

JUST LOCAL ENERGY TRANSITIONS: UNDERSTANDING POLICY ARRANGEMENTS IN VULNERABLE URBAN NEIGHBOURHOODS

The background features a stylized cityscape with various buildings in shades of blue, orange, and beige. A large wind turbine is positioned in the center, and a solar panel is on the left. In the foreground, three people are depicted: a woman in an orange top talking to a man in a green top holding a tablet, and another woman in a yellow top riding a bicycle with a cargo basket. A bright orange sun is in the top right, and light blue clouds are scattered across the sky.

MSC THESIS – METROPOLITAN ANALYSIS, DESIGN & ENGINEERING

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ABSTRACT

This research examines to what extent policy arrangements of the local energy transition in two urban vulnerable neighbourhoods in the Netherlands are just. Even though national climate ambitions have been established, implementation of measures largely depends on municipalities and local actors. Using the Policy Arrangement Approach, this study analyses discourses, actors, rules of the game, and resources in two case studies: Venserpolder (Amsterdam) and Bospolder-Tussendijken (Rotterdam). The policy arrangements in both neighbourhoods were analysed through the lens of distributional, procedural, and recognition justice to assess the justness of the local energy transitions. The findings show that both municipalities follow a top-down approach but differ in their governance practices. In Venserpolder, limited resident engagement, dependence on large-scale institutional actors, and communication that is mainly focussed on homeowners' associations (VvEs) constrain just and successful outcomes of the local energy transition. In Bospolder-Tussendijken, the energy transition is integrated with a broader resilience agenda and is grounded in an Asset-Based Community Development discourse which fosters stronger procedural and recognition justice. Nevertheless, challenges remain for the inclusion of vulnerable groups. Overall, this study highlights the need for more inclusive governance practices and the combination of strong institutional coordination with community participation, just resource distribution, and recognition of diverse social contexts in order for national climate ambitions to be achieved in a just way.

Keywords: local energy transition, energy policy, Policy Arrangement Approach, governance practices, energy justice

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1. INTRODUCTION

Since the 1990s, the Dutch government has been implementing various measures to influence people's perceptions and actions on issues such as the greenhouse effect and (reduction) of domestic energy use. The first measure implemented was to broadcast commercials on national television named "*A better environment starts with yourself*" (in Dutch: "*Een beter milieu begint bij jezelf*"). More recently, specifically since the Paris Climate Agreement in 2015, the Dutch government has introduced a multitude of environmental policies, of which policies regarding the energy transition are a significant part. In 2017, the Dutch national government (cabinet Rutte III) aimed at achieving a CO₂ reduction of 49% in 2030. For the energy transition, cabinet Rutte III visualised a decentralised system where municipalities would be given a more leading role (Ministerie van Algemene Zaken, 2017). In line with the shift of the role of municipalities in the energy transition, the Program Gas-Free Neighbourhoods (in Dutch: Programma Aardgasvrije Wijken) was initiated in 2018 with the goal of learning how a neighbourhood-oriented approach to the energy transition could be organised and scaled up. In 2021, Planbureau voor de Leefomgeving (Dignum et al., 2021) published a study on this neighbourhood-oriented approach which concluded that the energy transition in the neighbourhoods studied was more complex and time-consuming than was initially expected as it requires tailored solutions. The study notes that, even though a neighbourhood or district may appear uniform, there are still significant variations in housing types and in residents' willingness and ability to participate in the transition (Dignum et al., 2021). Hence, for the effectiveness of the energy transition, it is valuable to study the energy transition and related measures at a neighbourhood-scale.

In line with this, research conducted by Krzywda et al. (2021) suggests that local circumstances and principles will influence the implementation of the energy transition. Additionally, a successful energy transition depends largely on local action as it will mainly occur through the initiatives of local institutions, communities, and individuals. Ultimately, transitions occur at the local level where people and organisations change their behaviours, practices, and technologies (Brugger & Henry, 2021). It is believed that municipalities, cities, and communities hold a crucial role in facilitating the transition towards sustainable, low-carbon, and cost-effective energy systems. Here, municipalities, cities, and communities are understood as actors who operate within and shape the socio-technical systems of the energy transition (Berg et al., 2021). Municipalities hold local expertise, have more insights into the local conditions, and, therefore, have governance responsibilities that go beyond the mere implementation of higher-level policies (e.g. regulations created by the national government) (Brugger & Henry, 2021). Yet, it is important to not treat a city as a single, uniform entity but to pay attention to internal differences within

local governments as they influence a city's ambitions to transform (Osthorst, 2020). Moreover, environmental policies on the local level face several challenges that complicate the incorporation of local actors into energy governance structures. One of these challenges is *"the lack of thorough understanding of how they work in practice, and how best to support and develop effective local energy governance"* (Parag et al., 2013, p. 1064). Furthermore, Brugger and Henry (2021) claim that studying local discourses around transitions is helpful to understand why regions differ in their success of implementing their energy transition. It is thus relevant to look into how different local policies are shaped. A theory that helps gaining insights in this is the Policy Arrangement Approach (PAA), focussing on the way in which a policy domain is shaped and structured within a specific time and context. It views policymaking as the interaction between day-to-day practices and broader social and political processes (Arts & Tatenhove, 2004). Arts et al. (2006) note that the analysis of problems and processes in environmental policy research are mostly defined by policy makers themselves. This has resulted in an overemphasis on short-term analyses in this research domain, a limited focus on more structural and long-term developments in environmental policy, and even less focus on broader political and societal changes. The PAA aims at providing more insight into these aspects.

In addition, the extent to which the energy transition delivers just outcomes to society remains underexplored (Heffron, 2022). Local circumstances of marginalised and vulnerable communities are relevant to further explore as these groups will mostly experience the consequences of climate change and the energy transition (Sharma & Srikanth, 2021; Carley & Konisky, 2020). Bouzarovski et al. (2017) argue that the link between energy-related vulnerabilities and transitions, and in particular the extent to which the effects of socio-technical changes contribute to spatially rooted forms of inequality, is inadequately explored in social science literature. As each situation and local circumstances are different (Laes et al., 2014), the importance of case studies to explore the obstacles and opportunities of the energy transition becomes evident. For this research, two socially and economically vulnerable neighbourhoods in the two biggest cities of the Netherlands (Venserpolder in Amsterdam, Bospolder-Tussendijken in Rotterdam) were selected as case studies.

1.1. *Problem statement*

Despite several policy efforts and ambitious CO₂-reduction ambitions of the Dutch national government, these ambitions will not be met within the proposed timeline until 2030. Where policy generally focusses on technological solutions and shaping individual behaviour, this has proven to be insufficient as domestic energy use is shaped by broader social and cultural practices, material conditions such as housing quality, and local circumstances (Dignum et al., 2021). Municipalities and local actors

play a critical role in facilitating the energy transition (Berg et al., 2021; Brugger & Henry, 2021). Nevertheless, more insights are needed to understand how local policies are structured, how local actors interact, and how policies can address inequalities, especially in vulnerable (urban) communities (Bouzarovski et al., 2017; Heffron, 2022; Parag et al., 2013). Various factors influence the implementation of energy transition policies and therefore an in-depth, context-specific analysis of local policy arrangements is needed. This research seeks to address these gaps by examining how policy arrangements in two socially and economically vulnerable neighbourhoods in the Netherlands influence the local energy transition and to what extent they are just.

1.2. *Research questions*

The main research question that this thesis aims to answer is:

To what extent are policy arrangements of the local energy transition in Venserpolder and Bospolder-Tussendijken just?

To answer this research question, five sub-research questions (SRQ) have been formulated. These questions follow the structure of the Policy Arrangement Approach, as presented by Arts et al. (2006). The aspect of energy justice is highlighted in the fifth question. The Policy Arrangement Approach consists of four dimensions: discourse (SRQ 1), actors (SRQ 2), rules of the game (SRQ 3), and resources (SRQ 4). The Policy Arrangement Approach will be further elaborated on in the next chapter.

1. What are the dominant policy discourses in energy transition policy in Venserpolder and in Bospolder-Tussendijken?
2. Which stakeholders are currently involved in the energy transition in Venserpolder and Bospolder-Tussendijken, and to what extent do they influence decision-making processes?
3. Which formal and informal policy procedures are implemented in Venserpolder and Bospolder-Tussendijken?
4. How are residents in Venserpolder and Bospolder-Tussendijken informed about the energy transition, and which financing options are available to support the local energy transition?
5. To what extent is energy justice reflected in the policy arrangements in Venserpolder and Bospolder-Tussendijken?

1.3. Scientific and social relevance

The transition towards sustainable energy systems in the Netherlands increasingly depends on local implementation, as municipalities and neighbourhoods play a key role in achieving national climate goals. Despite ambitious CO₂ reduction targets, the energy transition has proven to be more complex and context-dependent than expected, particularly at the neighbourhood level where local conditions, housing types, and social dynamics differ significantly (Dignum et al., 2021). Understanding these local dynamics is therefore socially relevant, as effective and just climate action requires insights into how the energy transition unfolds within communities, especially in socially and economically vulnerable areas.

Scientifically, this research contributes to environmental governance studies by addressing the limited understanding of how policy arrangements shape the just local energy transition. Earlier research has often focused on short-term, policy-driven analyses, overlooking structural and social dimensions of environmental change (Arts et al., 2006). By analysing local policy arrangements in two urban neighbourhoods, this study advances knowledge on the socio-political nature of energy transitions and the ways in which local actors, discourses, rules of the game, and resources influence both the process and the fairness of the transition.

1.4. Reading guide

This thesis starts by presenting the theoretical framework of the Policy Arrangement Approach (PAA) where the four dimensions as well as the concept of energy justice will be further elaborated on. After that, the methodology of the research is described. Next, the results of the PAA in Venserpolder will be discussed, and secondly the results of the PAA in Bospolder-Tussendijken are provided. In the sixth chapter of this thesis, the results of the analysis of both neighbourhoods will be compared where similarities and differences between the two municipalities' approaches to the local energy transition will be highlighted. After that, the discussion chapter can be found which includes reflections on the results in relation to existing literature. In this chapter, the limitations of the research as well as recommendations for future research and for policymakers will also be provided. In the final chapter, a conclusion to the research and an answer to the research question are given.

2. THEORETICAL FRAMEWORK

This chapter elaborates on the key theoretical concepts that lay at the basis of the research. First, the Policy Arrangement Approach will be discussed. After that, the four dimensions of the Policy Arrangement Approach will be highlighted: discourse, actors, rules of the game, and resources. Lastly, the concept of energy justice, which will be used as a lens to study the policy arrangements, will be described.

2.1. Policy arrangement approach: brief introduction

Environmental policy has changed substantially since its first development in the early seventies. The Policy Arrangement Approach (PAA) was developed to help understand "*the synthesis of stability and dynamism in environmental policy*" (Arts et al., 2006, p. 96). In other words, the main goal of the PAA is to analytically link changes in everyday policy practices to larger, structural shifts occurring in modern society (Liefferink, 2006).

The PAA is based on three concepts: political modernisation, institutionalisation, and policy arrangements. Political modernisation refers to the multiple dynamics and interactions that take place in the political system (Arts et al., 2006; Berg et al., 2021). It involves the structural processes that shape the changing relationships between the state, market, and civil society, as well as the emergence of new conceptions and practices of governance (Arts et al., 2006). Institutionalisation refers to the processes of the gradual development of more or less stable patterns in the daily interactions between policy actors (Liefferink, 2006). Policy arrangement refers to the essence and the organisation of policy, and the responses to specific circumstances and specific policy processes (Arts et al., 2006; de Boer, 2006). It involves structures that are formed through processes, interactions between policy actors, and formal and informal rules (Yirga et al., 2023). More specifically, policy arrangement relates to resources, policy discourses, rules of the game, and coalitions (Arts et al., 2006, see Figure 1). These are the four dimensions that help to describe and analyse the content and organisation of the design of (part of) environmental policy. This four-dimensional analysis allows for four different analytical perspectives on one policy arrangement. Each perspective highlights different aspects of the policy arrangement (Liefferink, 2006). As can be seen in Figure 1, each dimension is placed at one of the four corners. A strong interrelation between the different corners is symbolised by the figure, where a change in one dimension can lead to change in (one of) the other dimensions (Van der Zouwen, 2006).

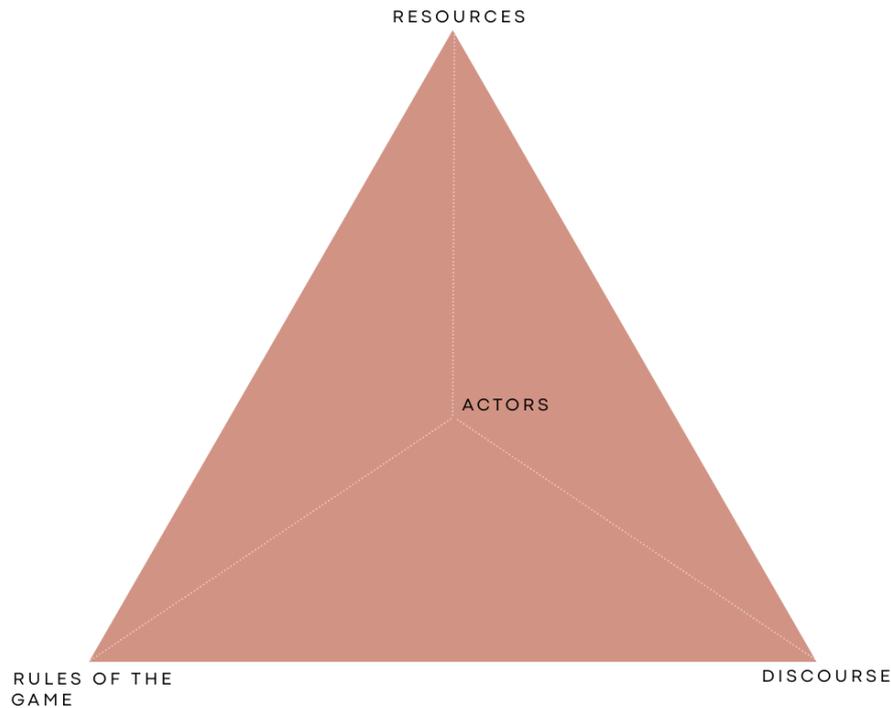


Figure 1: The tetrahedron that symbolises the PAA, as presented by Arts et al. (2006)

2.2. Policy discourses: transition discourses

The concept of discourse relates to the set of views, ideas, concepts, and narratives of the actors involved in decision-making and the content of policy documents (Arts et al., 2006; Rittl et al., 2015). In order to gain insights into the discourse(s), a discourse analysis is needed to gain a better understanding of the reasoning and perspectives that actors bring to a discussion (Rittl et al., 2015). Furthermore, discourses help in understanding how these different reasonings and perspectives might be influenced by positions of and interactions between actors (Brugger & Henry, 2021; Liefferink, 2006). Brugger and Henry (2021) also underscore that discourses reflect underlying policy debates and interests by those seeking to either directly or indirectly influence (local) policies. They also state that, to understand why regions differ in their success of implementing measures for the energy transition, it is useful to analyse local discourses around these transitions.

2.3. Actors: local governance

The dimension of actors relates to organisations or individuals who are involved in policies. This includes governmental actors, but also non-governmental actors from civil society and market (Van der Zouwen, 2006). The concept of governance can be related to the dimension of actors. It is broadly defined as *"the institutions, structures, and processes that determine who makes decisions, how and for whom decisions are made, whether, how, and what actions are taken, and by whom and to what effect"*

(Bennett & Satterfield, 2018, p. 2). Where governments used to be the only sources for expert knowledge, there now exists a need to also trust in other institutions' and citizens' expert knowledge (Røiseland, 2011). Local governance simply refers to the institutions, structures, and processes that are involved in local level decision-making. Focussing on local governance is crucial because one of the main barriers to integrating local and community actors into emerging energy governance structures and policy frameworks is the limited understanding of how they work in practice. Without a clear understanding of their functioning, it becomes challenging to properly support and develop local energy governance (Parag et al., 2013). This is essential for achieving a resilient, low-carbon energy future (Fudge et al., 2016).

It is important to note that policy arrangements take on a multi-level character as they are created and developed on different levels and are mutually influential (Arts et al., 2006). However, for this thesis, not multi-level governance but local governance will be the main focus. Focussing on local governance, rather than on multi-level governance, is important because governance of change is not just a macrosocial issue. It involves individual, everyday behaviours at the local level (Hamman, 2019). Furthermore, there seems to be an urgent need to break down national energy transition goals to the local level (Dobravec et al., 2021).

2.4. Rules of the game: decision-making and policy implementation

The third dimension of the PAA is rules of the game. Rules are understood as *"the mutually agreed formal procedures and informal routines of interaction with institutions"* (Yirga et al., 2023, p. 6). The rules of the game are regulations, legislation, (formal) procedures, and institutions that are relevant to decision-making and a certain policy domain (Arts et al., 2006; Yirga et al., 2023), in this case the domain of energy transition policy. Van der Zouwen (2006) describes rules as the formal and informal ways that shape the opportunities and barriers for actors within a policy process. These rules, for instance, indicate how decisions are taken and who is allowed to participate in the policy process. With regards to policymaking and implementation, policy can in essence be seen as the employment of state power aimed at influencing the behaviour of target groups to achieve a desired situation and solve societal problems. Here, power can be understood as an individual or collective authority's capacity to shape actions and decisions within a given policy domain and is a core element of policymaking and implementation (Sager & Gofen, 2022).

In turn, actors appeal to the rules that provide them with guidelines on how to act, how actors are interrelated, and that determine who is involved and how (Arts & Tatenhove, 2004). The rules decide how politics is played, which norms are appropriate, and how policy outcomes are achieved (Hehn, 2016). These rules, or

institutional patterns and visions as referred to by Wiering and Immink (2006), can be formal but also informal in nature, as was also briefly mentioned before. Formal rules are described as procedures, legislations, laws, and regulations (Aryal et al., 2021; Barnes-Dabban et al., 2018; Wiering & Immink, 2006). Informal rules can be seen as the informal routines of interaction within the policy domain (Barnes-Dabban et al., 2018).

As explained earlier, rules indicate guidelines and actors appeal to these rules. Giddens (1984), the founder of structuration theory, emphasises that actors themselves also play a role in the maintenance and recreation of rules. The structuration theory views the rules as guidelines as well as the influence of actors on the rules in return as a circular process. Hehn (2016) specifies the influence of actors in terms of changing discourses about governance and the 'right' relationship between state, market, and civil society. This, again, emphasises the interconnectedness of the four dimensions of the PAA. In Giddens' structuration theory, rules of the game are also closely linked to resources and power dependencies. Here, resources refer to control over things and money, and the control over people (Grin et al., 2010), which will be further discussed in the next paragraph.

2.5. Resources: power

The dimension of resources within the PAA focusses on the dependencies and power dynamics among various actors involved in a policy issue (Arts et al., 2006). Resources refer to assets and tools that policy actors can mobilise to achieve desired outcomes, including knowledge, finances, technology, and mobilisation potential by social movements (Barnes-Dabban et al., 2018; Ochieng et al., 2018; Wiering & Immink, 2006). Rather than analysing the resources of a single actor, this approach emphasises the interconnectedness and dependencies of all actors around a given policy issue, highlighting how they rely on each other for critical resources such as money, information, or political support. These resource dependencies shape power relations and influence the direction and outcomes of policy processes. Understanding these dependencies is essential for comprehending the broader dynamics of environmental governance (Liefferink, 2006; Yirga et al., 2023).

Arts and Tatenhove (2004) argue that resources are inherently linked to the concept of power. On the one hand, they consider power to be the ability of actors to mobilise resources to achieve or influence outcomes within a policy domain which highlights the strong connection between resources and rules of the game. On the other hand, power is seen not as an individual's decisions and influence, but as a more structural and permanent phenomenon in social and political systems. The asymmetrical distribution of resources in society is one of those phenomena.

Existing power relations and power dependencies determine how dominant interests are reflected in policy processes and indicate the capacity of actors and institutions to influence or achieve policy outcomes (Aryal et al., 2021). At the same time, power relations of actors are also dependent on the actors' resources as some actors may depend on each other for resources like money or information. When resources, such as funding, are insufficient, actors may enter into new coalitions. This highlights the relation between the dimensions of resources and actors. In addition, connections between the dimensions of resources and discourses also exist as actors may be able to use discourses to enhance their (political) legitimacy or gain attention for their objectives (Hehn, 2016).

2.6. *Energy justice: a just energy transition*

Over the last years, energy policy has taken an ethical turn, where energy justice has been more and more included (Hartwig et al., 2023). Energy justice is a concept that understands energy systems as a phenomenon that is connected to social, political, and moral issues. The purpose of the concept is to identify and address injustices throughout the lifecycle of energy (e.g. harvesting, production, use) (Jenkins et al., 2017). Energy justice aims at providing all individuals with safe, affordable, and sustainable energy (Jenkins, 2018). It emphasises the importance of incorporating considerations of justice into the energy transition. These range from the fair distribution of costs, benefits, and risks, the recognition of the rights, interests, and values of individuals and social groups, and providing representation and access to decision-making processes (Hartwig et al., 2023). To summarise briefly, energy justice refers to the goal of achieving fairness in both the social and economic participation within the energy system. Energy-related policies should *"work to level the playing field [...], rather than simply provide for "equal" opportunities for all"* (Baker et al., 2019, p. 10).

For this research, the three-tenet approach as first proposed by McCauley et al. (2013) is followed to define the concept of energy justice. Following this approach, energy justice consists of three key components: distributional justice, procedural justice, and recognition justice. Distributional justice concerns the spatial dimensions of energy, and the (fair) distribution of benefits and disadvantages from the energy sector (Baker et al., 2019; Heffron, 2022). It refers to the fair allocation of tangible or intangible outcomes of energy-related decision-making, such as costs and benefits, responsibilities, and risks. To be more concrete, aspects such as the location of infrastructure, access to energy services, fuel poverty, and subsidies are also related to distributional justice (Hartwig et al., 2023; Lee & Byrne, 2019; Mundaca et al., 2018). Wuebben et al. (2025, p. 2) argue that intergenerational justice is also a component of distributional justice as *"the fair allocation of energy benefits and costs must be considered not only across current populations but also*

between present and future generations." Procedural justice entails the processes and elements of decision-making, the latter can be either top-down or bottom-up (Mundaca et al., 2018). Fairness, inclusivity, and transparency of the decision-making processes are included here as well as the access to information, the access to and meaningful participation in decision-making, unbiased decision-making, and the access to legal protections (Sovacool & Dworkin, 2015). In other words, procedural justice concerns recognition (which actors are acknowledged), participation (who is included in the decision-making processes), and power (how power is distributed within those processes) (Sovacool et al., 2016). The third tenet, recognition justice, includes the acknowledging and identifying of rights, vulnerabilities, and needs of social groups, especially vulnerable, local, and marginalised communities (Hartwig et al., 2023; Heffron, 2022; Lee & Byrne, 2019). Recognition justice includes calls to recognise the various perspectives that emerge from social, cultural, ethnical, racial, and gender differences. In line with this, non-Western understandings of justice should also be included in energy-related decision-making processes (McCauley et al., 2013).

Recognising these three tenets of energy justice also requires attention to the structural and institutional contexts in which decisions in the (local) energy transition are made. To understand to what extent recognition, distributional, and procedural justice are embedded within governance practices, it is necessary to analyse the policy frameworks that shape local energy transitions. Vasstrøm and Lysgård (2021) argue that the interplay between policies, technological developments, market forces, and social acceptance calls for analytical tools that can reveal how energy and society influence one another. Investigating who shapes energy transition policies, how these processes unfold, and which concerns are prioritised or neglected helps to explain the dynamics underlying energy justice. Such analysis can generate new insights that inform more just and sustainable approaches to future energy policymaking (Vasstrøm & Lysgård, 2021). In this research, the analytical tool used to study the energy policy domain is the Policy Arrangement Approach. In the next chapter, it will be explained how the research was executed.

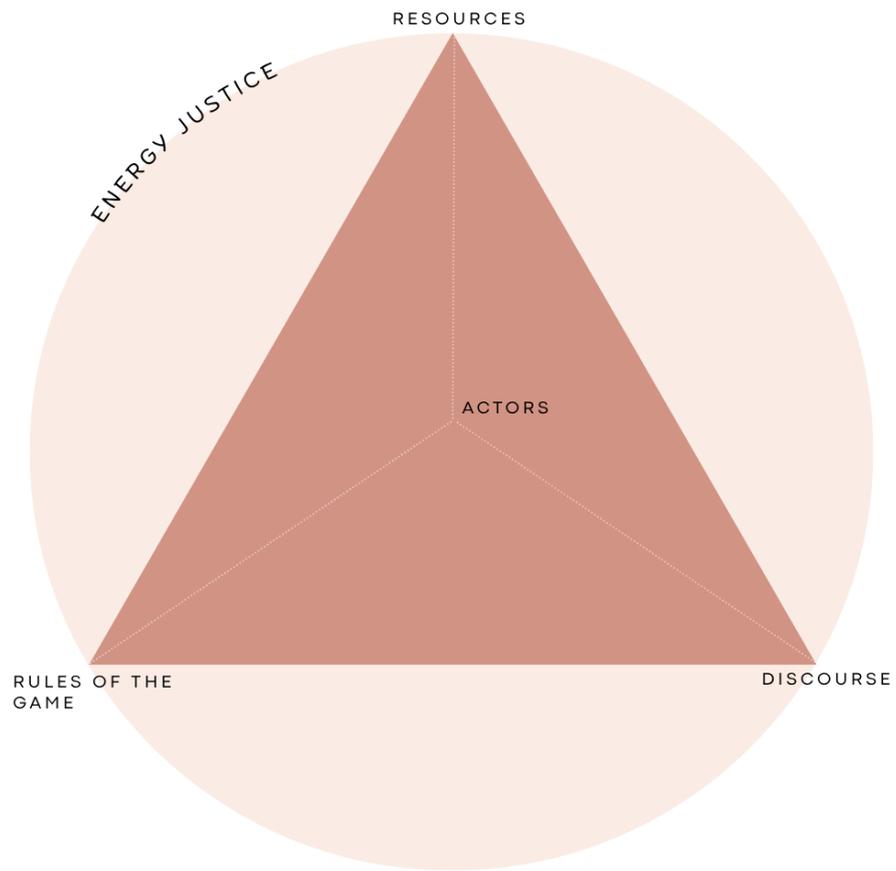


Figure 2: The PAA tetrahedron with a lens of energy justice, modified by author

3. RESEARCH METHODOLOGY

This research examines the local energy transition using two case studies. Qualitative research methods were used to identify to what extent the policy arrangements in the local energy transition in Venserpolder and Bospolder-Tussendijken are just. Qualitative research methods were deemed relevant as they are generally used to research the meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things (Lune & Berg, 2017). The methods for data collection that were used in the research can be divided into two phases: the first phase includes desk research, the second includes primary data collection through interviews. By combining the data collected through these different sources, various perspectives from different stakeholders and documents on the same issue were collected, which resulted in triangulation of the findings. Triangulation entails the use of multiple data sources to study the same phenomenon with the goal of enhancing the validity of the findings (ibid.). For example, in this research, triangulation involved the comparing of intentions stated in policy documents and stakeholder perspectives on these same intentions through interviews. This process helped to identify consistencies and inconsistencies between policies and their implementation on the local level.

3.1. *Comparative case study*

As was also described in the introduction of this thesis, this research uses a comparative case study of two urban, vulnerable neighbourhoods in the Netherlands to research the justness of their policy arrangements of the energy transition. A comparative case study allows for the comparison of these two neighbourhoods with regards to their similarities and differences (Bartlett & Vavrus, 2016) in their approaches to the energy transition. One of the two neighbourhoods researched is Venserpolder, located in Amsterdam. The second neighbourhood is Bospolder-Tussendijken (hereafter BoTu) in Rotterdam.

Venserpolder is the most north-west neighbourhood in the district of Amsterdam Southeast. The neighbourhood has approximately 8.500 inhabitants with diverse origins. Of all housing in Venserpolder, 60% is owned by housing corporations (AlleCijfers.nl, 2025). An overview of all residential buildings and their housing corporation(s) can be found in Figure 3. Venserpolder has been designated as a so-called developing neighbourhood (in Dutch: ontwikkelbuurt) due to “*socio-economic problems and opportunities for area development*” (gemeente Amsterdam, 2020c, p. 3). In 2021, the municipality of Amsterdam released the Masterplan Zuidoost (2021a) which contains plans to enhance liveability and safety in the area. With regards to the energy transition, Venserpolder is one of the Natural Gas-Free Neighbourhoods (in Dutch: Aardgasvrije Wijken) (gemeente Amsterdam,

2020c), a program initiated by the Dutch national government. Whereas the Netherlands as a whole has the ambition to be climate neutral before 2050, neighbourhoods that are part of the Aardgasvrije Wijken-program aim to be natural gas-free before 2030 (Nationaal Programma Lokale Warmtetransitie, n.d.).

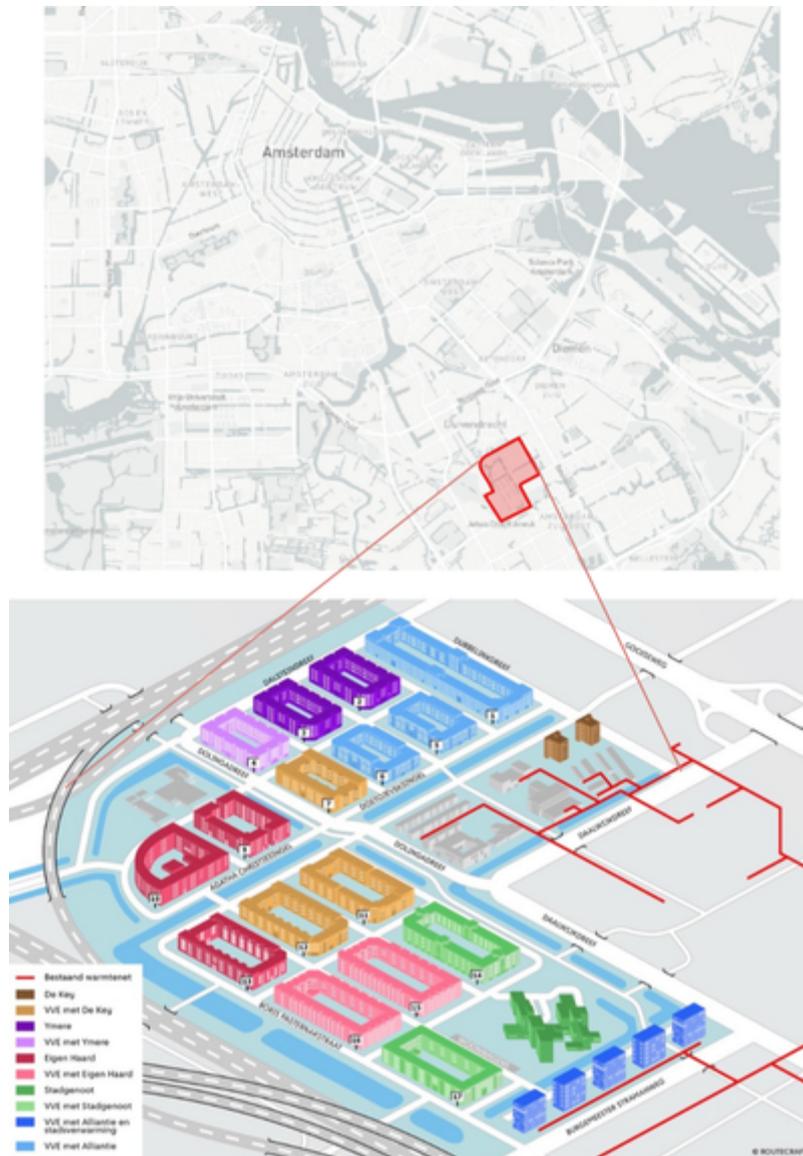


Figure 3: Map with overview of residential buildings in Venserpolder (source: municipality of Amsterdam, n.d. c)

BoTu is a neighbourhood in the west of Rotterdam with approximately 14.000 inhabitants. *“BoTu is a neighbourhood traditionally characterised by strong and close communities”*, as BoTu’s own website (n.d. c) states. Like Venserpolder, BoTu’s residents have various backgrounds and origins. The residents of the neighbourhood face many challenges such as poverty, unemployment, and debts (Bospolder-Tussendijken, n.d. c). In 2019, the program Veerkrachtig Bospolder-Tussendijken 2028 (or Resilient Bospolder-Tussendijken 2028), a pilot that is part of

Rotterdam's city-wide resilience-approach, was launched. BoTu, as stated in Resilient Rotterdam (gemeente Rotterdam, 2022b, p. 25), *"must become the first resilient district of Rotterdam in 2028, with a social index above the city average. We achieve this by using the energy transition and climate adaptation in such a way that we can use them for a socially stronger district."* Besides city-wide and neighbourhood-orientated approaches towards resilience, BoTu is also one of the Rockefeller Foundations' 100 Resilient Cities and, like Venserpolder, one of the Aardgasvrije Wijken. The municipality approaches the energy transition through an area-based approach, which has been started in five neighbourhoods, of which BoTu is one. They explain that an area-based approach links the energy transition to spatial and social issues of a neighbourhood. In BoTu, Havensteder, Eneco, and the municipality have signed an area agreement which *"marked the start of the transition to natural gas-free of approximately 1,600 homes. Implementation began in March 2021"* (Gebiedsaanpakken aardgasvrij, 2021, p. 5). The area-based approach in BoTu consists of three phases. An overview can be found in Figure 4.

3.2. Data collection methods

Primary and secondary data have been employed in this research. The data collection of the research can be divided into two phases:

1. Desk research - secondary data; and
2. Interviews - primary data collection.

The first phase of data collection involved gathering policy documents from the municipality of Amsterdam and Rotterdam. These documents were initially found by searching for terms, such as: BoTu/Venserpolder energy, energy transition, gas free, and sustainability. Moreover, additional policy documents were found through references that were made in other policy documents. For example, the Amsterdam City Deal was found as it was referenced in Transitievisie Warmte Amsterdam (gemeente Amsterdam, 2020b). Policy documents from 2016 and onwards were used for this research. This time period was chosen as policies that existed before this period were not deemed up-to-date and relevant enough. Especially as, since the Paris Climate Agreement in 2015, energy transition-related policies might have shifted significantly. An overview of the policy documents that were used for this research can be found in tables 1 and 2. Besides policy documents, the website pages of both municipalities that explain the energy transition in the context of both neighbourhoods were used as data sources. For the websites, the reading structure and the content of the pages were analysed. For the Venserpolder case study, a moderated event at Pakhuis de Zwijger was also used as a source, in addition to the policy documents. Of this event, notes were taken.

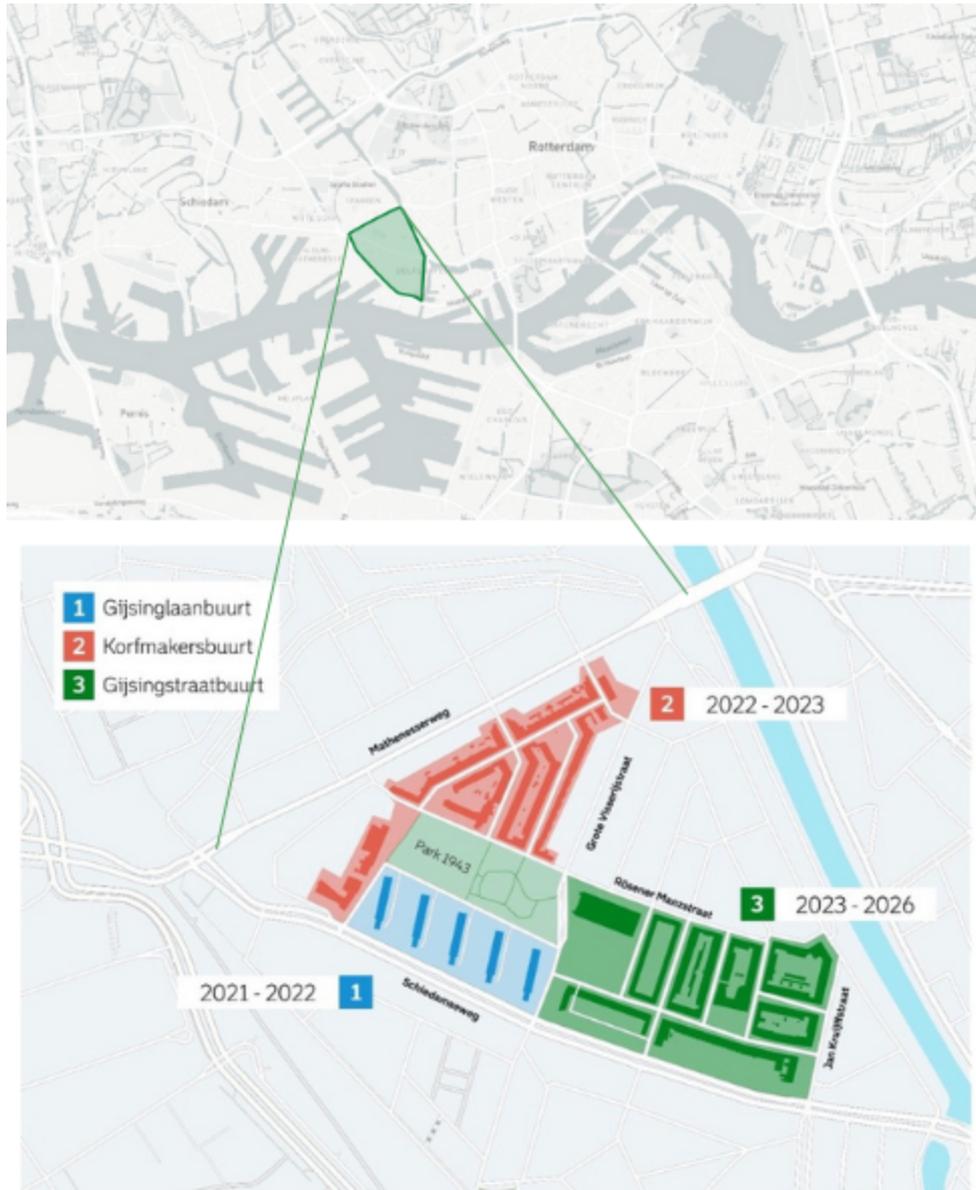


Figure 4: BoTu's area-based approach with its three phases (Bospolder-Tussendijken, n.d. a)

Table 1: Overview of policy documents used for Venserpolder

(Policy) document	Description or goal	Published in
Principenota Venserpolder: Verkenning van de kansen Stadsdeel Zuidoost	"The administrative designation as a development area, which also recognises the urgency of improving the Venserpolder, is the reason for drawing up this policy statement" (p. 3).	September 2020
Transitievisie Warmte Amsterdam	"This transition vision heat provides direction for the transition to a natural gas-free Amsterdam. Based on current knowledge, combined with the wishes of Amsterdam residents and partner organisations, we outline a route through the city" (p. 6).	September 2020

Amsterdamse City Deal "Naar een stad zonder aardgas"	"The present Amsterdam City Deal is intended to shape the collaboration, including pilot projects and research into alternatives to a fossil heat supply. We are working on a common framework with a clear 'dot on the horizon' for the long term. In the short term, the City Deal contains concrete agreements on activities and projects that we as stakeholders now want to work on together" (p. 1).	November 2016
Participatieplan Warmteprogramma	"This document is the first to elaborate on how Amsterdam can best be made natural gas-free and what the best heating solution is for each neighbourhood. The municipality believes it is important to involve residents, businesses and social organisations in the creation of the plan. We are organising a participation process for this. This document explains what this participation process looks like" (p. 3).	December 2024 (this is an updated document, the original policy document was published in July 2024)
Resultaten van online vragenlijst in Venserpolder onder woningeigenaren en huurders	"With this questionnaire we would like to hear what residents of Venserpolder think about the different options to get off natural gas. This will help us to give direction to the steps in making the neighbourhood natural gas-free."	April 2021
Visie Amsterdam Zuidoost Energieneutraal 2040	"The board of both Amsterdam and the Zuidoost district will continue to pay attention and focus on the energy transition in the coming years. The goal in Zuidoost is for the municipality to help residents and entrepreneurs with a smooth and fair energy transition" (p. 4)	2024
Isolatieoffensief: Het uitvoeringsplan 2024-2026	"Amsterdam's Isolatieoffensief ensures energy savings in the existing housing stock. [...] With this implementation plan, the board outlines how it will support homeowners up to and including 2026 to achieve this goal. Tenants and owners, landlords and homeowners' associations must then make the choice for insulation and sustainability themselves. Together, the goals for 2030 will be within reach" (p. 3).	October 2023
Nieuw Amsterdams Klimaat: Routekaart Amsterdam Klimaatneutraal 2050	"The Routekaart Amsterdam Klimaatneutraal is an ambition document with a long-term vision on the Amsterdam energy transition and short-term actions. In the Roadmap we describe the most important ingredients of our strategy to	March 2020

	jointly set in motion and keep the transition from fossil to sustainable energy in motion” (p. 5).	
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Table 2: Overview of policy documents used for BoTu

(Policy) document	Description or goal	Published in
Veerkrachtig BoTu 2028: In tien jaar naar het stedelijk sociaal gemiddelde	“In the Veerkrachtig Bospolder-Tussendijken 2028 program, we work together with residents and entrepreneurs on major improvements for Bospolder-Tussendijken (BoTu). Our goal: in ten years, BoTu will be the first resilient district of Rotterdam. This program states which tasks we will tackle, how we want to do this and where in the district. The municipality, market parties or local bottom-up initiatives cannot do this alone. Veerkrachtig BoTu 2028 is therefore primarily an open program” (p. 5).	2018
De Rotterdamse Transitievisie Warmte	The ambition [of a sustainable and green city] includes stopping the use of natural gas for heating, cooking and showering. How we intend to stop this, we describe in this Transitievisie Warmte. We do this on the basis of four parts: Why, What, When and How. We show how we will gradually make neighbourhoods, homes and other real estate natural gas-free on the way to a climate-neutral built environment in 2050” (p. 6).	2021
Meebeslissen in Bospolder-Tussendijken Een evaluatie van de Open Oproep: een experiment met participatief budgetteren in Bospolder-Tussendijken	“The focus of this research is on a specific component of democratic participation in the Bospolder-Tussendijken (BoTu) district: the Open Call. [...] In this research report we map the experiences of BoTu Council members, initiators and district professionals (district manager(s), district networkers and project leaders)” (p. 6).	January 2025
Brief aan de gemeenteraad, betreft: Gebiedsaanpak Bospolder-Tussendijken aardgasvrij,	“In May 2021, we informed you about the status of the natural gas-free area approaches. We informed you at the time that we were working towards a financial offer to private building owners in BospolderTussendijken. We have now reached the point where we can make private property owners a financial offer to switch to an alternative to natural gas, in this	June 2021

financieel aanbod aan de wijk	case district heating. We are informing you about this offer via this letter.”	
Samenwerkings-overeenkomst BoTu	In this Samenwerkingsovereenkomst we agree on how we will work together in the coming years. Together we want to make the transition to sustainable energy easier and more affordable for all residents of Bospolder Tussendijken.”	2021
City Deal Energieke wijken, duurzaam en sociaal: Opgaven vanuit Rotterdam	The Ministry of the Interior and Kingdom Relations (in Dutch: Binnenlandse Zaken en Koninkrijksrelaties, BZK in short) has taken the initiative for the City Deal Energetic Neighbourhoods, Sustainable and Social. [...] From the City Deal, BZK is looking for new opportunities to identify issues together with municipalities and housing corporations, to devise (unorthodox) solutions, to test them and, if successful, to scale up and roll them out. [...] This 2-pager contains the most important topics that Rotterdam wants to address in this City Deal.”	December 2020
Coalitieakkoord Rotterdam 2022-2026: Eén Stad	“In this agreement you will find our ambitions for a green, clean and safe city, for the construction of many affordable homes, for tackling the energy transition, for offering opportunities to all Rotterdam residents, for combating poverty and debt problems, for combating racism and discrimination in our city and much more” (p. 6).	June 2022
Rotterdams Klimaatakkoord	“The Rotterdams Klimaatakkoord is ready. The five climate tables have together drawn up 49 climate deals with concrete measures that will ensure a halving of CO2 emissions in the coming 10 years. With the climate deals, Rotterdam's objective of realising a trend break in CO2 emissions within four years is being realised: from an annual increase to a sharp decrease” (p. 6).	November 2019

The second phase of data collection involved primary data collection through semi-structured interviews, which provided insights into the four dimensions of the PAA. Interviews were also used to explore to what extent the principles of energy justice are reflected within the local policy arrangements. Potential interviewees were found through either policy documents or the official websites of both municipalities. An overview of the interviewees can be found in Table 3. All interviewees were sent a

declaration of consent (Appendix A) prior to the interview. As mentioned before, the interviews followed a semi-structure format. Prior to each interview, a list of interview questions was prepared. The core of the questions was the same for all interviewees (see Appendix B), where some alterations to the questions were made to tailor to the specific interviewee. Additions to the base questions were made for the municipalities based on findings from the policy analysis.

Not all interview questions that were prepared were asked as either the interviewee had already addressed the topic, the topic was no longer deemed relevant, or because of a lack of time. All interviews were recorded, with consent of the interviewee, and transcribed afterwards. All interviews were conducted in Dutch, when a quote from either interviews or policy documents was used, the quote was translated to English.

Table 3: Overview of interviewees

Nr.	Neighbourhood	Organisation	Function	Date
1.	Venserpolder	Municipality of Amsterdam	Area director natural gas-free districts Amsterdam (in Dutch: gebiedsregisseur aardgasvrije wijken Amsterdam)	07/05/25
2.	Venserpolder	CoForce	Energy commissioner (in Dutch: energie commissaris)	23/05/25
3.	BoTu	Municipality of Rotterdam	Employee department of urban development (in Dutch: medewerker afdeling stadsontwikkeling)	08/05/25
4.	BoTu	Municipality of Rotterdam	Program manager natural gas-free (in Dutch: programmamanager aardgasvrij)	22/05/25
5.	BoTu	VvE010	Program coordination sustainability for VvEs (in Dutch: programma coördinatie verduurzaming voor VvE's)	01/05/25
6.	BoTu	Havensteder	Program manager energy transition (in Dutch: programmamanager Energietransitie)	19/05/25

3.3. Data analysis methods

The data collected through both desk research and interviews was analysed using the Policy Arrangement Approach (PAA), as presented by Arts et al. (2006), as the guiding framework. A discourse analysis was used as a starting point to analyse policy documents and interview transcripts, and websites of both municipalities were examined through a content analysis. Discourse analysis is a research approach that analyses language and dynamics in social and political contexts (van Dijk, 2015). Content analysis is a systematic method to analyse written text and to describe (subjective) phenomena (Elo & Kyngäs, 2008). An overview of the five SRQ and their corresponding data collection and data analysis methods can be found in Table 4.

The first phase of data analysis entailed the coding of the contents of policy documents, the transcripts of the interviews, and the notes of the event at Pakhuis de Zwijger. For this, the qualitative data analysis software Atlas.ti was used. This software provides tools to code, analyse, and visualise data. The policy documents, interview transcripts and notes of the event were coded based on the four dimensions of the PAA: discourse, actors, rules of the game, and resources. Coding is generally used to apply labels to a piece of data that captures their meaning. This process allows for the researcher to identify concepts, patterns, and reoccurring themes. Therefore, it is seen as a crucial tool to transform qualitative data into a reliable theory (Bryman, 2012; Mohajan & Mohajan, 2022). An overview of all the codes can be found in Appendix C. After coding the policy documents, interview transcripts, and notes, the data was analysed to identify patterns. A lens of energy justice was used for the analysis of these patterns.

Table 4: Summary of sub-questions and methods

	Sub-question	Method	Data collected from
1.	What are the dominant policy discourses in energy transition policy in Venserpolder and in Bospolder-Tussendijken?	-Document analysis -Content analysis -Discourse analysis -Interviews	-Literature -Policy -Websites of stakeholders -Interviews
2.	Which stakeholders are currently involved in the energy transition in Venserpolder and Bospolder-Tussendijken, and to what extent do they influence decision-making processes?	-Document analysis -Content analysis -Discourse analysis -Interviews	-Literature -Policy documents -Websites of stakeholders
3.	Which formal and informal policy measures are implemented in	-Document analysis -Content analysis	-Policy documents -Interviews

	Venserpolder and Bospolder-Tussendijken in the energy transition?	-Interviews	-Event at Pakhuis de Zwijger
4.	How is information supplied in Venserpolder and in Bospolder-Tussendijken, and what are the available financing options for the local energy transition?	-Document analysis -Content analysis -Discourse analysis -Interviews	-Literature -Policy documents -Interviews
5.	To what extent is energy justice reflected in the policy arrangements in Venserpolder and Bospolder-Tussendijken?	-Discourse analysis -Interviews	-Literature -Policy documents -Interviews -Event at Pakhuis de Zwijger

3.4. Ethics

Several considerations were addressed to ensure the integrity and validity of the research. With regards to ethics, all interviews conducted were processed anonymously. Prior to the interviews, participants were asked to give consent for that data derived from the interview could be used and processed in the research. This was to ensure ethical compliance and respect for privacy.

All policy documents used for the analysis are publicly available. One presentation given by two employees of the municipality of Rotterdam was used, which is not publicly accessible. For the use of this document, permission was asked and granted.

4. RESULTS: VENSERPOLDER

The structure of this chapter is based on the context of the case and the four dimensions of the Policy Arrangement Approach. The first dimension discussed is 'discourse'. Here, an overview will be given of relevant policy documents of the municipality of Amsterdam regarding the energy transition. From these policy documents and the interviews, the strategy of the municipality to the decision-making process and implementation of the (local) energy transition will be examined. In the second dimension - actors - an overview of stakeholders involved in the energy transition in Venserpolder is given, and the governance structures in place are examined. After that, the formal and informal procedures of the decision-making process in Venserpolder are explored. In the final sub-chapter, 'Resources', the various ways of communication provision and financing of the energy transition are analysed.

4.1. Context

Venserpolder is one of 32 so-called developing neighbourhoods (in Dutch: Ontwikkelbuurten) in Amsterdam. A developing neighbourhood is a neighbourhood where the societal problems are bigger than in the rest of the city (Post et al., 2019). One of the five objectives that is related to being a developing neighbourhood is to enhance the socio-economic position of the neighbourhood and its residents. As a consequence, spatial developments in Venserpolder that will improve the socio-economic position of entrepreneurs and residents are prioritised (Principenota Venserpolder, 2020). With regards to the energy transition, Venserpolder was specifically chosen as one of the pilot neighbourhoods as it is a developing neighbourhood. Preventing energy poverty amongst residents is seen as an important starting point for the energy transition in Venserpolder (Principenota Venserpolder, 2020). Visie Amsterdam Zuidoost Energieneutraal 2040 (2024) states that there are opportunities in Amsterdam Southeast to combine goals of sustainability with poverty reduction and social improvement. To be more specific, it is mentioned that homes can be insulated, solar panels can be financed through subsidy schemes, and social cohesion can be improved.

In Venserpolder, the energy transition is executed by two departments of the municipality of Amsterdam: the department of Space and Sustainability, which implements the transition to natural gas-free (in Dutch: afdeling Ruimte en Duurzaamheid), and the department of Housing, which focusses on issues such as insulation (in Dutch: afdeling Wonen) (Interview 1).

4.1.1. Introduction of policy documents

For the case study of Venserpolder, eight policy documents and one moderated event were analysed. These documents will be described shortly. The order in which the documents will be described is based on a chronological timeline in which the documents were released to the public. A visualisation of this timeline can be seen in Figure 5.

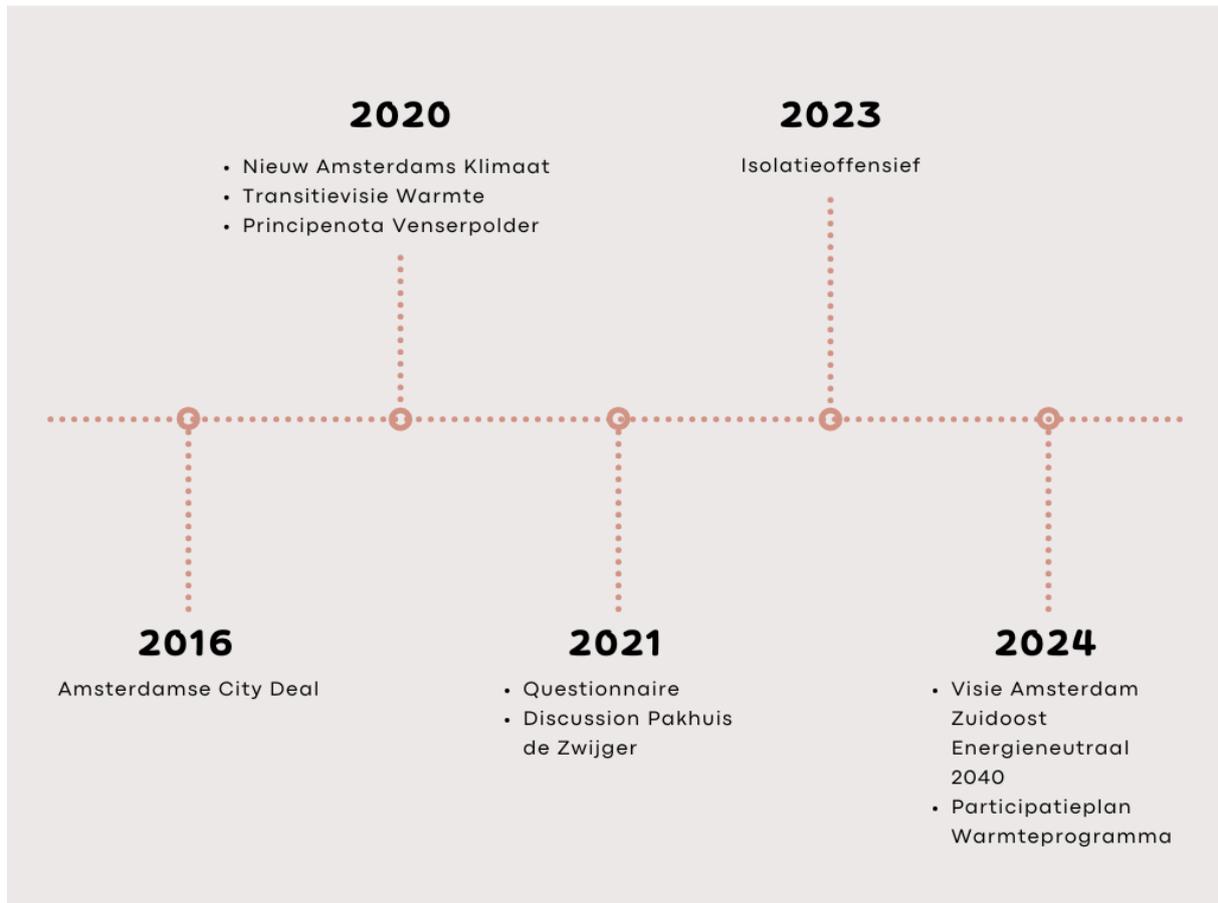


Figure 5: Timeline of Venserpolder's energy policies

In November 2016, the municipality of Amsterdam released the Amsterdamse City Deal "Towards a city without natural gas" (in Dutch: Naar een stad zonder aardgas). The document entails the city's strategy for affordable and sustainable urban heat provision and was signed by ten stakeholders, including the municipality, Liander (now Vattenfall), and housing corporations.

Nieuw Amsterdams Klimaat: Routekaart Amsterdam Klimaatneutraal 2050 was published in March 2020 and contains a long-term vision on the energy transition in Amsterdam as well as short-term actions. The document describes four transition paths: built environment, mobility, electricity, and port and industry. The transition paths are each broken down into a number of pillars, making the paths more concrete.

The Transitievisie Warmte Amsterdam (2020) elaborates on the natural gas-free heating options (district heating, local sources, All Electric, natural gas-free gas net) and planning of the transition per neighbourhood. The document also includes a transition map, a visual overview of the different sources and planning per neighbourhood.

In September 2020, Principenota Venserpolder was released. The nota can be seen as an exploration of social and physical opportunities and challenges in Venserpolder. A spatial, economic, and social analysis were done to gain a better understanding on the current situation in the neighbourhood. Ambitions for the energy transition are elaborated on in the chapter about the sustainability challenges, where also a so-called opportunity map including a visual overview of all residential buildings and opportunities for the replacing of boilers is provided.

In April 2021, the municipality published the results of a questionnaire that was distributed amongst residents of Venserpolder. The goal of the questionnaire was for the municipality to gain insights into the views and opinions of residents on the various gas-free options. 303 residents have participated in total, of which 68% fully filled out the questionnaire.

Pakhuis de Zwijger organised a moderated discussion in June 2021 during which two active residents (one is energy coach at Stichting !WOON, one chairman of a residents' collective), an employee of Stichting !WOON, and a researcher from Universiteit Utrecht were present. The program focussed primarily on the social consequences of the energy transition and how the energy transition can be made more just.

A more concrete overview of the municipality's city-wide strategy for insulating is given in *Isolatieoffensief: The execution plan 2024-2026 (2023)*. The starting point for this plan is "*unequal investment for equal opportunities*", which means that the municipality will distribute additional insulation and financial resources in neighbourhoods where residents need it the most. The document distinguishes five target audiences: residents in energy poverty, VvEs, homeowners outside of VvEs, housing corporations, and landlords.

Visie Amsterdam Zuidoost Energieneutraal 2040 (2024) is an ambition document where city-wide energy transition policies are translated and made concrete for the Amsterdam Southeast region. The Vision highlights several local initiatives that have contributed to the transition, for Venserpolder the (potential) collaboration between the municipality and the Johan Cruijff Arena is discussed. This document also contains a map, this time of the Southeast region, where an overview of different

measures (e.g. sustainable renovation, mobility hub, heat from data centres) per neighbourhood is given.

The municipality is currently working on an update of the Transitievisie Warmte. To determine how Amsterdam can become natural gas-free in the most optimal way, the municipality also finds it important to include residents, companies, and societal organisations. In Participation Plan Heat Program (in Dutch: Participatieplan Warmteprogramma) (2024) it is described when and how the municipality wants to organise this participation.

4.2. Discourse

This paragraph dives deeper into the discourse of the municipality of Amsterdam. First, definitions of the municipality of Amsterdam on key concepts related to the energy transition are provided. After that, it will be explained how the municipality of Amsterdam views and approaches the energy transition.

4.2.1. Definitions

In Roadmap Amsterdam Climate Neutral 2050 (Nieuw Amsterdams Klimaat, 2020, p.5), the municipality of Amsterdam defines the term energy transition as follows: *"The transition from a world in which we are dependent on fossil energy to a world in which we only use energy from renewable and therefore infinitely available sources. This requires a broad, social change that has an impact on our economy and on our daily lives."* The city of Amsterdam has the ambition to become natural gas-free by 2040 (Visie Amsterdam Zuidoost Energieneutraal 2040, 2024). Following the definition given by Heat Transition Vision Amsterdam (2020), natural gas-free is defined as *"not connected to the fossil fuelled natural gas. This does not always mean gasless, renewable gas can be used"* (p. 133). The municipality sees it as their *"most important task to be the director of the process to become climate neutral as a city. Without stimulation, government control, top-down regulations and firm agreements with the larger parties, we will not achieve our CO₂ targets"* (Nieuw Amsterdams Klimaat, 2020, p. 20). In addition to larger parties, the municipality's aspired facilitating role also relates to smaller parties. *"We also need the smaller initiatives and projects. As a municipality, we support the pioneers in their actions to contribute to a climate-neutral city"* (Nieuw Amsterdams Klimaat, 2020, p. 28).

4.2.2. Social energy transition

The municipality's main goal in Amsterdam Southeast is to support its residents and entrepreneurs in achieving *"a quick and just energy transition"* (Visie Amsterdam Zuidoost Energieneutraal, 2024, p. 4). However, how the municipality plans on

achieving a quick and just energy transition is not made concrete. According to the same policy, the municipality of Amsterdam bases decisions regarding the energy transition on *"housing cost-implications for homeowners and residents"* (ibid., p.12), or the so-called social energy transition. Amsterdam Southeast views itself as a pioneer in this field. *"The energy transition has been implemented in Zuidoost together with residents and stakeholders to realise a healthy, inclusive and energy-neutral city district. Residents with a small budget benefit directly from the transition through a lower energy bill"* (Visie Amsterdam Zuidoost Energieneutraal 2040, 2024, p. 16). In the Isolation Offensive (in Dutch: Isolatieoffensief), the leading principle for the municipality of Amsterdam is in line with this ambition: *"unequal investment for equal opportunities"*. More specifically, Vision Amsterdam Southeast Energy Neutral 2040 (2024) mentions three requirements for the social energy transition: 1. housing costs should not be increased for the poorest target groups; 2. local employment and the local economy should be enhanced, and; 3. (citizen) initiatives in Southeast around self-generation, insulation, and/or energy saving should be stimulated.

The affordability of the energy transition can be linked to the first requirement of the social energy transition. Here, the lowest societal costs are seen as a starting point in the energy transition and, as a result, affordability for residents is seen as a priority for the municipality of Amsterdam (Transitievisie Warmte Amsterdam, 2020; Amsterdamse City Deal, 2016). The municipality of Amsterdam even states that they think affordability is the most important as everyone should be able to participate (Transitievisie Warmte Amsterdam, 2020). When residents of Venserpolder were asked in a questionnaire sent out by the municipality, most indicated that affordability is the most important to them when transitioning to a natural gas-free home (Gemeente Amsterdam, 2021b). This was also mentioned by interviewee 1: *"we do not need to try coming with expensive heating and expensive natural gas-free options. But if we have something cheap, then I think we should be able to find the best way to have those conversations. [...] But if people can't afford the investment or if it will lead to higher bills, then that's pretty much hopeless"*. In other words, the municipality is aware that they need to offer alternative heating and energy sources for the same or lower price than residents would pay in their current situation for natural gas. This cheaper alternative heating source is currently still hypothetical (Interview 1). In relation to the second requirement for the social energy transition, the employment that is intended to be created in Southeast is demonstrated per alternative energy source in Vision Amsterdam South East Energy Neutral 2040 (2024): wind, geothermal, solar, biomass, and hydrogen, but it is not clear how and to what extent this is executed in practice. Additionally, local employment opportunities exist in the municipality's offer to homeowners' associations (hereafter: VvEs) involving research and advice on how to make their building more sustainable. Currently, the Rotterdam-based architecture firm Synopel is hired to do this and thus this employment opportunity has not been utilised. The municipality's

offer for free research and advice for VvEs also relates to the third requirement for the social energy transition. The costs made are covered by the municipality, with the idea of making it more attractive for VvEs to look into more sustainable options. While 75% of residential buildings in Venserpolder are part of a VvE, the municipality does not seem to actively accommodate individual residents financially. Though there are several subsidy options (see Chapter 4.5.2) for individual residents to make their house more sustainable. It is, however, not clear how and by whom these subsidies are utilised. The free research and advice for VvEs have been made available only for the developing neighbourhoods, so this can also be partly related to the first requirement.

Besides a quick and just energy transition, the municipality also wants to help residents and entrepreneurs with a smooth and fair energy transition (Visie Amsterdam Zuidoost Energieneutraal 2040, 2024). A fair energy transition, they argue, is made up of three elements: *"a fair distribution of benefits and burdens, open access to the decision-making process, and fair opportunities in a changing labour market"* (Nieuw Amsterdams Klimaat, 2020, p. 166). Nevertheless, how the municipality plans on achieving these three elements remains unclear. In relation to a fair energy transition, in the Amsterdamse City Deal (2016) the municipality aims at ensuring that citizens and companies will feel heard and seen. However, how and to what extent this will be done is not explained.

In sum, the municipality of Amsterdam focusses on a just or social energy transition where affordability, collaboration, and a facilitating role are highlighted. To what extent the starting points of a just or social energy transition, which include implementing the transition *"together with residents and stakeholders"*, are carried out in practice is not fully clear.

4.2.3. Integral approach

The municipality of Amsterdam sees the energy transition as an opportunity to approach challenges integrally (Visie Amsterdam Zuidoost Energieneutraal 2040, 2024). As Venserpolder has been appointed as one of the developing neighbourhoods, it is argued by the municipality that an integral approach is needed with regards to physical and socio-economic aspects. How the municipality proposes to integrate these aspects is not further explained in the policy documents. They only explain that *"an integral plan is needed that not only strengthens the socio-economic situation of the Venserpolder and its residents, but also improves the infrastructure, public space, living environment, housing (differentiation and sustainability), and the level of amenities"* (Principenota Venserpolder, 2020). In line with this, interviewee 1 proposes a different starting point for the energy transition in Venserpolder, listening to wishes of local residents. For example, if residents want

to prioritise healthy food in the neighbourhood that is locally produced, *“that could work fine, you won't be natural gas free by a long shot, but then you might have a start and a basis to continue working from.”*

The municipality of Amsterdam follows the ‘Making Neighbourhoods Gas Free’ approach (in Dutch: Wijken Aardgasvrij Maken). This approach entails a process consisting of several phases - from exploration to realisation - in which municipalities work together with stakeholders, such as housing corporations, grid operator(s), residents, and VvEs to come to a collective heating solution for the neighbourhood (Transitievisie Warmte Amsterdam, 2020). In Venserpolder, this approach was also initially followed alongside broader development efforts conform to the municipality’s approach of developing neighbourhoods. But after informing and consulting local residents, the municipality realised that many apartment complexes in Venserpolder had been recently renovated. Therefore, plans to transition to natural gas-free on the short term *“quickly turned out not to be a super good idea. So we tried a bit with that, but it just didn't work out well. That was just not smart of us. [...] So, what we did then was to move the approach of the Housing department forward to help the VvEs, and we moved the natural gas-free department to the back. Also because the next logical replacement moment for natural gas-free is actually around 2030”* (Interview 1). As a result, a more non-binding approach is now followed towards the VvEs in Venserpolder where the municipality of Amsterdam currently takes on a facilitating role in making apartment complexes in Venserpolder more sustainable. VvEs can either approach the municipality themselves or via Stichting !WOON (Interview 1). This facilitating, or supporting, role that the municipality takes on towards VvEs is also reflected in Amsterdams Nieuw Klimaat (2020). In this policy, the municipality of Amsterdam describes four different roles that the municipality takes on: the performing, regulating, collaborative and supportive municipality. *“In the role of the supporting municipality, we assume the self-regulating and organising capacity of residents, VvEs, companies and institutions. The municipality supports where possible with knowledge, expertise and resources”* (Amsterdams Nieuw Klimaat, 2020, p. 25). Resources can, for instance, be understood as financial means to accommodate residents and VvEs in the energy transition. The financial help that has been made available for VvEs who want to make their building more sustainable is in line with the municipality’s aspired supporting role. To what extent individual residents and companies are supported by the municipality remains unclear.

4.2.4. Participation

With regards to participation, the municipality of Amsterdam makes a distinction between professional and societal actors, referred to as stakeholder participation, and residents, referred to as resident participation (Participatieplan

Warmteprogramma, 2024). The participation of residents will vary per neighbourhood, as it is dependent on the desired involvement of residents (Transitievisie Warmte Amsterdam, 2020) and on the phase of the transition (Participatieplan Warmteprogramma, 2024). Policy states that city districts will support the neighbourhoods in reaching residents and spreading awareness (Transitievisie Warmte Amsterdam, 2020). How and to what extent this is done between the district of Amsterdam Southeast and Venserpolder is not fully clear.

In Venserpolder, an area-based team (in Dutch: gebiedsteam) and plan team are established to increase the number of residents involved. Additionally, they help enabling residents to actually influence the plans of the municipality (Principenota Venserpolder, 2020). In practice, it is unclear whether the area-based and plan team are present in the neighbourhood. Moreover, it appears to be a challenge to reach and involve resident. As stated by an employee of the municipality: *"Look, if I reason from my own point of view, I know almost no one who lives in Venserpolder. And so, you have to go look that up. And then you have 3.000 homes. Who do you have to talk to? That's a lot. And then I ask colleagues from the district, for example, how does it work here? Others will do that too. And so you soon find yourself talking to colleagues or with housing corporations from that network."* From this, it becomes clear that, even though policy ambitions exist to increase resident participation and influence, there exists a challenge in translating these ambitions to practice.

In sum, the municipality of Amsterdam refers to a social energy transition where, in their policy documents, they argue to take on a facilitating role. However, in practice, specifically on the local scale in Venserpolder, these ambitions are not fully met as it seems as if the municipality places responsibility for the (social) energy transition in the hands of VvEs and residents.

4.2.5. Dominant policy discourses

The policies of the municipality of Amsterdam aim for a just and social energy transition, where the energy transition is seen as a process that must be affordable and inclusive for all residents. Here, an affordability discourse can be identified. Furthermore, the municipality sees the energy transition as leverage for addressing broader socio-economic and spatial inequalities. This includes poverty, unemployment, and housing quality. The municipality positions itself as a facilitator by providing knowledge and (financial) resources to, for example, VvEs. Here, the municipality does not act as an initiator for action, but solely as a facilitator. While the city-wide municipality provides guidelines and requirements, for example through tenders, the city-wide ambitions are not (sufficiently) translated into clear, actionable plans on the neighbourhood scale. This is highlighted by both the prioritisation of the approach of the Housing department above the Natural gas-free department, as

well as the lack of implementation of the proposed participation measures in Venserpolder. Rather than asking how residents want to participate, the municipality has determined when, how, and to what extent residents can be involved. This gap between policy and practice highlights a top-down governance and social washing discourse where policy ambitions state the prioritisation of the involvement of local stakeholders in the energy transition, yet this prioritisation is not fully carried out in practice.

4.3. Actors

In this sub-chapter, the various actors involved in the energy transition in Venserpolder are examined based on the power-influence matrix. The latter is a tool for stakeholder mapping, originally developed by Freeman in 1984. It evaluates stakeholders based on their level of interest in a project and their power to influence it (Palm et al., 2024, see Figure 6). For this research, the power-interest matrix was understood in the context of the execution of energy transition-related measures, being either insulation or the use of alternative heating sources. This sub-chapter also includes a description of the governance structures that are present.

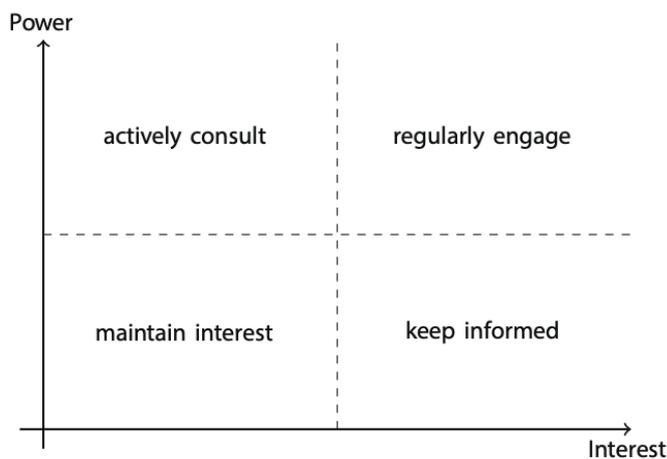


Figure 6: power-interest matrix as first presented by Freeman (1984)

4.3.1. High power, high interest

The municipality's department of Space and Sustainability (referred to as municipality of Amsterdam - aardgasvrij in Figure 7) holds significant decision-making authority over the local energy transition in Venserpolder. It coordinates the transition, facilitates interactions between stakeholders, determines priorities, and allocates resources such as subsidies. Its interest is high as municipalities are obliged to reach climate and energy transition goals that have been set by the national government. For the municipality of Amsterdam, the reaching of these goals is carried out by multiple departments, all having different responsibilities. This is

highlighted by interviewee 1: *"I only work on natural gas-free. And not even on insulation. I also don't work on solar panels or charging stations. That all has to do with the energy transition, but it's not part of my portfolio."* The goals for natural gas free fall under the authority of the department of Space and Sustainability.

The other stakeholder that has been placed in the high power and high interest is Vattenfall, the current energy supplier in Amsterdam. As the main heat provider, Vattenfall has high influence over the technical and financial feasibility of the local energy transition. The company has high interest because of its economic dependence on the success of the energy transition. Vattenfall has the ambition of achieving net zero CO₂ emissions by 2040 (Vattenfall, n.d.).

4.3.2. High power, low interest

As the owner and manager of the electricity and gas networks in Amsterdam Southeast (Liander, n.d.), Liander has significant technical and infrastructural power over the energy system. They, for instance, control the grid capacity. Currently, the grid capacity is not sufficient (RVO, 2025b) and is therefore one of the limiting factors of transitioning to renewable energy sources. However, as Liander operates on a regional scale, its interest in projects on the neighbourhood level is limited. While Liander's involvement in the energy transition is crucial for its feasibility, their involvement is more supportive in nature.

4.3.3. Low power, low interest

The municipality's housing department (in Dutch: Afdeling Wonen) influences housing maintenance, specifically of VvEs, and development but is not the leading actor in the local energy transition in Venserpolder. Therefore, it is deemed they have relatively little power. Its interests focus more on housing quality than energy transition policy. Similar to the housing department, VvEs have limited interest. They often face financial or organisational barriers (Interview 1), leading to low interest and limited capacity to transition to alternative energy sources. As VvEs have been involved by the municipality after energy transition policy was made, it is shown that they have little power in the decision-making process.

4.3.4. Low power, high interest

Several stakeholders are placed in this quadrant of the power-interest matrix: residents, housing corporations, Stichting !WOON, energy cooperatives, and CoForce. Residents are directly affected by the energy transition, for example as they need to make alterations to their homes to install the physical infrastructure for an alternative energy source (e.g. solar panels). However, ambitions for the (local)

energy transition are decided on in a top-down manner by the municipality, hence residents currently have little decision-making power over energy transition policy. Stichting !WOON is viewed to have slightly more direct, advisory power in the decision-making process. This is highlighted by interviewee 1 when elaborating on the municipality's current approach to the energy transition, where the focus has been put on making VvE buildings more sustainable: *"It was precisely because of that information about all the recent investments that made it seem less opportune to continue with the natural gas-free transition. And that information came from the people who live there, at those meetings. And it also came from Stichting !WOON, which had also made an inventory of it."*

Housing corporations present in Venserpolder are De Key, Ymere, Eigen Haard, Stadgenoot and Alliantie (see Figure 3 to see how the housing corporations are distributed in the residential buildings in Venserpolder). They manage a large share of social housing in Venserpolder and thus have high (operational) involvement, for instance to renovate their housing stock so that the buildings are natural gas-free ready. Nevertheless, they have little formal power when compared to the municipality. Their role is mainly to implement energy transition measures and to coordinate the transition within the frameworks that have been set by the municipality.

Venserpolder's energy cooperative was placed in this quadrant as they are community-driven and have high interest in alternative energy sources, but they currently do not yet have a place at the table (Interview 2, more on this in the next chapter). They lack institutional power and access to large-scale resources, as the cooperative in Venserpolder is still in an early stage. Like the local energy cooperative, CoForce's interest is high due to its local involvement. CoForce was established by residents, businesses, and the municipality with the intention to *"ensure that developments in the energy transition were, well, helped, stimulated, and facilitated"* (Interview 2). Yet, their power over the decision-making processes remains limited as the organisation has not received structural financing.

4.3.5. Governance structure

In Venserpolder, power is concentrated mostly in the hands of large institutional actors, while the interest in the local energy transition is highest among local and social stakeholders, such as the energy cooperative and Stichting !WOON. This imbalance highlights the challenge of creating an energy transition that is just. Currently, policymaking remains top-down while local actors with much interest in the transition lack influence in the decision-making process and mostly have a supportive role in the energy transition.

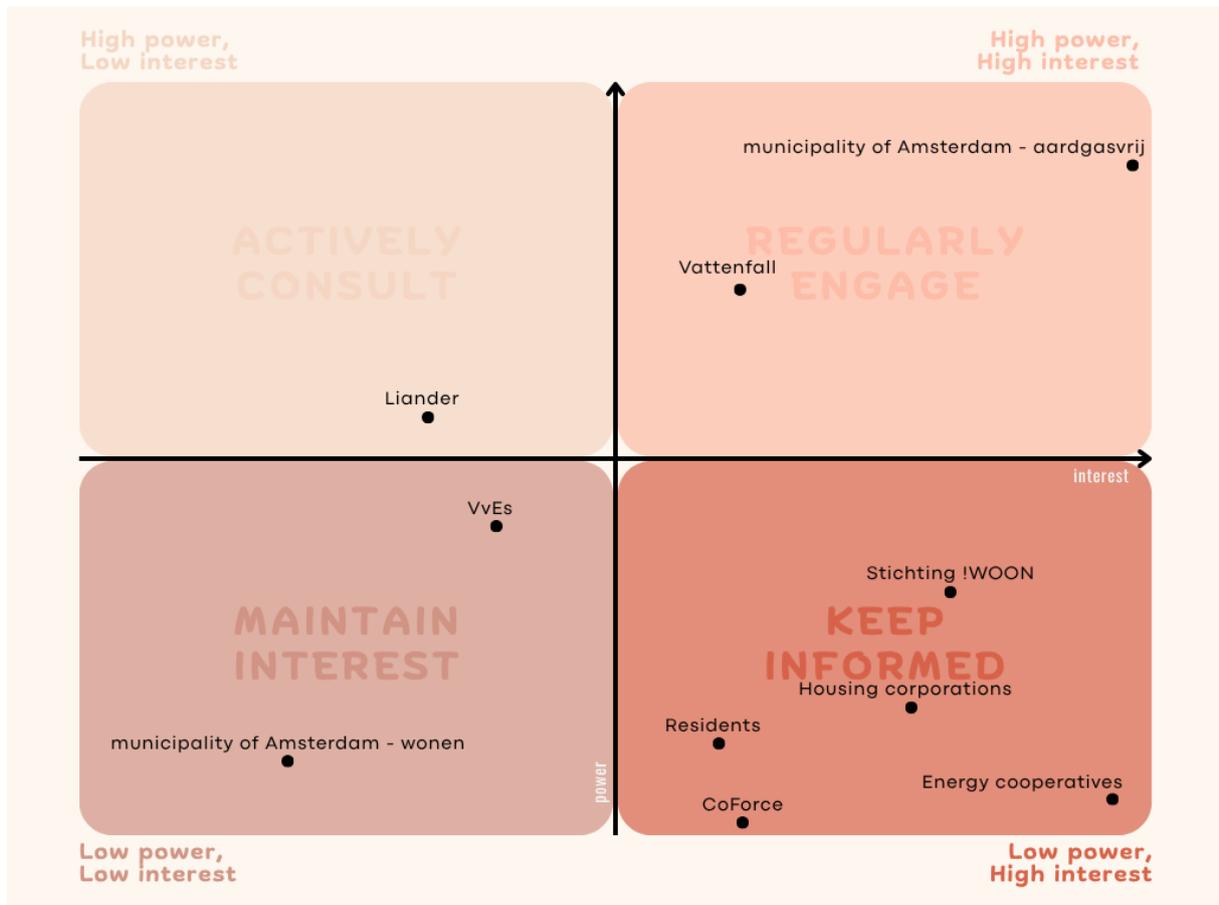


Figure 7: power-interest matrix for stakeholders in Venserpolder

4.4. Rules of the game

The structure of this chapter is based on the understanding of rules of the game as the formal and informal procedures that are relevant to decision-making and policymaking in the energy transition policy domain (Arts et al., 2006; Yirga et al., 2023). First, formal procedures are discussed. Here, relevant legislation and the organisation of the decision-making process between different governmental levels is highlighted. The informal procedures, the second part of this chapter, captures informal rules and norms of the municipality of Amsterdam and stakeholders on the local and city-wide level.

4.4.1. Formal procedures

The municipality sees itself as the director of the energy transition in which they stimulate, control and regulate in a top-down manner (Nieuw Amsterdams Klimaat, 2020). At the same time, they aspire to facilitate the smaller initiatives and projects (ibid.). Where the municipality sees the top-down regulation as a facilitation for the city to reach its CO₂ reduction targets, a resident notes: *"I see a huge gap, for me it is really top-down between what you want to achieve, who you want to do it for, and*

the buildings. I feel that it is not just about the bricks, but people live there too. That takes time, attention and passion. And that is what I miss, in the whole transition" (Pakhuis de Zwijger, 2021). In Venserpolder, the municipality informs its residents on plans and developments by sending them letters. The municipality recently invited all residents of Venserpolder by letter to a gathering about plans for the energy transition. Interviewee 2 mentioned that of all the people the municipality invited for the gathering, which accounts for 3.000 to 4.000 letters sent, only approximately 60-80 people showed up. *"So that does give a bit of an idea of what kind of barrier there is. And what kind of things people have to overcome to go there."* With regards to the inclusion of residents in research and projects, the municipality appears to be hesitant. According to Interview 2, the municipality told LIFE researchers that they *"shouldn't burden residents too much, because they should really start working on making those buildings more sustainable. And they need all the time they can get for that, so that was essentially their approach. It was also a kind of an appeal: please don't interfere too much"* (Interview 2).

The municipality of Amsterdam sees *"careful and transparent information provision"* as one of the eight guiding principles for its energy transition (Transitievisie Warmte Amsterdam, 2020, p. 19). In Nieuw Amsterdams Klimaat (2020), it is seen as essential that the municipality's approach to communication enables the municipality to *"explain to residents why a particular technology is preferred in the neighbourhood in question"* (p. 64). In a discussion in Pakhuis de Zwijger, however, a resident mentions that she thinks it is unclear how decisions have been made, for example how alternative energy sources per neighbourhood in the Transitievisie were chosen. In the same discussion, it became clear that the municipality makes the decision on which alternative energy source is chosen but, according to two local residents, *"residents had no say in this. [...] Social tenants have no freedom of choice, absolutely not."* As energy providers, such as Vattenfall, hold a monopoly over energy and heat supply, their underlying motives are often subject to debate. One resident said the following: *"they are all scammers. They only want new customers and don't provide honest information"* (Pakhuis de Zwijger, 2021). Furthermore, Amsterdam residents have indicated that they want the municipality to be honest about the sustainability of a heating grid (Transitievisie Warmte Amsterdam, 2020). It is not clear how and to what extent this is and has been done by the municipality.

In the Amsterdam City Deal, the municipality of Amsterdam provides a more detailed planning where it is explained how and when Venserpolder is transitioning and which alternative heating sources are chosen (Principenota Venserpolder, 2020). In practice, however, *"natural gas-free is still somewhat looser at the moment. But that will soon become much less voluntary. In fact, it will become mandatory."* The employee of the municipality (Interview 1) here refers to the new Law and Decree on Municipal Heat Transition Instruments (in Dutch: Wet Gemeentelijke

Instrumenten Warmtetransitie, Wgiw in short). This law, which will be in full effect on January 1st, 2026, gives municipalities the power and ability to designate areas that will shift to alternative energy sources by a certain date (VNG, 2025). This new law gives the municipality the authority to turn off the gas tap in certain areas (Interview 1). The new law demonstrates the interaction between the national and municipal governments. Furthermore, it also raises the question: what can residents do to no longer be dependent on natural gas and transition to alternative energy sources, before the municipality turns off the gas tap in their area? Results show that residents can either urge their VvE to make their building more sustainable and make the building ready to transition to natural gas free, or they can (individually) apply for a subsidy, or they can start or join an energy cooperative. Before going into these three different options, it is first important to understand how affordability of the energy transition can be achieved and to understand how an energy bill looks like. An energy bill is made up of different elements. One of which is a fixed fee (in Dutch: vastrecht), the amount a user pays for gas and electricity regardless of the user's energy use (Pure Energie, 2024). Another element is the tariff that is decided on by the Autoriteit Consument & Markt (ACM, 2024). On a yearly basis, the ACM calculates what the maximum tariff is that energy suppliers can ask for the supplied heat. The maximum tariff decided on by ACM and the fixed fee are relevant because these supply the 'skeleton' for affordability of the energy transition. What is meant by the skeleton can be illustrated by the aspired transition from gas to district heating in certain areas of the municipality of Amsterdam (one of which is Southeast). In negotiations between the municipality, housing corporations, and energy suppliers, housing corporations promised their renters that they would be paying the same (or less) with district heating as they pay with gas. However, Vattenfall, supplier of district heating in Amsterdam, increased the fixed costs for a connection to district heating by 30%, resulting in a bill that is € 200,- higher per year. As a result, a journalist from newspaper Het Parool has found that further negotiations and the transition to district heating have been put to a halt in Southeast (Van Zoelen, 2024). To summarise, for the energy transition to be successful, the skeleton for affordability needs to be stable and in balance. If one aspect of the skeleton is altered, the rest of the skeleton, and thus affordability and success of the transition, will also fail and collapse.

On the one hand affordability of the energy transition is dependent on the tariffs that are set by ACM and Vattenfall. On the other hand, individual residents and VvEs can apply for subsidies related to sustainability and energy transition measures in their homes. For this, the municipality aims at fulfilling a facilitating role (Amsterdams Nieuw Klimaat, 2020), which is somewhat reflected in reality. The municipality has sent letters to all VvEs in Venserpolder to inform them about the possibilities to make their building(s) more sustainable and budget has also been made available for this. However, it can be argued that the municipality can take extra, more

accommodating steps towards VvEs and residents. As a CoForce energy commissioner reflected: *"people are actually, I think, not taken by the hand enough. [...] If you are going to do a certain action in the neighbourhood, then there is not enough thought given to what the next step should be"* (Interview 2). CoForce is an organisation who, amongst other things, helped residents with applying for such subsidies. But due to a personal conflict between one of CoForce's board members and an employee of the municipality of Amsterdam, CoForce no longer receives structural funding from the municipality. This has resulted in CoForce no longer being active (Interview 2). So, in their role as the supporting and facilitating municipality, the municipality assumes that VvEs and residents will fulfil a self-organising role (Amsterdams Nieuw Klimaat, 2020), but they do not seem to provide proper support for VvEs and residents to self-organise and self-regulate.

Another way for residents to self-organise and self-regulate, and at the same time transition to natural gas-free, is by either starting or joining an energy cooperative. An energy cooperative is a voluntarily citizen-led, democratically governed organisation in which members together own and manage local renewable energy projects. Generally, the goal of such cooperatives is to promote community participation in energy production, savings, and trade, with financial and social benefits flowing back to the local community (Wagemans et al., 2019). In Venserpolder, the idea of an energy cooperative originates from research project LIFE - a project executed in Venserpolder by AMS Institute, TU Delft, and later also CoForce. In the last 2.5 years of the project, conversations and gatherings with and for local residents were organised by researchers from TU Delft and CoForce in which residents were informed about the possibilities of an energy cooperative. An energy commissioner of CoForce (Interview 2) explains that the two organisations provided three main pillars for the energy cooperative: making the neighbourhood more sustainable, enhancing social cohesion, and decreasing energy poverty. In Visie Amsterdam Zuidoost Energieneutraal 2040 (2024), the municipality states that it wants to support energy cooperatives, where emphasis is put on some form of monitoring and gaining insights into the energy use per household. In Nieuw Amsterdams Klimaat (2020), the municipality elaborates on their ambition to create a platform for residents to help them start with the generation of solar energy. However, it seems that the energy cooperative in Venserpolder is currently only part of the municipality's network of neighbourhood organisations and citizen initiatives with which they collaborate (Interview 1). Though, it did not become fully clear what this collaboration currently entails. The energy commissioner of CoForce highlights that for Venserpolder it is important to first become an energy cooperative, *"because if you are not a cooperative, then you actually have no place at the table."* To demonstrate, the commissioner talks about the possibility for a cooperative to store and exchange energy, for example with the Johan Cruijff Arena. *"But of course, an Arena isn't going to talk to three residents who come in with a cotton bag and say,*

"Oh, we think that's a good idea." They naturally want to sit down with a cooperative. It's a tough world, so to speak."

To summarise, in 2026 the municipality will have the ability to turn off the gas tap in certain areas. This will give extra urgency to residents to think about how they can transition to natural gas-free. From policy it becomes clear that affordability of the transition is very important. Subsidies can be acquired for this, but in reality this seems to be a challenge due to the complexity of subsidy applications and the lack of facilitation by the municipality. Residents can also join an energy cooperative, but it appears that the cooperative in Venserpolder is still in a very early stage and, as a result, is not taken seriously yet and does not yet have a seat at the table. In addition, even though residents are informed, they are not included in the decision-making process.

4.4.2. Informal procedures

In connection to the inclusion of residents in research and projects, several informal procedures have been identified. First, informal practice rules that limit participation early on in the process can be distinguished. According to Interview 2, the municipality prioritises the unburdening of residents. This is confirmed by Interviewee 1, who states that the municipality sees the energy transition and their current propositions for the future transition to be too complex for residents. The municipality first wants to have a clear story they can tell residents, before they seek contact with residents. Additionally, results show that the municipality first wants their policy ambitions to be clear before they seek contact with residents (Interview 1). An example of this is the municipality's ambition for Venserpolder to become natural gas free between 2020 and 2030, which is stated in the Transitievisie Warmte. Only after this ambition was stated, the municipality informed local residents on these plans, after which it became clear that the next logical moment for the energy transition in Venserpolder is after 2030. These practical circumstances have led to an informal hierarchy of approaches to the energy transition, where the Aanpak Wonen now has been prioritised over Aanpak Aardgasvrij.

Within the municipality, a distinction can be made between city-wide and local level which highlights an informal hierarchy of interests. In Amsterdam, *"the policy of the central city does carry more weight [than the policy of the district], when it comes to budgets and other matters"* (Interview 1). Furthermore, how city-wide policy will be executed on the local level in Venserpolder seems to be unclear. For instance, the municipality of Amsterdam does not yet have a clear vision on how the participation of stakeholders will be organised on the neighbourhood level. *"How that will work, I honestly don't know. So if we now have come up with the idea of, well, these seem to be the best options for Venserpolder. How we will then discuss that with the district, I*

don't really know yet. [...] Because, I just don't really know yet how we are going to make that Warmteprogramma specific for a district like Venserpolder. I do think it is good if we make the right connections there. And we will certainly do that when it comes to implementation. But how that will end up in the policy, so in the new Warmteprogramma, we honestly don't know that yet." This, again, highlights the informal hierarchy of interests but also the informal norms for participation, where policymaking (on the city level) appears to be the guiding principle for the municipality and not the circumstances and participation on the local level.

4.5. Resources

This chapter will discuss both the information supply and available financing options that are provided by the municipality of Amsterdam. Primarily the website of the municipality of Amsterdam will be analysed in the first sub-chapter. The sub-chapter on financing options includes an overview of national and local subsidies that can be acquired by individuals and VvEs to (prepare for) the transition to alternative energy sources.

4.5.1. Information

On the website page 'De Venserpolder aardgasvrij' of the municipality of Amsterdam (n.d. c), information is provided about what gas-free entails and it is mentioned that solely insulation of buildings is not sufficient. A map of Venserpolder is provided where the placement of the current heating grid is indicated. However, what a heating grid is is not explained. Furthermore, three target groups are mentioned: homeowners, renters, and VvEs. For the first group it is stated that people who do not live in an apartment and are homeowner, are responsible for renovations and for making their home sustainable themselves. An overview of what homeowners can do for renovations and sustainability measures, for example possible subsidies, is not provided. For renters, the website mentions that, while renters are dependent on their landlord for the gas-free transition, they can install small energy saving measures themselves. Here, renters are referred to Stichting !WOON's energy coaches. Thirdly, the website describes that in 2022 VvEs have been offered the opportunity to conduct research into potential improvements in their building. *"The results of the studies will be shared with all VvE members in the Venserpolder in 2024. An invitation will be sent for this."* It is unclear whether this has been done as the results are not referenced on the website nor did the employee of the municipality mention it. If VvEs want more information about the municipality's support for VvEs, they can get in contact with the municipality. An email address is provided here.

Additionally, the website explains that, as the central heating boilers and flue gas ducts in many apartment complexes in Venserpolder have recently been replaced, transitioning to natural gas-free in the short term is not logical. The municipality aims to have a “*clear alternative*” before 2030, which is when the central heating boilers and flue gas ducts will need to be replaced again. Nevertheless, on the website itself it is unclear to what alternative is referred to as it could be about the replacement of heating boilers and flue ducts, the planning for the replacement, or the transition to natural gas-free. In the municipality’s Transitievisie the alternative is a heating grid, but this is not mentioned on the website. Lastly, an email address and phone number are provided for people who have questions or comments about the gas-free transition.

In *Isolatieoffensief*, ‘Communication’ is seen as one of the eight themes of the program. *“For the success of the Isolatieoffensief, it is important that all Amsterdammers and homeowners know where to find the municipality for support in home improvement, sustainability and energy saving and have a perspective for action. The municipality continues to improve the information supply and makes all existing local and national products, services, subsidies and support accessible”* (p. 27). With regards to the accessibility of the information supply, several things can be noted. First, the website does not have a dictation function for visually impaired people. Secondly, for people who do not possess sufficient knowledge of the Dutch language the website is also not accessible. There is an option for an ‘English site’, but when clicking on this button the website visitor is redirected to the home page and the website page initially visited is not translated. Furthermore, in the discussion at Pakhuis de Zwijger (2021) it also became clear that the residents present did not feel that they have enough information at their disposal with which they can make a fully informed decision about changing their energy supply to an alternative source. Hence, it is questionable whether the ambition of the municipality for sufficient and accessible information supply is met. With regards to the goal of accessible subsidies, a resident notes: *“my subsidy got stuck in a system that I think is bad and therefore has failed”* (Pakhuis de Zwijger, 2021).

4.5.2. Financing

The energy transition can be executed in multiple ways: insulating, reducing energy poverty, developing (infrastructure for) alternative energy sources, reducing energy (household) use. The Dutch national government has reserved money for municipalities so that they can execute the energy transition in these multiple ways. These financing options can be divided into different categories: built environment, mobility, electricity, industry, and agriculture (VNG, 2023). For this thesis, only the categories on the built environment and electricity were deemed relevant.

In the category of the built environment, nineteen financial arrangements are available, of which twelve can be used for residential areas and buildings. The Dutch national government has money, over € 470 million in total in 2025, reserved to reduce energy poverty through the Specifieke Uitkering (SPUK) Lokale Aanpak Isolatie. This subsidy can be applied for by municipalities, *“it is up to the municipality itself to determine an approach or set up a project to make poorly insulated homes more sustainable”* (RVO, 2025a). The financial measures that are included in SPUK are, on the one hand, designated for energy saving measures in rental and owner-occupied homes, and on the other hand, for homeowners with low incomes. Furthermore, several subsidies for making residential buildings more sustainable are available. These subsidies are either meant for homeowners, housing associations, housing cooperations, or private landlords. In Amsterdam, companies, societal institutions, energy cooperatives, and resident groups can make use of a loan with 3-3,5% interest from the Duurzaamheidsfonds. Individual residents and VvEs cannot acquire this loan (Gemeente Amsterdam, n.d. a). For an energy cooperative to apply for a subsidy, however, *“you actually have to be a cooperative first. So, you have to incur the notary fees first, just to keep things nice and complicated. So, say, € 1.250 has to be advanced, paid by the district, or paid in some other way, which can then be reclaimed later. Anyway, those are things that do complicate things”* (Interview 2).

“An important starting point for the municipality [of Amsterdam] is to make the transition to new heating options together with the residents. The municipality supports initiatives of residents' groups, provides subsidies to people who want to make their own homes natural gas-free, and informs residents at an early stage when a search for new options is started in a neighbourhood” (Amsterdam Zuidoost Energieneutraal 2040, 2024, p. 7). To do this, the municipality of Amsterdam has reserved € 859,5 million in 2025 for *“building, living, and sustainability”*. They also state that, from 2025 onwards, yearly € 15 million will be made available for the energy transition. This includes *“the design of public space, issuing permits, organising participation with neighbourhoods and supervising implementation on the street”* (Gemeente Amsterdam, 2024b).

The municipality of Amsterdam also has a total of € 151 million reserved for the policy program Isolatieoffensief (2024). This policy is focussed on energy reduction in the existing housing stock. The leading principle of the Isolatieoffensief policy is: *“Unequal investment for equal opportunities”*. Following this principle, of the € 151 million, € 85 million is specifically reserved for so-called priority neighbourhoods: Zuidoost, Nieuw-West, and Noord. € 50 million of this budget for priority neighbourhoods is designated for the installing of small energy reduction measures, such as radiator foil, as well as for subsidies for bigger insulation measures, such as insulating glass. € 35 million of the budget for priority neighbourhoods is meant for stimulating, advice, and *“removing bottlenecks within various themes”* (p. 32). For

Amsterdam Southeast, the Subsidie Duurzame Amsterdamse gebouwen - Verduurzamende woningverbetering Zuidoost, has been made available. VvEs can apply for a one-time subsidy to make all homes in their building more sustainable (Gemeente Amsterdam, n.d b.; Gemeente Amsterdam, 2025). In 2021, the municipality of Amsterdam also received subsidy (€ 40 million) from Volkshuisvestingsfonds to renovate houses and neighbourhoods in Southeast for the period 2022-2032 (Antonisse, 2021; Isolatieoffensief, 2024).

How and to what extent the subsidies described in this chapter have been applied to and granted is not clear. Further research is needed for this.

5. RESULTS: BOSPOLDER-TUSSENDIJKEN

The structure of this chapter is, like the results of Venserpolder, based on the four dimensions of the Policy Arrangement Approach. The first chapter will provide an overview of relevant policy documents of the municipality of Rotterdam regarding the energy transition. In the second chapter, a discourse analysis will be performed based on the policy documents and interviews conducted with two employees of the municipality of Rotterdam. Next, an overview of stakeholders involved in the energy transition in BoTu is given, and the governance structures in place are examined. After that, the formal and informal procedures of the decision-making process in BoTu are explored. In the final sub-chapter, 'Resources', the various ways of communication provision and financing of the energy transition are analysed.

5.1. Context

In BoTu, plans for the energy transition were first initiated by the city-wide municipality in their coalition agreement in 2018. There, the ambition of an area-based approach in five neighbourhoods in Rotterdam, of which BoTu is one, was introduced. How this city-wide ambition has been translated into practice in BoTu can be read in the first part of this chapter. In the second part, the policy documents that were analysed will be shortly introduced.

5.1.1. Setup of energy transition in BoTu

Plans for the energy transition in BoTu have been made by the municipality in collaboration with housing corporation Havensteder and energy provider Eneco. The three parties have signed a confidentiality agreement and an area agreement (in Dutch: gebiedsovereenkomst). The latter includes how the three parties intend to implement the energy transition in BoTu. The area-based approach in BoTu consists of three areas. Each area has a different timeline during which it will transition (see Figure 3). The areas have been chosen based on (maintenance) work that was already planned to be done. By integrating maintenance work with work that needs to be done for the transition to district heating, nuisance for residents can be kept at a minimum (Interview 4).

A district heating network (in Dutch: warmtenet or stadsverwarming), which is the proposed alternative energy source in BoTu, is a local system of insulated pipes that transports heat from a source to residential and commercial buildings. In Rotterdam, this heat mostly comes from industrial waste heat that is generated in the port area (De Rotterdamse Transitievisie, 2021). There are three types of heating networks: high temperature (between 70 and 90 °C), medium temperature (between 55 and 70 °C), and low temperature (between 30 and 55 °C) (Regionale Energiestrategie

Rotterdam Den Haag, 2021). There are two concessionaires for the heating network in Rotterdam: Eneco operates in Rotterdam North, this is where BoTu is located, and Vattenfall in Rotterdam South. Although a market-based procedure was used to grant these concessions, in practice, the district heating system has taken on a monopolistic character (Rodhouse & Correljé, 2022).

5.1.2. Introduction of policy documents

For the case study on BoTu, nine policy documents were analysed. These policy documents will be described shortly. The order in which the documents will be described is based on a chronological timeline in which the documents were released to the public (see Figure 8).

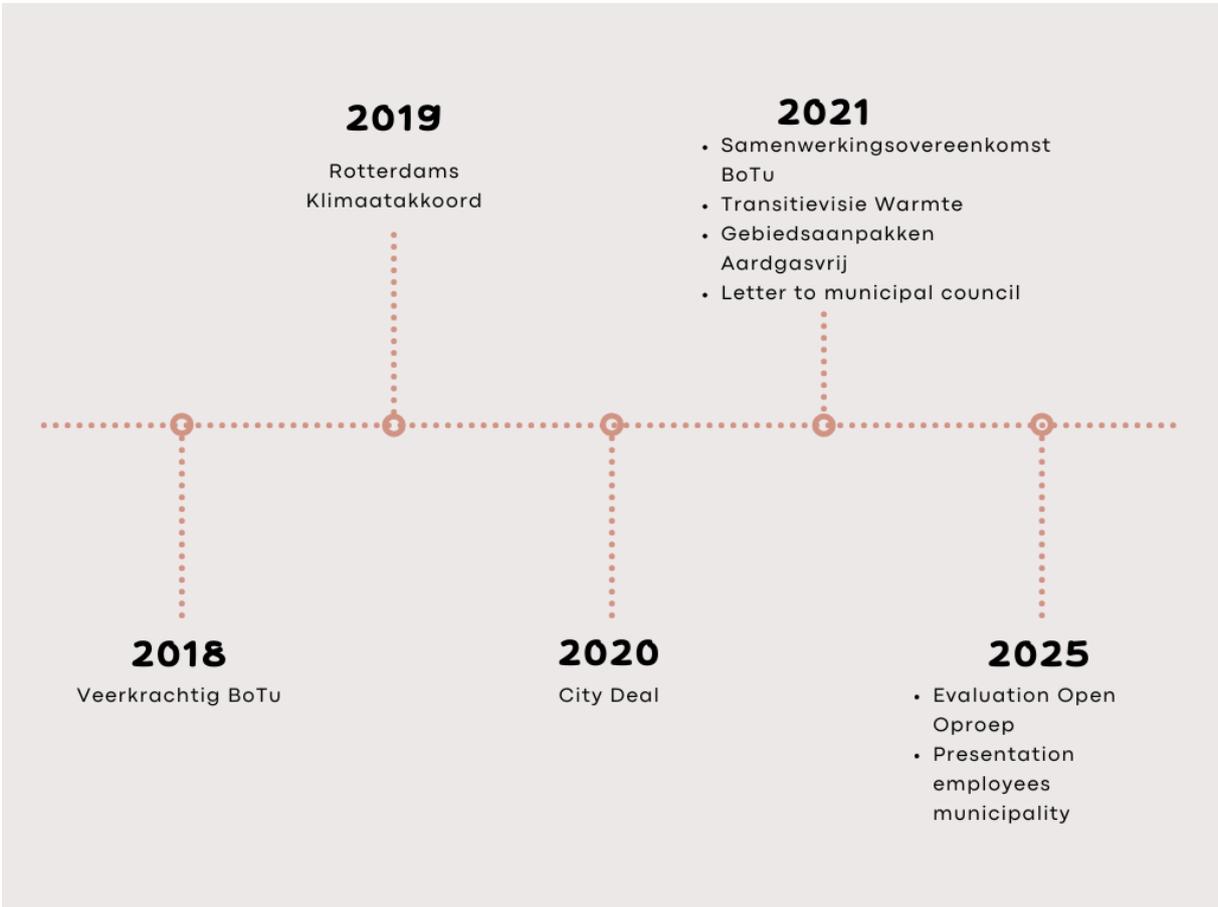


Figure 8: Timeline of BoTu’s energy policies

The first document released was Resilient BoTu 2028 (2018) (in Dutch: Veerkrachtig BoTu 2028). In this document, the municipality states that its main ambition is to bring BoTu’s social index to the same level as the city-wide social index. The municipality includes three sub-ambitions: 1. In BoTu you develop your talents; 2. In BoTu you matter; everyone can participate; 3. BoTu as one of the first energy

neighbourhoods in the Netherlands. In a 3x3-approach, three themes, three methods, and three places in BoTu are connected to each other.

Rotterdams Klimaatakkoord was released in 2019. In 49 climate deals, concrete measures are taken to halve CO₂ emissions in Rotterdam in the coming 10 years. The measures are taken in five domains: port and industry, built environment, mobility, clean energy, and consumption. These are city-wide ambitions and thus not specified to the local situation in BoTu. BoTu is mentioned once in the document in the context of the built environment and ambitions of Havensteder to connect 1.500 residential buildings to the district heating network.

The City Deal Energieke Wijken, Duurzaam en Sociaal (December 17th, 2020) is connected to the national Program Natural Gas-Free Neighbourhoods of the Ministry of the Interior and Kingdoms Relations (in Dutch: ministerie Binnenlandse Zaken en Koninkrijksrelaties). The City Deal offers the municipality of Rotterdam the opportunity to put issues and questions on the national agenda and to collaborate with the national government and other partners.

In 2021, a collaboration agreement (in Dutch: samenwerkingsovereenkomst) was signed by parties involved in the energy transition in BoTu. The agreement provides an outline on how the parties will work together in the coming years. The collaboration is also related to the Resilient BoTu 2028 program, and it will therefore last at least until 2028.

De Rotterdamse Transitievisie Warmte (2021) describes how, why, and when Rotterdam will become natural gas-free and climate neutral. This policy contains a WHAT-map (in Dutch: WAT-kaart) which shows which alternative to natural gas is the cheapest in existing buildings and has the lowest societal costs. Furthermore, a WHEN-map (in Dutch: WANNEER-kaart) is provided which indicates where in Rotterdam opportunities exist to (start) work on the area-based approach. In this map, BoTu is one of five already existing area-based approaches.

In Gebiedsaanpakken Aardgasvrij: Een Kijkje in de Keuken (2021), the area-based approach to the energy transition is further explained. It is explained why a transition to alternative energy sources is needed, why an area-based approach was chosen, and what the results of the area-based approach are so far.

On June 22nd, 2021, a letter was sent to the municipal council by the city's mayor and alderman. In this letter, the area-based approach in BoTu is explained and the council is informed on the financial offer that is offered to private building owners in BoTu to switch to district heating.

In January 2025, an evaluation of the Open Oproep was done. This research report, called Meebeslissen in Bospolder-Tussendijken, maps the experiences of involved stakeholders of the Open Oproep. Of the 54 initiatives that were submitted in the Open Oproep in 2023, only one was related to the energy theme. Hence, the document in itself is not deemed directly relevant to this thesis, but it does provide insight into the municipality's position towards neighbourhood and citizen initiatives.

BoTu's program manager and project manager gave a presentation in June 2025 during an event that was organised by Nationaal Programma Lokale Warmtetransitie. During the presentation, the two managers gave more insights into the transition to district heating in BoTu where they focussed on the preparation as well as the execution phase.

5.2. Discourse

This chapter examines how the municipality Rotterdam approaches the (local) energy transition. This is done by combining information that is provided in the policy documents and information supplied by two employees of the municipality of Rotterdam. First, definitions of core concepts, such as 'energy transition' and 'resilience', are given as provided by the municipality. After that, the area-based approach is explained. Involvement and collaboration with local stakeholders are examined in the third sub-chapter. Fourth, affordability and feasibility, the two starting points of BoTu's energy transition, are explained. Lastly, an overview of the dominant policy discourses is provided.

5.2.1. Definitions

In BoTu, the energy transition is seen as *"a lever for community building, education, employment, and fighting poverty"* (Veerkrachtig BoTu 2028, 2018, p. 19). The municipality of Rotterdam has the ambition of a sustainable and energy efficient Rotterdam. They argue that the energy transition will provide opportunities for BoTu to renovate homes, create jobs, and to renew its economy (Veerkrachtig BoTu 2028, 2018). In addition, it is highlighted that the energy transition offers opportunities to improve the liveability of BoTu (Municipality of Rotterdam, n.d.). The energy transition is also seen as a means to contribute to other, broader developments, such as digitalisation, urbanisation and climate adaptation (De Rotterdamse Transitievisie Warmte, 2021). The municipality of Rotterdam bases decisions regarding the energy transition on the lowest societal costs. They argue that *"the energy transition should be feasible and affordable for everyone"* (Veerkrachtig BoTu 2028, 2018, p. 19). Furthermore, the municipality of Rotterdam also aims at integrating the concept of

resilience into the energy transition, and vice versa. For the municipality, resilience is about *“how well individuals, communities or organisations can deal with changes, shocks and stresses in their lives. How they respond to them, recover from them, adapt or even transform”* (Veerkrachtig BoTu 2028, 2018, p. 6). This approach is in line with the approach of the municipality to the energy transition which is, they argue, mainly a social challenge that mostly takes place behind closed doors of residents and entrepreneurs (Gebiedsaanpakken Aardgasvrij, 2021).

5.2.2. Area-based approach

The municipality of Rotterdam follows an area-based approach – this entails an approach to the energy transition that is customised for each neighbourhood (De Rotterdamse Transitievisie Aardgasvrij, 2021) – to make BoTu a natural gas-free neighbourhood (Veerkrachtig BoTu 2028, 2018). The area-based approach was initiated by the city-wide municipality of Rotterdam in their coalition agreement in 2018, where BoTu was appointed one of five areas in Rotterdam where the energy transition would be started (Interview 4). By choosing for an area-based approach, the municipality argues, societal costs of the energy transition can be kept at a minimum (De Rotterdamse Transitievisie Aardgasvrij, 2021). To be more specific, the municipality argues, by transitioning an area as a whole, a neighbourhood deal (in Dutch: *wijkdeal*) can be made which benefits all homeowners and costs can be distributed better (Gebiedsaanpakken Aardgasvrij, 2021). Besides the lowering of societal costs, the municipality also suggests that an area-based approach is essential to maintain physical accessibility of the city during the transition as well as to make optimal use of resources and people (De Rotterdamse Transitievisie, 2021).

Within the area-based approach, an adaptive strategy is chosen as the municipality of Rotterdam recognises that the energy transition is still developing, and choices need to be based on the fact that much will still change. Through so-called no-regret measures, Rotterdam wants to make decisions that will be beneficial regardless of the future heat source(s) or (political) developments (De Rotterdamse Transitievisie Aardgasvrij, 2021). With regards to political developments, the municipality pleads that the national government provides good (financial) arrangements as these are essential for the energy transition and its affordability (Gebiedsaanpakken Aardgasvrij, 2021). Interviewee 4 also highlights the importance of stable national policy. *“As soon as there is uncertainty, there is uncertainty about prices. So residents can feel that.”*

The area-based approach that the municipality of Rotterdam follows in their energy transition can, at the same time, be seen as an integral approach. The municipality argues that the transition to natural gas-free in neighbourhoods is connected to spatial and societal issues (Gebiedsaanpakken Aardgasvrij, 2021; Veerkrachtig BoTu

2028, 2018). For example, the improvement of housing, such as overdue maintenance, can be combined with sustainability measures (City Deal Energieke Wijken, Duurzaam en Sociaal, 2020). The municipality also takes the maintenance of sewerage, flooding, or the redevelopment of public spaces into consideration when planning measures that are part of the energy transition (Gebiedsaanpakken Aardgasvrij, 2021). This approach is also reflected by interviewee 4 who states that BoTu was chosen as one of the areas for the area-based approach because the sewerage needed to be renewed, and playgrounds and the light poles needed to be renovated. *"We thought, well if all the public outdoor space needs to be opened up, that's a fantastic place to start the energy transition. Because if everything has to be opened up anyway, we'll just add some heating networks"* (Interview 4). Though opportunities exist to integrate gas-free and resilience ambitions, the departments of the area-based approach and the department of the resilient program had different understandings of how the energy transition would look like in practice (Interview 4). This is one of the challenges that has arisen in the translating of policy into practice.

For the area-based approach, the municipality of Rotterdam distinguishes ten steps: analysis of the area, coupling opportunities (in Dutch: koppelkansen), design of the heating network, phasing, examining of the (structural) properties of the homes to be connected, area business case, gas-free proposal for homeowners, offer for all residents, making arrangements with stakeholders, the construction of the heating network (Gebiedsaanpakken aardgasvrij, 2021). Interviewee 4 explains that, in reality in BoTu, the municipality did not follow a step-by-step plan in the development of the area-based approach that was proposed in the coalition agreement. *"We tend to, if you do standard work or do somewhat standard projects such as a redesign of a square or whatever, well then you have your step-by-step plan. Because yes, you have designed a square before, right? But we have not done an energy transition in existing buildings before."* By getting to know the actors in the neighbourhood, and their views and interests, the approach to the energy transition slowly started to take shape. The program manager focussed on doing it together and figuring it out together. *"Be constantly alert and sharp and have antennas for the direction you need to go in. Yeah, you know, you really couldn't have put all that in a plan in advance. What you could have put in the plan back then was: I'll make sure I have situational awareness"* (Interview 4). While no step-by-step plan was followed, the program manager did start with researching the spatial challenges and opportunities. Part of the area agreement that was signed was that every street had a profile design that included where everything - the sewer, high voltage cables, heating network, trees, etc. - would be located. This eventually became the basis of the agreement.

5.2.3. Involvement

One aspect of strengthening resilience is to enhance the ability for everyone to participate (Veerkrachtig BoTu 2028, 2018). Providing physical meeting places in the neighbourhood where residents can come into contact with other residents or neighbourhood professionals is deemed essential by the municipality for successfully involving residents. However, it still remains a challenge to involve residents from outside the existing network (Meebeslissen in Bospolder-Tussendijken, 2025). To be able to match what is needed in practice, the municipality of Rotterdam seeks collaboration with local (neighbourhood) organisations (Veerkrachtig BoTu 2028, 2018) and also tries to encourage collaboration between the various (local) organisations and stakeholders involved. *"Sometimes our own clubs are all on their own postage stamp. We try to find and create some cross-pollination there too. And to strengthen that network. But it is also often for stakeholders to see each other again. So that is also an important part of the Veerkrachtig BoTu program"* (Interview 3). Another way to meet the needs of citizens, as argued in Veerkrachtig BoTu 2028 (2018), is by following an inside-out, bottom-up approach with a focus on capacities instead of problems. This is also referred to as the Asset-Based Community Development (ABCD). *"The best place to start is what's strong within communities, not with what's wrong"* (Veerkrachtig BoTu 2028, 2018, p. 22). According to Haines (2014), ABCD is a place-based approach on community development that focuses on identifying and strengthening the already existing strengths of a community, instead of (primarily) focusing on its problems. The program manager of BoTu refers to the ABCD-approach as a social approach. Through collaboration with the local neighbourhood organisations Stichting Pauw and Verbindingskamer, problems in the neighbourhood come to the surface and become known to the municipality. *"They feed us with what is going on quicker than if we had discovered it ourselves. And we - the municipality, Eneco, Havensteder - act on that as best we can"* (Interview 4).

With regards to the energy transition, creating awareness amongst residents is important as *"for a lot of residents, the energy transition is still a distant concern"* (Veerkrachtig BoTu 2028, 2018, p. 19). The importance of raising awareness is also mentioned by an employee of the municipality of Rotterdam (Interview 3): *"So that is also creating awareness among people about their thermostat. We really came across those cases, they were all at 25 degrees and with all the radiators in the entire house open. And then being surprised that you get very high bills during an energy crisis."* With regards to residents' awareness on the energy transition, the same interviewee highlights that residents of BoTu, specifically tenants of Havensteder, think that they are required to transition their homes to natural gas-free and that they do not have much choice in this regard. So, while the municipality puts effort into getting into contact with residents, it is questionable to what extent residents feel that their needs are met. It is unclear what role residents play in the policy-making

process and realisation of policy in BoTu. It appears that there is a main focus on informing residents about plans that exist for the neighbourhoods. In 2018, when the gas-free plans were being worked out, the municipality sent out a (formal) letter to all residents informing them that these plans were being worked out. In this letter, the municipality also mentioned that *"it [the plans] has to be feasible, affordable and a few other things like that. So we really need a year and then you'll hear from us again"* (Interview 4). Residents do have a say in whether plans will be executed or not. They can vote either yes or no to the plans – 70% of votes need to be yes in order for the gas-free plans to be executed – but residents do not have a say in what these plans are, that seems to be decided on in a top-down manner.

5.2.4. Affordability and feasibility

In the Transition Vision of the municipality of Rotterdam (2021), the following is stated: *"An affordable and fair energy transition in Rotterdam with room for independent choice is an absolute prerequisite. We believe that everyone, regardless of disposable income, should be able to participate and benefit from the energy transition"* (p. 32). The municipality of Rotterdam approaches this through paying attention to affordability and tackling energy poverty. This, they believe, will ensure that all residents can participate in the energy transition (De Rotterdamse Transitievisie Warmte, 2021). Nonetheless, affordability seems to be (one of) the biggest concern(s) for residents (Interview 3). The municipality of Rotterdam recognises that the energy transition will cost residents money. For that reason, the alternative energy source with the lowest societal costs is chosen (De Rotterdamse Transitievisie Warmte, 2021). However, how the municipality defines societal costs is not clear.

The ambition for a feasible and affordable energy transition is also highlighted by BoTu's program manager, who even calls it a prerequisite (Interview 4). Affordability is ensured, first, by the pricing boundaries that the ACM sets yearly. *"And that means that when you switch to heating, you should never pay more than you would have done if you had used the same amount of natural gas"*, also referred to as the no-more-than-otherwise-principle. Secondly, affordability has been sought by the municipality through an agreement with Eneco on a discount on the fixed fee of people's energy bill. Third, housing corporation Havensteder also plays a role in achieving affordability as they have purchased the delivery set (in Dutch: afleverset) – this replaces the central heating boiler – for 30 years, accounting for a decrease of costs of € 110,- per household per year. Still, with these measures to strive towards affordability of the transition, things can go wrong. For example, errors in administration where people get two bills or an inaccuracy in the passing on of meter readings. *"Well, then we have really short lines with Eneco, so there is also a separate heat number. A separate email address and therefore in all those app*

groups. Plus, a walk-in consultation hour. So, we try to be as visible as possible and now also in all communication, that people at least, if they have a question, that they can find Eneco" (Interview 3).

5.2.5. Dominant discourses

In energy transition policy for BoTu, the energy transition is framed as a lever for enhancing the socio-economic position for residents as well as improving the built environment. Asset-Based Community Development is the underlying concept for the approach taken by municipality of Rotterdam which focuses on community strengths instead of weaknesses and encourages bottom-up participation. The municipality of Rotterdam frames their approach to the energy transition from the perspective of area-based and adaptive governance. As a result, the transition is neighbourhood-specific, flexible, and constantly evolving as it is implemented in three phases and includes no-regret measures. These no-regret measures are in line with the municipality's ambitions for integrated urban development, which connects measures for the energy transition to housing renovations, public space renewal, and social programs (Veerkrachtig BoTu 2028). Finally, an affordability and feasibility discourse – these are the two main pillars of energy transition policy of the municipality of Rotterdam – highlights that solutions with the lowest (societal) costs are emphasised. Affordability is also prioritised in relation to participation of all residents, meaning across all income levels. By collaborating with Havensteder and Eneco, the municipality shares responsibility for the energy transition amongst the three of them, highlighting a collaborative governance discourse.

5.3. Actors

In the area-based approach in BoTu, there are three main actors who are the driving force behind the implementation of the approach: the municipality of Rotterdam, housing corporation Havensteder, and energy provider Eneco. Another actor involved in the implementation is VvE010, a foundation established by the major housing corporations and the municipality of Rotterdam. VvE010 helps VvEs in Rotterdam in the preparation of becoming natural gas-free. They do this by helping with subsidies and loans and providing advice (Interview 5).

Through collaboration with Stichting Pauw, the municipality "*maintains short lines*" with local residents. Stichting Pauw initially started as a company, run by females with a migration background and in collaboration with the municipality, to teach the Dutch language to other residents in BoTu. These women now also implement small energy saving-measures in local residents' homes. Once every eight weeks, the municipality of Rotterdam and Stichting Pauw sit together to discuss the progress made, where Stichting Pauw reports how many and which addresses they have

helped. Eneco also plays a role in this as they also help in financing this initiative. Nevertheless, it seems to be unique that someone from Eneco is physically present in the neighbourhood where residents can come by and ask a question about their energy bill (Interview 3).

5.3.1. High power, high interest

In this quadrant, the three driving forces behind the implementation of the area-based approach in BoTu have been placed. Of the three, the municipality has the highest interest as they must meet the goals and requirements set by the national government. Eneco and Havensteder, together with the municipality, have high power as they dictate the local energy transition in BoTu. The success of the energy transition is, amongst other things, dependent on the cooperation between these three stakeholders.

5.3.2. High power, low interest

The Resilient program, which is executed by various departments of the municipality, has high power but a much lower interest than the gas-free department. This is because the transition to natural gas-free is not one of the main objectives of the program but is related to the program in a more indirect way. VvEs and VvE010 have been placed in this quadrant for the same reason. For them, the quality of the buildings and living environment is the main priority, the energy transition seems to be more integrated into this priority rather than being a main priority itself.

Furthermore, residents, tenants as well as homeowners, are placed in this quadrant because they determine whether or not plans of the municipality get executed. The municipality needs to acquire 70% of the votes and only then can the plans be realised (Interview 3; Interview 4). The interest of residents in the energy transition is low as it becomes clear that they have other priorities, such as paying their bills and being able to do groceries (Interview 5). In short, even though residents do not have a say in what the plans are, they hold much power as they get to determine whether the plans will get realised.

5.3.3. Low power, low interest

Stichting Pauw is placed in the low power, low interest quadrant as they do not have direct power over the making and implementation of policy. The organisation is more involved in the getting into contact with residents and finding what problems BoTu residents are facing. The Verbindingskamer is also placed here, for the same reason as Stichting Pauw. Their main focus is on connecting with people. The municipality of Rotterdam collaborates with both organisations to get feedback on

which problems local residents are facing, and so both organisation do have power on the execution of policies to some extent.

5.3.4. Low power, high interest

Energy cooperatives are placed in this quadrant as they have a high interest in the energy transition and related policy as they are dependent on the rules and regulations that are set by the national and municipal government. As a result of this dependence, energy cooperatives are deemed to have lower power.

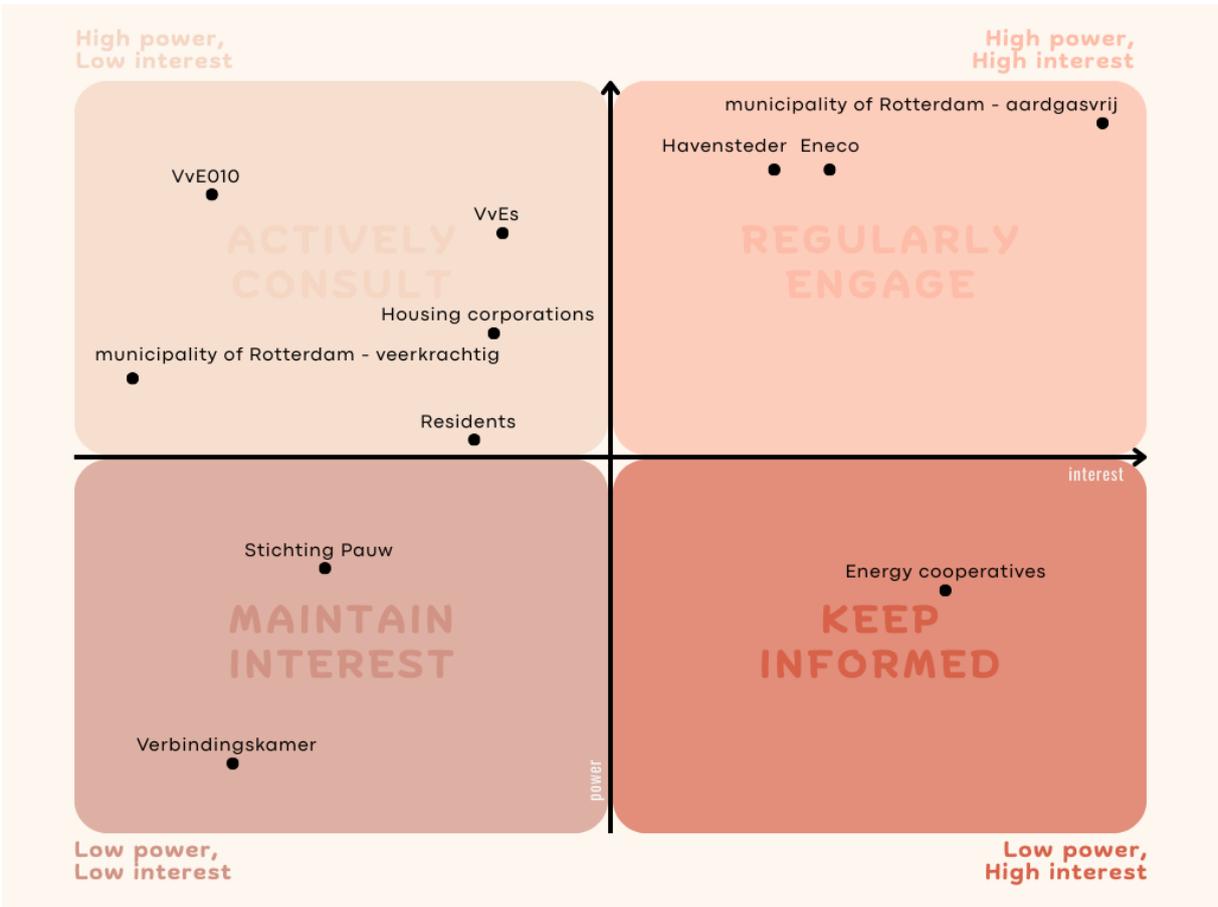


Figure 9: Power-interest matrix with relevant stakeholders in BoTu

5.3.5. Governance structure

The power-interest analysis of BoTu shows that three institutional actors drive the local energy transition: the municipality of Rotterdam, Havensteder, and Eneco. They hold high power and high interest, jointly steering the area-based approach and shaping key decisions. Other, non-institutional stakeholders are given power in the decision-making process through providing opportunities to approve policies. Nevertheless, interests of these stakeholders are low due to other priorities. Local neighbourhood organisations act mainly as intermediaries between the municipality and residents. Overall, the current governance structure in BoTu remains largely top-

down, with institutional actors leading, and with non-institutional actors having some degree of decision power and having more supporting roles.

5.4. Rules of the game

The formal and informal procedures that are followed by the municipality of Rotterdam will be further discussed in this chapter. For this chapter, the same understanding of 'rules of the game' was employed as in the results of Venserpolder, namely as the formal and informal procedures that are relevant to the decision-making process and energy transition policy domain. In formal procedures, formal communication measures are discussed where the perspectives of other stakeholders, such as VvE010 and Havensteder, on these measures are included. Informal procedures relate to informal forms of communication employed by the municipality of Rotterdam.

5.4.1. Formal procedures

As was described earlier, BoTu was chosen as one of the five areas for the area-based approach that was adopted by the city-wide municipality in their coalition agreement. Together with this coalition agreement, the city-wide municipality also sent six pages containing guidelines for the area-based approach to BoTu's program manager (Interview 4). How the approach would be implemented was up to the program manager. Even though policies of the municipality put emphasis on bottom-up and inside-out practices (Veerkrachtig BoTu 2028, 2018), city-wide policies seem to be prioritised over local-level, bottom-up initiatives: *"At the same time, of course, global, national and also municipal agreements have been made to simply work towards 2050. And I think that the flow from the state and the municipality is ultimately stronger than bottom-up, so to speak, if people have been so pressed that they really want something. That is less strong than that policy is actually implemented from above"* (Interview 5). Furthermore, it became clear that input from the national government impacts the implementation of the local energy transition. Havensteder (Interview 6), for instance, mentions affordability as an aspect where clear guidelines are still missing. *"What does affordability mean? Does the government approve of us spending € 10.000 per home, or € 30.000, or what amount do they consider affordable? Then we'll have more direction on whether that will work for us or not."* Furthermore, recent national political developments are considered an obstacle for implementation of the local energy transition. Interviewee 6 argues that constant national long-term policy is beneficial, though this is currently not the case. *"It has fluctuated so much in recent years in terms of the government's thoughts. [...] So we are actually changing things while the store is already open"*. The municipality of Rotterdam also emphasises that consistency and

certainty from the national government are essential for the success of the heat dossier (Interview 4).

On the local level, the municipality of Rotterdam collaborates with stakeholders in BoTu through the Collaboration Agreement BoTu (in Dutch: Samenwerkingsovereenkomst BoTu, 2021) (Interview 3). The agreement was initiated by the municipality's neighbourhood team, Havensteder, and Eneco (Interview 3). It has been signed by parties involved in BoTu (residents, initiatives, entrepreneurs, the municipality, Havensteder, and Eneco (Bospolder-Tussendijken, n.d. b)). Every month, Eneco, Havensteder, and the municipality attend a gathering called the working group Energiewijk. Someone from the neighbourhood team (in Dutch: wijkteam) and an active resident who actively collects signals and ideas from the neighbourhood are also present during this meeting. The Energiewijk XL is an evening that is organised three times a year where generally 30 to 40 people are present and where ideas from the neighbourhood are made more concrete. The initiatives proposed in the working group Energiewijk and in the Energiewijk XL events must relate to sustainability (Interview 3).

Besides the monthly Energiewijk-gathering, an employee of the municipality and two volunteers from the neighbourhood go into the neighbourhood weekly with a cargo bike. There they have conversations with residents who live in the project area where they explain why the gas-free plans were made and they ask the residents what they think about the plans. The majority of residents they talk to are tenants from Havensteder, *"owners are often at work during the day"* (Interview 3). Furthermore, the municipality collaborates with independent, local organisations (Stichting Pauw and Verbindingskamer) who have better ways to access behind closed doors. These organisations give feedback to the municipality about specific cases of, for example, (extreme) poverty or other problems that a resident is or may be facing. Through a covenant with welfare organisations, the police, and the municipality all signals in the BoTu project area are noticed and are followed up on. The Verbindingskamer coordinates this. The language and environmental coaches from Stichting Pauw help, amongst other things, with the installing of energy saving measures (Interview 4).

Besides the contact that the municipality and the Verbindingskamer have with each other and with residents, Havensteder is also in direct contact with their tenants. A Havensteder employee (Interview 6) explains: *"It's door-knocking, so we have people dedicated to that who will have that conversation. This is primarily in collaboration with Eneco, but also with the municipality. So, essentially, you first have the municipality convey the message to the neighbourhood: "Hey, we're going off natural gas here, and this is the best alternative, socially speaking." And then you have the individual conversation with residents, asking them: "This is what it means for you*

and then we'll organise it." And we need the resident's approval for that." Because, for the gas-free plans to be executed, at least 70% of BoTu residents need to agree to the plans. Efforts are made by the municipality, Havensteder, and Eneco to inform residents as much as possible and to convince them that the gas-free plans are beneficial. Interviewee 5 also indirectly assists in this. *"Many people think, "If I don't look at this, it'll just blow over." And I say, "Let's make a plan. You're already obligated to do some maintenance, so we need to look into that. Initially, we won't do anything without your permission. We'll just carefully consider the costs." And then we'll make a realistic plan."* So, while the municipality approaches the contact with residents mostly from an informing-perspective, VvE010 provides residents with concrete steps to make their buildings more sustainable and to make the buildings ready to transition to district heating.

5.4.2. Informal procedures

The minimal approval rate of 70% for energy transition related measures can be seen as an informal rule for carrying capacity. As mentioned in the paragraph above, the municipality takes measures in collaboration with Havensteder, Eneco, and VvE010 to inform residents on the benefits of such measures. For these four stakeholders, and Stichting Pauw in addition, an informal hierarchy for information provision towards residents can be identified. For example, interviewee 3 states that Stichting Pauw is responsible for the 'easy' topics, where the municipality is responsible for the information provision that is more difficult and content related. Furthermore, with regards to the position of Stichting Pauw and VvE010, an unspoken boundary between lobbying and dictating policy can be found. Lobbying, here, relates to the feedback these organisations provide the municipality with, regarding problems (individual) residents are facing. This feedback is used by the municipality to further dictate their energy transition policies (Interview 5). This primarily relates to problems that residents in the project area are experiencing, such as poverty or psychological problems. As described earlier, the Verbindingskamer and the language and environmental coaches play a significant role in this. But VvE010 is also involved, initiated by the municipality, in identifying problems that homeowners are facing. The organisation is not involved in the translating of national policy to the city level, but *"one step after that"*. In that way, VvE010 provides some more detail to the larger whole. *"So then you are actually busy jumping back and forth between micro and macro all the time to, yes, ultimately achieve better programs."* The micro level primarily takes place at the kitchen table, as *"people won't tell in a meeting if they can't pay, so you do that at the kitchen table level"* (Interview 6).

Besides the different ways in which contact is made with residents, measures are also taken to give residents more influence. Interviewee 6 mentions that they are one of the parties who try to outsource more to residents. They also explain that a balance

is sought between outsourcing and keeping some form of control by providing guidelines, for example when installing solar panels on a roof. *"So, the challenge for us now is not to impose too many rules around such a solar roof, so it has to be done safely. It also has to be done responsibly for the insurance company, so I have to set rules, but in a way that works for them. [...] Letting go or moving from your fixed procedures, that is the art."* Here, an informal hierarchy of knowledge is in place as, even though residents are given a more active role, it is argued by interviewee 6 that residents do not have the same amount of knowledge as professional solar panel installers.

Informal norms for collaboration with a focus on short lines of communication can be distinguished in the municipality's approach to the energy transition in BoTu. The collaboration initiated by the municipality focuses on exploring existing neighbourhood resources, such as local organisations. Interviewee 4 calls it *"strengthening the network and fostering cross-pollination."* In developing and implementing energy transition policy, various interests (e.g. spatial integration) are and have been considered, and residents were informed early in the process. *"Six years ago, we started building serious, lasting relationships with residents. But that requires a tremendous amount of attention and dedication"* (Interview 4). Nevertheless, even though the municipality prioritises short lines in their collaboration approach, the success of the energy transition is also largely dependent on Havensteder. An informal power rule can be distinguished here as Havensteder decides where they invest their money to renovate their existing housing stock. *"Havensteder didn't want to invest that money [to lower energy labels] there, but somewhere else in the city with low energy labels. So now only district heating has been installed there"* (Interview 3).

5.5. Resources

In this chapter, the information supply and various options for the financing of energy transition-related measures will be highlighted. The contents of the municipality's website will be analysed as well as the municipality's other forms of (in)formal communication. Secondly, the financial measures that are provided either on the national or on the local level will be discussed.

5.5.1. Information

The municipality of Rotterdam communicates with residents through a mix of direct, in-person methods and educational initiatives, including weekly neighbourhood visits with a cargo bike, door-to-door conversations in collaboration with partners (Interview 6), and knowledge sessions on topics such as energy bills (Interview 3). With these approaches, the municipality aims to increase its visibility in the

neighbourhood, provide information on the energy transition, and engage residents in decision-making. Interviewee 5 is in direct contact with specifically VvEs, *"I have an informative role and I will continue to support the VvE and its members until they understand and can then make a choice."* This appears to be a challenge as the story behind the energy transition is complex and residents in BoTu are sometimes not fluent in Dutch. Interviewee 6 emphasises the importance of making the story as simple as possible. *"It's really far too complicated now, so it just has to be a really simple story with many more guarantees, so that people really have and gain confidence that this is the case."* Havensteder is in direct contact with their tenants, and the municipality is responsible for communication with private individual owner-occupiers (Interview 4).

Besides the cargo bike and the kitchen-table conversations, the municipality also sees their website as a way to communicate with residents (gemeente Rotterdam, n.d. a). The headings - on the website they are drop-down menus - used on the website can be found in Table 7. The website begins to describe that BoTu was chosen as one of the areas in Rotterdam to transition first as not all houses in Rotterdam can be transitioned at once. Additionally, it is shortly explained that district heating is the easiest and cheapest option for the neighbourhood. After the explanation of the area-based approach and choice for district heating, it is demonstrated why BoTu was chosen for the transition to district heating and how the municipality uses subsidies to keep the transition affordable. Thereafter, the website describes how the energy transition also creates opportunities for, for example, enhancing the liveability of the neighbourhood and creating job opportunities. The Resilient BoTu 2028 program is also mentioned here. In 'Activities in the neighbourhood' an overview of the gas-free measures implemented in the three areas, and thus the three phases, is provided. In this drop-down menu, the contact details of VvE010 are shared for private individuals who want to transition to district heating and want more information about this. Under 'What does this mean for me?' the information is divided amongst five target audiences: owner-occupiers, renters, private landlords, VvEs, and small-medium companies. Per target audience, the different options for the transition to gas-free are given and explained, where possible financial resources are also included. In 'Offer natural gas-free' the financial offer for homeowners is explained in more depth, and contact information is provided. After that, homeowners are also directed to a webpage where they can apply for a subsidy for the transition to electric cooking. Three other subsidies and loans available and possible for BoTu residents, either homeowners or VvEs, are described in more detail in 'Subsidies and loans'. In addition, an overview of possible energy saving measures is given that can be taken by residents, regardless of being homeowner or tenant. Here, people are redirected to a different webpage where residents can get into contact with so-called energy handyman (in Dutch: energiekussers), someone from the municipality who provides behavioural tips to

reduce energy bills and who implements energy-saving measures in your home (Gemeente Rotterdam, n.d. c). Under 'More information' an overview of contact details and walk-in consultation hours of the different organisations involved in BoTu's energy transition can be found. Lastly, a calculation tool is provided where people can calculate what they would pay when transitioning to district heating.

5.5.2. Financing

The largest financial arrangement that is provided for municipalities is the Programma aardgasvrije wijken, of which BoTu is one. A total budget of € 435 million was reserved for the period of 2018-2028.

The area-based approach of BoTu gets subsidies from Nationaal Programma Lokale Warmtetransitie and European Local Energy Assistance. Within the Nationaal Programma Lokale Warmtetransitie, BoTu is one of the so-called Proeftuinen. As a result, BoTu has € 4,9 million of national government's money available for its energy transition. This money, and subsidies from European Local Energy Assistance, are, among other things, used for homeowners who switch to electric cooking - a maximum of € 500 per homeowner can be acquired. Additionally, homeowners in BoTu who want to connect their homes to district-heating and/or make their home natural gas-free, can apply for a rent-free loan (Gemeente Rotterdam, n.d. a). This loan can vary from € 1.500 to € 25.000, up until € 10.000 the loan is rent-free (Gemeente Rotterdam, n.d. b). Furthermore, through Energiewijk BoTu, the monthly consultation of involved stakeholders who are working on the energy transition in the neighbourhoods, a total of € 100.000 has been made available to support sustainability initiatives in BoTu (Samenwerkingsovereenkomst BoTu, 2021). *"It [initiatives to be submitted] doesn't have to be just about energy. But it can also be clean and beautiful or green. Or well, if there is a little bit of a connection, then it falls under 'sustainability'"* (Interview 3).

The Dutch government also provides a subsidy, called Incentive scheme for natural gas-free rental properties (in Dutch: Stimuleringsregeling aardgasvrije huurwoningen), for VvEs or landlords to make (rental) properties natural gas-free by connecting them to district heating. Here, a maximum of € 8.000 per home is granted (RVO, 2020). VvEs within the area-based approach of BoTu can receive a subsidy *"if they implement at least one insulation measure in addition to maintenance work"* (Gemeente Rotterdam, n.d. a). Interviewee 5 helps VvEs with the application for such subsidies as *"they are often people who are not used to sitting in that whole form shop and filling in everything."*

In BoTu's cooperation agreement on the energy transition, co-coupling opportunities (in Dutch: meekoppelkansen) are also explored: *"the extra things that*

we can improve in the neighbourhood at the same time as the energy transition". Examples of this are creating opportunities for education, employment, poverty, and social cohesion (Samenwerkingsovereenkomst BoTu, 2021; De Rotterdamse Transitievisie Warmte, 2021). This is done by investing money, called Sustainability Transition Budget (in Dutch: Duurzaamheidstransitiebudget), to accelerate *"the right innovations"* in the Rotterdam region, such as the sustainable generation and storage of solar and wind energy (Coalitieakkoord 2022-2026, p. 33). Another way in which the municipality allocates money is through the Open Oproep. A group of so-called BoTu Council Members, which are mainly active neighbourhood residents, may decide on the allocation of money to initiatives for the neighbourhood. These initiatives have been submitted by neighbourhood residents and/or (social) organisations. Efforts have been made to make the participation of residents in this process more accessible. For example, the process of submitting an initiative has been made more accessible for residents who have poor command of the Dutch language (Meebeslissen in Bospolder-Tussendijken, 2025). A third way in which the municipality allocates money is through organising the working group Energiewijk and Energiewijk XL. Where proposed initiatives for the Open Oproep can relate to anything, initiatives proposed in the working group Energiewijk and in the Energiewijk XL events must relate to sustainability (Interview 3).

While the municipality puts efforts into cooperation with local residents and organisations and the allocation of money, residents have concerns about the energy transition and the affordability of it (Interview 5). Interviewee 5 explains that as the natural gas-free ambitions were initiated by the municipality of Rotterdam, Havensteder, and Eneco, residents did not perceive the energy transition to be relevant. Residents in BoTu even experience the energy transition as a threat, and not as a way of saving money. *"It's a bit of a crooked one in that sense. You just have to do something about your building and you have to improve it. You have to make costs for that. You very often have to take out a loan for that. And that means that your monthly contribution goes up"* (Interview 5). So, while the municipality, especially in their policies, focus on making the energy transition affordable, but according to interviewee 5, residents do not perceive it in that way. Affordability also seems to be a concern for housing corporation Havensteder. One of their employees explains that where VvEs, homeowners, and tenants can acquire subsidies for lowering energy bills, insulation, and making their buildings more sustainable, such financial arrangements do not exist for housing corporations. *"The whole affordability, that's just another, yes, pink elephant in the whole dossier"*. To make it concrete: by subsidising, private individuals in BoTu pay € 1.500 for the connection to district heating, while Havensteder pays € 30.000 per house that is connected. And that leads to *"a tenant with a small wallet that has to pay so much and the private individual gets everything reimbursed"* (Interview 6). In short, although policies of the municipality aim to make the energy transition affordable and accessible for

everyone, this ambition is not met (sufficiently) for tenants. Interviewee 5 also notes that there seems to be a misconception in policy about homeowners with regards to their economic position. *"Owners in VvEs are often seen as rich people or people who have to manage on their own. In terms of debt and assistance, we focus very much on tenants in the policy. But we are only at the beginning now that owners' associations can also get into terrible trouble. Because a lot of people have actually, yes, borrowed the maximum they could to buy a home and now, due to the increase in the costs that you have to make to make it more sustainable, there is not enough money."*

From the paragraph above, it becomes clear that a mismatch exists between affordability ambitions of the municipality and what is done in practice to enforce these ambitions. From the interviews conducted with two employees of the municipality it does become clear that the municipality is aware of concerns from residents about affordability. However, in the interviews no distinction between tenants, VvEs, and homeowners was made with regards to affordability, even though this distinction does seem to be important when trying to reach the ambitions set in policies. The employee of VvE010 suggests that residents should be given a different role in the future and that they should be heard more. *"But ultimately, to achieve this [energy transition] faster and to gain broad support for the energy transition, you need to give residents the space to figure out what they actually want."* At the same time, the employee recognises that the municipality has to find a balance here. *"That's obviously very difficult, because as a government, you also have objectives and need to maintain control, right?"*

6. RESULTS: SIMILARITIES AND DIFFERENCES

This section provides an overview of the findings from the two case studies. First, the results from Venserpolder are summarised, followed by those from BoTu. Thirdly, the key similarities and differences between the energy transition approaches of the two municipalities are highlighted.

6.1. *Venserpolder*

From the findings of the document analysis and interviews in the context of Venserpolder, it became clear that a top-down governance and social washing discourse can be identified. Where policies emphasise the municipality's ambitions for a "social energy transition", opportunities exist for the municipality to further prioritise the involvement of local stakeholders in the energy transition. While the starting point for the energy transition in Venserpolder is based on affordability and inclusivity, it remains unclear how this is translated into practice on the neighbourhood level. A combination of restricting practical circumstances, a lack of direct contact with local stakeholders, and inadequate facilitation of the municipality for local stakeholders hinders the energy transition in Venserpolder to develop further. From the power-influence matrix, it can be concluded that the municipality of Amsterdam should put more effort into developing and maintaining a relationship with residents in Venserpolder. Through the analysis of formal procedures, the top-down implementation and lack of facilitation of the municipality become clear again as well as the fragility of the affordability of the energy transition in Venserpolder. While there are various financing options available for individuals and VvEs for the implementation energy transition measures, it appears that the affordability of the transition is dependent on (external) stakeholders, such as Vattenfall. From the informal procedures it became clear that an informal hierarchy exists between interests and power of the city-wide municipality and the district level, where the city-wide government makes policies for the local level with a lack of knowledge on the local circumstances. As a result, a gap between policy ambitions and local circumstances exists which hinders the speed and success of the energy transition in Venserpolder.

6.2. *Bospolder-Tussendijken*

In BoTu, the energy transition was initiated by three main actors: the municipality of Rotterdam, Havensteder, and Eneco. A resilience discourse was identified in which the municipality of Rotterdam takes an integral approach to the energy transition by linking it to broader socio-economic issues. Through a phased area-based approach, feasibility of the energy transition in BoTu is increased. While measures were decided upon in a top-down manner, residents do have a say in whether or not

the plans will be executed. The municipality actively seeks collaboration with local organisations and gives residents a sense of ownership over the energy transition with regards to the allocation of money. Informal norms for this collaboration were identified where the municipality focusses on maintaining short lines with residents and local organisations, and aims at strengthening the existing network and finding cross-pollination. Nevertheless, it has become clear that the municipality's energy transition policies require a clearer distinction between the different target groups: residents, tenants, homeowners, and VvEs. Moreover, the often-vulnerable financial situation of homeowners is currently not recognised sufficiently in the municipality's policies.

6.3. Similarities and differences

Both municipalities implement the local energy transition in a top-down manner, where the municipalities position themselves as a central coordinating actor. Affordability is seen as a prerequisite by both municipalities for the energy transition, with the emphasis primarily on the fact that everyone, regardless of their income, should be able to participate in the transition. However, both municipalities appear to struggle with including stakeholders that fall outside of their own network.

Differences regarding both municipalities' governance approaches, approaches to actor involvement, and resource allocations can be identified. In Venserpolder, the municipality places responsibility for the implementation of energy transition related measures in the hands of VvEs and does not sufficiently facilitate local stakeholders in achieving such measures. As a result, residents' influence remains limited in practice. In BoTu, the focus of the municipality is more on neighbourhood resilience, with the energy transition embedded in a wider socio-economic development agenda, namely Resilient BoTu 2028. Through collaboration with city-wide (e.g. Havensteder, Eneco) and local stakeholders (e.g. Stichting Pauw), the municipality of Rotterdam balances between city-wide ambitions and local needs and opportunities. Residents in BoTu have direct influence over the execution of plans and over the allocation of money. In Amsterdam, residents are merely informed on plans, where letters are the main form of communication. It has become clear that there are more efficient ways to increase resident participation and involvement. In BoTu, communication with residents is executed through door-to-door conversations. In short, Amsterdam relies more on formal, mostly citywide planning and policymaking procedures. While Rotterdam leans more on informal, community-based practices where the municipality has positioned themselves as the connecting factor in the network of (local) stakeholders and (local) developments. In other words, where policy in Amsterdam is developed on the citywide level without any connection to the neighbourhood, the municipality of

Rotterdam has employed a much more tailored approach to the local energy transition.

To summarise, it becomes clear that the municipality of Amsterdam and the municipality of Rotterdam follow different approaches to the local energy transition. While for both municipalities a top-down governance discourse can be identified, the role of local actors differs significantly. In Venserpolder, the municipality seems to have direct contact only with VvEs. Individual residents are currently merely informed, but not included in the decision-making and policymaking process. It can be argued that this will hinder the success of the local energy transition in Venserpolder. In BoTu, the municipality has organised several deliberative engagements of residents by collaborating with different (local) organisations. Opportunities for both municipalities exist to further explore the extent to which the affordability of the energy transition can be achieved. For the municipality of Amsterdam this includes the broadening of their horizon from merely VvEs towards homeowners and tenants. For the municipality of Rotterdam this relates to a clearer distinction between VvEs, homeowners, and tenants in their policies, and recognition for the economic status of homeowners.

7. DISCUSSION

This thesis is focussed on understanding the local just energy transition in two neighbourhoods by analysing the policy arrangements. In this chapter, the empirical findings of this research will be viewed from the lens of energy justice. The structure of this chapter is based on the three-tenet approach of energy justice. In the theoretical framework of this thesis, the three tenet-approach of energy justice was explained. To recap shortly: distributional justice focusses on the fair allocation of benefits, costs, responsibilities, and risks of energy systems across different groups and generations. Procedural justice emphasises fair, inclusive, and transparent decision-making processes. Recognition justice highlights the importance of acknowledging and addressing the specific needs, rights, and perspectives of marginalised, vulnerable, and diverse social groups in energy policy.

7.1. *Distributional justice*

A just distribution of energy costs and/or responsibility may be pursued following one of three principles: equal-pay (each party pays the same amount), polluter-pays (contributions are based on each party's level of consumption), and ability-to-pay (each party pays according to their (financial) capacity and needs) (Seebauer, 2021). In both Venserpolder and BoTu, the polluter-pays is the guiding principle as a household's energy bill is generally based on their energy use. For renters whose utilities are included in their rent, the equal-pay principle may be leading. Both municipalities are increasingly focussing on renovating the existing housing stock. Seebauer (2021) has found that in housing markets where renting is more common than homeownership, which is the case in Venserpolder as well as in BoTu, renovation efforts face the tenant-landlord dilemma. This dilemma entails that tenants benefit from lower energy bills after a renovation, while landlords have to fund the renovation itself. Landlords can only compensate for or profit from this investment by raising rents. In turn, if landlords choose not to renovate, tenants have higher energy costs. To tackle this dilemma, policy measures such as subsidies or low-interest loans can help to reduce the financial pressure of renovation costs, in particular in housing inhabited by low-income households (Seebauer, 2021). In line with this, rent-free loans are available for residents in BoTu who want to renovate their home. In both BoTu and Venserpolder, subsidies are available. Besides individual landlords, as noted by Seebauer (2021), the results of this thesis have shown that housing corporations also face the tenant-landlord dilemma. In BoTu, there appears to be a gap between financial measures for individual homeowners and landlords to renovate, but not for housing corporations. In Venserpolder, individual homeowners can apply for subsidies and VvEs can get help for construction research for renovation and energy saving measures. How and to what extent the municipality of Amsterdam facilitates housing corporations is unclear.

For homeowners, Broers et al. (2019) provide four reasons on why current policy measures on energy renovation have limited impact: there is a reliance on voluntary policy instruments, the responsibility for energy efficiency is placed solely on homeowners, there is a tendency to address homeowners in policy as rational decision-makers, and the social aspects of renovation are neglected. As a result, policies fail to take the diverse concerns and motivations into account that influence how homeowners engage with energy renovation measures. In Venserpolder, the reliance on voluntary policy instruments becomes clear in two ways: there appears to be a lack of guidance from the municipality to homeowners in the application for subsidies and the municipality places responsibility in the hands of VvEs for (preparations for) energy renovation measures. With regards to the responsibility for energy efficiency, both municipalities have implemented measures such as energy coaches, who help residents with placing small energy saving measures (e.g. radiator foil). Though there are several financing options available for homeowners, Streimikiene (2022) claims that such energy subsidies only provide short-term results in the attempt to decrease energy poverty. Their research pleads for long-term policies that prioritise improving energy efficiency and that promote the use of renewable energy sources in low-income households, thereby supporting a just energy transition. Both Amsterdam and Rotterdam have such long-term policies on the city level (e.g. Transitievisie), but it appears to be a challenge to translate these policies to the context of the local level.

Applying a lens of distributional justice to the four dimensions of the PAA reveals that this principle manifests itself in several ways across both municipalities. Within the discourse dimension, the municipalities' emphasis on affordability reflects an awareness of distributional concerns. In the resources dimension, subsidies and low-interest loans demonstrate attempts to tackle inequalities, the tenant-landlord dilemma, and to achieve the transition's affordability. However, the extent to which these financial measures are justly distributed among different social groups remains uncertain. Both the results from the dimensions of rules of the game and actors showed that the distribution of responsibility for the local energy transition is mostly centred around (large) institutional actors, where local organisations and residents have high interest but low power in the decision-making process. This unequal distribution of power and responsibility ultimately hinders the achievement of distributional justice in both Venserpolder and BoTu.

7.2. Procedural justice

In both municipalities, a top-down decision-making process can be identified. In Amsterdam, this approach is explicitly mentioned in their policies. There also appears to be an informal hierarchy of interests, where city-wide policies and

ambitions carry more weight than locally and regionally produced policies. In BoTu, plans for their area-based approach were decided upon in a top-down manner. Residents have a say on whether or not the plans will be executed. Oldenbroek et al. (2024) note that, in order to accelerate the energy transition, there exists a need to broaden the top-down approach to one where the roles of local government, entrepreneurs, and residents are included and embraced. The same research also focusses on the role of local energy initiatives (e.g. energy cooperatives), where the main barriers of these initiatives relate to the role of the municipality in facilitating them. The municipality of Amsterdam aims at fulfilling a facilitating role in their policies, though it has been argued that the municipality can take more measures to achieve this facilitating role. The results made clear that, in line with the findings of Oldenbroek et al. (2024), the energy cooperative in Venserpolder currently has no place at the table and is not facilitated sufficiently. Trahan and Hess (2022) also underline the importance of recognising local power organisations as central actors in the acceleration of the energy transition. Furthermore, they argue that when multiple systems are connected, new synergies may be created that accelerate transitions. In BoTu, the connection of systems can be observed in the integration of the Veerkrachtig BoTu program and the area-based approach for the transition to district heating. Another way in which synergies are created is by the Open Oproep and Energiewijk, which is where residents are given ownership on the allocation of money. In Venserpolder, it appears that residents and local organisations are not (sufficiently) included in the municipality's approach to the energy transition. The municipality seems to operate in a solely top-down manner, where the top-down approach is not yet broadened as demonstrated by Oldenbroek et al. (2024). Brown et al. (2020) argue that active community involvement can lead to increased participation of low-income households and improved effectiveness of low-income energy programs. This active community involvement is organised differently in BoTu and Venserpolder. In BoTu it is coordinated through the municipality's approach of allocating money (e.g. Energiewijk) and through collaborating with neighbourhood organisations (e.g. Stichting Pauw). The focus of the municipality of Amsterdam is currently mainly on the involvement and encouragement of VvEs in energy renovation measures.

For the design of well-targeted policies, Streimikiene (2022) advocates for a combination of conventional energy poverty mitigation policies and behavioural measures. The latter means, for instance, that the choices available to people must be made clearer and simpler. This corresponds to the results in both Venserpolder and BoTu. In Venserpolder, the municipality's ambition to present its residents with information that is clear and simple relates to informal practice rules that limit early participation. In BoTu, it is reflected by Havensteder, who, in their direct contact with their tenants, try to keep the message simple. In BoTu, door-to-door conversations with residents are conducted to inform residents on the plans but also to get them

to agree with the plans. The door-to-door conversations with BoTu residents can be linked to the innovation decision process as provided by Broers et al. (2019). This decision process consists of five stages: knowledge stage, persuasion stage, decision stage, implementation stage, and confirmation stage. In the door-to-door conversations residents are informed on the problem and municipality's plans. Then, they are persuaded towards having a favourable attitude towards the innovation, as the municipality needs 70% of residents to agree to the plans. The latter relates to the decision stage, where residents vote in favour of or against the plans. In the implementation stage their house is connected to district heating. The confirmation stage occurs when an individual seeks reinforcement of an innovation decision already made (Broers et al., 2019). In Venserpolder, these stages are somewhat followed in the municipality's approach towards VvEs who want to implement sustainability measures in their building. However, the municipality does not seem to play an active role in the persuasion, decision, or implementation stage. Furthermore, the municipality currently only informs residents on their ambitions and plans, and the other stages of individuals' decision process appear to be neglected.

According to Seebauer (2021), deliberative engagement of residents can enhance the legitimacy and acceptance of energy projects, proving the effectiveness of door-to-door conversations on residents' acceptance on energy transition plans. In Venserpolder, the municipality communicates with residents through letters. Palm et al. (2024) highlight that municipalities take the cost-benefit ratio into account when deciding on communication measures. As a result, groups who are placed in the lower left quadrant of the power-interest matrix might have been completely neglected in communication by the municipality as they might have been seen as not worth the investment. The research, which used an approach based on the power-interest matrix, showed that it is possible to raise awareness within a local government of the importance of maintaining active communication with residents, even when they are perceived as having low power and low interest. Research conducted by Mundaca et al. (2018) also underlines the importance of the ability for local stakeholders to be heard as this influences social acceptance of policy measures. They state that post-decision consultation can trigger social rejection and residents should therefore be included early on in the process. In Venserpolder, the municipality decided on the energy transition in the neighbourhood in a top-down manner. Only after communicating this decision to residents, it became clear that the proposed plans were not realistic on the short-term. Research points out that the energy transition is a long-term process and ambitions therefore need to be rolled out slowly. Communities should get time to adapt to the new energy system. This will limit the perception of energy injustice in decision-making processes (Mundaca et al., 2018). It is unclear to what extent the municipality of Amsterdam plans on rolling out energy transition ambitions slowly. It can be argued that, in BoTu, the

energy transition was rolled out slowly as it involves an area-based approach with three phases.

Looking at the four dimensions of the PAA through the lens of procedural justice reveals that contrasts exist between BoTu and Venserpolder. In BoTu, procedural justice is partially embedded in the resilience discourse and in the decision-making structure that requires approval from at least 70% of residents before plans can be executed. Procedural justice is reflected in the resources as well as the rules of the game dimensions through residents' involvement in the allocation of local funds, as this demonstrates efforts of the municipality towards more inclusive governance. Although a top-down discourse exists that limits (early-on) participation, informal norms for collaboration are in place which encourage collaboration with local organisations and residents. In Venserpolder, procedural justice is less visible. A top-down and social washing discourse underline the low-power position of residents in the local energy transition. Furthermore, current informal norms restrict residents' early involvement. Within the resources and rules of the game dimensions, opportunities exist for the municipality of Amsterdam to make communication and participation practices more inclusive. The actors dimension further demonstrates these differences, where residents in BoTu hold comparatively more power than residents in Venserpolder. This highlights that procedural justice is more embedded in BoTu's approach to the local energy transition than in Venserpolder's.

7.3. Recognition justice

Both municipalities highly prioritise the affordability of their energy transition. Jansma et al. (2023) note that the economic aspect of the energy transition poses the main barrier to including citizens into the transition. The municipality of Amsterdam as well as Rotterdam see the lowest societal costs as a starting point for their energy transitions, however it is not explicitly explained what is meant by societal costs. The two municipalities recognise that the economic aspect poses the main barrier for the social acceptance of the transition. Both state that, for the success of the transition, residents should be approached with a proposal of an alternative heating source that will cost either the same or less than natural gas. In BoTu, the municipality collaborates with several local organisations who are in direct contact with residents and who give the municipality feedback on which residents are experiencing what problems. It can be argued that by following the Asset-Based Community Development (ABCD) approach, the municipality of Rotterdam acknowledges the needs and capacities of the local community. ABCD focusses on actively engaging with and understanding local communities, on collective learning about how to activate local assets, skills, and capacities, and on how to get involved with energy policy (Feldhoff, 2016). In their case study in a city in Japan, Feldhoff (2016) found that the place- and asset-based approach has strengthened local

governance and has enabled citizens to invest and take ownership over local development projects. It should be noted that for this thesis, the direct perspectives of local residents of BoTu and Venserpolder were not included and, as a result, it is unclear to what extent residents in the two neighbourhoods feel a sense of ownership over the energy transition. Wüstenhagen et al. (2007) found that, in the context of the siting of wind power, ownership and participation should be facilitated at the local level of implementation for local social acceptance to be increased. Social acceptance by residents is essential for successfully implementing new public infrastructures (Sauter & Watson, 2007). Wüstenhagen et al. (2007) underline that social acceptance may be a constraining factor in the realisation of renewable energy projects. Pasqualetti (2011, p. 201) proposes that the energy transition should be approached by viewing challenges of development as mainly social matters with technical components, instead of the other way around. *“To accept this view, is to unlock the door to a renewable energy future.”* In BoTu, social acceptance of energy transition measures is obtained mostly through the informal rule for carrying capacity where residents have direct power over whether or not the plans will be executed. Furthermore, through Open Oproep and Energiewijk residents are given ownership over allocation of money. In Venserpolder, the extent of social acceptance of energy transition measures is currently unclear as the measures proposed will not take place on the short term, but after 2030. The measures that VvEs can take on the short term, and which is facilitated by the municipality, currently fall under the VvEs’ own responsibility. As a result, the municipality of Amsterdam depends largely on the willingness and organisational capacity of VvEs themselves to initiate and implement energy-saving measures, and ultimately are dependent on them to implement the energy transition in Venserpolder.

To encourage pro-environmental behaviour, most policy makers prioritise financial or monetary incentives, as can also be observed in Venserpolder and BoTu. Nevertheless, several studies have shown that socio-demographic and cultural factors may also play a decisive role (Brown & Spiegel, 2019; Chan et al., 2022; Pelau & Pop, 2018). While the municipality of Amsterdam aims at a *“social energy transition”*, only economic differences and aspects are taken into account when promoting energy transition measures. A fair energy transition, they argue, is made up of three elements: *“a fair distribution of benefits and burdens, open access to the decision-making process, and fair opportunities in a changing labour market”* (Nieuw Amsterdams Klimaat, 2020, p. 166). However, to what extent these three elements are pursued remains unclear. In the municipality’s policies, much attention is given to the affordability of the transition. It becomes clear that the current economic focus to the energy transition should be complemented by the social dimension (Schaffrin & Fohr, 2016). In BoTu, most attention is also given to the economic aspects of the energy transition, and specifically its affordability. By having door-to-door

conversations, the municipality becomes more aware of the economic and social position of each household and, as a result, a more tailored approach per household to the energy transition is achieved. For these conversations, the municipality collaborates with different (local) organisations which all target different resident groups (tenants, homeowners, VvEs).

Applying a lens of recognition justice to the findings of this research reveals that both municipalities, to varying degrees, acknowledge the importance of addressing social differences within the energy transition. In BoTu, this is expressed through the ABCD discourse, which emphasises the community's strengths and needs, while in Venserpolder, policy documents refer to the social dimensions of the energy transition but struggle to translate them into practice. This is reflected in a social washing discourse. Amsterdam's *Isolatieoffensief* demonstrates recognition justice through the principle of "*unequal investment for equal opportunities*". Yet, this ambition is undermined by limited accessibility and inclusivity in its information provision. Rotterdam's communication is more accessible. Though, the extent to which the several financing options of both municipalities incorporate recognition justice remains unclear and needs further research. Additionally, opportunities exist for both municipalities to introduce incentives, other than economic ones, that value the diverse local needs and capacities to further incorporate and strengthen recognition justice into the local energy transition.

7.4. *Limitations and research recommendations*

This thesis has several limitations that, in turn, provide recommendations for future research. The first and main limitation of this research is absence of the (direct) perspectives of residents. Residents were not included in the data collection mainly because of the participation fatigue that is experienced by residents in both neighbourhoods. Even though a few secondary sources were found on which input of residents was based, the information these sources provide is limited. Future research should include the direct input of residents, where focus should be put on the social acceptance of measures. It could also be interesting to look into to what extent residents currently feel sense of ownership, as literature has pointed out that a high sense of ownership is beneficial for the success of the (local) energy transition. In addition, the inclusion of perspectives of housing corporations, Vattenfall, and Eneco in future research are also deemed relevant in order to get more insights into how the local energy transition is organised. Especially in Amsterdam, more information is needed to determine how the collaboration with the municipality is perceived by other stakeholders, such as Vattenfall and Stichting !WOON.

In this thesis, it became clear that the policy arrangements of the local energy transition have a multi-level governance character, where the implementation of the

energy transition on the local level is significantly dependent on higher level developments, for instance in the national government. Future research on multi-level governance could help to gain more insights into these micro-macro interactions. To be more specific, the Regional Energy Strategy (in Dutch: Regionale Energie Strategie) fell outside the scope of this research even though it does have an influence on (long-term) plans for municipalities, such as the Transitievisie. In addition, the attitude of national governments towards the energy transition and sustainability also significantly influences the success of the (local) energy transition and should therefore be included in future research.

In this research, two vulnerable neighbourhoods in the two largest cities of the Netherlands were chosen as case studies. Research by Brugger and Henry (2021) concluded that there are differences in policy discourses between rural and urban areas. Future research will need to determine how the policy arrangements and discourse practices in small(er) urban neighbourhoods shape the local energy transition there, and to what extent that is different in comparison to larger cities. Additionally, it could be interesting to include a spatial analysis in such future research. This is deemed relevant as a spatial analysis could give more insights into the physical possibilities and opportunities for the local energy transition. For this research, however, this fell outside the scope.

With regards to the performed methods of this research, a content analysis merely focusses on written communication which means that important nonverbal communication and contextual nuances may have been overlooked, potentially limiting the depth of the analysis.

7.5. Policy recommendations

What could be looked more into by policymakers is the (lowest) societal costs, as this is something that is frequently mentioned by both municipalities in the context of the affordability of the energy transition. However, none of the municipalities explain what is meant by this term. The Dutch Ministry of Finances (n.d.) provides a tool to perform a societal cost-benefit analysis (in Dutch: maatschappelijke kosten-batenanalyse). Such an analysis, the ministry argues, helps in making policy choices but can also be used ex post to review implemented policies. This societal cost-benefit analysis can be used as a method for future scientific research, but could also be employed by municipalities to make their policy ambitions clearer and more concrete.

Furthermore, policymakers should place greater attention to the specific needs and perspectives of social groups. For instance, Pelau and Pop (2018) highlight that gender plays a role in energy consumption as men tend to spend more energy than

women. Demographic criteria such as education and income, as well as psychological aspects such as attitudes, values, and awareness of consequences also play a role in people's willingness to buy renewable energies. Research conducted by Pelau and Pop (2018) and by Chan et al. (2022) have proven that consumers in different countries and across different social and cultural contexts perceive and respond differently to energy-related topics, suggesting that cultural differences play a role in shaping an individual's perception and response. They argue that religion also plays a role in this. As all these different aspects influence consumer behaviour, it is important to understand and recognise all those aspects as strategies that may be effective in one context may not translate directly to another (Chan et al., 2022).

8. CONCLUSION

This research examined the extent to which the policy arrangements of the local energy transitions in Bospolder-Tussendijken (BoTu) and Venserpolder incorporate the principles of energy justice, and how these approaches differ. Using the Policy Arrangement Approach (PAA), the study analysed four dimensions: discourse, actors, rules, and resources. Additionally, it applied a lens of energy justice (distributional, procedural, and recognition) to analyse how justice is integrated into the local energy transition. This thesis aimed at answering the following research question:

To what extent are policy arrangements of the local energy transition in Bospolder-Tussendijken and Venserpolder just?

The analysis showed that policy arrangements play a decisive role in shaping the local energy transition by determining whose interests are prioritised, how decisions are made, and which justice principles are reflected in practice. In both neighbourhoods, the transition is characterised by a top-down discourse, with institutional actors holding most of the decision-making power. Affordability is a key priority for both municipalities, yet its meaning remains ambiguous. Therefore, policymakers are encouraged to employ a societal cost-benefit analysis to make these goals more transparent. Moreover, opportunities exist for both municipalities to better tailor their policies to the diverse social, cultural, and demographic contexts that influence people's energy behaviour and their willingness to adopt renewable energy sources. Future research should include the direct perspectives of residents, particularly on social acceptance and sense of ownership. Despite the shared characteristics described above, the local contexts in BoTu and Venserpolder differ in how justice is incorporated into policy and realised in practice.

In BoTu, the energy transition is more grounded in the local context and guided by resilience and Asset-Based Community Development (ABCD) discourses, which promote local collaboration and (phased) area-based implementation. Residents are given relatively more influence than in Venserpolder, for example through their required 70% approval for projects to be implemented and their participation in allocating funds via Open Oproep and the monthly Energiewijk gathering. These participatory mechanisms enhance procedural justice and social acceptance of energy transition measures by giving residents ownership, even within an overarching top-down decision-making framework. The municipality's deliberative engagement of residents through door-to-door conversations and collaboration with local organisations further supports recognition justice, enabling a more tailored approach that reflects diverse social and economic contexts.

In Venserpolder, by contrast, the energy transition is more policy-driven and institutionally structured. While Amsterdam's policies emphasise a "*social energy transition*", the presence of a social washing discourse reveals a gap between policy ambitions and practice in the inclusion of residents in the local energy transition. Residents have high interest but low power, with participation limited to being informed rather than actively involved by the municipality. Informal norms and procedures hinder early engagement, and implementation depends largely on the willingness and capacity of VvEs to carry out renovations. Although the municipality highlights affordability as a central principle, its narrow focus on economic measures neglects broader forms of recognition justice. Opportunities exist for more inclusive communication, enhanced participation of local stakeholders, and non-economic incentives that address social and cultural differences.

Across both municipalities, affordability is a shared policy priority, reflecting awareness of distributional justice. However, the actual distribution of costs, benefits, and responsibilities remains uneven, especially for tenants and housing corporations, who currently have limited access to financial support when compared to homeowners. Procedural justice is more embedded in BoTu's policy arrangement than in Venserpolder's, as BoTu's participatory and phased, area-based approach fosters stronger local ownership and, therefore, legitimacy of energy transition measures is enhanced. Recognition justice is most visible in Rotterdam's acknowledgment of the community's needs and capacities and less so in Amsterdam's institutionalised system where policies are made city-wide policies and the local context is neglected.

In conclusion, the findings reveal that energy justice is only partially incorporated into the local policy arrangements of both neighbourhoods. The structure and distribution of power within these arrangements largely determine the degree of justice achieved. Where institutional dominance prevails, justice principles are reflected less in the local policy arrangement. Yet, where space is created for the local context and engagement of local stakeholders, justice becomes more tangible. BoTu's more flexible, community-oriented approach offers lessons for fostering inclusivity and legitimacy, while Venserpolder's structured framework ensures coherence but limits (early-on) bottom-up influence. For a just local energy transition, municipalities must bridge this divide. Strong institutional coordination should be combined with genuine local participation, just resource distribution, and the recognition of diverse social capacities and needs.

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APPENDIX A: DECLARATION OF CONSENT

Declaration of consent MSc thesis - Hannah Norman

You are invited to participate in a research study conducted by me, Hannah Norman, student at TU Delft, Wageningen University & Research, and AMS Institute.

The aim of this research is to find out how policy and governance structures at the local scale influence the local energy transition, in the context of Amsterdam and Rotterdam. Through interviews, the translation of policy into practice will be further investigated.

You are participating in a research study in which information will be gathered through interviews. This interview will be recorded via an audio recording with a telephone or laptop. A transcript of the interview will also be made. The audio recordings and transcripts will not be shared with others.

There are no physical, legal or economic risks associated with your participation in this research. The questions that will be asked during this research are expected to be non-personal. However, you do not have to answer any questions that you do not want to answer. Your participation is voluntary, and you can stop your participation at any time.

I will do everything I can to protect your privacy as best as possible. The audio recordings and notes made in the context of this study will be deleted after six months, after the study has been completed.

Participation in this study is entirely voluntary. As a participant, you can stop your cooperation in the study at any time or refuse to allow your data to be used for the study, without giving reasons. Stopping your participation will not have any adverse consequences for you or your organization. If you decide to stop your cooperation during the study, the data you have already provided will not be used for the study and will be deleted.

If you want to stop your participation for the study or if you have questions and/or complaints, you can contact me by email.

Signatures

Name participant

Signature

Date

I, Hannah Norman, declare that I have read the information and consent form correctly to the potential participant and, to the best of my ability, have ensured that the participant understands what he/she is voluntarily agreeing to.

Name researcher

Signature

Date

Contact details of the research for further information:

Name researcher: Hannah Norman

APPENDIX B: INTERVIEW QUESTIONS

General for municipalities

Energy transition-related policy

1. How would you define or explain the (local) energy transition?
2. How did the policy (e.g. *Transitievisie*) come into being?
 - a. Is this how policy is generally developed? If no, how is policy generally developed?
3. What is the aim of the policy (e.g. *Transitievisie*)?
4. What are examples of ways that policy (e.g. *Transitievisie*) is implemented?
 - a. For example: in the coordination/planning of werkzaamheden or
 - b. in the insulation of homes or
 - c. in the collaboration between stakeholders?
5. Which criteria or aspects are taken into account?
 - a. Is the socio-economic position of residents one of them? How is this aspect taken into consideration?
 - b. How is the social/technical feasibility taken into account in the energy transition?
6. Affordability seems to be a, if not the most, important in the energy transition for residents. What is done to guarantee the affordability for residents?
7. This is a vague question: On what aspects of the energy transition have you had to compromise?

Involvement of stakeholders

1. Who are involved in the policy making process? How are they involved/how is collaboration organised? Why are they involved?
 - a. Hier zal het wel gaan over community building/Asset-Based Community Development. En anders naar vragen.
 - b. Are there also stakeholders who are not involved in the decision-making process?
2. Are residents involved? If so, how? And how about other stakeholders, such as neighbourhood initiatives/energy cooperations/housing corporations?
 - a. What is done to make the participation process more inclusive?
 - b. In which part of the decision-making process are residents included?
3. How is the input of residents (and other local stakeholders) used?
4. How do you communicate energy transition-related issues to residents? Why like this?
 - a. General issues/ household-related issues

5. According to policy, the energy transition is seen as a way to create new employment opportunities. What exactly is done to encourage such new employment opportunities?
6. Are you familiar with the concept of a 'just energy transition'? If so, what is done to ensure a just energy transition?
 - a. Refer to 3 types of justice
7. What are barriers to including residents?

Specific to Amsterdam

1. What is meant by the social energy transition? Why is this one of Amsterdam's key objectives?
2. In *Visie Amsterdam Zuidoost Energieneutraal* the following is stated: The municipality's main goal in Zuidoost is to support its residents and entrepreneurs in achieving "a quick and just energy transition". What is meant by a quick and just energy transition?
 - a. The same question for the following quote: "The goal in Southeast is for the municipality to help residents and entrepreneurs with a smooth and fair energy transition."

Specific to Rotterdam

1. In what ways do you create more awareness amongst residents with regards to the energy transition?

(this question relates to: With regards to the energy transition, community building is essential for creating awareness amongst residents as "for a lot of residents, the energy transition is still a distant concern" (Veerkrachtig BoTu 2028, 2018, p. 19).
2. What are examples of no-regret measures?

Other stakeholders

General

1. Can you tell me something about the organisation you work for and what your role in this organisation is?

Collaboration

1. How would you define or explain the (local) energy transition?
2. What is the role of your organisation in the energy transition (in BoTu)? What things do you do to implement policy of the municipality/het Rijk?
3. What things do you do to influence policy?
4. What things do you do to develop new policy?
5. How/in what ways are you approached by the municipality?
 - a. If yes: How do they communicate to your organisation?
 - b. What do you think of this approach?
 - c. What could they do differently?
 - d. In your opinion, how is your input used by the municipality?
6. In what stages of the municipality's policy making are you involved in the process?
7. How is the collaboration between the municipality and your organisation organised?
8. Do you involve stakeholders in your own transitioning process? (e.g. residents, municipality, other organisations)
 - a. If yes: In which part of the process are they included? Why are they included in this part? How do you include them?
9. What is done by your organisation to make the participation process more inclusive?
10. What are barriers to including stakeholders (such as residents)?

Implementation

11. What are examples of ways that policy is implemented by your organisation?
 - a. For example: in the coordination/planning of werkzaamheden or
 - b. in the insulation of homes or
 - c. in the collaboration between stakeholders?
12. Which criteria or aspects are taken into account in the implementation of policy?
 - a. Is the socio-economic position of residents one of them? How is this aspect taken into consideration?
 - b. How is the social/technical feasibility taken into account in the energy transition?

13. Affordability seems to be a, if not the most, important in the energy transition for residents. What is done to guarantee the affordability for residents?
14. This is a vague question: On what aspects of the energy transition have you had to compromise?

APPENDIX C: CODING SCHEME

Table: Coding scheme

Category	Codes
Discourse	(Asset-based) community development Accessibility Adaptive strategy Affordability Area-based approach Awareness Bottom-up Certainty Circularity Climate adaptation Climate neutral Collective transition Community building Complexity Coordination Crime Diversity Economic position/situation Employment Energy efficient Energy poverty Energy reduction/saving Energy transition Feasibility Social energy transition Gas free Inclusivity Innovative approach Intensive approach Interest Justice Liveability Maintenance Neighbourhood economy Participation fatigue Phased transition Poverty Resilience Safety Scalable Social cohesion Social-societal value

	<p>Societal costs Socio-economic problems Sustainability Technical feasibility Top-down Trust Uncertainty Vangnet Visibility Vulnerability</p>
Actors	<p>Energy cooperative Governance Homeowners Housing corporations Informal networks Landlords Renters Resident initiatives Residents VvEs</p>
Rules of the game	<p>Involvement/collaboration Korte lijntjes Micro-macro interaction Participation Policy involvement Resistance (residents)</p>
Resources	<p>Communication Financing Transparency</p>