Provincial Governments as Policy Entrepreneurs

An analysis of policy entrepreneurship strategies and

challenges for policy implementation

The Case of Clean Energy Hubs

MSc. Thesis Jasper Lebbing

j.lebbing@uu.nl

6260829

Supervisor: Dr. Patrick Witte

Department of Human Geography and Spatial Planning
Faculty of Geosciences

Utrecht University

"We've always defined ourselves by the ability to overcome the impossible. And we count these moments. These moments when we dare to aim higher, to break barriers, to reach for the stars, to make the unknown known." – Cooper

Interstellar (2014)

Preface

While writing this thesis, I increasingly realized that my time at Utrecht University is coming to an end. The most important lesson from the past 5 years is that learning does not happen from books and papers alone. The most memorable and valuable learning moments happened while seeing planning theories and principles in practice. Examples include the excursion to eastern Germany and Poland or the planning studios during my bachelor's. I took this principle to my master's and luckily I got the opportunity to do an internship at the province of Gelderland. Besides, I had the privilege to help a team of researchers, with the result of publishing my first paper as a co-author. Now, after 5 years of studying planning, whenever I visit any city or country, I drive my friends crazy with planning facts. My ambition, besides doing what makes me happy, is to never stop learning. Perhaps, more important, is to never stop being excited and enthusiastic about things, because it is contagious. In this thesis, I tried to write some of my knowledge down, in the form of a qualitative research. I appreciate the guidance from the province and I want to thank Patrick for keeping me enthusiastic and helping me out when I was 'stuck'. I also want to thank Alieke for supporting me in my own 'interstellar journey' through life and study. Making the unknown known is always better when you can share it with someone you love.

Jasper Lebbing – Utrecht - November 11, 2023

Table of contents

Abstract

In order to achieve climate mitigation goals, governments formulate strategic policies to facilitate the energy transition. In the Dutch planning context, local governments ultimately have planning authority as they set the legally binding land-use plan. Therefore, it is a challenge for strategic energy transition policies to result in local change. Using a **windows approach** for local **institutional change**, this thesis investigates the role of **regional governments** as **policy entrepreneurs** in their endeavours to get strategic policies implemented. Their strategies and the challenges in translating those strategies to the local level are analysed. The **clean energy hubs** program is used as a case study: a strategic policy led by the province of Gelderland to roll-out a network of alternative fuels infrastructure. The findings describe the unique role of Gelderland as a regional government actor and simultaneously as a policy entrepreneur. By using a combination of formal and **informal strategies**, they try to open windows of opportunity on the local level. However, this is limited by **contextual constraints** like a shortage in building land and conflicting land uses.

Key concepts: windows approach – institutional change - regional governments – policy entrepreneurs – clean energy hubs – informal strategies – contextual constraints

1. Introduction

"The success of the European Green Deal depends on our ability to make our transport system as a whole sustainable" (European Commission, 2020, p.1). This quote from the *Sustainable and Smart Mobility Strategy* illustrates the need to decarbonize the European transport system which is responsible for around 25% of EU's total greenhouse gas emissions. Strategic policies to lower transport emissions are being formulated at various government levels. One type of strategic policy in this field is the promotion of adequate availability of alternative fuels infrastructure (Miyagawa, 2016). However, strategic policies are mainly set in targets and ambitions that do not provide blueprints for implementation (Garcia Hernandez & Bolwig, 2021).

Consequently, a challenge in planning practice and academia is the local implementation of strategic policies (Mastop & Faludi, 1997). In other words: how can strategic plans from higher tiers of government result in implementation on the local level? (e.g. Gustafsson & Mignon, 2020; Faludi, 2000). Traditionally, this was understood as a linear process where plans are formulated at strategic government levels and subsequently need to 'trickle down' into local land-use plans (Hill & Hupe, 2006). However, it is increasingly recognized that this is not the case. Instead, policy-makers on the local level often change land-use plans primarily to facilitate developments instead of guiding it (Buitelaar et al., 2011). Implementation of strategic policies therefore depends on local policy-making actors perceiving

those policies to be a solution for the specific planning problems in their local context (Fowler, 2019). Subsequently, they need to adopt those policies in land-use plans; they need to be 'institutionalized' in the local policy-making context (De Lange et al., 1997).

Implementation of strategic plans requires institutional change on the local level, as the changing of the land-use plan is typically the last and most important step in the implementation process (Needham, 2016). Institutions can broadly be defined as the man-made formal and informal structures that structure and give meaning to human behaviour (Buitelaar et al., 2011). A land-use plan can be seen as a site-specific institution that can becomes obsolete and requires revision to be able to accommodate social change (Booth, 1996; Moroni, 2007). There is a lack of empirical understanding under what conditions local institutions become obsolete, as most studies focus on the national or federal level of institutional change (Buitelaar & De Kam, 2012). A particular strand of research studies institutional change as happening during the opening of 'windows of opportunity' for change (e.g. Burch et al., 2003; Buitelaar et al., 2007; Fowler, 2019; Kingdon, 1985). Such a window opens when there is sufficient build-up pressure on a given institution (Burch et al., 2003).

To get policies institutionalized, so called 'policy entrepreneurs' actively engage in efforts to get their policy adopted by decision-makers (Mintrom, 2019). They put pressure on existing institutions by using different strategies. Although much is written about policy entrepreneurs,

research about them is mainly focused on their efforts in agenda-setting on the national level (Dolan, 2021; Elzen et al., 2011). It is recognized that policy entrepreneurs can be government actors as well as market actors. However, there has been limited attention to the role of regional governments as policy entrepreneurs translating strategic policies to the local level. Efforts and strategies of policy entrepreneurs are highly influenced by the institutional structures that they operate in (Rawat, 2016). However, theory building on how they actually navigate institutions and which tools they use remains opaque (Jarvis & He, 2020). Besides, studies in this field tend to pay little attention to the influence of place. When taking place into account, it becomes evident that there are challenges that hamper implementation efforts (Van Geenhuizen et al., 2018). For example, there are different governance and power structures and relations among different localities (Avelino & Rotmans, 2009).

The goal of this thesis is to gain a better understanding of how policy entrepreneurs at the regional government level can contribute to opening windows of opportunity for local institutional change, to facilitate the implementation of strategic energy transition policies. To do this, a Dutch policy for the roll-out of alternative fuels infrastructure is used as a case study. The thesis aims to give a critical examination of (1) the strategies of regional governments as policy entrepreneurs and (2) the contextual challenges in translating those strategies to local institutional change. The research question is: *"How can policy entrepreneurs' strategies contribute to*

opening windows of opportunity for institutional change and what challenges occur in the process?".

1.1.   Scientific relevance

The main scientific contribution of this master thesis is to build on existing theories of institutional change. It does so by applying policy entrepreneurship to strategic planning. Most literature on policy entrepreneurship focuses on the agenda setting phase of institutional– and policy change (e.g. Dolan, 2021; Fowler, 2019; Rawat, 2016). This aligns with the original ideas of policy entrepreneurship, as first described by Kingdon (1985). There have been scholars who argue that policy entrepreneurs are also involved in implementation, and that the spatial domains of policy implementation (state, regional, local) need be addressed (Exworthy & Powell, 2004). However, this type of research is still limited in the field of spatial planning. The research on policy entrepreneurship in planning is mainly focused on how actors outside of government try to bring about change (e.g. Lovell, 2009), or how local government actors act as policy entrepreneurs (e.g. Chapin, 2007; Hysing, 2009).

This type of research provides relevant insights, like the fact that local government actors can act as 'gatekeepers', to prevent implementation of unwanted policies (Hysing, 2009). However, it does not yet properly address regional governments as policy entrepreneurs in the implementation of strategic policies. Therefore, this thesis does not only look at policy

entrepreneurship in planning in general, it serves as a first exploration of the role of regional governments as policy entrepreneurs. Svensson (2019) provided a conceptualization of 'formalized policy entrepreneurship', which this thesis builds upon. It does so by examining the concept in the context of institutional change and planning specifically (Buitelaar et al., 2007). This thesis does not only describe what policy entrepreneurship looks like in a regional government planning context. It also considers the context of planning that can hamper or 'constrain' implementation efforts (e.g. Scharpf, 2018; Van Geenhuizen et al., 2018).

1.2.   Societal relevance

Besides contributing to the scientific literature, this thesis has a societal relevance. It does so by gaining knowledge that can contribute to developing climate change mitigation strategies and translate those into local action. This is a relevant matter, as recent numbers estimate that sea-level rise will further increase, posing low-lying countries like the Netherlands to serious risks (IPCC, 2023). Various climate mitigation targets for transport decarbonization have been set by the EU, such as the Sustainable and Smart Mobility Strategy (SSMS) and the Fit For 55 Package (EEA, 2022). To implement these targets, regional governance arrangements have been set-up by national governments. A logical idea, as transport issues typically transcend traditional administrative boundaries (Öberg et al., 2018). However, they typically lack the decision-making power to guarantee implementation on the local level (Witte & Spit, 2014). Therefore, policies

made at the regional level depend on cooperation by local actors with decisive power to change the land-use plan (Breeman et al., 2020; Lester & Reckhow, 2012). More insight into how regional policy entrepreneurship can stimulate local institutional change might help these types of arrangements in their implementation efforts.

Furthermore, a better insight is needed in the various challenges that can hamper implementation of strategic policies . Since the 90's, influential scholars have been arguing that, however complex strategic policy networks might be, planning always has to land in a locality with its context and challenges (e.g. Driessen, 1997; Mastop & Faludi, 1997). Academic literature on infrastructure planning mainly focusses on governance challenges (e.g. Öberg et at., 2018; Paulsson et al., 2017; Romein et al., 2003) or finding the 'optimal location' for alternative fuels infrastructure (e.g. Csiszár et al., 2020; Namdeo et al., 2014; Kuby et al., 2018). Instead of searching for the appropriate policy instruments to make transport more sustainable and stimulate land development (e.g. Blinge 2014), this thesis contributes by considering the contextual challenges that exist in planning practice, to make policies 'work' on the local level. Consequently, this thesis should not only be relevant for academics, but also for practitioners on the national and regional level, as they can gain insights on how to bridge the gap between (provincial) strategic policies and local practices.

1.3.   Reading guide

This thesis is structured as follows. Chapter 2 sets out the theoretical framework, in which the windows approach is used to understand policy implementation as institutional change. Furthermore, it explores the role of policy entrepreneurs and the multi-dimensional nature of planning challenges. Chapter 3 gives an in-depth description of the context of the case study used in this thesis: the clean energy hubs program. Chapter 4 describes the methods used to answer the research question and further specifies them into 2 sub questions. Chapter 5 discusses the findings of the research, focussing on policy entrepreneurship and implementation challenges. Chapter 6 closes the thesis with a conclusion and discussion on the main findings.

2. Theoretical framework

2.1.   Introduction

This chapter sets out the theoretical lens used to answer the research question. In this thesis, it is argued that the implementation of strategic policies requires institutional change on the local level. Therefore, institutional change in the Dutch (local) planning context is explained first. Second, the windows approach to institutional change is briefly explained and put in perspective in a broader academic discussion. Third, the concept of 'policy entrepreneurs' is explained and their possible strategies as a regional government actor. Additionally, possible implications and challenges of this role are discussed. Finally, a synthesis is given of the discussed theories.

2.2.   Institutional change and planning

Planning is, in essence, about controlling and guiding spatial developments to reach "the best conceivable mutual adjustment of space and society for the sake of society" (De Klerk & Van Der Wouden, 2021). It is a public policy that aims to regulate land use and prevent the uncoordinated use of the land and land-related resources (Gerber & Debrunner, 2022). As any other practice, planning does not take place in a vacuum: "Doing - the central thread of practice - is not just doing in and of itself, … but is always doing in a historical and social context that gives structure and meaning to what we do" (Laws & Hajer, 2006). Planning takes place in an institutional setting: the formal and

informal man-made structures that guide and give meaning to human interaction (Buitelaar et al., 2011). More specific, in controlling and guiding spatial developments, planning makes use of institutions; formal institutions like government regulations or land-use plans and informal institutions like spatial imaginaries (e.g. the Dutch 'Green Heart') or codes of behaviour. These institutions are not to be considered as a given. Rather, they are actively created, changed and maintained through action (Rydin et al., 2022). The leading formal institution in the Dutch planning context is the local land-use plan. They are no static urban regimes, they are constantly revised and changed, be it with enough political endorsement (Needham, 2016). Therefore, institutional change is at the core of planning practices (Innes, 1995).
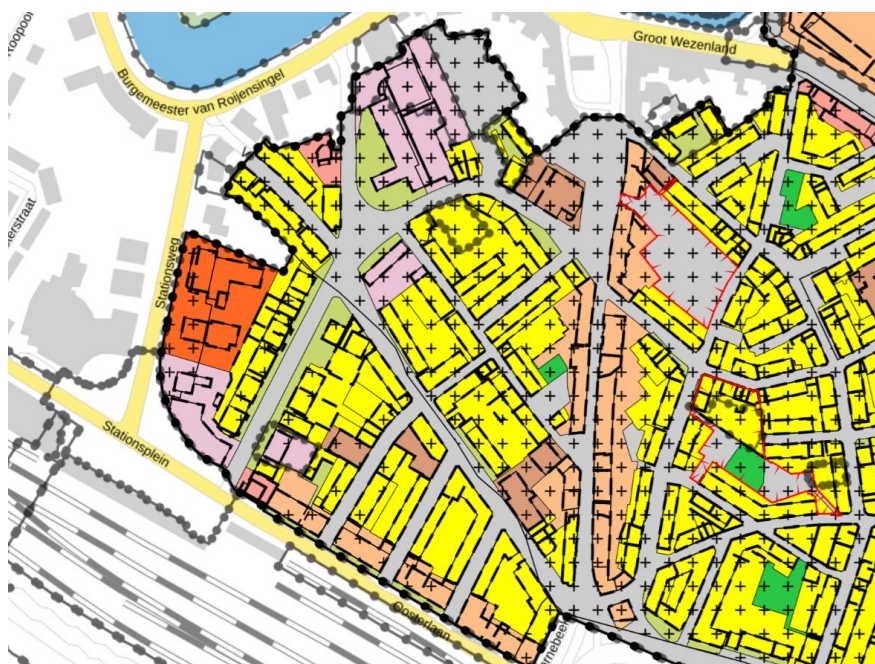

Fig. 1: Land-use plans: the leading Dutch formal planning institutions

Source: Ruimtelijkeplannen (n.d.)

In land-use plans, zoning regulations determine the types of activities that can be accommodated on a given piece of a land. According to Lai (2021), zoning is not just a tool of planning, planning *is* zoning. It effects property rights and how those rights can be exercised, and through that, the course of spatial development. In the Dutch planning context, every square meter is formally required to be 'zoned' in local land-use plans (*bestemmingsplannen* or *omgevingsplannen*). Although a revision of the planning law in 2008 aimed to give the land use plan a more guiding status, the Dutch planning system is still characterized by a development-led planning culture. In the Netherlands, the majority of land-use plans are made, amended or revised altogether in response to development initiatives that do not fit within the legal regime that existed before revision (Buitelaar et al., 2011). So when the current site-specific regime (read: land-use plan) does not fit with proposed institutional change, it can become obsolete and susceptible for change (Booth, 1996; Moroni, 2007).

2.3. Institutional change through windows of opportunity

2.3.1. Institutional change: a sociological perspective

There is a substantive academic discussion on how institutions become obsolete and change (Buitelaar et al., 2007). Specifically, this discussion focuses on the extent to which (human) agents can change institutions (Giddens, 1983). Some argue that institutions can be 'designed'. For example, Bromley (1991) regards institutions explicitly as 'relations' that can be deliberately created. From this perspective, institutional change is

understood as agents devising rules and procedures that can enable or constrain behaviour so as to accord held values, achieve desires objectives or execute given tasks (Alexander, 2002). Other academics, from an evolutionary perspective, see a less prominent role of agents. They argue that institutions 'evolve' through organic variation and are selected on the basis of their efficiency and lowest transaction costs (Hayek, 2020). Increasingly, the 'path-dependency' of institutions is considered, meaning that the historical trajectory of institutions influences the future path of institutional change, even if that is not the most efficient or optimal path (Geels, 2012; North, 1990; Scharpf, 2018). Not only historical trajectory influences the path of an institution, they are also determined by political power. For example, Hodgson (1993) argues that institutions are more likely to persist if they serve the actors or coalitions in power, independently of whether they are efficient or not.

March and Olsen (1989) use the term 'logic of appropriateness' in arguing that institutions are changed and adopted because of their social appropriateness and legitimacy. From this sociological perspective, values and views are considered as internal factors in institutional change. Instead of seeing historically evolved external constraints that limit behaviour as leading, the sociological perspective argues that institutions are actively shaped, created and maintained by the actions of individuals. This means that actors have a transformative capacity, which is bounded not only by personal constraints, but also by external constraints (Scharpf, 2018). Those

constraints can include, among others, the local context that actors operate in, like the governance setting or the political culture (Avelino & Rotmans, 2009; Healey, 2005). Following this sociological perspective, this thesis argues that both endogenous forces (human agents) and exogenous forces (contextual factors) influence the course of institutions (Meijer & Van der Krabben, 2018).

2.3.2. *The windows approach as an analytical lens*

An influential strand of research that follows this logic of institutional change and examines it case-by-case is the windows approach. This approach uses the metaphor of the opening of a 'window of opportunity'. During the opening of such a window, institutional change is more likely to happen, as there is enough (endogenous and/or exogenous) 'pressure' on an institution to make it malleable (Burch et al., 2003).

Buitelaar et al (2007) propose a *staged* windows approach, where they build upon the work of Burch et al (2003) and Kingdon (1985) to study the conditions under which institutional change is most likely to happen (Figure 1). They argue that there are two windows of opportunity. The first one is a politically and discursively defined 'critical moment'. During a critical moment, the efficiency and effectivity of existing institutional structures become questioned and possible change emerges on the political agenda. The second window, a critical juncture, opens when this critical moment aligns with two streams: (1) the stream of powerful alternative ideas and (2) the stream of problem perceptions. During a critical juncture, actors with

political power need to couple an alternative idea to a specific problem, to change a given institution. An important sidenote made by the authors, is that the staged approach should not serve as a chronological explanation. Rather, it is an analytical lens through which institutional change can be better understood (Buitelaar et al., 2007).
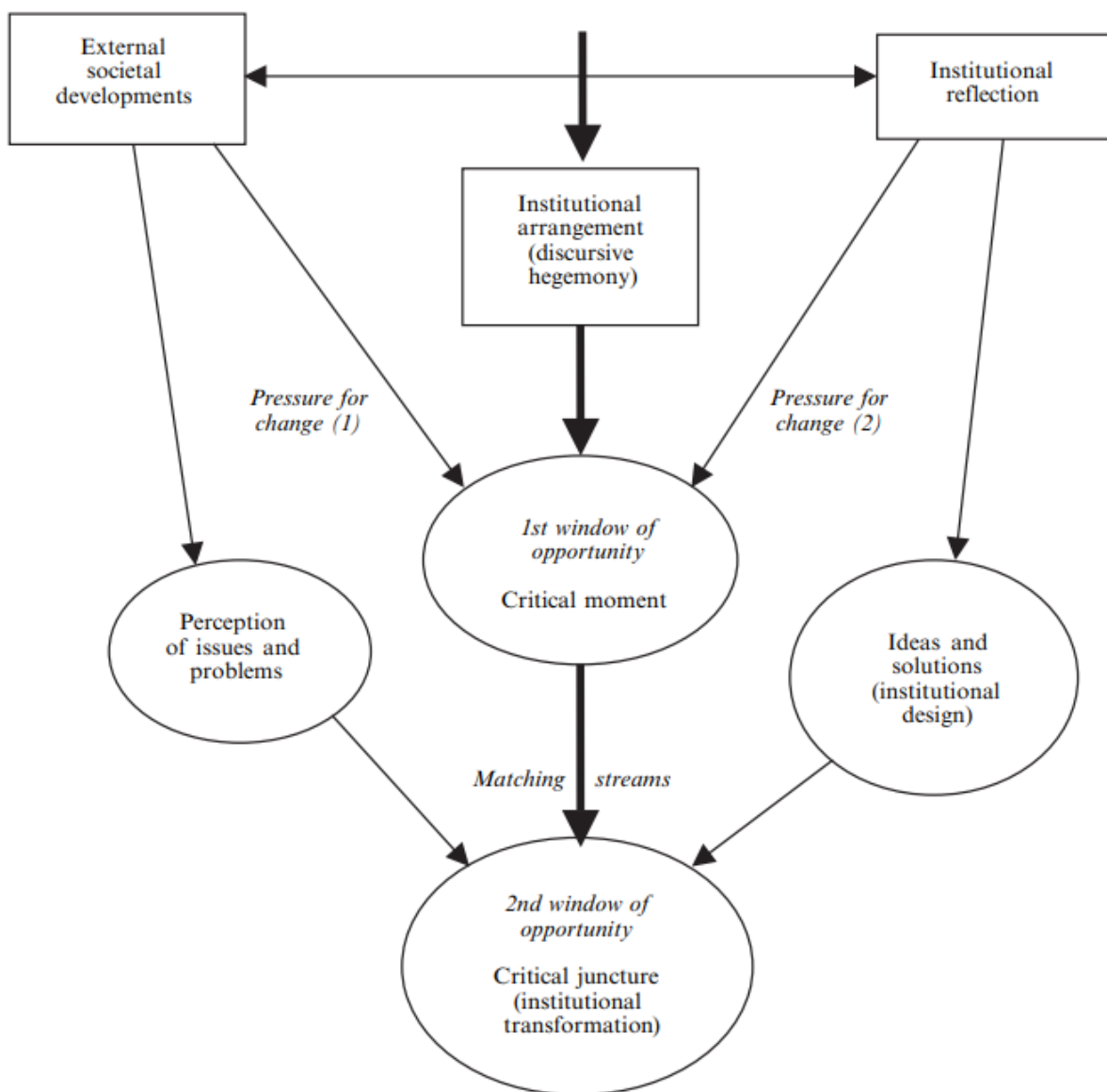

Fig. 2: The Windows Approach to Institutional Change
Source: Buitelaar et al (2007), p.897

The approach starts with an institutional arrangement, that is paired with a discursive hegemony. The discursive hegemony refers to the dominant discourse or system of ideas, beliefs, and values that shapes and controls how people think, talk, and act in a society (Hajer, 1995). A discursive hegemony is supported by the institutional arrangement (read: land-use plan) that allows or restricts practices that do or do not fit. Applied to planning, the discursive hegemony is about the degree to which certain planning issues are being recognized as a problem requiring government action (Yusuf et al., 2016). This can differ between localities. One subject can be prominently on the agenda in one place, while in another place, it gets ignored (Skjeggedal, 2015). The windows approach can help understand why certain strategic policies, like the case study of this thesis, succeed or fail in being recognized and provoke government action (Yusuf et al., 2016).

If there is sufficient pressure on an institutional arrangement, a window of opportunity is opened (Buitelaar et al., 2007). Two interrelated developments or streams put pressure on existing institutions: externally-driven societal developments (exogenous) and internally-driven institutional reflection (endogenous) (Burch et al., 2003). External societal developments are not directly related to the institutional arrangement in question. Examples include an increasing severity of climate change or rising energy prices (Derwort et al., 2022). For instance, high fossil fuel prices can open a window of opportunity for policies stimulating alternative clean fuels (Leiby & Rubin, 2004). So-called 'focussing events', like a war or a crisis are

believed to accelerate the opening of such windows (Kingdon, 1985; Rawat, 2016; Steffen & Patt, 2022). For example, the oil crisis of 1973 fundamentally changed the way that countries approached their energy policy (Derwort et al., 2022). Earthquakes in the province of Groningen caused a critical moment where policy makers started perceiving the gas production in the region as a significant problem for the province (Van den Berg, 2017). More recently, the war in Ukraine is believed to be a 'focusing event' that accelerated the perceived need for alternative fuels (Steffen & Patt, 2022). External societal developments affect the perceived relevance of a problem, and its likelihood to receive political attention (Herweg et al., 2015).

The stream of institutional reflection comprises of critical reflection by agencies, proposals for institutional (re)design, and promotional action (Buitelaar et al., 2007). This reflection results from cognitive processes of actors who do not view the current institutional arrangement as functioning anymore. This reflection results in alternative policies and ideas for institutional change (ideas and solutions). However, these ideas for institutional (re)design are not guaranteed to open windows of opportunity. This depends on two factors. The first one is the capacity of agents to navigate the existing institutions, generate social change despite the existing institutions, and rewrite the rules. The other one is the capacity of the current institutional arrangement to 'learn' and act upon that learning (Cherlet & Venot, 2013). This touches upon the earlier mentioned debate about human agency vs institutions (Giddens, 1983). Existing institutions are hard to

change because of path-dependency. This thesis will mainly focus on whether the stream of institutional reflection can exert enough pressure to open a window of opportunity, which depends on the 'path-creating' capacity of actors engaging in institutional change processes (Buitelaar et al., 2007).

2.4. Policy entrepreneurs as change agents

2.4.1. Who are policy entrepreneurs?

A specific kind of actor that actively engages in institutional change processes are so-called policy entrepreneurs, as first defined by Kingdon (1985). Policy entrepreneurs can be defined as actors, be it formal (government) or informal (market parties, interest groups), who actively try to implement a certain policy innovation or idea. Policy entrepreneurs try to get their policies on local agendas (1st window of opportunity) and ultimately adopted in the local institutional context (2nd window of opportunity) (Aviram et al., 2020). Policy entrepreneurs are not the only 'entrepreneurs' in academic theory. For example, Battilana et. al (2009) write about 'institutional entrepreneurs': agents who initiate, and actively participate in the implementation of changes that diverge from existing institutions. On the other hand, there are institutional defenders who strive for maintaining the status quo, and for institutional continuity (DiMaggio, 1988). Following this definition, policy entrepreneurs can be seen as a kind of institutional entrepreneur with the primary goal of policy change.

Kingdon (1985) argues that policy entrepreneurs are defined by their willingness to invest their resources – time, energy, reputation and sometimes money – in the hope of a future return. For government or non-profit actors, this can be a desired social change or cause. Market parties are more likely to be driven by financial interests, like the potential land rent when the land-use plan for a plot of land increases the land value (Evans, 2004). For example, Tran (2022) shows how a powerful global tech giant actively tried to change the land-use plan of Stockholm to change the designation of a plot in the city's most popular park into one that accommodates the erection of a flagship store. Mintrom (2019) argues that policy entrepreneurs have certain characteristics that enable them to navigate complex institutional settings to stimulate change. According to a systematic review by Frisch-Aviram et al. (2020), there are three key attributes of policy entrepreneurs: the power of persuasion, social acuity, and the ability to build trust. Table 1 offers a further elaboration on these attributes.

KEY ATTRIBUTE	WHAT IS IT USED FOR?	HOW IS IT USED?
PERSUASION	Gain momentum for ideas	The use of metaphors, spatial imaginaries and setting and staging (persuasive storytelling).

SOCIAL ACUITY	Collect support for ideas	Constructing effective advocacy networks, bring stakeholders together.
THE ABILITY TO BUILD TRUST	Create legitimacy and credibility for ideas	Demonstrating expertise, holding positions within government, having a compelling narrative

Table 1: Key attributes of policy entrepreneurs

Sources: Innes & Booher (1999), Davoudi (2018), Hoch (2007)

2.4.2. Policy entrepreneurship at the regional government level

Policy entrepreneurship literature studied the concept mostly from a behavioural perspective. The behaviour of policy entrepreneurs includes, to a large extent, the use of *informal* (e.g. not explicitly formulated in job descriptions) strategies, such as finding allies via networking; framing of topics to fit within various policy discussions; and outsourcing the advocacy to others, in order to strategically keep a consensus relation (Frisch-Aviram et al., 2020). However, this thesis is interested in how policy entrepreneurship manifests itself in a regional government setting. Therefore, policy entrepreneurship also contains a formal component: it is embedded in a formalized government context. Formality in a government context refers to explicit rules, structures and responsibilities for how the government works. On the other hand, informality refers to the activities which are going on alongside these rule-based structures, by individuals and by networks of individuals (Svensson, 2019). Informality is embedded in

planning practice; a wide range of stakeholders negotiate and use their power (e.g. via networks or by owning land) to influence land-use decisions (Buitelaar et al., forthcoming; Needham et al, 2019). Formal and informal interaction orders are closely intertwined and both fill important purposes; formality creates accountability and responsibility, and informality creates cooperative and flexible arrangements (Svensson, 2019).

Policy entrepreneurship within (regional) government creates a specific set of possible strategies: via rule-based structures (formally) or outside rule-based structures (informally). Formal strategies include the use of regulatory instruments to ensure implementation. The Dutch planning system gives regional governments the possibility to 'force' local governments to include certain spatial policies. They can do so in three ways: via an ordinance (*provinciale verordening*), a site-specific provincial land-use plan (*inpassingsplan*), or an instruction (*aanwijzing*). Other formalized strategies include the use of financial regulatory and incentive tools or providing information via official channels or meetings (Brukas & Sallnäs, 2012). Whereas these 'classic' policy instruments above are inherent to governments, there are strategies discussed in academic literature that specifically apply to policy entrepreneurs: informal strategies, "activities which are going on alongside the rule-based structures, by individuals and networks of individuals" (Svensson, 2019) The most discussed strategies in academic literature are summarized in table 2.

STRATEGY	DEFINITION	SOURCES
PROBLEM FRAMING & SOLUTION SEEKING	Deliberate usage of frames to give meaning to a given problem. Combined with solution seeking: offering a specific policy idea or innovation as a solution for that problem.	Frisch Aviram et al., 2020; Mintrom, 2019; Innes & Booher, 1999
LEADING BY EXAMPLE	Providing leadership and engaging with others to demonstrate the workability of a proposal to reduce the ability of opponents to block change.	Mintrom, 2019
COALITION BUILDING	Building and working with advocacy coalitions: people from a variety of positions who share a particular belief in a policy idea or innovation. These coalitions are held together by shared beliefs over policy change. Policy entrepreneurs actively try to stimulate this.	Mintrom, 2019; Sabatier, 1988
LOBBYING & NETWORKING	Closely related, both lobbying and networking are aimed at getting actors (in the case of lobbying: political actors) at one's side. Policy entrepreneurs understand that their networks have skills, knowledge and (political) resources they can draw upon.	Burt, 2000; Mintrom & Vergari, 1998; Pelzer, 2019
SCALING UP CHANGE PROCESSES	Securing desired changes in one jurisdiction and using that as evidence to support changes in other jurisdictions	Mintrom, 2019

Table 2: Policy entrepreneurship strategies

Sources: see table

The most extensively observed informal strategy in policy entrepreneurship literature is that of *problem framing*: the deliberate usage of frames to give meaning to a given – often contested – problem. This is often combined with *solution seeking*: offering a solution – often a specific policy idea or innovation – for that problem (Aviram et al., 2020). Likewise, policy entrepreneurs are known to strategically use and expand their networks. Policy entrepreneurs understand that their networks contacts have skills, knowledge, and (political) resources that they can draw upon to support their initiatives. In other words: they strategically use their social capital (Burt, 2000). Using networks helps implementation, as the ideas of the policy entrepreneur can gain legislative adoption (Mintrom & Vergari, 1998). When a network is explicitly used to influence actors with political power, it can also be labelled as *lobbying* (Pelzer, 2019).

Policy entrepreneurs engage with others to clearly demonstrate the workability of a policy proposal to reduce the ability of opponents to block change (leading by example). They work with advocacy coalitions: "people from a variety of positions (elected and agency officials, interest group leaders, researchers, etc.) who share a particular belief system – for example, a set of basic values, causal assumptions, and problem perceptions – and who show a nontrivial degree of coordinated activity over time" (Sabatier, 1988, p. 139). These coalitions are held together by shared beliefs over policy change and policy entrepreneurs actively try to stimulate this (Mintrom, 2019). In order to expand the reach of their policy, they scale up change

processes (Mintrom, 2019). This often happens by securing desired changes in one jurisdiction and then using those changes as evidence to support changes in other jurisdictions.

2.4.3. Policy entrepreneurs as implementers

In this thesis, the above-mentioned strategies are understood as ways to get strategic policy ideas implemented on a local level. However, what does implementation of strategic policies mean in a (regional) government context? The classic policy-making cycle can be divided into several distinguishable stages, ranging from agenda-setting to policy formulation, adaptation, implementation and finally evaluation (Frisch-Aviram et al., 2020; Treib, 2014). However, this understanding is based on the policy-making cycle on one government level. This thesis is concerned with how a policy that is formulated at a higher tier of government (province) can be institutionalized on the local level (municipality) by the efforts of policy entrepreneurs. Therefore, following Bondarouk and Mastenbroek (2018), implementation is defined here as: the stage between the formulation of policies at the strategic level and the adoption of these policies by the administrative (local) level. Looking at the policy-making cycle, policy entrepreneurs in regional governments are thus involved in agenda-setting and policy adaptation at the local level. More specific: a policy can be considered implemented on the local level if the local government has taken it over in its land-use plan to facilitate the execution of the policy in the form of a new land development. Compared to the windows approach by Buitelaar

et al (2007), these two policy stages align with the two windows of opportunity: the critical moment can result in agenda-setting, and the critical juncture can result in policy adaptation.

2.4.4. Tension fields for regional governments as policy entrepreneurs

Having a 'toolbox' of formal and informal strategies creates implications for policy entrepreneurship within government (Svensson, 2019). First, there is a tension field between accountability and responsibility on the one hand, and cooperativity and flexibility on the other hand (Spit & Zoete, 2006; van Buuren et al., 2013). Some influential scholars argue that governance arrangements that rely on a high degree of informality with stakeholders have a democratic deficit. The main criticism here is that informality is not (or rarely) subject to public scrutiny, i.e. democratic processes (Jones, 2001). Besides, tension fields emerge between government and market parties, caused by mutual dependency (Gerber & Debrunner, 2022). Planning is dependent on the execution of policies by market parties (Fowler, 2019). However, market parties are also dependent on (local) governments to offer the (favourable) regulatory conditions. A third, related tension field relates to the blending of public and private roles of governments, i.e. the 'two hats problem'. For example, municipalities are active and risk-bearing players on the land market, while they also regulate it. Therefore, the use of formal instruments, like zoning, might be influenced by whether the municipality owns the land. In other words: the two-hats problem refers to the conflict of interest between the 'government as a regulator' and 'the government as a

buyer and seller of land' (Dunning et al., 2021). Finally, there is a tension field between centralization versus decentralization (Wegener,2016). On the one hand, local governments have a high degree of independence (principle of subsidiarity). On the other hand, Dutch planning law provides provincial and state governments with land policy instruments to directly intervene on the local level (Needham et al., 2019).

2.4.5. *Contextual constraints for policy entrepreneurs*

As stated before, human agency is constrained by contextual factors (Pawson & Tilley, 1997; Scharpf, 2018). More specific, local conditions influence implementation performance (Buitelaar et al., 2011). This raises the following question: are policy entrepreneurship strategies effective enough to open windows of opportunity at the local level? In studies on the windows approach, contextual challenges or constraints for implementation are often an underarticulated subject (e.g. Exworthy & Powell, 2004; Koebele, 2021). More general, Geenhuizen et al (2018) state that: "Remarkably, in studies on transitions towards higher sustainability, the influence of place has received scarce or no attention at all for a long time" (p. 6). In other words: locally embedded planning challenges can influence successful implementation. As planning is a multi-dimensional field, cross-cutting sectoral policy fields, the local context can influence implementation in multiple ways: each locality deals with a unique infrastructural, economic, governance and spatial context (Witte et al., 2012).

Consider, for example, the market conditions in one locality that might be unfavourable for certain land use interventions. Another constraint might be the morphological conditions influencing land use possibilities, like contracting soil (Witte et al., 2012). Another example can be a lack of knowledge of politicians and the subsequent use of planning methodology in practice, for instance, about the implementation of policy relating to the integration of land use and transport (Curtis, 2008). More specific, there might be a lack of political priority to a certain policy idea or innovation (Sanyal, 2005; Zhao et al., 2018). Public actors work within their own institutional logic: they have to balance between different interests in their own local context (Buitelaar et al., 2011). Van Straalen and Witte (2018) argue that a lack of urgency and reactive stances of some governments towards infrastructural challenges are themselves a challenge in future infrastructural land development. Contextual constraints can also be of an institutional nature themselves. For example, a known problem for policy implementation is institutional fragmentation, i.e. when different rules and procedures do not fit with each other (Romein et al., 2003).

2.5.   Synthesis

For the implementation of strategic policies, institutional change on the local level is needed. Land use plans can be seen as site-specific institutions that change under certain conditions. To understand these conditions, the windows approach to institutional change can be used. Local institutional

change happens through two windows of opportunity: a critical moment, where possible change arises on the local political agenda, and a critical juncture, where this change is solidified in the changing of the land use plan. From this sociological perspective, it is assumed that agents play a vital role in institutional change processes. They are able to put pressure on institutional arrangements. One example of such agents are policy entrepreneurs: agents who initiate and pursue certain policy changes or innovations. When in government, these type of actors use a combination of formal and informal strategies for institutional change. However, their agency is constrained by contextual factors. These factors pose challenges to successfully implementing strategic policies.

3. Case study context

3.1.   Introduction

This chapter sets out the context of the case study of this thesis. First, the choice for a case study is substantiated by the use of various sources. Second, the case study is contextualized in detail by using the institutional resources regime (IRR) framework (Gerber et al., 2020). According to this framework, each planning issue contains three main variables: the resource itself (here: clean energy hubs), the actors involved, and the relevant institutions. Together, these three variables illustrate the context of the case study. This is relevant for two reasons. First, planning does not take place in a vacuum: it is situated in a location- and case-dependent context. As discussed in the theoretical framework, contextual factors influence the path-creating capacity of policy entrepreneurs (e.g. Pawson & Tilley, 1997; Scharpf, 2018). Second, in a qualitative case study design, the results are case-specific (Flyvbjerg, 2006). Therefore, an understanding of the context of the case study is helpful for interpreting the empirical results and putting the conclusion in perspective.

3.2.   Case study approach

The case study chosen to study in this thesis is the strategic policy program called 'clean energy hubs'. The policy is a cooperation of 11 provincial governments and it is aimed at implementing a network of so-called clean energy hubs for inland freight transportation (road and water). The policy

program defines a clean energy hub as "a (semi) publicly accessible tank, charging or bunkering facility with a minimum of two alternative, sustainable energy sources and if possible in combination with other facilities such as public transport, catering, truck parking, meeting rooms, etc." (Provincie Gelderland, n.d.).

Fig. 3: The clean energy hubs logo
Source: Provincie Gelderland (n.d.)

As the interrelationship between policy entrepreneurship and institutional change is a complex subject, a qualitative empirical study of a single case seems an appropriate research design (Lijphart, 1971). Besides, the main research question of this thesis is explanatory and does not test an hypothesis. Therefore, a case study can make the complex researched phenomenon better understandable and tangible (Flyvbjerg, 2006; Yin, 2018). The case study is chosen because it can be considered a representative case of a strategic policy program that uses – besides classic policy instruments – policy entrepreneurial strategies to stimulate implementation (Seawright & Gerring, 2008).

3.3. The resource: clean energy hubs

By resources, the IRR framework does not only mean natural resources, such as water or forest, but also human-made resources, such as housing or infrastructure (Gerber & Debrunner, 2022). The resource that the clean energy hubs program aims to develop is so called 'alternative fuels infrastructure'. From a planning perspective, one might argue that the underlying resource is always that of land itself. According to the clean program, a location with alternative fuels infrastructure qualifies as a clean energy hub when it consists of at least 2 alternative (sustainable) energy sources. These include electric charging points or fuels like hydrated vegetable oil (HVO), gas to liquid (GTL), bio liquid natural gas (Bio LNG), bio compressed natural gas (Bio CNG), hydrogen, methanol or green ammonia.

Fig. 4. A clean energy hub for road transport
Source: Dagblad van het Noorden (2022)

The goal of this policy is limiting transport related carbon emissions, which have been increasingly recognized as a vital issue in relation to climate change mitigation (Zhao & Pendlebury, 2014). The transport sector is estimated to be responsible for almost 25% of the Greenhouse Gas emissions worldwide and in the EU (Alp et al., 2022; Council of the EU, n.d.). Therefore, policies like the clean energy hubs program are increasingly aimed at the transition of fossil fuels towards the use of renewable energy sources for freight transport. This transition requires the presence of a network of fuelling and filling points that supports the use of alternative fuel vehicles. According to Miyagawa (2016), the adequate availability of this infrastructure is one of the most significant factors of success for the energy transition of freight transport.

Fig. 5: Left: fuelling point for road transport (BIO CNG), Right: fuelling point for water transport (electric battery container)

Sources: left author's own (left) & Engie, 2021 (right)

There is not yet one solution or type of alternative fuel that 'jumps out' as most promising for fuelling the energy transition. Though this thesis aims to distance itself from the lively (political) discussion about this, it might be relevant that some considerations are discussed here. One issue often heard is the technical capacity of alternatives. For example: hydrogen has a lower energy-density compared to conventional fuels. Besides there are high costs when investing in (green) hydrogen (Greene et al., 2020). These can become lower when scaling up, but shifting towards alternatives inevitably requires more public investments than conventional fuels. There is a technical lock-in situation: a situation where organizations are heavily dependent on a specific technology (fossil fuels) and a more efficient or sustainable alternative is too expensive (Geels 2011; Kemp et al., 2007). It usually takes a lot of money to unlock such a situation, which happens usually at the expense of the public sector (Needham & Hartmann, 2012).

This lock-in situation is also a consideration with alternatives that still (to some degree) rely on fossil fuels, like CNG and LNG. Although they emit less Co2 than petrol and diesel, they are surrounded with geopolitical tensions which became more visible since the war in Ukraine (Blondeel et al., 2021). Their bio-counterparts - as well as bio-diesels – gain popularity and are increasingly considered as viable alternatives. However, one can be critical on the negative externalities of these fuels: deforestation, land degradation, and the competition with food production (especially in the global south) (Davydenko et al., 2022). There are more considerations that can be

discussed, like the high energy demands of electrifying transport (EEA, 2021). This causes issues in the Netherlands, as the electricity grid is congested. Because the current energy infrastructure is at its limits, building new charging points is also limited (RVO, 2021).
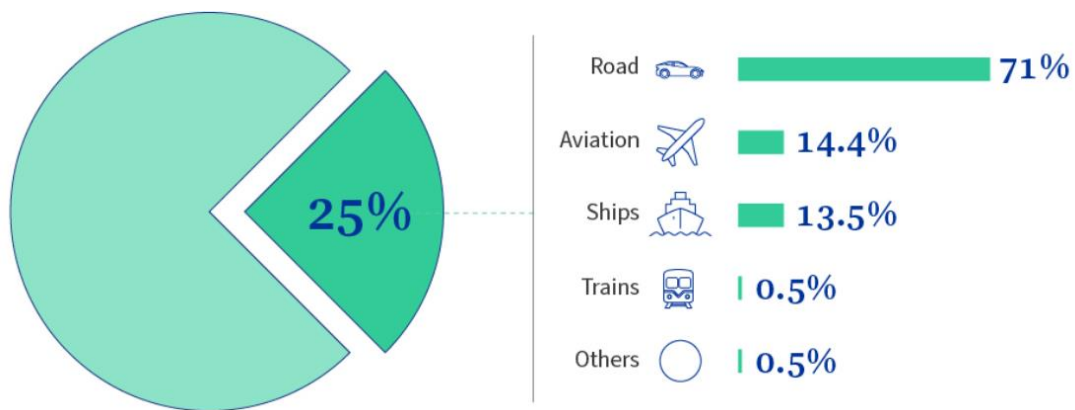

Fig. 6: Share of carbon emissions in transport, total and per transport sector
Source: Council of the EU (n.d.)

While shifting to alternative fuels for transportation is critical for the energy transition towards sustainable energy sources, it should be noted that this is primarily a technical solution in the climate mitigation challenge. Critical attention can be given to focussing too much on technical solutions to reach sustainability goals (Vanoutrive & Boussauw, 2014). For example, Potter and Skinner (2000) state that "while technical solutions that reduce the impact of individual journeys have a place, it is unlikely that they alone can reduce the impact of transport to a sustainable level" (p. 275). They argue that transport policies should take an integrated approach, considering also solutions like improving urban design to lower travel demand and

intermodal transport (Potter & Skinner, 2000). Especially in freight transportation, intramodality, shifting from road transport to less polluting modalities like rail and water, is a widely-applied policy strategy (Witte et al., 2022). Therefore, it is important to keep in mind that shifting to alternative fuels is only one solution that should be incorporated into a more integrative approach to sustainable transport policies (Potter & Skinner, 2000).

3.4. The actors

The clean energy hubs program is a cooperation between 11 regional governments (provinces), the state government (ministry of infrastructure and water and their executive organisation: *Rijkswaterstaat*), and the port of Rotterdam. The program members work on developing a strategy to realize a nationwide network of clean energy hubs. Formally, the originator (or contractor) of the program is the ministry of infrastructure and water. However, Gelderland is responsible for the daily execution of the program. In doing this, they deal with a multitude of actors. These actors have different types of interests and power in deciding what happens with the scarce resource called land. Rivalries and conflicts among actors lie at the heart of the planning of scarce resources (Gerber & Debrunner, 2022). Therefore, it is useful to analyse the types of actors involved in a case-study. In doing so, 4 types of actors can be distinguished: key stakeholders, context setters, interested actors, and crowd (figure 7) (Hermans & Thissen, 2009).
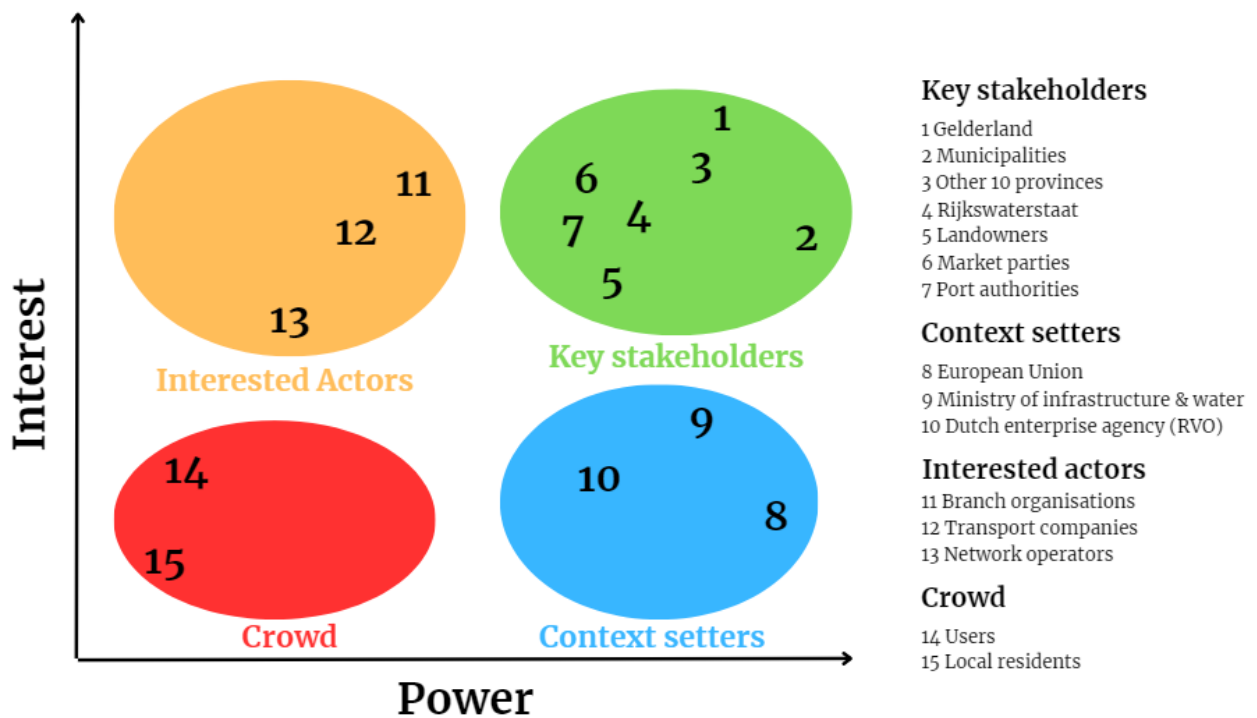
Key stakeholders
1 Gelderland
2 Municipalities
3 Other 10 provinces
4 Rijkswaterstaat
5 Landowners
6 Market parties
7 Port authorities

Context setters
8 European Union
9 Ministry of infrastructure & water
10 Dutch enterprise agency (RVO)

Interested actors
11 Branch organisations
12 Transport companies
13 Network operators

Crowd
14 Users
15 Local residents

Fig 7: Actor analysis of the clean energy hubs case

Source: own analysis

It would be a study in itself to describe all actors in detail. However, an understanding of the key stakeholders and their relation with other actors is relevant. Key stakeholders are characterized by a high degree of power to steer land use interventions and a high interest in the case. Municipalities are the most powerful actor here, as they set the binding land-use plan. Although they do not necessarily have a high degree of interest in the case itself, it is their administrative region hat is being decided over. Gelderland and the other program members on the other hand, have a high degree of interest, and a lower degree of power. This lies in the fact that they are not in charge of the local land-use plan. However, they work together, use informal instruments and are able to use enforcing regulations if necessary. Landowners and market parties are interesting actors, as they are needed for

implementation. Landowners need to sell their land, if they don't want to, they can stress the planning process significantly. Besides, market parties are needed to start initiatives.

Context setters are an important actor as well, as they shape the institutional context. For example, the European Union sets goals and binding targets for member states relating to alternative fuels infrastructure. Likewise, the ministry of infrastructure & water decides which projects (like the clean energy hubs program) get funding and who don't. Likewise, the Netherlands enterprise agency is needed to set up subsidy schemes for market initiatives. An important sidenote is that even 'crowd' actors can become more powerful in a planning process. For example, they might work together and object to the development of a clean energy hub in their locality.

Fig. 8: The clean energy hubs program members
Source: websites of the respective organizations above

The program members meet on a regular base in three types of meetings. First, there are regular core-team meetings. Members of the core

team are: the province of Gelderland, the ministry of infrastructure and water, and the appointed chair. During these meetings, the status of the goals from the annual plan are discussed and overall policy decisions are made. Second, there are monthly meetings from the Learning Community, in which all program members participate. The goal of these meetings is to share information and learn from each other. Third, there are specific working group meetings where a selection of members work on the policy development of specific themes. For example, there is a working group that is specifically aimed at stimulating clean energy hubs on waterways.

3.5. The institutional context

The institutional context refers to all formal institutions, including land-use planning policies and property rights, shaping the scope of action of the policy entrepreneur (Gerber & Debrunner, 2022). The clean energy hubs program itself is part of the 'Transport Corridors East and South program'. This is part of the MIRT is, a list that contains all transport projects in the Netherlands with a special national interest and national funding (Rijksoverheid, n.d.). Clean energy hubs are part of pillar 4 of this program: *'sustainability of south and east corridors'.* The importance of freight logistics for the Dutch economy is accentuated here to highlight the need to realize a "smooth, reliable, robust, safe, and sustainable transport system" (Ministerie van I&W, 2022, p. 41).

There are several 'strategic' and overarching policies that the clean energy hubs program aims to contribute to. These are mainly policies on reaching climate mitigation goals. Most abstract examples include the climate agreement of Paris and the European Green Deal. Often mentioned during the research was the renewable energy directive (REDII) of the European Union. This policy sets binding goals for member states to increase the share of renewable energy in road and rail transport with 14% by 2030. Additionally, in the alternative fuels infrastructure regulation (AFIR), requirements for a minimum number of fuelling and charging points have been set. On the national level, a more ambitious target have been set of 28% renewable energy in the transport sector (*Besluit Energie Vervoer*). To reach these goals, the Dutch government introduced a market instrument called *Energie voor Vervoer*, through which transport companies can trade renewable energy certificates. Additionally, there are related policies like the *Nationale Agenda Laadinfrastructuur* (NAL), which aims to implement a network of electric charging stations specifically.

Applied to planning in particular, there are certain institutions that shape the implementation of strategic policies. The Dutch planning law (*wet ruimtelijke ordening*) prescribes that the state, provinces, as well as municipalities have the obligation to draft strategic documents for their administrative region (*structuurvisie* or *omgevingsvisie*) (Van Buuren et al., 2017). These plans are meant to indicate spatial development directions, and are not legally binding. The only land policy instrument that is legally binding

is the local land-use plan *(bestemmingsplan* or *omgevingsplan)*. Strategic plans only get a formal status if they are implemented in land-use plans. Land-use plans have one fundamental issue: they cannot force a user to realize a certain land-use. If a landowner does not want to cooperate, municipalities can use two formal land policy instruments to acquire land: compulsory purchase (*voorkeursrecht*) or pre-emption rights (*onteigening*). In practice, this is almost never used.

Therefore, the Dutch land policy is more oriented towards restricting undesirable developments than promoting desirable uses (Campbell, 2006). To guarantee the performance of strategic plans from higher governments, the state and provinces have two land policy instruments. They can either designate plots of land for specific uses, like a windmill or housing (*proactieve aanwijzing*) or set binding rules for the content of land-use plans (*verordening*). To help guide urban developments, many municipalities have been pursuing a so-called 'active land policy', by which they buy land, prepare it for development and then sell it to housing associations, real-estate developers, investors or private individuals. Increasingly (since the 1990s) municipalities have been choosing for a facilitative land policy. This is mainly because the monopolistic position of local authorities has come under pressure as – due to rising land rents - private land acquisition became more attractive. Landowners have a so-called self-realization right which gives them the first right of development in case of a new land-use plan. In

this new reality, private parties buy up land and land‑use plans are revised or changed in reaction to development initiatives (Buitelaar et al., 2011).

A large revision of the spatial planning act in 2008 introduced new land policy instruments that allow municipalities to guide spatial developments under a facilitative land policy. First, they have the ability to recover costs (*kostenverhaal*) from developers via a private development agreement (*anterieure overeenkomst*). When developers decline to make use of that option, they have a second option: they a public and enforceable development plan (*exploitatieplan*). Finally, it gave municipalities the option to impose more specific conditions on land development, like mandatory land for social housing (Buitelaar & De Kam., 2012).

4. Research methodology

4.1. Introduction

This chapter describes the methods that have been used to answer the main question *"How can policy entrepreneurs contribute to opening windows of opportunity for institutional change and what challenges occur in the process?"* To do this, the chapter starts cutting the main question into two sub questions. Second, the two research methods and their operationalization are discussed. Third, the validity and reliability of the research is discussed. Finally, possible shortcomings of the research are discussed.

4.2. Dividing the main question: two sub questions

The main question can be divided into two sub questions. First, the main question aims to explain how policy entrepreneurs can contribute to the opening of windows of opportunity. Therefore, the first sub question is about what policy entrepreneurship looks like in the case study; i.e., what strategies are used to implement strategic policies? It can be formulated as follows: *"how do policy entrepreneurship strategies come to the fore in the clean energy hubs case and how can these be explained?"*. Besides, the main question aims to explain the challenges that occur in carrying out its role as policy entrepreneur, to better understand how they can contribute to opening windows of opportunity for institutional change. Therefore, the second sub question can be formulated as follows: *"what are the contextual challenges for policy entrepreneurs in stimulating the opening of windows of opportunity for*

institutional change?". Consequently, this thesis does not only look at *how* policy entrepreneurship manifests itself in a regional government case. It also looks at *why* policy entrepreneurship does or does not result in institutional change.

4.3.   Research methods

To answer the main research question , two qualitative research methods are used to gather data: participant observations and semi-structured interviews (Bryman, 2016). By combining two additional methods, the validity and reliability of the research are enhanced (Hay, 2016). According to Bowen (2009), participant observations and interviews fit well together in a qualitative research design.

4.3.1. *Semi-structured interviews*

The main research method in this thesis was the use of semi-structured interviews. This method was chosen since it can provide knowledge that other research methods unable to deliver. They can provide detailed information regarding choices on policy entrepreneurship strategies and implementation challenges, as interviewees are directly involved in the implementation process. A semi-structured approach was used. This way, the researcher was able to adjust each interview to the diverse contexts of the interviewees (Hay, 2016). Furthermore, semi-structured interviewees allow for a deeper understanding of the researched phenomenon, as follow-up questions can be asked (Bryman, 2016).

INTERVIEWEE	TITLE	DATE
1	Market party	15-3-2023
2	Policy maker, provincial government	17-3-2023
3	Policy maker, municipality	17-5-2023
4	Policy maker, municipality	22-5-2023
5	Policy maker, provincial government	22-5-2023
6	Policy maker, municipality	26-5-2023
7	Business developer, province of Gelderland	5-6-2023
8	Policy maker, municipality	13-6-2023
9	Project leader, province of Gelderland	29-6-2023
10	Policy maker, provincial government	20-6-2023
11	Policy maker, provincial government	4-7-2023
12	Market party	6-7-2023
13	Market party	11-7-2023
14	Policy maker, municipality	11-7-2023
15	Policy maker, municipality	13-7-2023

Table 3: Overview of interviewees

Four types of interviews were conducted (See table 3 for an overview). Interviewees were selected based on the principle of mixed scanning (Etzioni, 1967): a combination of perspectives from actors on the strategic regional level (zooming out) and government and market actors on the local implementation level (zooming in). First, policy makers of provinces that participate in the clean energy hubs program were interviewed. These interviews served as a way to gain an overview of used strategies and the

challenges that play in the implementation process. Second, the business developer and project leader of the program were interviewed to go into depth on the informal strategies and the challenges they encounter the program as a whole. Third, policy makers from municipalities where clean energy hubs were initiated – regardless of initiator (province or market party) or initiative stage – were interviewed. These interviews served as a way to gain knowledge on specific challenges on the local level. Besides, the interviewees were able to give their views on the strategies of the provincial government(s). Finally, market parties involved in realizing alternative fuels infrastructure were interviewed. These interviews served to gain knowledge on the challenges from a market-perspective, as they need to realize clean energy hubs.

The interviewees were approached via telephone, in-person contact or e-mail by using the network of Gelderland or via snowballing. They were given the option to conduct the interview via teams or on a location of choice. The interviews took about 30-70 minutes. During the introduction part, the interviewees were asked permission for recording the interview (See appendix I for the topic-list). This allowed them to be transcribed and coded in NVivo. As some respondents came up with politically sensitive points regarding their local/regional context, it was agreed upon that each respondent would remain anonymous. Only their role and type of organization are mentioned in the thesis. The topic-list – although often chronologically followed in interviews - consisted of two main parts,

according to chapter 2.4 in the theoretical framework. First, after a brief introduction, interviewees were asked to explain the different strategies used to implement the clean energy hubs program and to reflect upon these strategies and explain why they were used (chapter 2.4.1 – 2.4.3). Second, they were asked what challenges hamper the implementation and how these come to the fore (chapter 2.4.4 – 2.4.5). Probing was used, for example, by asking for specifications or examples (Hay, 2016). Finally, there was room for interviewees to introduce topics themselves. The recordings and transcripts are safely stored and are going to be deleted after the thesis is handed-in and graded.

4.3.2. Participant observations

Participant observations were used as an additional research method. Participant observation can be defined as "the systematic description of events, behaviours and artifacts in the social setting chosen for study" (Marshall & Rossman, 2014. p. 79). Observations allow for gaining insights about what policy entrepreneurship looks like 'in practice'. According to Kawulich (2005), this is because a researcher can observe people acting in their 'natural environment' instead of giving answers in the 'unnatural environment' of interview settings. Besides, Boehnke et al (2023) applied participant observations to a similar research, where they studied the challenges in implementing climate adaptation goals in a local government setting. Participant observations provided the researchers with useful

insights about challenges that would otherwise not have been brought up in interviews.

While conducting the research, the researcher was doing an internship at the province of Gelderland and was allowed to join a total of 19 meetings related to the clean energy hubs program (See table 4 for participated meetings). Therefore, he was able to observe and make notes as a participant in these meetings. Detailed transcription notes were made when (1) a certain implementation strategy was discussed or directly observed (e.g. in the case of framing or networking) and (2) when other participants discussed challenges they encountered. The result of his is that some meeting transcripts are extensive, while other transcripts – due to less relevant information during the meeting – are shorter and more general.

MEETING	DESCRIPTION	DATE
1	Learning community meeting	2-2-2023
2	Learning community meeting	21-2-2023
3	Working group meeting	9-3-2023
4	Working group meeting	13-3-2023
5	Meeting with a market party	13-3-2023
6	Meeting with a municipality	14-3-2023
7	Working group meeting	16-3-2023
8	Core group meeting	20-3-2023
9	Working group meeting	27-3-2023
10	Working group meeting	29-3-2023

11	Meeting with a municipality	11-4-2023
12	Meeting with a market party and a province	5-4-2023
13	Meeting with multiple market parties	23-5-2023
14	Meeting with two municipalities	24-5-2023
15	Learning community meeting	25-5-2023
16	Working group meeting	1-6-2023
17	Working group meeting	6-6-2023
18	Working group meeting	15-6-2023
19	Learning community meeting	20-6-2023

Table 4: Overview of participated meetings

A *fly on the wall* approach was chosen: a term from ethnographic research used to describe a passive role of the observer. By doing this, active involvement is avoided and therefore biases and influences such involvement brings are minimized (Hanington & Martin, 2012). This fits well in this thesis, as implementation challenges are sometimes better understood by observing them in practice. This relates to the idea of policy prioritization as embedded in discursive hegemonies, i.e. the notion that certain institutional structures can be observed in the daily practice and language of policy makers (Hajer, 1995). Being an 'observer' or 'fly on the wall' was not always possible to the fullest extent, as the opinion of the researcher was sometimes asked. Besides, to stimulate openness and transparency, the researcher always introduced himself and told that he made detailed notes about the meeting.

4.3.3. Data analysis

The data of the interviews and observations have been subjected to a qualitative content analysis. To arrange and aggregate the large amount of data (15 interview transcripts and 19 observation transcripts), a semi-structured coding process was used in QSR NVivo (Bazeley, 2007). The coding scheme revolved around the operationalization of (1) policy entrepreneurship strategies (e.g. Brukas & Sällnas, 2012; Mintrom., 2019) as described in the theoretical framework (chapter 2) and (2) contextual constraints for policy entrepreneurs. These contextual constraints have been operationalized by distinguishing between resource constraints, actor constraints and institutional constraints as described in the case study context (chapter 3) (Gerber & Debrunner, 2022) (See Appendix 3 for the operationalization table). Each time a policy entrepreneurship strategy was observed, the text about it was coded under the respective type of formal or informal strategy. Likewise, each time an implementation challenge was observed, it was coded under one of the three types of contextual constraints (See appendix 2 for the code tree). The largest part of the data was coded deductively. However, another part of it was coded inductively. For example, an extra code was added to describe the strategies strategies deployed by market parties.

4.4. Reliability and validity

Reliability refers to the quality of the gathered data (Scheepers et al., 2016). To start with the latter, reliability can be distinguished into three concepts:

stability, reproducibility, and accuracy (Potter & Levine-Donnerstein, 1999). Stability - the degree to which the outcomes of the research methods are stable over time – was stimulated by using a topic-list that guaranteed that all topics came to the fore in every interview. Besides, notes were made during participant observations only when one of the two topics (strategies & challenges) were discussed. Reproducibility – the extent to which results would be the same using different research methods and/or settings – was stimulated by using two different methods (Hay, 2016). No major differences were found between the results of the two different methods, indicating that reproducibility of the research (Musante & De Walt, 2010). Finally, accuracy is about the consistency the analysis. This is mostly relevant when different researchers work together. In this thesis, one researcher used operationalized codes consistently.

Validity refers to the extent to which a study accurately measures or reflects the concepts it claims to be studying. The concept can be divided into internal and external validity (Scheepers et al., 2016). Internal validity – the use of a correct research plan – is stimulated by using a high diversity of relevant sources for justifying choices made in the research. For instance, this master thesis only uses peer-reviewed scientific articles and, in some cases, specialist literature. External validity is about the extent to which results are generalizable to other cases and geographical scales. In qualitative research, this can be increased by using a large sample and using multiple case studies. The decision was made to do as many interviews as possible,

until saturation was reached. This happened during the last three interviews. It should be noted that the results are very case-specific, as contexts differ between different case studies. However, this thesis can still be externally valid as it can be used as input or comparison material for other case studies (Flyvbjerg, 2006).

4.5.   Limitations of the research

Doing research requires making choices that (inevitably) come with limitations. First, the timing of the research can be a limitation. The clean energy hubs program is still in the early stages. Therefore, the observations and interviews are per definition a 'snapshot' in time. Conducting research about the program in three years might generate different results, as (attitudes) towards strategies might change in time. A second limitation is related to the research design itself. The research design did not offer a clear and 'structured' way of conducting participant observations. Instead, they were of an inductive nature, not allowing for systematic counting of certain behaviours. A research fully dedicated to a discursive design might want to emphasize this. Therefore, the potential of participant observations was not fully utilized. A third limitation is the handling of the 'regional dimension'. The focus was on the province of Gelderland, and to a lesser extent, on the other provinces. Therefore, the thesis did not fully analyse the clean energy hubs program as a regional *governance* program, but rather as a regional *government* program. The theoretical approach in this thesis lends itself better for studying individual actors rather than groups of actors.

5. Results

5.1.   Introduction

In this chapter, the results of the interviews and observations are described according to the two sub questions: *"what strategies come to the fore in the case study and how can these be explained?"* and *"what are the contextual challenges for policy entrepreneurs in stimulating the opening of windows of opportunity for institutional change?".* Therefore, the first two subchapters aim to give insights in how policy entrepreneurship manifested itself via formal and informal strategies (sub question 1). The third subchapter describes the strategies of market parties as an additional institutional change agent (an inductively found result). Finally, the implementation challenges for policy entrepreneurs are discussed according to the terminology used in the context chapter (resources – actors – institutions) (sub question 2).

5.2.   Formal policy entrepreneurship

The clean energy hubs program consists of 11 regional governments, i.e. provinces. Each province is responsible for stimulating implementation in their own administrative region. However, all interviewees confirm that on top of that, Gelderland is responsible for the overall rollout of clean energy hubs on the national level. They do so by the efforts of two key actors: the project leader and the business developer. The former is responsible for the functioning of the program and the collaboration between all parties. He explains: "*I need to make sure that relations with the ministry are well-*

organized, so that financing is arranged and that we have enough people. Also, I need to stimulate and speed up progress in the bigger goal of implementing a network of alternative fuels infrastructure" (Interviewee 9, project leader, province of Gelderland). The latter works full-time on stimulating local implementation. He explains: "*I am the connector between parties, not only between program members, but also in the outside world: market parties, land-owners but also municipalities. I make sure that parties get in contact with each other, that they learn from each other and that they know what we are doing*" (Interviewee 7, business developer, province of Gelderland).

The main roles of the program members, as accurately explained by interviewee 5 are "*stimulating, coordinating and facilitating*". However, in practice, these roles are only fulfilled when there is a market-initiative in a locality. He further explains: "*we need to ensure that municipalities maintain their leading role and work together with market parties, because they need to ultimately execute the policy*" (Interviewee 5, policy maker, provincial government). This reflects two key ideas that are behind every observed strategy in the clean energy hubs case: successful implementation of the program depends on (1) the willingness of local governments to cooperate and (2) on sufficient market initiative. Interviewee 2 describes municipalities as "*a key actor in the process, because they are in charge of the land-use plan*" (Interviewee 2, policy maker, provincial government). The program requires municipalities to change their land-use plan in order to facilitate the implementation of clean energy hubs, initiated by market parties.

This key role of municipalities and market initiatives has an important implication for the nature of the used formal strategies: provinces are hesitant to use binding laws and regulations. Through specific regulatory instruments from the Dutch planning law, provincial governments have the ability to 'force' municipalities to change their local institutions. However, the directive nature of these policy instruments is believed to be harmful to the relation between regional and local governments. According to interviewee 7, "*The use of these instruments requires considerable investment and capacities. Besides, you get less support if you try to force things*" (Interviewee 7, business developer, province of Gelderland). 4 out of 6 interviewed provinces believes that a more directive strategy might be needed in the future. Reasons include, among others, an increasing number of market initiatives that gets stuck in an early phase. Interviewee 9 views the use of more directive strategies as a "*professionalization*" of the policy program, he further explains: "*As your policy matures, you need to increasingly formally institutionalize it. Right now, it is good that we stimulate and facilitate as much as possible. However, as available land is becoming more and more scarce, we need to start making binding rules. Otherwise, initiatives will increasingly fail*" (Interviewee 9, project leader, province of Gelderland).

Therefore, implementation of the program is formally carried out by using 'soft' formal strategies. In particular, this means producing and sharing information with stakeholders via official channels. Formal meetings are organized with market parties and municipalities. For instance,

a meeting with parties form the alternative fuels market was held to share knowledge and identify implementation challenges. Another example is the online 'location tool', which can be used to identify potential locations. The program team also hires consultancies to conduct research and shares that with stakeholders. During the research, a consultancy was working on a handbook through which municipalities can learn what role they can fulfil and how they can legally embed clean energy hubs in their land-use plans.
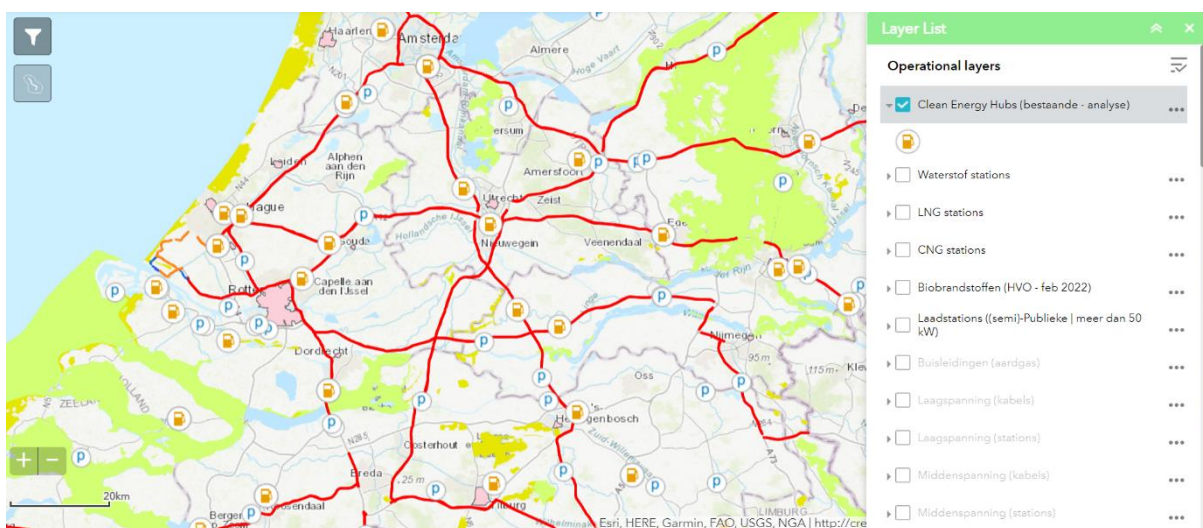

Fig. 9: Screenshot of the clean energy hubs location tool
Source: Rijkswaterstaat (n.d.)

Besides informational instruments, there are also financial incentives. There is a subsidy that allows municipalities to conduct a feasibility study for potential locations. For every province, there is funding for two of these. Gelderland is involved in each of these by supporting municipalities in the process. This type of policy instrument is generally used as a strategy to stimulate implementation when the proposed policy is already on the political agenda. However, as interviewee 9 explains, "*I actually think that it*

[feasibility study] can also help put clean energy hubs on the local policy agenda. So it can help implementation in two ways" (Interviewee 9, project leader, province of Gelderland). In other words: the feasibility studies are used to propose a change (a clean energy hub) and immediately provide evidence (through such a study). An interviewed municipality confirms this notion: "*The province came with that proposal, and the whole issue immediately became more interesting for us as a municipality. Because we don't have to pay for it all by ourselves*" (Interviewee 6, policy maker, municipality). Another financial instrument, though still in development, is a general subsidy scheme for covering the unprofitable top-margin of business cases of market initiatives.

5.3. Informal policy entrepreneurship

The policy entrepreneurial practices of Gelderland are mainly reflected in the use of informal strategies. These strategies are primarily carried out by the business developer from Gelderland. All interviewees agree that having a business developer is a distinctive characteristic of the program. Interviewee 10 explains: "*I don't often see that in other policy programs, sending someone 'out there' to stimulate alternative fuels infrastructure, but I think it works*" (Interviewee 10, policy maker, provincial government). He is often seen as some sort of ambassador or oil man ('*oliemannetje*') of the program. Gelderland tries to bring about institutional change by navigating outside of the bureaucratic framework. According to the business developer himself, this is essential for accelerating the deployment of alternative fuels

infrastructure: "*The province is usually very good in staying in the formal bureaucratic world of policy making* [...]. *I don't want to get stuck in that viscous reality. That's why as a program, we distinguish ourselves and get things done faster*" (Interviewee 7, business developer, province of Gelderland).

5.3.1. *Framing and solution seeking*

This role of 'ambassador' of the program is reflected in the use of informal strategies, and attributes that enable the use of these strategies. The first observed informal strategy is that of *problem framing and solution seeking,* in which clean energy hubs are strategically framed as an opportunity or a solution for various problems. Gelderland primarily engages in these practices during meetings with local governments. A frame that was often used involved the necessity of integrating different spatial functions at one location. This frame resonated with local policy makers, as they experience a scarcity of building land: "*the interesting thing about the story of Gelderland is that by combining functions, you can solve multiple problems at once*" (Interviewee 14, policy maker, municipality). Examples include combining alternative fuels infrastructure with truck parking or a hotel. In doing so, Gelderland refers to local problems with parking nuisance and different (EU) regulations, like one that prohibits drivers from sleeping in cabins and local problems with parking.

Besides integrating different spatial functions, the business developer uses the specific local contexts in his framing: "*Monday I have a meeting with a market party and the municipality. I studied their local context of extensively and*

I know exactly which locations have potential and which functions can be combined" (Interviewee 7, business developer, province of Gelderland). Interviewee 8, a municipality, illustrated a successful example of this: "*We have enough petrol stations in our city already, which are no longer in favourable locations due to urban expansion. Gelderland presented clean energy hubs as an opportunity to phase out existing locations and combine them with alternative fuels infrastructure on the urban fringes*" (Interviewee 8, policy maker, municipality). Likewise, during a meeting with a municipality that relies on tourism, Gelderland presented clean energy hubs as an opportunity to boost sustainable tourism.

Fig. 10: The business developer presenting for a municipal board

The ability to use framing and solution seeking in order to convince policy makers relies on the persuasive storytelling abilities of the policy entrepreneur. In meetings with local governments and businesses, he used a

compelling narrative in which he described the forming of the policy as his own 'journey'. In this story he described his personal learning curve in which he slowly discovered the ideal locations for alternative fuels infrastructure and how these locations should be organized: "*When starting with this policy, it struck me that – while driving on the highways – I never saw a truck fuelling alongside the road, never. This is for two reasons. One, transport companies make local price agreements with their fuelling stations. Two, they want their drivers to start their route with a full tank [..] So we shouldn't handle freight the way we handle private transportation. Therefore, the ideal location for a clean energy hub is at the access of a business park*" (Meeting 13, business developer, province of Gelderland). An interviewed municipality reflected upon these storytelling abilities: "*The added value [of the province] is in building op a story [...] If you don't do that, and you just say 'we need a truck parking because there is a problem on current business parks, and we are going to offer a valuable piece of agricultural land for that', you won't get people on your side. Gelderland succeeds in convincing others by combining it with a sustainability story, and making a bridge between businesses and the government*" (Interviewee 14, policy maker, municipality).

5.3.2. Lobbying and networking

In this case study, strategic framing is primarily used to get the policy on local agenda's. During the research, the business developer joined meetings on related matters, like a new business park, to engage in these framing practices. The ability to join the right meetings, and talk to the right people,

is due to the use of a second informal strategy: *lobbying and networking*: "*After you get it on the agenda, and they start thinking about it, you need to think about how the policy can get adopted. In this stage, it is essential to get the right policymakers at the table. A common mistake is to only talk with someone from transport. However, you need all related sectors: transport, economy, spatial planning, environment and energy transition*" (Interview 7, business developer, province of Gelderland). Simultaneously, he tries to exclude certain parties from the table who pose a threat to the core ideas of the policy, like big oil companies or parties that only focus on hydrogen. For instance, he carried this out during meeting 6: "*Please don't fall for the promising but misleading words of Shell. They say that they care about sustainability. But in the end, they will postpone building alternative fuels infrastructure as long as possible*" (Meeting 6, business developer, province of Gelderland).

One way that Gelderland uses its network is by activating political resources through lobbying activities. This happens both vertically and horizontally: "*On the one hand, we lobby on the national and EU-level. As a result of this, our policy is now considered in EU-documents. On the other hand, we want municipalities to get the ball rolling*" (Interviewee 9, project leader, province of Gelderland). To get that ball rolling, Gelderland has regular talks with municipal executives and politicians. Gelderland also comes along with market parties who try to initiate alternative fuels in a municipality: "*Sometimes, when I get stuck in the process, I ask the business developer to come along with me to a municipality. Then he tells the story and we can try to get one*

step further" (Interviewee 12, market party). He explains that this is successful because Gelderland is an independent actor in the process: "*He can convince municipalities easier than I do, because I speak on behalf of my company, and he speaks on behalf of the public interest*" (Interviewee 12, market party). Lobbying also happens horizontally towards other provinces. In one specific case, the business developer had to convince another province of the necessity of developing a hydrogen fuelling station in a municipality: "*Gelderland had some talks with the province and all of the sudden, they are no longer against the idea. There is even money for a feasibility study now*" (Interviewee 15, policy maker, municipality).

A second way that Gelderland uses its network is by connecting different actors. The business developer has well-established contacts with actors from market parties, municipalities, and other provinces. For example, during an observed meeting, he offered to bring a market party in contact with the municipality in which they wanted to buy a plot of land to develop a clean energy hub. During another meeting, he brought together a province, a municipality, and a market party to discuss a certain potential location. By doing this, not only does he put the clean energy hubs policy on the local agenda, but he also simultaneously offers a market initiative and a potential location as a solution. During a meeting with two municipalities, he stated the following: "*if you are going to start a tender for a clean energy hub, I can bring you in contact with several parties. You have to make it public though, but it can't hurt to let the market inform you*" (Meeting 14, business developer,

province of Gelderland). Gelderland is also constantly expanding its network. They do so by networking at formal meetings like conferences. They also network in the informal sphere. For example, during the research, the business developer was invited to join a meeting in the skybox of a soccer club that is sponsored by a market party. During this meeting, they informally spoke about the energy transition and contacts were shared.

5.3.3. Scaling up change, working with advocacy coalitions and leading by example

Three other informal strategies, although less prominently, came to the fore in the clean energy hubs case: scaling up change processes, working with advocacy coalitions, and leading by example. Gelderland scaled up the program considerably since the program started. The program was originally meant to implement a network of only LNG filling points along the main transport corridors. By the efforts of the business developer, this was scaled up towards the broad approach of clean energy hubs as integrated locations with at least 2 different alternative fuels. Recently, the 11th province joined the program, and conversations are going on with the 12th and final one. The business developer explained why scaling up change processes is important: "*It is a waste of money if all provinces need to do the necessary research themselves. Besides, we can provide clarity to the market, 'this is how all provinces think about the issue'. Market parties often operate in multiple provinces at the same time. By working together, we can assure that they don't need to have*

conversations with all 11 or 12 provinces independently." (Interviewee 7, business developer, province of Gelderland).

Related to the above, Gelderland invested time and effort in assuring that the program functioned as an advocacy coalition. They do so by stimulating a shared belief over key policy issues. Leading by example is highly intertwined with framing. During different meetings, Gelderland shared successful examples of clean energy hubs as a frame that proved the workability of the program. They provided leadership by actively taking the lead in the program. The business developer would tell the story of locations with a wide range of alternative fuels and integrated combinations. Besides, Gelderland uses these examples to convince other program members of the workability of the policy.

5.4.   Market parties as institutional entrepreneurs

During the research, it became apparent that, besides municipalities, market parties play a key role in the implementation of the clean energy hubs program. During meetings and interviews, it was accentuated that without (good) market initiatives, institutional change would not be possible: "*First, you need a municipality that is willing to facilitate the development of alternative fuels infrastructure. Second, you need a market party that is willing to take risks, in the form of buying up land and investing in sustainable fuels*" (Interviewee 13, market party). The interviewed policy makers agreed: "*Only if market parties are willing to cooperate, and come with good development initiatives, then we are*

willing to think about facilitating it formally" (Interviewee 4, policy maker, municipality). Although there are market parties that can develop locations according to the ideas of the policy, their primary interest lies in gaining a strategic position in the fuels market with clean alternatives. Therefore, they can be seen as institutional entrepreneurs, who also put pressure on local institutions through the use of strategies.

Because they don't have public policy instruments, their strategies rely on informal practices. Like Gelderland, they also use strategic *frames* in which they address local issues and present their idea as a solution: "*I heard that truckers are no longer allowed to sleep in their cabins. So to convince the municipality, I can offer to combine alternative fuels with a hotel.*" (Interviewee 1, market party). Besides framing and solution seeking, market parties also strategically use their network: "*I built up an extensive network throughout the years. So at the municipal level, I know where to look and who to talk to, in order to get things done*" (Interviewee 12, market party). Market parties lobby primarily at the municipal level to convince them to change the land-use plan in their favour. For instance, during a meeting with a market party, the following statement was made: "*The first step is to start conversations with the municipality and get them to change the land-use plan. If we get the green light that the land-use plan changes, we are able to realise a clean energy hub there*" (Meeting 5, market party).

5.5. Implementation challenges: contextual constraints

In order to discover how the agency of institutional entrepreneurs is constrained by contextual factors, it is relevant to look at the different implementation challenges that occur in the context of the clean energy hubs case. These challenges are divided into resource constraints, actor constraints and institutional constraints. However, they are interrelated. For example, institutional constraints also influence decisions taken by actors.

5.5.1. Resource constraints

In planning clean energy hubs, developing the alternative fuels infrastructure itself is not the most pressing challenge. Undoubtedly, various technical challenges exist. For example, grid congestion is a constraint when realizing charging infrastructure. Likewise, interviewees mention the differences in range between various alternatives, or the difficulties and costs of providing hydrogen. However, the biggest resource-related challenge is that of the scarcity of (suitable) building land. Interviewee 4 explains how this influences decision-making: "*An initiative like that* [clean energy hub] *asks a lot. Not only land, but also a subsidy and a permit. But what does it actually bring for our city? A place where 3 trucks tank and charge per day? Land is very scarce, so we have to be willing to make that decision.*" (Interviewee 4, policy maker, municipality). Simultaneously, there are other, more pressing, spatial claims: "*We have an enormous housing shortage in the Netherlands. So*

the pressure on available land is enormous and will only grow in the coming years" (Meeting 14, policy maker, municipality).

At some locations, finding space for alternative fuels infrastructure is a more significant challenge than at other locations, like at inland ports: *"A problem in various aspects of the energy transition is finding available land. In our port, we practically have no space for expansion. We recently had a discussion about where battery containers for electric ships should be located"* (Meeting 10, port authority). Likewise, existing business parks often have little room for expansion, resulting in the fact that current fuelling stations cannot add sustainable alternatives to their location. Interviewees indicate that new business parks are the most promising locations for a clean energy hubs, as alternative fuels can be taken into the design from the beginning. An important aspect in the land issue is that the future of alternative fuels is surrounded by uncertainty. Interviewee 13 explains that, because of technological developments, political climate, or economic circumstances, the land use layout may become outdated, or 'locked-in': *"If, after 5-10 years of pushing the development, you find a suitable location and the land-use plan is changed.. Within those 10 years you will have new insights with which you might want to change the land use characteristics again"* (Interviewee 13, market party)

Fig. 11: a clean energy hub next to a truck parking
Source: own image

The availability of land cannot be fully understood without considering who owns that land. Land ownership has proven to be a significant challenge in the clean energy hubs case: "*When finding a location, you have to consider the ownership structure of land. If ownership is fragmented, you are going to need more time for acquiring the land*" (Meeting 14, policy maker, municipality). Additionally, if a landowner is not willing to cooperate or sell the land, the process of acquiring land can take a long time. In one specific case, this was the main obstacle: "*In our municipality, we found the perfect location. However, the problem is that we don't own the land* [...]. *We have to look at our negotiation options and to what extent we can push land development for something like that [a clean energy hub]. If you do not own the land, the situation is different compared to when you do own the land*" (Interviewee 6, policy maker, municipality). A comparable situation plays in an inland port: "*if you want to fuel two ships at the same time, it does not practically fit. There is an adjacent plot*

of land that is not used anymore for water-bound activity. However, the owner does not want to sell his land" (Interviewee 11, policy maker, provincial government).

5.5.2. Actor constraints

Although informal strategies like framing and networking can open windows of opportunity to convince policy makers and politicians of the program, it is also often the case that it ends up on the 'low priority shelf' afterwards. The political momentum at the local level lacks in these cases. One often-heard reason of this was the prominence of other, more pressing planning issues. For example, this research took place during the war in Ukraine. Therefore, during meeting 12, it was mentioned that energy poverty and the search for refugee housing were more pressing issues at the moment. Besides, the issue of alternative fuels infrastructure is generally less prominently on local agendas in general. Interviewee 3 explains this as follows: "*the city council members all watch the 8pm news, and the most prominent topics on energy transition there are charging points for individuals, heat pumps, solar panels or wind turbines [...] That is the level of knowledge of the council, and they want to make policies on those topics. Energy of freight transportation is something you never hear of, except for the occasional hydrogen truck*" (Interviewee 3, policy maker, municipality). This is interrelated to the fact that local governments often don't have the time to delve deeper into the issue, because of limited capacity and staff shortages: "*Especially at small municipalities, they have limited staff. One policy maker is often responsible for 10 projects at once. That*

same person is responsible for transport, economic development, and planning at the same time" (Interviewee 10, provincial government). As a result of this, when a market initiative for a clean energy hub is submitted and the local authority needs to review it, it also receives little priority.

Another actor constraint is the resistance of other land users. An often mentioned situation was when current fuelling stations object to the arrival of a clean energy hub. According to some interviewees, fossil fuel companies even buy up land strategically in order to frustrate the development of alternatives. In most cases, they formally file an objection at the municipality or even at the administrative judge: "*They* [fossil fuel companies] *see a threat to their livelihood. Besides, they already invested and signed contracts, so they will try to block this. I already heard there will be legal proceedings. Therefore, it is important that the province also has a clear formal policy on this, so that I can defend it in our municipal council*" (Interviewee 3, policy maker, municipality). Interviewed market parties indicate that this is the reason why they already start conversations with conventional fuelling stations in an early phase of the initiative. Besides, other land users, in the form of local residents, also file objections. These objections often relate to the combination with migrant housing and explosive fuel installations: "*if the plan is made available for inspection by the public, surrounding residents will react to it. They come with arguments like 'such a large LNG tank? That is dangerous, it can explode. Not in my backyard!*" (Interviewee 13, market party).

5.5.3. Institutional constraints

Besides resource and actor constraints, there are constraints in the institutional setting that hamper the implementation of clean energy hubs. The first institutional constraint that can be observed is the general lack of decisive power that a strategic policy program like clean energy hubs can exert. The program depends on market initiative and municipalities are needed to facilitate that by changing the land-use plan: *"The biggest challenge is that of changing the land-use plan to make it possible on the local level. And there are all kinds of objections on the municipal level to not allow such a development on an given location"* (Interviewee 13, market party). Also, when there is insufficient market initiative, the discussion arises as to what extent provinces should intervene: "*that is a tension field that we are in. To what extent do we take the lead and appoint locations in a top-down matter, or do we just wait for bottom-up market initiatives. [...] In the end, market parties know best if locations are viable or not*" (Interviewee 9, project leader, province of Gelderland).

Another pressing issue in the case study was the so-called '*Didam-arrest*', a ruling by the supreme court that forbids municipalities from selling land one-on-one to a developer. This causes municipalities to be reluctant in responding to market initiatives, as it would mean that – if the land is not already owned by a private party – they would have to start a (long and expensive) tender process. Here, a tension field arises, between the municipality who wants to have control over the development and market

parties who want a certain degree of certainty and flexibility. During a meeting with a market party, they explained why they prefer buying the land themselves: "*At this specific location, the land is from a private owner. So we only need a change of the land-use plan here, no tender process. That saves us a lot*" (Meeting 11, market party). However, in these situations, if the initiative does not meet the wishes of the municipality, it gets stranded in an early phase: "*It is an interplay with the market. And they try to set us [the municipality] in motion. However, the initiative needs to be a promising project. And that interplay with market parties is missing [...] They need to come up with initiatives that make sense*" (Interviewee 4, policy maker, municipality).

Another institutional constraint is the way that the market for alternative fuels functions. Alternatives are more expensive than conventional fuels. A local policy maker explains how this influences the need for alternative fuels infrastructure: "*In freight transportation, you operate in a market. And if someone is the cheapest, and you can trust them, they get the contract. Sometimes, the fuels supplier will offer a green quotation as an optional alternative. However, that is x euros more expensive, so no one will make that choice. The primary interest of the transport company is getting their goods from A to B as fast and cheap as possible*" (Interviewee 15, policy maker, municipality). The market for alternative fuels is also very volatile, due to geopolitical circumstances, technological advancements and a changing political climate. Therefore, market parties are reluctant to invest in alternative fuels. Interviewee 12 provides an example of this: "*5 years ago,*

everyone invested in CNG installations. However, now we see companies shift to electric driving and the market for CNG is collapsing" (Interviewee 12, market party)*.* Because of high investment costs and an underdeveloped market, a fuelling station with only alternatives is not yet financially viable. Therefore, market parties prefer to provide conventional fuels as well at their clean energy hub, to compensate for losses on alternatives. However, this is often in conflict with the wishes of municipalities, who only allow new fuelling stations when they are emission free. Subsequently, this will then be included in procurement rules. For the province, this causes conflicts with the ministry, who provides subsidies for supporting clean energy hub initiatives on the provincial level: "*The ministry only supports zero emission initiatives, that makes it a legal challenge for us to also support initiatives with conventional and alternative fuels"* (Interviewee 9, project leader, province of Gelderland).

Institutional constraints can also be about 'informal' institutional settings that influence implementation, like whether a locality has a large logistics sector. Certain municipalities identify themselves with the logistic economic sector and are more receptive for sustainability issues in that field. Therefore, a policy like the clean energy hubs program gains more attention in these localities than it does in others. Interviewee 5 explains: "*Some municipalities are very active and some are not [..]. One city really considers clean energy hubs a part of making their business parks more sustainable [...] Another city does not want to cooperate with the clean energy hubs program as their logistics and freight transportation sector is not that large."* (Interviewee 5,

provincial government).   Another informal institutional constraint is the underlying political philosophy in a locality. For one interviewed municipality, the logistics sector is an important economic driver. However, they don't believe a government should actively stimulate alternative fuels infrastructure: *"It is not something that we actively stimulate here [...] As a municipality we don't take the initiative in issues like this, it's up to the market"* (Interviewee 8, policy maker, municipality).

6. Conclusion & discussion

6.1. Conclusion

The research question of this thesis was *"How can policy entrepreneurs' strategies contribute to opening windows of opportunity for institutional change and what challenges occur in the process?"*. The clean energy hubs case clearly demonstrates that regional governments *can* and *do* act as policy entrepreneurs in the implementation of strategic planning policies. They contribute to the opening of windows of opportunity by using a combination of formal and informal strategies. They formulate policy goals and principles, and try to get those implemented on the local level by framing them strategically in the local context and by getting the right people on the table. Windows were opened because of this, but they were also closed because of contextual constraints. When a critical moment (1st window of opportunity) is created by the means of successful policy entrepreneurship, a critical juncture (2nd window of opportunity) does not automatically follow. Gelderland manages to get clean energy hubs on local agendas, but local governments are often reluctant to identify it as requiring government action and prioritizing it as such.

The first sub question was "*What strategies come to the fore in the case study and how can these be explained?*". Having a toolbox of formal and informal strategies creates a unique setting for policy entrepreneurship. The strength is that the formal position of Gelderland makes the use of informal

strategies more successful. Holding a position in (regional) government deems a policy entrepreneurs as more credible and reliable. Furthermore, they are seen as acting from a public interest, instead of their own interest. This is in line with Mintrom (2019), who argues that credibility is important for policy entrepreneurs, as this enhances their ability to build trust. In spite of this, by using informal strategies, one cannot guarantee that a certain policy is implemented. Although regional governments can use directive policy instruments given to them by planning law, they are reluctant to use those. Using directive formal policy instruments threatens the relationship between regional and local governments, making informal strategies less effective. Here, a tension field can be observed between the hierarchy that formality provides and flexibility that informality provides (Svensson, 2019). This also relates to the empirically observed tension field between centralization and decentralization (Wegener, 2016). Additionally, having good contacts with market parties also raises the 'two hats problem' for regional governments (see Dunning et al., 2021). They engage in informal meetings and conversations while also being an influential government actor. This can have implications when, for example, information about potential locations is shared with market parties who might speculatively buy land as a result.

The second sub question was "*What are the contextual challenges for policy entrepreneurs in stimulating the opening of windows of opportunity for institutional change?*". The opening of windows of opportunity is constrained

by all three types of contextual factors as described by Gerber and Debrunner (2022). This thesis shows that these are interconnected: institutional factors, like how power is distributed across levels of government and market actors, influences resources like land availability and the priorities of local decision-makers. This adds to a better understanding of the challenges that can hamper implementation of strategic policies. These challenges, like scarcity of building land, cross traditional administrative boundaries. Indeed, the clean energy hubs program, as a regional governance arrangement, lacks the decision-making power needed to implement their policies on the local level (Öberg et al., 2018; Witte, 2014). Individually, the program members (read: provincial governments) have the ability to use more pressing formal instruments. However, they are reluctant to use those instruments, as it threatens the informal relations with municipalities. The program members are revaluing this existing hierarchy as initiatives increasingly get stuck in the early stages. Contextual constraints are something that need to be addressed in developing new strategies for policy implementation.

6.2. Discussion

This thesis took the concept of policy entrepreneurship one step further than classic policy literature, as it was applied to planning by a regional government for the first time. This thesis showed that policy entrepreneurship in strategic planning is a multi-level practice. Regional governments indeed need municipalities to institutionalize their policies (De Lange et al., 1997). In his analysis of formalized policy entrepreneurship,

Svensson (2019) considers horizontal strategies (towards other government sectors at the same level) and vertical strategies (aimed towards higher and lower levels of government). This thesis can build upon this analysis by accentuating the need to consider strategies aimed towards private actors as well. It became apparent that Gelderland relies on market initiatives, and actively networks with market parties. So strategies are not only aimed at other government actors, they are also aimed at landowners and market parties. The opening of windows of opportunity depends on cooperation of private actors (landowners and market parties). Therefore, a third dimension can be added to the framework of Svensson (2019): diagonal strategies. This type of strategy refers to the coordination between public authorities and private initiatives.

It can be concluded that the institutional change that policy entrepreneurs can bring is only partially determined by their path-creating capacities. In line with Buitelaar et al (2007), this thesis confirms that external developments influence the course of institutions. In this case specifically, besides framing by policy entrepreneurs, external developments influence the problem perceptions of local government actors. More specific, 'focussing events' like the war in Ukraine and rising energy prices put policies like the clean energy hubs program to the background of political attention (Burch et al, 2003; Leiby & Rubin, 2004; Derwort et al., 2022). As a result, the opening of a window of opportunity for clean energy hubs is constrained. The degree to which issues raised by the program gains

government attention differs between localities, supporting the notion that 'place' matters in implementation performance (Skjeggedal, 2015). In other words: discursive hegemonies are a location-specific phenomenon, and should be considered when analysing policy implementation (Hajer, 1995).

This thesis started with the academic discussion on how strategic plans from higher tiers of government can result in implementation on the local level (Gustafsson & Mignon, 2020; Faludi, 2000; Mastop & Faludi, 1997). Indeed, they do not automatically 'trickle down' into local land-use plans. The clean energy hubs case illustrated that it requires efforts of motivated policy entrepreneurs to promote the adoption of these policies. By not relying on formal policy instruments, local policy makers need to be convinced that policies from higher tiers of government are relevant for their local context (Fowler, 2019; Hysing, 2009). Future research on a similar case study that relies less on informal practices and more on directive strategies might be a relevant comparison. By doing that, implications of such an implementation approach can be compared with an informal 'policy entrepreneur' approach. Likewise, future research might be relevant on how to use a policy entrepreneur as a government strategy when strategies become more directive. More specific: what issues come to the fore when formality and informality conflict? As this thesis shows, a combination of formality and informality can create tension fields.

References

Alexander, E. R. (2002). Acting together: from planning to institutional design, paper for the XVI Aesop congress in Volos.

Avelino, F. & Rotmans, J. (2009). Power in transition: an interdisciplinary framework to study power in relation to structural change. *European Journal of Social Theory, 12*(4), 543–69.

Battilana, J., Leca, B., & Boxenbaum, E. (2009), 'How actors change institutions: towards a theory of institutional entrepreneurship', *in Academy of Management Annals, 3*(1), 65-107.

Bazeley, P. (2007). *Qualitative Data Analysis with NVivo*. London: Sage

Blinge, M. (2014). Policy measures to realise green corridors—A stakeholder perspective. *Research in Transportation Business & Management*, *12*, 55-62.

Blondeel, M., Bradshaw, M. J., Bridge, G., & Kuzemko, C. (2021). The geopolitics of energy system transformation: A review. *Geography Compass, 15*(7), e12580

Boehnke, D., Jehling, M., & Vogt, J. (2023). What hinders climate adaptation? Approaching barriers in municipal land use planning through participant observation. *Land Use Policy, 132*, 106786.

Bondarouk, E., & Mastenbroek, E. (2018). Reconsidering EU Compliance: Implementation perform ance in the field of environmental policy. *Environmental Policy and Governance, 28*(1), 15-27.

Booth, P. (1996). *Controlling development. Certainty in Discretion in Europe, the USA and Hong Kong.* London: UCL Press.

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative research journal*, *9*(2), 27-40.

Breeman, G.E., W.J. van Noort, M.R. Rutgers. (2020). *De bestuurlijke kaart van Nederland.* Den Haag: Coutinho

Bryman, A. (2016). *Social Research Methods* (5th ed.). Oxford: Oxford University Press

Buitelaar, E., & De Kam, G. (2012). The emergence of inclusionary housing: Continuity and change in the provision of land for social housing in the Netherlands. *Housing, Theory and Society*, *29*(1), 56-74.

Buitelaar, E., Galle, M., & Sorel, N. (2011). Plan-led planning systems in development-led practices: An empirical analysis into the (lack of) institutionalisation of planning law. *Environment and Planning A*, *43*(4), 928-941.

Buitelaar, E., Lagendijk, A., & Jacobs, W. (2007). A theory of institutional change: illustrated by Dutch city-provinces and Dutch land policy. *Environment and planning A*, *39*(4), 891-908.

Bromley, D. W. (1991). *Environment and economy: property rights and public policy*. Oxford: Basil Blackwell Ltd.

Brukas, V., & Sallnäs, O. (2012). Forest management plan as a policy instrument: carrot, stick or sermon?. *Land use policy*, 29(3), 605-613.

Burch, M., Hogwood, P., Bulmer, S. J., Caitriona, C., Gomez, R. & Scott, A. (2003). Charting routine and radical change: A Discussion Paper, *Manchester Papers in Politics: 41 Devolution and European Policy Series. Paper No 6* (Department of Government, University of Manchester, Manchester).

Campbell, H. (2006). Is the Issue of Climate Change too big for Spatial Planning? *Planning Theory & Practice,* 7(2), 201-230.

Chapin, T. S. (2007). Local governments as policy entrepreneurs: Evaluating Florida's "concurrency experiment". *Urban Affairs Review,* 42(4), 505-532.

Cherlet, J., & Venot, J. P. (2013). Structure and agency: understanding water policy changes in West Africa. *Water Policy,* 15(3), 479-495.

Council of the European Union (n.d.). Fit for 55. Retrieved from https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55-the-eu-plan-for-a-green-transition/#what

Csiszár, C., Csonka, B., Földes, D., Wirth, E., & Lovas, T. (2020). Location optimisation method for fast-charging stations along national roads. *Journal of Transport Geography*, *88*, 102833.

Curtis, C., 2008. Planning for sustainable accessibility: The implementation challenge. *Transport Policy 15*(2), 104-112

Dagblad van het Noorden (2022, February 2nd). Uitbreiding van tankstation in Pesse houdt de gemoederen bezig. Discussie spitst zich toe op reclamemast. Beschouwing over lef, waterstof, woongenot en Snickers. Retrieved from: https://dvhn.nl/drenthe/Uitbreiding-tankstation-Pesse-over-lef-waterstof-woongenot-en-Snickers-27451535.html

Davoudi, S. (2018). Policy and practice spatial imaginaries: tyrannies or transformations? *Town Planning Review*, 89(2), 97-124.

Davydenko, L., Davydenko, N., Bosak, A., Bosak, A., Deja, A., & Dzhuguryan, T. (2022). Smart Sustainable Freight Transport for a City Multi-Floor Manufacturing Cluster: A Framework of the Energy Efficiency Monitoring of Electric Vehicle Fleet Charging. *Energies, 15*(10), 3780.

De Klerk & Van Der Wouden (2021). *Ruimtelijke Ordening: Geschiedenis van de Stedelijke en Regionale Planning in Nederland 1200-nu.* Amsterdam: Nai010 uitgevers

De Lange, M., Mastop, H., & Spit, T. (1997). Performance of national policies. *Environment and planning B: Planning and Design*, 24(6), 845–858.

Derwort, P., Jager, N., & Newig, J. (2022). How to explain major policy change towards sustainability? Bringing together the multiple streams framework and the multilevel perspective on socio-technical transitions to explore the German "Energiewende". *Policy Studies Journal, 50*(3), 671–699

DiMaggio, P. J. (1988). Interest and agency in institutional theory. *Institutional patterns and organizations*, 3–21.

Dolan, D. A. (2021). Multiple partial couplings in the multiple streams framework: The case of extreme weather and climate change adaptation. *Policy Studies Journal*, 49(1), 164–189.

Driessen, P. (1997). Performance and implementing institutions in rural land development. *Environment and planning B: Planning and Design*, 24(6), 859–869.

Dunning, R. J., Moore, T., & Watkins, C. (2021). The use of public land for house building in England: Understanding the challenges and policy implications. *Land Use Policy, 105*, 105434.

Elzen, B., Geels, F. W., Leeuwis, C., & Van Mierlo, B. (2011). Normative contestation in transitions 'in the making': Animal welfare concerns and system innovation in pig husbandry. *Research Policy, 40*(2), 263–275.

Engie (2021, June 9th). Zero Emission Services: First Emission-Free Inland Shipping Vessel on Energy Containers. Retrieved from: https://innovation.engie.com/en/news/news/green-mobility/zero-emission-services-first-emission-free-inland-shipping-vessel-on-energy-containers/26036

European Commission (2020). Sustainable and Smart Mobility Strategy – putting European transport on track for the future. SWD (2020) 331 final, Brussels, 9 december 2020. Retrieved from: https://eur-lex.europa.eu/legalcontent/EN/TXT/?uri=CELEX%3A52020DC0789

European Environment Agency (EEA). (2021). Transport and Environment Report 2021: Decarbonising road transport – The Role of Vehicles, Fuels and Transportation Demand. https://www.eea.europa.eu/publications/transport-and-environment-report-2021

Etzioni, A. (1967) *Mixed-scanning: A 'third' approach to decision-making, in: A. Faludi* (Ed.) A Reader in Planning Theory, pp. 217–229 (Oxford: Pergamon Press, 1973).

Evans, A. (2004). *Economics and land-use planning.* Oxford: Blackwell.

Exworthy, M., & Powell, M. (2004). Big windows and little windows: implementation in the 'congested state'. *Public administration*, *82*(2), 263-281.

Faludi, A. (2000). The performance of spatial planning. *Planning practice and Research*, *15*(4), 299-318.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative inquiry*, *12*(2), 219-245.

Fowler, L. (2019). Problems, politics, and policy streams in policy implementation. *Governance*, *32*(3), 403-420.

Frisch-Aviram, N., Cohen, N., & Beeri, I. (2020). Wind (ow) of change: A systematic review of policy entrepreneurship characteristics and strategies. *Policy Studies Journal*, *48*(3), 612-644.

Garcia Hernandez, A. L., & Bolwig, S. (2021). Understanding climate policy integration in the global South through the multiple streams framework. *Climate and Development*, *13*(1), 68-80.

Geels, F. W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental innovation and societal transitions*, *1*(1), 24-40.

Geels, F. W. (2012). A socio-technical analysis of low-carbon transitions: introducing the multi-level perspective into transport studies. *Journal of transport geography*, *24*, 471-482.

Gerber, J. D., & Debrunner, G. (2022). Planning with power. Implementing urban densification policies in Zurich, Switzerland. *Land use policy*, *123*, 106400.

Gerber, J. D., Lieberherr, E., & Knoepfel, P. (2020). Governing contemporary commons: The Institutional Resource Regime in dialogue with other policy frameworks. *Environmental science & policy*, *112*, 155–163.

Giddens, A. (1983). Comments on the theory of structuration. *Journal for the Theory of Social Behavior,* 13, 75–80.

Greene, D. L., Ogden, J. M., & Lin, Z. (2020). Challenges in the designing, planning and deployment of hydrogen refueling infrastructure for fuel cell electric vehicles. *ETransportation, 6*, 100086

Gustafsson, S., & Mignon, I. (2020). Municipalities as intermediaries for the design and local implementation of climate visions. *European Planning Studies*, *28*(6), 1161–1182.

Hajer, M. A. (1995). *The politics of environmental discourse: Ecological modernization and the policy process*. Clarendon Press.

Hanington, B., & Martin, B. (2017). *The pocket universal methods of design: 100 ways to research complex problems, develop innovative ideas and design effective solutions*. Rockport.

Hay, I. (ed.) (2016). Qualitative Research Methods in Human Geography. Ontario: Oxford University Press.

Hayek, F. A. (2020). *The constitution of liberty: The definitive edition*. Routledge.

Healey, P. (2005). On the project of institutional transformation in the planning field: Commentary on the contributions. *Planning Theory*, *4*(3), 301-310.

Hermans, L. M., & Thissen, W. A. (2009). Actor analysis methods and their use for public policy analysts. European Journal of Operational Research, 196(2), 808-818.

Herweg, N., Huß, C., & Zohlnhöfer, R. (2015). Straightening the three streams: Theorising extensions of the multiple streams framework. *European Journal of Political Research*, *54*(3), 435-449.

Hill, M., & Hupe, P. (2006). Analysing policy processes as multiple governance: accountability in social policy. *Policy & Politics*, *34*(3), 557-573.

Hoch, C. (2007). Making plans: Representation and intention. *Planning Theory*, *6*(1), 16-35

Hodgson, G. M. (1996). *Economics and evolution: bringing life back into economics*. Ann Arbor: University of Michigan Press.

Hysing, E. (2009). Greening transport—explaining urban transport policy change. *Journal of Environmental Policy & Planning*, *11*(3), 243-261.

Innes, J. E. (1995). Planning theory's emerging paradigm: Communicative action and interactive practice. *Journal of planning education and research*, *14*(3), 183-189.

Innes, J. E. & Booher, D.E. (1999). Consensus building as role playing and bricolage. Toward a theory of collaborative planning. *Journal of the American Planning Association*, 65(1), 9-26.

Intergovernmental Panel on Climate Change (IPCC). (2022). *Summary for policymakers. In IPCC, Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report (AR6)*. Retrieved from https://www.ipcc.ch/report/ar6/wg2/

Jarvis, D. S., & He, A. J. (2020). Policy entrepreneurship and institutional change: Who, how, and why?. *Public Administration and Development*, 40(1), 3-10.

Jones, M. (2001). The rise of the regional state in economic governance:'partnerships for prosperity'or new scales of state power?. *Environment and planning A, 33(7)*, 1185-1211.

Kawulich, B.B. (2005). Participant Observation as a Data Collection Method. Forum: Qualitative Social Research, 6(2), Art. 43, http://nbn-resolving.de/urn:nbn:de:0114-fqs0502430

Kemp, R., Rotmans, J., & Loorbach, D. (2007). Assessing the Dutch energy transition policy: how does it deal with dilemmas of managing transitions?. Journal of Environmental Policy & Planning, 9(3-4), 315-331.

Kingdon, J. W. (1985). *Agendas, alternatives, and public policies*. New York: Harper Collins College Publishers.

Koebele, E. A. (2021). When multiple streams make a river: analyzing collaborative policymaking institutions using the multiple streams framework. *Policy Sciences*, 54(3), 609–628.

Kuby, M., Bailey, K., Wei, F., Fowler, J., Tong, D., Zhong, Q., … & Sheaffer, W. (2018). Collaborative geodesign for alternative-fuel station location using "collablocation" software. *Transportation research record*, 2672(24), 98–108.

Lai, L.W.C. (2021), 'A Dialogue on Town Planning and Boundary Delineation', *Planning Practice & Research*, 36(5), pp. 483–490

Laws, D., & Hajer, M. (eds.) (2006). *Policy in practice.* In Moran, M., Rein, M. & Goodin, R.E. (2006) *The Oxford handbook of public policy*, 409–425. Oxford: Oxford University Press

Leiby, P., & Rubin, J. (2004). Understanding the transition to new fuels and vehicles: Lessons learned from analysis and experience of alternative fuel and hybrid vehicles. *In The Hydrogen Energy Transition* (pp. 191–212). Cambridge: Academic Press

Lester, T.W. & S. Reckhow (2012), Network governance and regional equity: Shared agendas or problematic partners? *Planning Theory, 12*(2), pp. 115–138.

Lijphart, A. (1971). Comparative politics and the comparative method. *American political science review*, 65(3), 682–693.

Lovell, H. (2009). The role of individuals in policy change: the case of UK low-energy housing. *Environment and Planning C: Government and Policy*, 27(3), 491-511.

March, J.G. & Olsen, J. P.(1989). *Rediscovering Institutions: The Organizational Basis of Politics*. New York: The Free Press

Marshall, C., & Rossman, G. B. (2014). Designing qualitative research. Sage publications.

Mastop, H., & Faludi, A. (1997). Evaluation of strategic plans: the performance principle. *Environment and Planning B: Planning and design*, 24(6), 815-832.

Meijer, M., & van der Krabben, E. (2018). Informal institutional change in De Achterhoek region: from citizen initiatives to participatory governance. *European Planning Studies*, 26(4), 745-767.

Ministerie van Infrastructuur & Waterstaat (2022, september 20th). MIRT Overzicht 2023: Meerjarenprogramma Infrastructuur, Ruimte en Transport. Den Haag: Ministerie van I&W

Mintrom, M. (2019). So you want to be a policy entrepreneur?. *Policy design and practice*, 2(4), 307-323.

Mintrom, M., & Vergari, S. (1996). Advocacy coalitions, policy entrepreneurs, and policy change. Policy studies journal, 24(3), 420-434

Miyagawa, M. (2016). Trip length and sufficient number of alternative fuel stations. *Urban and Regional Planning Review*, 3, 21-30.

Moroni, S. (2007), 'Planning, Liberty and the Rule of Law'. *Planning Theory*, 6(2), 146-163.

Musante, K., & DeWalt, B. R. (2010). *Participant observation: A guide for fieldworkers*. Lanham: Rowman Altamira.

Namdeo, A., Tiwary, A., & Dziurla, R. (2014). Spatial planning of public charging points using multi-dimensional analysis of early adopters of electric vehicles for a city region. *Technological Forecasting and Social Change*, 89, 188-200.

Needham, B. (2016). *Dutch land-use planning: The principles and the practice*. New York: Routledge.

Needham, B., Buitelaar, E. & Hartmann, T. (2019). *Planning, Law and Economics: The Rules we Make for Using Land.* Second Edition. New York: Routledge.

Needham, B & Hartmann, T. (2012), Conclusion: Planning by Law and Property Rights Reconsidered, In T. Hartmann & B, Needham (red.), Planning by Law and Property Rights Reconsidered (219-227). Surrey: Ashgate.

North, D. C. (1990). *Institutions, institutional change and economic performance* (Vol. 10). NY: Cambridge: Cambridge university press.

Öberg, M., Nilsson, K. L., & Johansson, C. M. (2018). Complementary governance for sustainable development in transport: The European TEN-T Core network corridors. *Case Studies on Transport Policy*, *6*(4), 674-682.

Paulsson, A., Hylander, J., & Hrelja, R. (2017). One for all, or all for oneself? Governance cultures in regional public transport planning. *European Planning Studies*, *25*(12), 2293-2308.

Pawson, R., & Tilley, N. (1997). An introduction to scientific realist evaluation. *Evaluation for the 21st century: A handbook*, *1997*, 405-18.

Pelzer, P., Frenken, K., & Boon, W. (2019), 'Institutional entrepreneurship in the platform economy: How Uber tried (and failed) to change the Dutch taxi law', *Environmental Innovation and Societal Transitions*, *33*, 1-12.

Potter, W.J. & Levine-Donnerstein, D. (1999). Rethinking validity and reliability in content analysis. *Journal of Applied Communication Research*, *27*(3), 2 58-284

Potter, S., & Skinner, M. J. (2000). On transport integration: a contribution to better understanding. *Futures,* *32*(3-4), 275-287.

Provincie Gelderland (n.d.) Clean Energy Hubs voor Goederenvervoer. Retrieved from https://www.gelderland.nl/projecten/clean-energy-hub

Rawat, P., & Morris, J. C. (2016). K ingdon's "Streams" Model at Thirty: Still Relevant in the 21st Century?. *Politics & Policy*, 44(4), 608-638.

Rijksdienst voor Ondernemend Nederland (RVO) (2021, September 9th). Netcapaciteit en Netcongestie. Retrieved from https://www.rvo.nl/onderwerpen/zonne-energie/netcapaciteit

Rijksoverheid (n.d.). Meerjarenprogramma Infrastructuur, Ruimte en Transport. Retrieved from: https://www.rijksoverheid.nl/onderwerpen/ruimtelijke-ordening-en-gebiedsontwikkeling/meerjarenprogramma-infrastructuur-ruimte-en-transport-mirt

Romein, A., Trip, J. J., & de Vries, J. (2003). The multi-scalar complexity of infrastructure planning: evidence from the Dutch–Flemish megacorridor. *Journal of Transport Geography*, *11*(3), 205-213.

Ruimtelijkeplannen (n.d.). Het landelijke portaal voor ruimtelijke plannen. Retrieved from: https://www.ruimtelijkeplannen.nl/home

Rydin, Y., R. Beauregard, M. Cremaschi & L. Lieto (Eds.)(2022), *Regulation and Planning: Practices, Institutions, Agency*. New York: Routledge.

Sabatier, P. A. (1988). An advocacy coalition framework of policy change and the role of policy-oriented learning therein. Policy sciences, 21(2-3), 129-168.

Sanyal B (Ed.) (2005). *Comparative Planning Cultures*. New York: Routledge.

Scharpf, F. W. (2018). *Games real actors play: Actor-centered institutionalism in policy research*. New York: Routledge.

Scheepers, P., Tobi, H. & Boeije, H. (2016). *Onderzoeksmethoden*. Amsterdam: Boom uitgevers.

Skjeggedal, T. (2005). Ambitions and realities in Norwegian regional planning. *European Planning Studies, 13*(5), 731-748.

Spit, T. J. M., & Zoete, P. R. (2006). *Ruimtelijke ordening in Nederland: een wetenschappelijke introductie in het vakgebied*. Den Haag: Sdu Uitgevers.

Steffen, B., & Patt, A. (2022). A historical turning point? Early evidence on how the Russia-Ukraine war changes public support for clean energy policies. *Energy Research & Social Science, 91*, 102758.

Svensson, P. (2019). Formalized policy entrepreneurship as a governance tool for policy integration. *International Journal of Public Administration*, 42(14), 1212-1221.

Tran, H.A. (2021), 'Malleable categorisation and the regulatory process. The case of the Apple flagship store in Stockholm', in Rydin, Y., R. Beauregard, M. Cremaschi & L. Lieto (Eds.) (2021), *Regulation and Planning: Practices, Institutions, Agency*. New York: Routledge, pp. 42-55.

Treib, O. (2014). Implementing and complying with EU governance outputs. *Living reviews in European governance*, *9*(1)

Van Buuren, A., Driessen, P., van Rijswick, M., Rietveld, P., Salet, W. & Spit, T. (2013). Toward Adaptive Spatial Planning for Climate Change: Balancing Between Robustness and Flexibility. *Journal for European Environmental & Planning law*, *10*(1), 29-53

Van Buuren, P.J.J., Nijmeijer, A.G.A. & Robbe, J. (2017). *Hoofdlijnen Ruimtelijk Bestuursrecht*. Alphen a.d. Rijn: Wolters Kluwer.

Van Den Berg, J. (2017, august 16th). Na de schok bij Huizinge (5,5 jaar terug) kwam de Groningse kwestie op de kaart. Hoeveel verder zijn we nu?. Volkskrant. Retrieved from https://www.volkskrant.nl/nieuws-achtergrond/na-de-schok-bij-huizinge-5-5-jaar-terug-kwam-de-groningse-kwestie-op-de-kaart-hoeveel-verder-zijn-we-nu~b650c3b1/?referrer=https%3A%2F%2Fwww.google.com%2F

Van Geenhuizen, M., Holbrook, J. A., & Taheri, M. (2018). Transitions in socio-technical systems and challenges of city leadership. In *Cities and Sustainable Technology Transitions* (pp. 3-30). Edward Elgar Publishing.

Van Straalen, F. M., & Witte, P. A. (2018). Entangled in scales: multilevel governance challenges for regional planning strategies. *Regional Studies, Regional Science*, *5*(1), 157-163.

Vanoutrive, T., & Boussauw, K. (2014). *Het mobielste land ter wereld: een dialoog over duurzame mobiliteit*. UGent.

Wegener, M. (2016). *Government or governance? The challenge of planning for sustainability in the Ruhr*. In Planning by law and property rights reconsidered (eds.) (pp. 157-168). Routledge.

Witte P.A. & Spit T.J.M. (2016). Challenges for Corridors: Future Perspectives on European Corridor Development. In: Drewello H., Scholl B. (eds) Integrated Spatial and Transport Infrastructure Development. Contributions to Economics. Cham: Springer. DOI: https://doi.org/10.1007/978- 3-319-15708-5_6

Witte, P.A., Wiegmans, B.W. , Van Oort, F.G. & Spit, T.J.M. (2012), Chokepoints in corridors: Perspectives on bottlenecks in the European transport network. Research in Transportation Business & Management, 5, 57- 66.

Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods* (6th ed.). Thousand Oaks: SAGE.

Yusuf, J. E., Neill, K., John III, B. S., Ash, I. K., & Mahar, K. (2016). The sea is rising... but not onto the policy agenda: A multiple streams approach to understanding sea level rise policies. *Environment and Planning C: Government and Policy*, 34(2), 228-243

Zhao, C., Carstensen, T. A., Nielsen, T. A. S., & Olafsson, A. S. (2018). Bicycle-friendly infrastructure planning in Beijing and Copenhagen:

between adapting design solutions and learning local planning cultures. *Journal of transport geography*, *68*, 149–159

Appendix

Appendix I: Topic list (Dutch)

Opening

- Voorstellen
- Uitleg geven over het onderzoek
- Toestemming vragen voor opname

Deel 1: Algemeen & institutionele verandering

- Wat is uw rol binnen uw organisatie?
- Hoe bent u bij het clean energy hubs programma betrokken?
- [Bij gemeenten] Hoe staat clean energy hubs (of verwante thema's) op de agenda bij uw gemeente?
    - Waarom wel of niet?
- [Bij provincies] Hoe merk je dat clean energy hubs (of verwante thema's) op de agenda staat bij gemeenten in uw provincie?
    - Waarom wel of niet?
- [Bij gemeenten] In hoeverre gaat de politiek aan de slag met dit thema?
    - Zou u concrete beslismomenten kunnen noemen?
- [Bij provincies en gemeenten] Zijn er al concrete clean energy hubs initiatieven in uw gemeente / provincie?
- [Bij Marktpartijen] Merk je dat overheden, zowel provincies als gemeenten, voldoende bezig zijn met dit onderwerp?
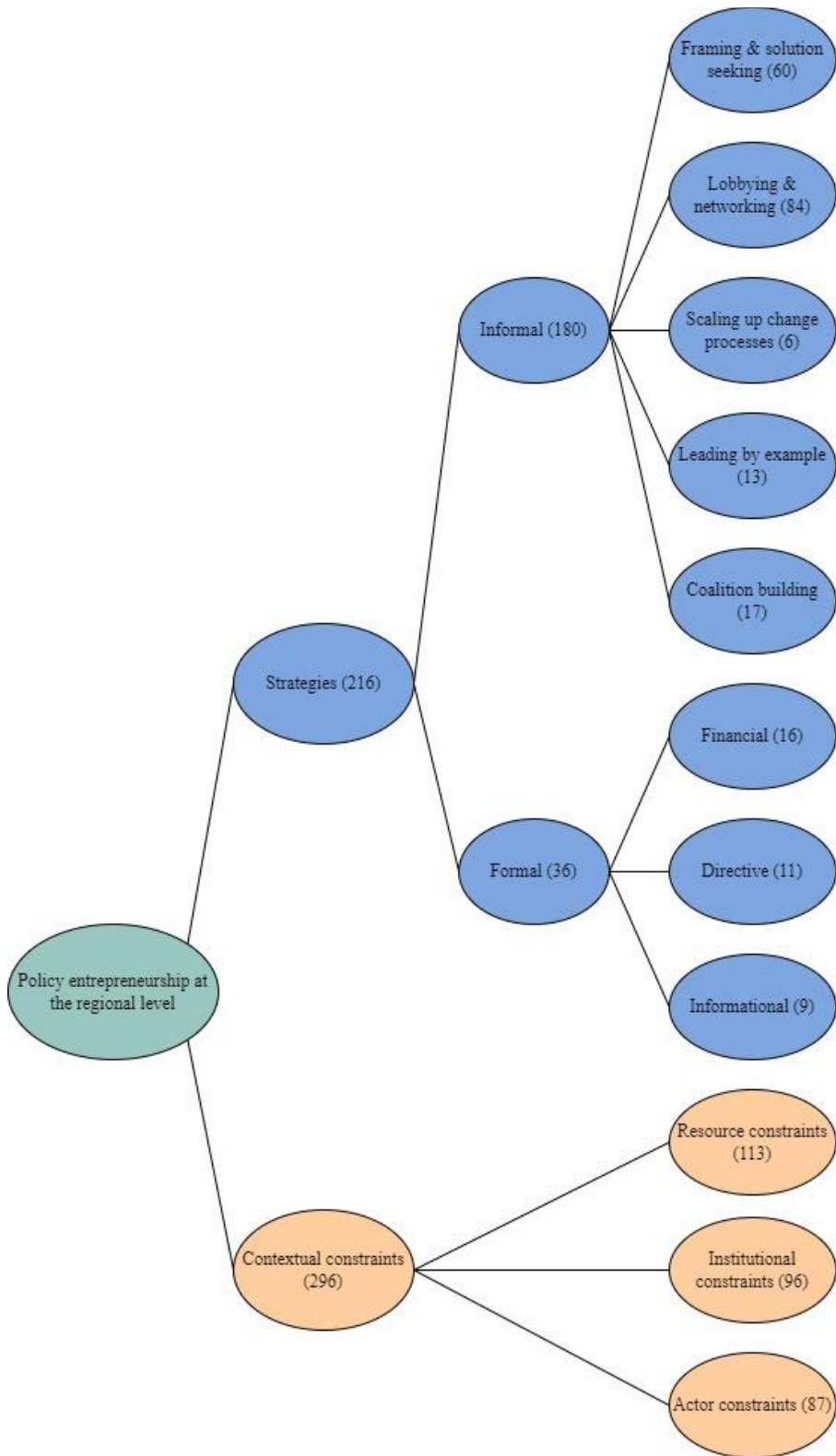   - Waar ligt dat aan?

Deel 2: Strategieën van de provincie

- Wat is de rol van provincies in het clean energy hubs programma?
- Hoe verhoudt die rol zich tot die van gemeenten en marktpartijen?
- Wat is de rol van de provincie Gelderland?
    - Is die anders dan die van andere provincies?
    - Kunt u reflecteren op de rol van de business developer?
- [Bij marktpartijen en provincies] Op welke manieren proberen jullie clean energy hubs op de agenda te krijgen bij gemeenten en projecten te realiseren?
    - Kunt u voorbeelden noemen?
    - Hoe hebben die strategieën effect?

Deel 3: Contextuele uitdagingen

- [Bij provincies] Wat zijn de voornaamste uitdagingen bij het vertalen van strategisch beleid naar lokale implementatie?
    - Hoe beïnvloedt dat implementatie?
- [Bij gemeenten en marktpartijen] Bij het realiseren van een clean energy hub, wat zijn dan de grootste uitdagingen?
    - Hoe belemmert dat het proces?

Appendix II: NVivo code tree

Appendix III: Operationalization table

CONCEPT	DIMENSION	OPERATIONALIZATION	EXAMPLE	SOURCES
FORMAL STRATEGIES (RULE-BASED)	*Directive stratgies*	Formal rules (laws and regulations) to directly implement policies (e.g. via ordinance).	Using the provincial ordinance to force municipalities to embed clean energy hubs in their land use plans.	Breeman et al., 2020; Brukas & Sallnäs, 2012; Van Buuren et al, 2017
	Financial incentives	Availability and utilization of budgetary allocations, grants, and subsidies designed to encourage policy implementation.	Making a subsidy scheme to cover the unprofitable top costs of clean energy hubs.	Breeman et al., 2020; Brukas & Sallnäs, 2012
	Formal information sharing	Structured programs disseminating policy-relevant information to key stakeholders and the public.	Sharing the results of a consultancy research about alternative fuels availability on the clean energy hubs website.	Breeman et al., 2020; Brukas & Sallnäs, 2012
INFORMAL STRATEGIES (POLICY ENTREPRENEURSHIP STRATEGIES)	*Problem framing & solution seeking*	The use of persuasive narratives to give meaning to a certain problem and offering a specific policy idea or innovation as a solution for that problem.	Telling a compelling story to a municipality about the challenge of alternative fuels and present clean energy hubs as a comprehensive solution.	Frisch Aviram et al., 2020; Mintrom, 2019; Innes & Booher, 1999
	Lobbying & networking	The use and leveraging of (personal) networks to get (political) actors on one's side.	Having informal talks with a municipal alderperson to convince them of the program.	Burt, 2000; Mintrom & Vergari, 1998; Pelzer, 2019
	Scaling up change processes	Expanding the policy to a broader scale and different contexts.	Trying to get other provinces to join the clean energy hubs program.	Mintrom, 2019

	Leading by example	Taking the lead by engaging with others to demonstrate the workability of the policy and showing succesful examples.	Showing succesful examples of clean energy hubs to a municipality to gain support.	Mintrom, 2019
	Coalition building	Working with and stimulating a coalition of people who share similar beliefs over core policy issues.	Building partnerships with like-minded market parties to share insights on policy issues.	Mintrom, 2019; Sabatier, 1988
CONTEXTUAL CONSTRAINTS	*Resource constraints*	The availability and adequacy of natural and human-made resources .	The limited availability of suitable building land for alternative fuels infrastructure.	Gerber & Debrunner, 2022; Gerber et al., 2020
	Actor constraints	Limitations in the knowledge, skills and capacity of involved actors and conflicts of interest between involved actors.	Resistance of local residents to a new clean energy hubs development.	Gerber & Debrunner, 2022; Gerber et al., 2020
	Institutional constraints	Limitations caused by the existing formal and informal institutions.	National environmental regulations that limit the possibilities for developing clean energy hubs.	Gerber & Debrunner, 2022; Gerber et al., 2020

For information about the empirical data or the research process, feel free to contact me at j.lebbing@uu.nl