supportive of the energy transition, except for individuals who voted for GB. In GB, con-biospheric values are present as they are, for example, against wind turbines and motor tax. Again, note the low total statements collected in GB, meaning percentages are not as balanced as other parties. Some con-biospheric orientation is also present in PvdA, CU, and CDA, e.g., they wish for investments and expansions of road infrastructure and vitalizations of livestock farms and fisheries. However, on an overarching level, residents within HH mostly show great value orientation for pro-biospherism, especially in the energy transition, with some levels of con-biospherism. This indicates that residents recognize the importance of their natural environment and may be more inclined to behave pro-environmentally.

In MG, not all parties have strong pro-biospheric orientations, VVD and FvD. The other three parties, PvdA, SP, and GB, have moderate to strong pro-biospheric values, showing that residents

in MG seem to have less interest in the natural environment than in HH. While in terms of energy, PvdA, SP, and VVD want to implement more energy-neutral buildings and stimulate higher participation in local energy initiatives, FvD and GB do not express similar wishes, and both, plus VVD, are against building wind turbines and want to limit solar parks. VVD also calls for a stop to subsidies in renewable energy. This indicates that many voters have contrasting opinions on the energy transition. Furthermore, con-biospheric values are also more prevalent in MG than in HH, as FvD, to some extent GB, and especially VVD, have proposed measures that exacerbate climate change, e.g., reducing motor tax, no regulations for CO_2 and NH_2 emissions, and no environmental zones. Considering that three out of five parties in MG strive for such wishes, it indicates that residents within MG may have weaker pro-biospheric and stronger con-biospheric values than HH. This means these individuals may be more likely to adopt unsustainable behaviour styles and believe that nature will somehow regulate itself.

Egoistic values

Lastly, all parties in HH have strong values for con-egoism, with CDA having lesser con-egoistic statements than the rest. There seems to be a high unison level of con-egoism within HH. Examples include more investments into healthcare and transportation, demanding a tax system reform with fewer tax benefits for the rich and fewer taxes for low-to-medium incomes; see more in Appendix A. This implies that residents in HH may feel very strongly about fairer sociable living conditions, rejecting the concentration of wealth by those better off. Little pro-egoistic values are still present in HH, which come from CDA, CU, and PvdA as they promote measures that, for example, reject taxes levied by the EU and reduce cooperate tax. However, on an overarching level, residents in HH mostly show great value orientation for con-egoism and relatively little for pro-egoism.

Meanwhile, in MG, parties like VVD and FvD push fewer con-egoistic ideas forward, focusing more on pro-egoistic viewpoints. While PvdA, GB, and SP have a large share of their viewpoints dedicated to con-egoism, con-egoism is overall weaker in MG than in HH. Still, con-egoism value orientation can be seen as moderate within MG as three out of the top five parties strive for measures that can be considered "good" for society. Nonetheless, there seems to be a significant contrast between con-egoism and pro-egoism in MG, as SP and FvD, but especially VVD, have extremely pro-egoistic viewpoints. These range across diverse topics, from shorter paid sick leaves, stricter conditions for social assistance benefits, to pausing or stopping new members into the EU. Hence, this implies that residents within MG are more pro-egoistic and less con-egoistic than in HH, meaning they may be more interested in maximizing one's profit while still showing signs of fairer sociable outcomes and conditions.

5.2.3 Risk Perceptions in Het Hogeland and Midden-Groningen

In light of the reviewed voter data and on the underlying assumption that one's voting choice reflects one's value orientation, shedding light on the risk perception of the individual, residents in HH show great extents of high altruistic values, low egoistic values, and moderate to high biospheric values. As seen in Table 1, a value orientation with high altruism, low egoism, and high biospherism falls under the risk perception of an egalitarian, who sees climate change risks as severely dangerous. Egalitarians value participatory processes (which HH firmly opts for their heat transition), are socially cohesive (as described by HH), and show great concern for the natural environment (also seen in HH due to sufficient support for small-scale energy measures). However, some degrees of con-biospherism are also present, making the biospheric value orientation moderate to high, meaning that egalitarians and hierarchists share this value orientation. This indicates that some residents may perceive climate risks not as severe, believing that nature is tolerant and can be pushed to certain limits. While this is not seen within the

analysis of energy policies, voter data shows that such risk perceptions may be present. Thus, the dominant risk perceptions of climate change among residents in HH are a combination of the egalitarian and the hierarchist, seeing nature as fragile by most and tolerant by some. This implies, on an overarching level, that sense of urgency is great, leading to a higher willingness to act, which is also seen in HH due to the social acceptance and low NIMBY effect of renewable energy measures. Hence, due to environmentally favouring value orientations and risk perceptions (next to other contextual factors, e.g., Eemshaven), the climate policy implementation gap between municipality and province is less wide, as seen in the analysis on energy policies.

In MG, residents show more variation in their value orientations but seem to have lower to moderate altruistic and biospheric values and moderate to higher egoistic values. As seen in Table 1, such value orientations overlap with the individualist and hierarchist risk perceptions. Individualists disregard the risks climate change poses and believe that the natural environment will sort itself, making the planet resilient against invasive activities. While hierarchists see climate risks as moderately concerning, they see the natural resources as scarce but not necessarily depleting, making the planet tolerant against invasive activities. Seeing the environment as resilient and tolerant may also be reflected amongst the residents of MG as findings indicate low urgency for, and little understanding of the energy transition, alongside a lack of interest in sustainability. Furthermore, residents may not understand the necessity for more renewable energy generation measures, causing resistance against solar parks, as seen in MG, next to other encountered factors, i.e., a vast and open landscape. While hierarchists score higher in altruism and see themselves as socially bound, individualists feel little desire to be part of a community and have apathy towards collective decision-making, which is also seen in collective heating systems in MG due to doubting citizens who are hesitant to connect to such networks. Moreover, the municipality mentions that social cohesion is low in MG. Instead, they may prefer individualistic solutions like solar panels on their roofs. This implies, on an overarching level, that sense of urgency is on the modest side, leading to a lower willingness to act. Hence, due to sparse environmentally favouring value orientations and risk perceptions (next to other contextual factors, i.e., housing density), residents may be more resistant to the implementation of climate policy implementation, making the gap between municipality and province wider, as seen in the analysis on energy policies.

The information above is condensed in Table 15.

Table 15: Value orientations and risk perceptions linked to the implementation gap in Het Hogeland and Midden-Groningen

	Altruistic values	Egoistic values	Biospheric values	Risk Perception	Implementation Gap
Het Hogeland	High	Low	Moderate to high	Egalitarian and Hierarchist	Smaller
Midden-Groningen	Low to moderate	Moderate to high	Low to moderate	Individualists and Hierarchist	Larger

Chapter 6: Discussion

This study has established a correlation between the independent variables, value orientation and risk perception, and the dependent variable, the climate policy implementation gap. Theoretical contributions, shortcomings of this research, and recommendations for planning practitioners are provided below.

6.1 Theoretical contributions

To this author's knowledge, the novel combination of the value-belief-norm theory (VBNT) and cultural theory of risk (CTOR) has not been performed until now. Both theories have been used individually in climate studies, such as McNeeley and Lazrus (2014) with the CTOR and Balunde et al. (2019) with the VBNT. Whereas the CTOR provides lenses of different societal risk perceptions and how these shape an individual's risks to climate change and stance to climate-adaptive or mitigative interventions (Thompson, 2003), the VBN acts as an anchor of the CTOR by considering underlying values that lead to emergences of an individual's risk perceptions.

Slimak and Dietz (2006) already argued in their study that the VBNT can measure ecological risk perceptions but did not use risk perceptions from the CTOF. Hence, this study highlights the theories' synergistic characteristics in building a multi-dimensional framework for a more nuanced understanding of the intricate connections between values, risk perceptions, and climate policy implementation. This study showed that the VBNT offers insight into the values that guide an individual's decisions in their environmental and voting behaviour and that the CTOR could contextualize these behaviours within broader societal risk perceptions, enhancing the depth of insight into the complex dynamics influencing policy resistance in real-life settings. Hence, these complementary theories enriched the exploratory power of this study and allowed to obtain a more holistic understanding of why individuals may resist climate policy implementation. Consequently, these findings add to the existing literature on policy implementation gaps (Hudson et al., 2019; Peters, 2018) but through a focus on the local individual rather than the reasons within the institutional context.

Furthermore, this innovative approach also has the potential for broader generalization. By demonstrating the effectiveness of this combined theoretical framework in the context of climate policy implementation, the study paved the way for its application to other areas such as policy studies (Ryan, 2015), climate studies (Goebbert et al., 2012), behavioural studies (Van der Werff et al., 2014), and political studies (Solano et al., 2015) where understanding the interplay between values, risk perceptions, and policy implementation is crucial. Moreover, this study adds to other literature pieces that have investigated how public attitudes can result in the success or failure of climate policies (Dabla-Norris et al., 2023; Fairbrother, 2022), particularly how negative perceptions about the climate's resilience and necessary interventions can impede the implementation of climate policy (Boncu et al., 2022; Pearson et al., 2018). Thus, the study's findings reinforce the relationships between individuals' traits and climate policy implementation, highlighting the necessity for addressing these challenges to create engagement strategies and implementation approaches that resonate with a community's diverse perspectives.

6.2 Voter behaviour as a measure of value orientation

This study assumed that individuals vote for parties that align with their embedded values. While this was a viable approach for large-scale data collection with diverse views and an aggregate

representation of values within the voting population, multiple shortcomings can be associated with this methodology that deserves further attention and should be adjusted for future research.

Firstly, this study used voter data that may not have entirely represented the population's value orientation, as 61% of eligible voters and 51% of eligible voters cast a ballot in HH and MG (Kiesraad, n.d). While this study successfully determined a correlation between the value orientation and the climate policy implementation gap, a significant number of eligible voters are missing in the provincial 2019 election, only capturing the preferences of the individuals who participated. Levere and Van Aelst (2014) found that second-order elections, non-national elections, receive lower voter turnout in the Netherlands as individuals feel less at stake, meaning elections like the provincial 2019 election are not taken as seriously compared to national elections. Hence, the study risked a potentially skewed understanding of dominant values in HH and MG as it might have underrepresented certain demographic groups, thereby not including value orientations of non-voters. Despite this flaw, voter data should still be pursued as a viable approach in political studies as it proves to be an efficient and cost-effective way of capturing the public's general opinions and interests (Barrios and Hochberg, 2021), with the author's suggestion to use a national election in future research to obtain higher voter turnout.

Secondly, when using voter data, one needs to be mindful of the time-sensitive nature since temporal changes, such as a shift in one's value orientation, can occur over the years after the election. Berinsky (2017) discusses the difficulties in measuring public opinion throughout political studies because public will is dynamic, meaning it can change over time as new developments and evolving circumstances shape emerging public opinions. Li and Fotheringham (2021) add that spatial and temporal dynamics are critical factors which can transform an individual's voting preference and is, thus, partly dependent on time-sensitive external developments in a given space. Consequently, voter data from the 2019 provincial election reflects the values of this specific time and may no longer be representable, as potential events in HH and MG may have led to modifications in public sentiments. While the analysed documents from both municipalities are from recent years and do not indicate value orientations significantly different from the values identified from the voter data, it may be beneficial to investigate the value orientations of HH and MG in the upcoming national election in November 2023. In that manner, contemporary values and corresponding risk perceptions can be identified to observe whether these outcomes are compatible and interchangeable with the ones detected in 2019.

Thirdly, several variables can drive an individual's voting choice. Next to one's internal value orientation, there are external factors such as Williams et al. (2009), who argue that an individual's party affiliation or the charismatic personality of a party leader can form integral turning points for an individual's voting behaviour. This implies that individuals may change their minds about their voting choice despite the values that guide them through everyday life. Also, in the Netherlands, Van der Burg and Mughan (2007) claim that some evidence exists that the charisma of leaders from right-wing populist parties in elections between 1998 and 2003 may have shaped the electoral outcomes in their favour. Thus, voters may be attracted to not necessarily the fact that a leader represents a particular party but rather the virtue and faith the leader emits towards their party's viewpoints (Charlot, 2021). Hence, the assumption that individuals vote based on their underlying value orientation can be viewed as shortsighted, as residents in MG and HH may have voted for the charismatic traits of elected party leaders. This raises the question of to what extent this applies to this study and offers new avenues of research for the role of charisma in provincial electoral outcomes.

Furthermore, next to charismatic personalities, voters may be drawn to specific policy issues that a party advocates rather than the whole range of viewpoints that the party represents. As

mentioned above, voter data does not provide information about one's reason or motivation for party choice. Based on the 2011 Swiss election, Lachat (2014) found that parties who exhibit associative ownership of specific policy issues, the issues that a party is considered to feel most strongly about, are likely to attract voters whose interest is captured by a party's specific-policy reputation. While the effect and success of attracting voters through associative ownership vary amongst parties, Mauerer et al. (2015) also show that parties in Germany can have multiple specific-policy issues and shift their position towards them in different election cycles. This means that parties may polarize their positions to gain a voter advantage, placing issues in different lights to collect more votes (Han, 2018). Thus, using voter data as a measure for value orientation does not capture whether individuals were attracted to parties due to specific policy focus, e.g., one may vote for FvD due to its solid anti-immigrant stance and not because of its other viewpoints. This risks a limit of the insight gathered, meaning a lack of information about the motivations behind voting choices may have led to an uncomprehensive analysis of value orientation in HH and MG. Hence, rather than relying on voter data as a measure for value orientation, a combination of other qualitative methods, i.e., surveys and interviews with residents, to validate the findings of this study is essential in future research to improve its credibility and authenticity.

Lastly, rooting this research under the assumption that individuals vote for parties based on their value orientation also means that this research is founded under the assumption that human beings make rational and informed decisions. Lee et al. (2016) explain that rationality is "the ability to behave in order to maximize the achievement of their presumed goals" (p.1), forming the cornerstone of democracy. However, based on Kuhn's theory of rationality (1983), humans frequently do not act rationally; instead, they act based on their cognitive biases, emotional reactions, or societal pressures. This also applies to an individual's voting behaviour as these factors or other limited capacities in processing relevant information may lead to irrational decision-making in party consideration (Lee et al., 2017). Sufficient evidence shows reinforcing relationships between voting behaviour and cognitive biases which can lead to irrational voter choices, ranging from gender bias (Van der Pas et al., 2022), cultural bias (Johnson and McCarthy, 2022), moral bias (Feddersen et al., 2009), and media bias (Baum and Gussin, 2005). Such personal traits may not align with one's underlying values and risk perception, particularly the role of media, campaign messaging, and other relevant dynamics that an individual is exposed to can lead to irrational voting behaviour (Ladd, 2010). Hence, using voter data to capture the values and risk perception of residents in HH and MG may oversimplify the intricate interplay of factors that results in one's final voting choice. Thus, future research should include expert interviews to uncover professional opinions as guiding principles throughout this study to measure the complex and multifaceted nature of values and better understand the dynamics between personal attributes and voter behaviour. In that manner, surveys and interviews with residents can be formatted to include and study the factors that may lead to irrational voter behaviour.

Hence, while it can be argued that value orientation can influence voting behaviour and may correlate with a climate policy implementation gap between provincial and local levels, the argument cannot be fabricated for distinguishable causational patterns. In HH and MG, correlations can be seen between specific values, risk perceptions, and voter data that indicate a resistance against or support for renewable energy measures, also mentioned by the municipalities. However, establishing causation between these variables would be a bold claim due to the evidence that sheds light on the shortcomings the research is based on. Thus, while this research successfully and empirically represented the relationships in HH and MG displayed in the conceptual model and managed to ground these in theory, the cultural theory of risk and value-belief-norm theory, the discussed limitations emphasize that further research is required to overcome the newly discovered research puzzles and strengthen the reliability of this study's findings. This means that the role of value orientation within residents and potentially enabling a

climate policy implementation gap is limited and equal weight should be given to the contextual circumstances to explain the climate policy implementation gap.

6.3 Recommendations for planning practitioners

Despite these limitations, the implementation gaps identified in the energy policy analysis and its building blocks are fundamental. Recommendations to reduce the gap are discussed below.

6.3.1 Residual heat

The study demonstrates that the opportunities for exchanging residual heat within MG are more restricted than for HH due to plenty of activities for residual heat exchange in the Eemshaven. Consequently, reducing natural gas usage is challenging for MG due to fewer businesses with heat exchange potential. However, to use the given opportunities in MG, Pitt and Congreve (2015) highlight the role of collaborative planning with local businesses, arguing that municipalities should initiate collaborations with third-sector parties to establish collective energy solutions. Based on these insights, MG has opportunities to pursue residual heat exchange by cooperating with other municipalities and stakeholders, which requires MG to take a more initiating and facilitating role in closing the gap of residual heat transfer (Faye and Macharia, 2022). Potential benefits include generating expertise, obtaining additional funding and other relevant resources to realize climate policies at the local level (Frank et al., 2018).

Furthermore, both municipalities should implement collective heat networks to exchange heat among consumers. The study shows HH may take this more seriously due to its policy document for small-scale energy generation and its approach to reclassifying neighbourhood borders. In contrast, MG suffers from hesitant residents to participate in collective solutions. In recent years, more evidence is surfacing on how vital the functions of municipalities are in bottom-up initiatives in renewable energy systems (Lerman et al., 2021; Schmid et al., 2020; Neij and Heiskanen, 2021). The results demonstrate that HH has successfully stimulated bottom-up initiatives, such as collective heat networks, by explicitly addressing small consumers' needs. Thus, if HH can present the success of its collective heat network policy plans (which are absent in MG) by focusing on smaller consumers, including HH's approach to border reclassification, can they inspire planning practitioners within MG to perform similar measures due to knowledge and policy transfer (Hoppe et al., 2015). Such real-life success stories can serve as a powerful tool to gain support for similar initiatives (ibid).

6.3.2 Natural gas-free heating

This study demonstrates that MG has restricted opportunities for natural gas alternatives due to few companies that could produce hydrogen gas. In contrast, HH has numerous generation sites of hydrogen in Eemshaven. Again, Pitt and Congreve (2015) highlight the role of cooperative planning with local businesses and entering dialogue, which may uncover the possibilities for hydrogen gas as a heating source. However, the study suggests that for both municipalities, the future of hydrogen is uncertain, and biomass availability is little, meaning biogas as a heating source remains unclear. Hence, decision-makers within the province and the central government should provide sufficient financial capacities for market parties to research the adoption of these innovative processes (Pascaris et al., 2021). Hydrogen and biogas can transcend their niche applications and transform into widespread and upscaled gas alternatives if their potential and barriers can be investigated. Like ecological modernization, this enhanced growth can foster the diffusion of gas alternatives at the service of the environment over time (Jänicke, 2008) and aid in implementing natural gas alternatives.

The findings showcase that both municipalities need to combat energy poverty to realise natural gas-free heating, which seems higher in MG than in HH. MG has created a policy plan to provide low-income families with priorities for natural gas alternatives, which is absent in HH. This example should be communicated to HH as this could be adopted by HH, meaning knowledge transfer between the two municipalities can accelerate inclusively achieving climate targets (Lindkvist et al., 2019). Furthermore, the central government should continue providing energy subsidies for low-income households to ensure residents can finance their energy bills. Likewise, tax incentives and low-interest loans for renewable energy measures for small consumers should be continued as the VVD wants to stop these incentives. If not done so, municipalities may encounter more challenging endeavours in moving the energy transition forward, risking a more significant implementation gap. After all, the Netherlands is known for their market-oriented institutional arrangements, leaving little room for a society-friendly energy sector compared to Germany and Denmark (Oteman et al., 2014). Thus, governmental actors need to pay more attention to the energy means and ends within local communities.

6.3.3 Large-scale and small-scale energy generation

The findings illustrate that MG places considerable attention on large-scale solar parks to produce sustainable energy, whereas HH has no interest in large-scale solar generation. Since HH rules out large-scale solar parks near the built environment due to cultural values, MG cannot afford to rule out large-scale measures and struggles in implementing large-scale solar parks. Faye and Macharia (2022) suggest that municipalities should be initiators who push, together with residents, the idea of renewable energy sources forward. However, MG argues that third-commercial parties should be initiators of large-scale solar parks, who should be responsible for communicating with surrounding residents, drawing up participation plans, and determining how to involve residents in the layout and design of the solar park (Midden-Groningen, 2019a). Shifting this responsibility to MG as the initiator may lead to more beneficial outcomes as municipalities may come across as more trustable sources to residents in communicating and consulting changes in the landscape (Krug and Nucci, 2020). Thus, when it comes to participation plans, MG as the initiator in the involvement of local actors through resident organizations, may stimulate higher social acceptance, as municipalities may be more knowledgeable than third parties in the wishes and concerns of their inhabitants.

In terms of small-scale energy generation, the study demonstrates that HH has, thanks to its policy document on small-scale energy generation, formulated concrete and long-term goals for bottom-up energy initiatives. HH states that it follows an initiating role in motivating residents for decentralized energy generation to ensure locally produced energy also stays in local perimeters. These aspects are either insufficient or missing in MG. Hence, it would be beneficial if planning practitioners from HH and MG could get together for HH to showcase its approach to small-scale energy generation, fostering a sense of accountability and stimulating motivation with decision-makers of MG to strive for better results. This knowledge transfer between municipalities can lead to increased efforts (Hoppe et al., 2015) and may also drive MG to implement more policy goals and plans for decentralized energy generation. In that manner, MG may transform into a more proactive municipality that takes the first steps in the energy transition with its residents.

6.3.4 Participation, acceptance, and support

Finding support to move the energy transition forward is crucial as it can make or break the development of small-scale and large-scale energy measures (Hoppe et al., 2015; Scarpa and Willis, 2010). MG faces hardships in generating this support, as there is poor social acceptance of energy measures due to the controversial and resistant nature of energy initiatives, next to

significant NIMBY effects. This low urgency, little understanding of the energy transition, and low social cohesion in MG create unfavourable conditions for the municipality to reach its energy goals. As mentioned in the results, these aspects are not found or as severe in HH.

The study has repeatedly mentioned the significance of policy and knowledge transfer between HH and MG as a source of inspiration and motivation for MG to close their implementation gap and adopt similar decentralized approaches that explicitly focus on the wishes and concerns of smaller consumers. However, to what extent could MG, despite contextual differences, work to change the values and risk perceptions and hence, the environmental behaviour of its residents? If MG can take note of these factors and build in more opportunities for local involvement in the planning and decision-making for residual heat exchange, natural-gas free heating transition, and large-/small-scale energy generation, can MG expect similar outcomes as HH, such as residents who embrace and support renewable energy measures? Van der Schoor and Scholten (2015) say that if planning practitioners can give residents a feeling that they have a say in shaping initiatives that directly impact their area, eager residents who want to move the energy transition forward may appear. However, the answers to these questions remain open as these ambitions are difficult to achieve, as realistically, there may be a lack of incentives to do more than the bare minimum in educating residents who score low in altruistic and biospheric values.

It is essential that MG finds and that HH continues to secure this support to implement climate policy. Starting with educational campaigns within schools from a young age and the investment of community outreach efforts that spark interest and understanding of the energy transition, can assurance be found that residents stay informed about the benefits that climate policy brings (Hoppe et al., 2015). In these outreach efforts where the focus is not just constrained to participation but also cooperation, it is vital that misconceptions and concerns about sustainable energy generation are addressed to ensure that the impacts of climate change are not undermined (ibid). Building public support, offering more opportunities for citizen involvement, and focusing on the locally encountered circumstance on a case-by-case basis can secure the necessary social acceptance municipalities require to close their climate policy implementation gap.

6.4 Conclusion

In the race to meet the Paris Agreements' targets, the Netherlands falls short of the finishing line. This study has established that a climate policy implementation gap in the province of Groningen, particularly in the municipality of Midden-Groningen, which struggles with unwilling residents to move the energy transition forward, and to some extent, in Het Hogeland, which also needs to place more attention on energy poverty measures.

The study used a novel fusion of the CTOR and the VBNT, which provided an insightful perspective on the complex value dynamics that guide an individual's risk perceptions of climate change and attitude towards climate interventions. This pioneering method contributed to both theories by portraying the complementary synergies that the theories share and enhanced the academic understanding of how risk perceptions emerge (Douglas and Widalvsky, 1982) and how they can slow down the implementation of climate policy (Cambardella et al., 2020; McNeeley and Lazrus 2014). In Midden-Groningen and Het Hogeland, the study established a correlation between value orientations, risk perceptions, and the climate policy implementation gap. The study shows that residents within Midden-Groningen have lower biospheric and altruistic values but higher egoistic values than Het Hogeland, reflected from the voter data in the 2019 provincial election. Mindful of the shortcomings that arise with voter behaviour, the study highlights that values which score higher in egoism and lower in altruism and biopsherism result in risk perceptions, the hierachist and individualist, who see the natural environment as tolerant and resistant against

invasive human actions. In the energy transition context, such risk perceptions are undesirable as they are likely to result in unsustainable behavioural patterns, which may neglect the seriousness of the climate crisis and enlarge the climate policy implementation gap (Boncu et al., 2022), as observed in Midden-Groningen.

Hence, to answer the research question, "*How do the risk perception of municipality Midden-Groningen and municipality Het Hogeland slow down the implementation process of climate policies in Groningen province?";* the study shows that non-environmentally favouring risk perceptions delay the process of climate policy implementation due to complexity encountered in resident's highly heterogenous values towards climate change. Anchoring these risk perceptions in an individual's value orientation demonstrates that value fragmentation can impede a cohesive policy consensus, creating difficulties in climate policy implementation at the local level. Therefore, the wickedness that arises when trying to find agreement with residents on climate policy implementation leads to significant hardships that result in hesitance, resistance, and controversy, which can explain why municipalities cannot meet their climate policy targets. Nevertheless, the study also emphasizes that the climate policy implementation gap is not solely the outcome of the embedded values and risk perceptions within a local community. It is also the outcome of the context-dependent characteristics that contribute to the complexity of the issue, which must be considered when formulating effective climate policies. Overall, bridging the climate policy implementation gap between municipality and province requires concerted efforts to understand and address the intricate interplay of values, risk perceptions, and context-specific challenges on the local level.

To conclude, the findings indicate that Midden-Groningen faces more complications in moving the energy transition forward due to residents' overall low sense of urgency, willingness to act, and lack of understanding regarding the necessity of sustainable energy measures. Furthermore, the circumstances within Midden-Groningen, such as their open landscape, unsuitable housing density, and limited opportunities for residual heat, enhance the municipality's challenges. Also, Het Hogeland has to confront issues in its implementation gap, which are applicable in MG as well, such as the limited availability of biogas, the uncertain future of hydrogen gas, and the magnitude of energy poverty from low-income residents. Recommendations have been provided on how planning practitioners within both municipalities can overcome these challenges, which boil down to two orders of suggestion: (1) for Midden-Groningen to become more proactive as the initiator in the energy transition and (2) for the transfer of policy and knowledge between Het Hogeland and Midden-Groningen.

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Appendix A

	VVD	FvD	GB	CDA	CU	PvdA	SP	GL
Pro-altruistic	Equality for race, gender, sex, and sexual orientation	Equality for race and gender		Equality for race and gender	Equality for race and gender	Equality for race, gender, sex, and sexual orientation	Equality for race, gender, sex, and sexual orientation	Equality for race, gender, sex, and sexual orientation
	Freedom of thought and belief	Freedom of thought and belief			Freedom of thought and belief			
	Accessible education, housing, energy, and healthcare	Accessible education	Accessible education, housing, healthcare, energy, and transportation	Accessible education, housing, healthcare, energy, and transportation	Accessible education, housing, healthcare, energy, and transportation	Accessible education, housing, healthcare, energy, and transportation	Accessible education, housing, healthcare, energy, and transportation	Accessible education, housing, healthcare, energy, and transportation
	Better working conditions			Better working conditions	Better working conditions	Better working conditions	Better working conditions	Better working conditions
	Euthanasia and abortion					Euthanasia and abortion		Euthanasia and abortion
	Parental aid			Parental aid	Parental aid	Parental aid		Parental aid
				Integration of refugees and immigrants	Integration of refugees and immigrants	Integration of refugees and immigrants	Integration of refugees and immigrants	Integration of refugees and immigrants
				Human rights outside of NL	Human rights outside of NL	Human rights outside of NL	Human rights outside of NL	Human rights outside of NL
				Stop racism and discrimination	Stop racism and discrimination	Stop racism and discrimination	Stop racism and discrimination	Stop racism and discrimination

	VVD	FvD	GB	CDA	CU	PvdA	SP	GL
Con-altruistic				Harsher punishment of crime	Harsher punishment of crime			
	No face cover in public	No face cover in public			No face cover in public			
	No quota for women or handicapped at work							
		No open borders						
	Against immigrants	No Islamic immigrants		Restriction for immigrants	Restriction for immigrants	Restriction for immigrants		
				Refugees must learn Dutch and cultural norms		Refugees must learn Dutch and cultural norms		
	Return refu-gees to their origin country							
	No help for integration of refugees							
	Less social housing							
	Limit educational opportunties through numerus fixus							
				Against euthanasia	Against euthanasia			
					Against abortion			
					Against prostitution			
				Against drugs	Against drugs			
					Against selection of			

				medical procedures			
	Right to ridicule religions						
						Deradicalisa-tion program for people influenced by war or terror	

Pro-biospheric

VVD	FvD	GB	CDA	CU	PvdA	SP	GL
	Fight plastic soup						
Reduce GHG emissions		Reduce GHG emissions	Reduce GHG emissions	Reduce GHG emissions	Reduce GHG emissions	Reduce GHG emissions	Reduce GHG emissions
Improve public transport		Improve public transport	Improve public transport	Improve public transport	Improve public transport		Improve and stimulate public transport
					No more building of highways	Build less highways	No more building of highways
More and improved bicycle lanes				More and improved bicycle lanes	More and improved bicycle lanes		More and improved bicycle lanes
				Focus on electric vehicles	Focus on electric vehicles	Focus on electric vehicles	Focus on electric vehicles
Invest into energy transition	Invest into energy transition			Invest into energy transition	Invest into energy transition		Invest into energy transition
				Build wind turbines and solar parks	Build wind turbines and solar parks	Build wind turbines and solar parks	Build wind turbines and solar parks
Build energy-neutral buildings			Build energy-neutral buildings	Build energy-neutral buildings	Build energy-neutral buildings	Build energy-neutral buildings	Build energy-neutral buildings
Participation in local energy initiatives			Participation in local energy initiatives	Participation in local energy initiatives	Participation in local energy initiatives	Participation in local energy initiatives	Participation in local energy initiatives
Invest into circular economy	Invest into circular economy	Invest into circular economy	Invest into circular economy	Invest into circular economy	Invest into circular economy	Invest into circular economy	Invest into circular economy
					Increase gas prices and lower electricity prices		Increase gas prices and lower electricity prices

		Reduce gas extraction in Groningen		Reduce gas extraction in Groningen	Reduce gas extraction in Groningen		Stop gas extraction in Groningen
				No nuclear plants	No nuclear plants	No nuclear plants	No nuclear plants
				No coal plants	No coal plants	No coal plants	No coal plants
				Increase tax for activities that release GHG and/or are polluting	Increase tax for activities that release GHG and/or are polluting	Increase tax for activities that release GHG and/or are polluting	Increase tax for activities that release GHG and/or are polluting
Stronger regulations for polluting businesses				Stronger regulations for polluting businesses	Stronger regulations for polluting businesses		Stronger regulations for polluting businesses
				Stronger regulations for aviation and ships	Stronger regulations for aviation and ships		Stronger regulations for aviation and ships
				Protect Natura 2000	Protect Natura 2000	Protect Natura 2000	
Protect ecology and enhance biodiversity				Protect ecology and enhance biodiversity	Protect ecology and enhance biodiversity	Protect ecology and enhance biodiversity	Protect ecology and enhance biodiversity
Stricter measures against environmental crimes				Stricter measures against environmental crimes			Stricter measures against environmental crimes
				Climate-adaptive places	Climate-adaptive places		Climate-adaptive places
Sustainable agricultural practices			Sustainable agricultural practices	Sustainable agricultural practices	Sustainable agricultural practices	Sustainable agricultural practices	Sustainable agricultural practices
							Stricter permitting process

							Stimulate sustainability in the Dutch Antilles

Con-biospheric

VVD	FvD	GB	CDA	CU	PvdA	SP	GL
Invest and expand airport(s)	Invest and expand airport(s)	Invest and expand airport(s)	Invest and expand airport(s)		Invest and expand airport(s)	Invest and expand airport(s)	
Invest and expand seaports(s)	Invest and expand seaports(s)	Invest and expand seaport(s)	Invest and expand seaport(s)	Invest and expand river ports and infrastructure			
Reduce motor tax	Reduce motor tax	Reduce motor tax					
Invest and expand road infrastructure		Expand road infrastructure	Invest and expand road infrastructure	Invest and expand road infrastructure	Invest and expand road infrastructure	Invest and expand road infrastructure	
			Import fossil fuel				
		No CO2 storage		No CO2 storage			
No regulations for CO2 emissions							
No regulations for N2							
Open emergency lanes for traffic flow							
Light up roads in the evening and night							
No wind turbines on land after 6000MW		No wind parks and limited solar parks					
Keep gas extraction		Keep gas extraction at safe minimum	Keep gas extraction	Keep gas extraction with deadline	Keep gas extraction at safe minimum	Keep gas extraction at safe minimum	Keep gas extraction at safe minimum
No environmental zones							

Vitalize livestock farms and fisheries	Vitalize livestock and fisheries		Vitalize livestock farms and fisheries	Vitalize livestock farms and fisheries	Vitalize livestock farms and fisheries		
More recreational spaces near natural areas							
			Against ecological restoration of farmland	Against ecological restoration of farmland			
				Supports pesticide use			

	VVD	FvD	GB	CDA	CU	PvdA	SP	GL
Pro-egoistic	Revoke Dutch nationality for heavy crimes							
	More surveillance on EU borders							
	Invest into military							
		More power for PM						
	Weaken the powers of Brussels	Weaken the power of Brussels			Weaken the power of Brussels		Weaken the power of brussels	
	Reject taxes and regulations levied by EU	Reject regulations levied by the EU			Reject regulations levied by the EU	Reject taxes levied by EU	Reject taxes and regulations levied by EU	
	Pause on new EU members	Stop on new EU members			Stop on new EU members		Stop in new EU members	
	Invest into trade, import and export							
	Provide development aid to poorer countries under stricter preconditions			Provide development aid to poorer countries under stricter preconditions				
	Maintain leading position in fishing and agriculture			Maintain leading position in EU innovation and market		Maintain leading position in world economics		
	Support temporary and flexible work contracts			Support temporary and flexible work contracts				

	Limitations for EU working migrants		Limitations for EU working migrants				
Easier permitting process							
No subsidies for renewable energy							
Shorten paid sick leave	Shorten paid sick leave						
Make healthcare more attractive for private investments							
Reduce cooperate tax	Reduce cooperate tax		Reduce cooperate tax	Reduce cooperate tax			
Debilitated should work							
Social assistance benefits under stricter preconditions	Social assistance benefits under stricter preconditions						
Rent prices should rise higher than housing prices							
Less rental laws and more freedom to landlords				Less rental laws and more freedom to landlords			
No privacy for major criminals	Against digital privacy laws		No privacy for major criminals				
					NS is allowed to maintain		

					monopoly on rail network		

Con-egoistic

VVD	FvD	GB	CDA	CU	PvdA	SP	GL
			Invest into pension	Invest into pension	Invest into pension		Invest into pension
				No closing of care homes	No closing of care homes		
Invest into education	Invest into education		Invest into education	Invest into education	Invest into education	Invest into education	Invest into education
				Less student loans		Less student loans	Less student loans
			Provide financial aid for young families	Provide financial aid for young families	Provide financial aid for young families		Provide financial aid for young families
Ensure sufficient incomes		Ensure sufficient incomes	Ensure sufficient incomes	Ensure sufficient incomes	Ensure sufficient incomes	Ensure sufficient incomes	Ensure sufficient incomes
				Flexible working hours for parents and elderly	Flexible working hours for parents and elderly		
Compensate Groningen residents against gas damages	Compensate Groningen residents against gas damages	Compensate Groningen residents against gas damages	Compensate Groningen residents against gas damages	Compensate Groningen residents against gas damages	Compensate Groningen residents against gas damages		Compensate Groningen residents against gas damages
				Invest into housing	Invest into housing	Invest into housing	Invest into housing
				Lower rental prices		Lower rental prices	
Invest into healthcare	Invest into healthcare		Invest into healthcare	Invest into healthcare	Invest into healthcare	Invest into healthcare	Invest into healthcare
				Lower own risk	Abolishment of own risk		
				Longer paid sick leave			
Invest into transportation		Invest into transportation	Invest into transportation	Invest into transportation	Invest into transportation	Invest into transportation	Invest into transportation

			Invest into charities	Invest into charities		Invest into charities	Invest into charities
		Invest into regional economy	Invest into regional economy	Invest into regional economy	Invest into regional economy	Invest into regional economy	
Reform tax system, less taxes for low-medium income			Reform tax system, less taxes for low-medium income	Reform tax system, less taxes for low-medium income	Reform tax system, less taxes for low-medium income	Reform tax system, less taxes for low-medium income	Reform tax system, less taxes for low-medium income
			Less tax benefits for the rich	Less tax benefits for the rich	Less tax benefits for the rich	Less tax benefits for the rich	Less tax benefits for the rich
			Stricter measures for tax fraud or evasion	Stricter measures for tax fraud or evasion	Stricter measures for tax fraud or evasion	Stricter measures for tax fraud or evasion	Stricter measures for tax fraud or evasion
Stronger EU regulations			Stronger EU regulations	Stronger EU regulations	Stronger EU regulations		
Support start-ups				Support start-ups			
Better protection for first responders							
Improve privacy laws					Improve privacy laws	Improve privacy laws	
Against monopoly of NS on rail network							
		Supports bottom-up approach	Supports bottom-up approach		Support bottom-up approach		