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Governance and Decentralization in the Energy Transition in Dutch Local governments: A grounded theory approach

A case study of Enschede

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Abstract

Due to the recent course of decentralization municipalities in the Netherlands are confronted with the task of governing the energy transition. Given the complexity of the energy transition, which spans multiple levels and domains (technological, economic, socio-cultural, etc.), municipalities face and will continue to face numerous challenges. To identify these challenges and determine if decentralization is suitable for governing the energy transition, this research follows a grounded theory approach. The case of this research is the municipality of Enschede, a city in the east of the Netherlands. Ten interviews were conducted with employees of the municipality and other stakeholders in the energy transition to obtain a comprehensive overview of their perspectives on the governing of the energy transition. These interviews led to multiple challenges, such as the speed of transition, technical issues, cultural challenges, and governmental issues. The results give a better understanding of the challenges local governments face, but also add new insights to existing sustainability and governance theories.

Key words: Energy transition; local governments; governance; grounded theory; decentralization

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1. Introduction

The municipality of Enschede is facing the challenge of reducing GHG (greenhouse gas) emissions by 49% in 2030 and 95-100% by 2050 (based on 1990 emissions) (Klimaatakkoord, 2019). To follow the Paris Agreement, the Dutch government decided on a climate strategy to reduce GHG emissions (Paris agreement, 2015). Municipalities have a significant role in this agreement, as they are responsible for developing policy instruments to reduce emissions. The national government decides on the policy goals, but the implementation is the job of local governments(municipalities). This way of governing, decentralized, has increasingly been used by many countries. It is claimed to be one of the most important reforms in governance in the last decades, in terms of the quantity it has been used and the increase of quality (Faguet, 2014).

Decentralization in practice is different for every country, but the intention remains mostly the same: the shift from a hierarchical, bureaucratic mechanism of top-down management to a system with self-governance with participation and cooperation (Faguet, 2014). In the last decade, the Netherlands used decentralization in multiple policy areas. For instance, since 2015, municipalities have received more responsibility in the social domain, which gives them more influence and work (Schalk, Reijnders, Vielvoye, Kouijzer, & Jong, 2014). National governments prefer decentralization because it is believed to give citizens more control over the public services they need (Allers, 2013). Another reason to decentralize is that municipalities are supposed to be more efficient, which should mean fewer costs in total (Allers, 2013). It seems quite simple, the central government supplies a specific budget, and the municipality needs to spend it on a specific policy area to achieve a certain goal (Denters & Rose, 2005). This is also the case for the energy policy of Enschede. In their policy, called the "energievisie" (energy vision) the municipality has developed their strategy to reduce the CO_2 emissions, next to saving energy and the storage of CO_2 the main policy goal is the energy transition (Energievisie, 2021). Eventually, to achieve a sustainable system with net zero emissions.

Van de Graaf & Sovacool (2020) defined the energy transition as *"a shift from fossil fuels to renewable energy sources"* (Van de Graaf & Sovacool, 2020). However, this definition fails to capture the complexity that comes with the energy transition. Although it may appear as a purely technical transformation, the energy transition introduces many interconnected issues and challenges. This complexity makes that transitions to a sustainable system have been extensively studied over the last decade (Köhler et al., 2019). Transitions are a social transformation process, where the system changes structurally over an extended period (Kern & Smith, 2008). This, because the issues that these transitions bring cannot be addressed by technological improvements, but require a so-called system innovation, because the problem, which is climate change, cannot be solved by intensifying current

policies (Kern & Smith, 2008). This system change can be explained as all kinds of developments in many aspects which are related to energy. All developments are large-scale in many domains (technological, institutional, economic, ecological, socio-cultural, etc.) which interact and influence each other (Loorbach, Van der Brugge, & Taanman, 2008). Mostly because of the complexity and the scope of transitions, they take much time. The estimate for the energy transition is that it will take decades to realize (Haukkala, 2019).

As said, the energy transition is a social transformation process, yet it might be the most neglected part. The eventual goal of the municipality is to achieve sustainability. To accomplish this, the three pillars of sustainability need to be acknowledged. These pillars, established in 1995 by the UN, are environmental, social, and economic (Purvis, Mao, & Robinson, 2019). Only when all these pillars are met, a sustainable system can exist. To apply this to the energy transition in Enschede case, the reason for the cutting of CO_2 emissions is environmental. In their policy goals, the so-called energy vision, the municipality mentions that the social part of the energy transitions will be the most challenging (Energievisie, 2021). However, next to this, the municipality claims to choose for the most 'sustainability' per euro. Finding the balance between social, economic, and environmental challenges is difficult, especially since the energy transition is such a complex issue. Additionally, all local governments already face these challenges in their day-to-day activities. Think of the degree of centralization, how they interact with other levels of government or the financial situation(budget) (De Vries, 2016). As well as, governing in a globalizing world and the increase of the role of local governments in European polity (Denters & Rose, 2005). When examining the upcoming challenges in the energy transition, it is valuable to identify the existing challenges in governing and explore how they could impact the process of transitioning to sustainable energy sources. This, because it will be useful for (local) policymakers who are dealing with governing the energy transition but also to get a better insight into decentralization and the governance of complex issues. The municipality of Enschede is faced with the task of advancing the energy transition but still must face all the challenges a local government has. Therefore, the research question of this thesis is: *What are the governance challenges for Dutch municipalities in ensuring a transition towards a more sustainable local energy system?*

This research adopts a grounded theory approach, which entails an open stance towards the research question as well as an inductive stance towards the empirical data. Rather than testing a pre-existing theory, the aim is to investigate and understand the dynamics specific to this case. The conceptual framework incorporates multiple theories pertaining to governance, local governments, and sustainable transitions. The objective is to identify potential challenges associated with governing the energy transition. In this context, the concept of decentralization is discussed and its relevance to the present case is explored. Governance theories are employed to understand the dynamics of decentralization and

the governance of the energy transition in the Netherlands. Following the conceptual framework, a methods section is presented, which includes the selection of the case, data collection, and data analysis. This section also includes a more comprehensive overview of the grounded theory approach. The last part of this thesis are the research findings, which are presented in the results section, followed by a discussion and a concluding section.

2. Conceptual Framework

This research follows a grounded theory approach, resulting into changes in the conceptual framework throughout the process. Theories on governance have been used from the beginning since the focus of the research is based on governing. Local government and governance theories are used to understand the issues local governments already face. To understand the case, literature on the government system of the Netherlands is used, which provide an overview of the role of local governments. Next to this, New Public Management, the Multi-Level Perspective, Energy Justice, and theories on sustainable transitions were added to the conceptual framework later because some concepts were found in the interviews. These theories are used to understand the case, the research question and will be used as tools to compare with the results in the discussion section of this thesis.

2.1 Governance

To understand what the challenges are in governing the energy transition it is necessary to understand "governing" as a concept. While governing has something to do with governments, it is broader than what they do. Governments 'govern', which means they have the task to enforce rules and deliver services (Fukuyama, 2013). These governments, whether local, regional, national, or international, can make and enforce policies within a certain territory. The policy-making process and the enforcement of policies differ for each government. The type of 'governance' the government chooses to apply will influence the outcome of the policy. For instance, when a government chooses to involve stakeholders/citizens in the decision-making process or not. Since the second world war, a new type of governing has been dominant in Western Europe. It has been described as a shift from government to governance (Mayntz, 2017). This refers to a non-hierarchical way of governing a state. While the previous idea of governing has been 'top-down', with a central government making the decisions, the new 'bottom up' approach includes non-state actors in the decision-making process. While there are multiple definitions and views on the concept of governance, there are three common features (Kooiman & Bavinck, 2005). The first is that governing is done by the state and non-state actors. Examples of non-state actors are citizens, NGOs, companies, councils' associations etc. The second is that the line between the public and the private sector has been blurred. Private and public interests are often related or shared, which means that both parties could benefit from the same policies. The third common feature in governance refers to societal developments. The type of governance reflects social, economic, and political interdependencies. Theories of governance have been introduced in the sustainability field; however, every situation requires a different type. For instance, in the 1970s and 1980s, most of the sustainability problems were pollution. The top-down approach was ideally suited for governing this type of problem (Homsy, Liu, & Warner, 2019). The central government takes

command and control over the polluters and makes sure that there will be a quick and straightforward solution. While this can work for pollution, the complexity of the energy transition requires more. Straightforward and general solutions by central governments do not provide the flexibility to adjust to regional and local problems (Kostka & Mol, 2013). As mentioned, the energy transition is a complex multi-dimensional issue. All the energy transition developments are large-scale in many domains (technological, economic, ecological, socio-cultural, etc.) which interact and influence each other (Loorbach et al., 2008). A governance approach is said to be better capable to handle complex, societal, and poorly structured problems (Van Bueren, Klijn, & Koppenjan, 2003). Transitions are multi-actor processes, with a large variety of actors, many of whom are non-state actors (Laes, Gorissen, & Nevens, 2014). They move away from the status quo, which provokes resistance from groups which fear their interest will be harmed. So, from theory, we can conclude that when governance is used in governing a transition, policies will have less resistance.

From a governance perspective, the reason to decentralize seems valid. Local governments are closer to local actors and citizens, which would make it easier to include them in the policymaking process. Energy transitions cannot only be coordinated at the national level, every region is different. Next to all the different actors in regions, the space and technological mix in every region requires a different strategy (Hoppe & Miedema, 2020). However, while local governments might be closer to actors, it does not mean they are the optimal option in governing the energy transition. In previous research about governing the regional energy transition, 75% of the surveyed (Dutch) municipalities claimed that inter-municipal collaboration is needed to develop effective policy (Hoppe & Miedema, 2020). This is still in line with governance; however, some problems need to be addressed. Governance is used to deal with complex issues, these complex issues require much attention. Making sure everyone is included in the policy-making process costs time, money, and work (Bishop & Davis, 2002). It is more complicated than a single-agency system, with problems coordination and strategic direction (Andrew & Goldsmith, 1998). Governance also increases the possibility of a mismatch of priorities and goals, due to the multiple actors who are involved. Additionally, the insufficient cooperation between jurisdictions, which refers to who responsible is, could influence the process. So, miscommunications about which level of government is responsible and the lack of accountability from these levels of government. Furthermore, the insufficient financial and human resources, inadequate regulatory frameworks, and knowledge asymmetries the government has. And lastly, there are problems with coordination and alignment of governance at all government levels (national, regional and local) (Van Dijk, Wieczorek, & Ligtvoet, 2022).

2.2 Sustainability transitions

To understand the concept of the energy transition, multiple sources on sustainable/energy transition are used. As mentioned, there are more aspects to the energy transition than a shift from fossil fuels into renewable energy sources. The sector of energy supply can be conceptualized as a socio-technical system. These systems are, next to the technical elements such as materials and knowledge, defined by the networks of actors and institutions (Markard, Raven, & Truffer, 2012). The fact that it is a socio-technical system makes it complicated with many consequences. Köhler et al. (2019) defined seven characteristics of sustainable transitions which give a deeper understanding of why it is difficult to govern. First, socio-technical systems consist of multiple elements: cultural, technical, policies, infrastructures, industries, and markets. Transitions are not linear processes; they are defined by interdependent developments. For instance, there could be a major technological invention which speeds up the process or a disruption in the market which slows the transition. Secondly, sustainable transitions are a multi-actor process, politics, industry, civil society, households, and many other actors are involved. These actors tend to disagree on the most desirable innovations, because of their different values and interests. This can also be found in the NIMBY (Not In My Backyard)-theory. Which means the public opposition for a new facility, in this case renewable energy related, with extreme cases of distrust and high concerns by the public (Gibson, 2005). Next to this, there is an important relation between stability and change. Transitions require a change in many areas; however, many systems are locked-in, which makes change difficult. Which is one of the reasons transitions are a long-term process. The systems need to be 'unlocked' to eventually achieve a new stable system. Before this can happen, there is much uncertainty, because there are multiple promising innovations and what the solution(s) are going to be is not set in stone. The last characteristic of sustainable transitions is the normative directionality. Sustainability is a public good, private actors generally do not have the incentive to achieve it, also due to prisoner's dilemmas and free-rider problems (Köhler et al., 2019). Which is why sustainability falls under public policy, which in this case are multiple levels of government. The way these transitions are governed can be found in Multi-Level Perspective and New Public Management theories.

2.3 Multi-Level Perspective

The Multi-Level Perspective (MLP) theory is a prominent framework used to analyse and understand socio-technical transitions, including the energy transition. MLP can be used to highlight the dynamics of large-scale socio-technical systems, which can be helpful in identifying the sustainability challenges (Smith, Voß, & Grin, 2010). The theory acknowledges that transitions occur within a complex interplay of three levels: the niche level, regime level, and landscape level. At the niche level, innovative and radical technologies, practices, or social arrangements emerge as niche experiments. These niches provide alternative solutions

and demonstrate the potential for change. The regime level refers to the dominant socio-technical system, consisting of established institutions, rules, and practices. The regime is characterized by path dependencies, lock-ins, and resistance to change. The dominant regime tends to defend its interests and maintains stability, making it difficult for niche innovations to start. Niche developments are new and can change the course of the entire system. The landscape level includes the broader societal context, including social, cultural, economic, and political factors. These factors shape and influence both the niche innovations and the existing regime. Changes in the landscape, such as shifts in public opinion, changes in policy, or disruptions in external systems, can create windows of opportunity for transitions to occur (Geels, 2010). For instance, there is more interest in renewables due to high oil prices, which is a window of opportunity of renewable energy. Transitions are defined by interactions and tensions between niche innovations, regime resistance, and landscape changes. In this case, the niches should be within municipalities, they are not dominant, but they should provide solutions and demonstrate the potential for change. Next to this, the municipality should provide a save space for path-breaking alternatives, which may not be as competitive against the regime (Smith et al., 2010). If niches outperform the regime, they can take over. However, the regime, which is national, has a more powerful structure and is established in a stable and dominant way (Smith et al., 2010). With a national regime, it is hard for municipalities to outperform since the national government still has the authority. By using the MLP theory, researchers and policymakers can gain a better understanding of the dynamics and complexities involved in driving and governing the energy transition. It allows for the identification of barriers and opportunities at multiple levels, aiding in the formulation of effective policies and strategies to facilitate a successful transition to a sustainable energy system (Geels, 2010).

2.4 New Public management

New public management (NPM) emerged in the late 20th century and is defined by a more market approach to government and public services. This can be seen in that NPM has more elements of competition, between public sectors and private sectors. NPM also moves towards a greater use of (hands-on) management, with standards of performance for specific types and parts of government (Hood, 1995). The principles of New Public Management have also found relevance in the context of the energy transition. Decentralization, as advocated by NPM, take on added significance in the energy transition. Since decentralized decision making seems to be the most efficient way. The transition to a sustainable energy system often requires active involvement and collaboration from local governments, energy providers, and community stakeholders (Klijn, 2012). Which will be explained in the local government parts of the conceptual framework. Market-oriented mechanisms, inherent to NPM, are relevant to the energy transition as well. The integration of renewable energy sources meets the development of market frameworks that

promote competition, innovation, and investment in sustainable technologies. By incorporating market principles, NPM can facilitate the adoption of renewable energy solutions and enhance their affordability and accessibility. Public sector organizations, as part of NPM, can engage with communities and empower energy consumers by providing them with information, options, and opportunities for participation. Think of housing or energy corporations. This customer-centric approach can foster support and acceptance for the energy transition, leading to increased uptake of renewable energy solutions. While there might be some component which could enhance the energy transition, the fragmentation of public services could lead to a lack of organisation and oversight of the status of the transition. This could also lead to a gap into who is responsible. Additionally, the focus of efficiency, such as the ideal of decentralization could lead to the decline of the necessary public services.

2.5 Energy justice

Energy justice can be defined as a critical framework for identifying and analysing injustices in the energy system related aspects (Sovacool, Burke, Baker, Kotikalapudi, & Wlokas, 2017). These injustices can be in class, age, gender, spatial or economic inequalities. This framework can be used to identify who is affected by the injustices and evaluate in order to change it (Hanke, Guyet, & Feenstra, 2021). There are three components which are used to evaluate, distributional, recognition and procedural. Distributional refers to where the injustice is, both unequal distribution of responsibilities and the unequal allocation of the benefits and drawbacks. Recognition is about who is ignored, so individuals should be represented and offered complete equal rights. Procedural refers to the process, so for instance, the accessibility of the decision-making process (Jenkins, McCauley, Heffron, Stephan, & Rehner, 2016). This refers to if all stakeholders are invited, but also to the participation process. Participation is an important aspect to achieve a just transition. However, this is also difficult since participation has many forms. Next to this, participants are not experts, which means they do not have the skills and knowledge the experts gave. Additionally, people tend to use to opportunity for themselves and not for the collective good (Dola & Mijan, 2006). Which is why it is important to know who is participating to prevent more injustices. Injustices can be found in every dimension of the energy transition, so it is important to evaluate to achieve a fair transition.

2.6 Local governments

As mentioned, local governments get more responsibilities from the national government. These responsibilities can impose some challenges. To find out what these challenges are, it is necessary to define the challenges local governments face (De Vries, 2016). De Vries (2016) defined four dimensions of the challenges local governments face in governance: contextual, structural, institutional, and human resource management. Contextual conditions are found in judicial and economic situations. So, the economic well-

being of a country influences how the local government can function. Structural conditions refer to the position of the local government, such as the degree of centralization, which affects financial autonomy and the freedom to make their own policy decisions. This is also with the idea that local governments might make other policy decisions if they include more citizens in the decision-making process. Additionally, how these local governments interact with regional and national governments. So, who is responsible for policymaking, implementation etc. And lastly, institutional conditions refer to the internal organization, such as the size and financial situation. Human resource conditions are about leadership quality, skills, and well-trained staff (De Vries, 2016).

2.7 Local governments in the Netherlands

The Dutch state operates through three levels of government, with the central government in The Hague, regional government, which are the 12 provinces and local government, which are the municipalities. As mentioned, the role of local governments in the Netherlands has undergone significant changes over the past few decades. Additionally, there has been a substantial decrease in the number of municipalities, from 1,100 in 1900 to 342 in 2023 (Rijksoverheid, 2023). This reduction in municipalities is questionable, since the role that local governments have, which is closeness to citizens, declines when the municipalities become bigger (Denters & Geurts, 1998). According to the constitution, municipalities possess autonomous powers to regulate and administer their internal affairs, if they do not conflict with national or provincial policies (Denters & Rose, 2005). Regarding the financial matters, Dutch municipalities rely on local taxes and grands from higher levels of government. Although the municipalities rely on other levels of government, they have the freedom to allocate the funds according to the local needs.

This does not mean that local governments operate alone in the energy transition. Since July 2020, as part of the Dutch Climate Agreement, the Regional Energy Strategy exists. The Netherlands is split into 30 regions, which all have the goal to reduce 49% of the CO_2 emissions by 2030 (RES, 2020). The municipality of Enschede, together with 11 other municipalities is part of the RES Twente. Which means they must cooperate with many other actors. The province of Overijssel is responsible for monitoring the RES. Next to these governmental actors, other actors are also part of this regional agreement such as network operators, energy corporations, nature organizations, housing corporations etc. Additionally, all projects need to be owned by local actors, such as companies, corporations, and citizens.

3. Methods

In this section, the methods used to address the research question are explained. Firstly, the reason for selecting the case of the energy transition in Enschede is discussed. Secondly, the data collection process is described, and finally, the data analysis method is outlined.

3.1 Case selection

The case selected for this research is the governance of the energy transition in the Dutch municipality of Enschede. Enschede is a municipality with 160.000 inhabitants, 150.000 of these people live within the city itself. The municipal government has the ambition to be climate neutral in 2050 (Energievisie, 2021). The largest share (55,3%) of CO_2 emissions in Enschede originates from the built environment e.g., houses, public service buildings and commercial service buildings (Energievisie, 2021). The estimate is made that the governance of the energy transition in the municipality of Enschede represents a typical case, which means it is used to understand some phenomenon to see the causal mechanisms (Seawright & Gerring, 2008). Enschede is a middle-sized city, of which are many others in the Netherlands. All municipalities have the same delegated policy objectives in the energy transition, and it is suspected that the problems and issues in other similar cases e.g., where the population size and geographic structure are somewhat the same. Furthermore, there is some convenience considered in this case selection since the researcher has easy access to possible respondents. Access in qualitative research can be defined as: *"the process by which a researcher and the sites and/or individuals he or she studies relate to each other, through which the research in question is enabled."* (Riese, 2019). In this case, access to employees of the municipality has been an influence in this research in a way that there was some knowledge about the issues that occur in governance and the organizations which were important actors in the energy transition.

Because of this, the case was pre-selected, making it intrinsic casework. In intrinsic casework, the case is already the focus of the research question (Curtis, Gesler, Smith, & Washburn, 2000). The aim of the research is to understand the challenges in governing of the energy transition, but the municipality of Enschede was essential in finding the research topic.

3.2 Data collection

The gathering of secondary data is desk research, which are journals, websites, books, news articles and public governmental publications. The primary data is gathered through interviews. In this study, a total of ten interviews were conducted to gain insights into the energy transition in Enschede. The interviews were held between February until April 2023. All interviewees had to sign an informed consent document before starting with the interviews, this document can be found in appendix 1 (in Dutch). As is known in grounded

theory, the theoretical sampling method is used. The amount interviewees, who they were and from which organization they were was not set in stone. It has been explained as: “the researcher must have some idea of where to sample, not necessarily what to sample for, or where it will lead” (Coyne, 1997). In theoretical sampling the starting point can be referred as initial sampling. This refers to finding an initial starting point, which is only just the start and is close to where the researcher needs to sample (Breckenridge & Jones, 2009). The research process began by interviewing an employee of the municipality itself. Next to the idea that it should start here, it was the most convenient way since the respondent was from the researchers’ network. From there, a snowball sampling technique was used, where participants were asked to provide recommendations for other key actors involved in the energy transition. For instance, the housing corporation and energy corporation were mentioned in most interviews, which was an incentive to include them in this research. This approach ensured the inclusion of relevant stakeholders and facilitated a comprehensive understanding of the topic. The goal was to gather data until ‘saturation’ occurs, which means that new interviews do not give new insights (Morse, 1995). However, it is acknowledged that there are still many actors who were not interviewed due to time constraints. Despite this limitation, the research aimed to gather insights from a diverse range of actors, including representatives from housing corporations, energy corporations and a network operator. Next to these actors two citizens of the municipality were interviewed, to gain insight in the effect policies have on them and how they perceive the energy transition. What should be mentioned is that these citizens do have a great understanding of the energy transition since they also work in this field, but not Enschede. This, to eventually have data that reflects expert opinions. Gläser and Laudel defined experts as “people who possess special knowledge of a social phenomenon which the interviewer is interested in”(Gläser & Laudel, 2009). This was helpful to see what experts from outside the Enschede network think, however, limit the general understanding of how ‘normal’ citizens act. The interviewees are presented in table 1.

Table 1: Interviewees

	Organization	*Job title*
1	Municipality of Enschede	Employee project implementation sustainability
2	Citizen	Not applicable
3	Municipality of Enschede/RES	Policy maker energy transition
4	Municipality of Enschede	Project manager energy poverty

5	Municipality of Enschede	Project manager area and project development
6	Municipality of Enschede	City council member (VOLT)
7	Enschede Energie (Energy corporation)	Employee energy cooperation
8	Domijn (Housing corporation)	Employee energy transition Enschede
9	Enexis (Network operator)	Employee energy transition Enschede
10	Citizen	Not applicable

This research has a grounded theory approach, which means the interview questions are not set in stone. This also means that during interviews the questions could differ and some questions not relevant were for the specific respondent. Nevertheless, there were questions which were asked to (almost) every respondent. These questions can be found in table 2.

Table 2: Interview questions(translated)
Could you describe the status of the status of the energy transition?
What are the issues in making policy?
What are the issues the municipality has in governing the energy transition?
How is the cooperation with the municipality of Enschede?
Is the energy transition fair?
Is the role the municipality has in the energy transition a good fit?
What does Enschede look like after the energy transition?

3.3.Data analysis

All the interviews are transcribed using speech-to-text transcribing software Amberscript. The transcripts are coded with the ATLAS.ti coding program. The interviews were conducted in Dutch, which means that the entire process took place in Dutch. The translation took place in the results section, where the quotes were translated into English. The type of coding is based on the chosen data analysis, grounded theory.

Grounded theory is the research method that allows theory to emerge from data, rather than testing existing theories (Walker & Myrick, 2006). While the research has an open method, some governance and energy transition theories have been used to understand the case better and to create the interview questions. Within grounded theory there are two types of coding, the Strauss & Corbin or Glaser method (Corbin & Strauss, 1990) (Glaser & Strauss, 2017). For this thesis the choice is made to use Strauss' approach because it emphasizes the importance of identifying patterns and relations in the data (Heath & Cowley, 2004). This, because the respondents are all from different backgrounds, which makes it interesting to see where the similarities and differences are.

The Strauss approach to coding in grounded theory has three stages: open coding, axial coding, and selective coding. Open coding is the initial stage which involves breaking the data down in smaller codes. The goal of open coding is to discover categories and their properties, and the relationships between categories. All data which is remotely close to the research question, or the research topics will be selected. The second stage is axial coding, which involved the process of organising the codes form the open coding. By structuring them the core categories are visible. Also, the relationships between the codes can be organised (Strauss & Corbin, 1998). The final stage of the grounded theory analysis is selective coding. It refers to the process of integrating the categories from the axial coding into a 'new' theoretical framework. Since there already is some theoretical framework on which the interview questions are based, the 'new' theoretical framework is going to be related to already exciting concept and is used to understand them better.

The open coding process has resulted in 119 codes, which have been categorized into 9 code groups. These code groups are analysed to understand not only what the interviewees have said but also how the codes interact with each other. The code groups can be found in table 3.

Table 3: Code groups

Code group (Alphabetical order)	*Explanation code group*	*Number of codes in code group*
Public Administrative issues	This code group is based on the bureaucratic issues the municipality has. Typical codes in this group are based on capacity, communication, and the way the organisation is structures. This code group is close to the political issues and responsibility.	22

Culture/behavioural change	Includes the mentioning of citizens who are against the new policies, but also a general need for a societal change	17
Economic issues	Is mostly about the costs of the transition as an issue	14
Future and fairness	Is the municipality going to achieve the goals? And what happens after the transition, is it fair?	15
Participation	Who participates? What is the status of participation and what are the issues in participation?	8
Political issues	The role of politics in the energy transition	12
Responsibility	About the role of the local government. Who is responsible for what.	20
Speed of transition	Issues regarding the time it takes and if the goals are going to be achieved	8
Technical/practical issues	Issues which do not have anything to do with the government but do influence the energy transition.	19

3.4 Ethics

As a former student of Management, Society, and Technology, my interest has always been in governance and policy. Because of the decentralization in the Netherlands, local governments have a lot of responsibilities, and I am curious about what challenges they face with solving big policy issues, such as the energy transition. I have lived in the city of Enschede for five years now and am curious about the institution and its views on the energy transition. Part of my choosing this municipality is because of the network I have built in my studies. I came across many students who now are working for local governments, which made me wonder about the possibility of having a career in the public sector after my studies. In the M-EEM (Master of Environmental and Energy Management) (Master of Environmental and Energy Management) program I have created an interest in energy transition, as it is such a complex and multidisciplinary issue.

As a matter of positionality, every researcher needs to take a moment and think about the position one has in this research. For instance, when studying households, where personal experience can influence the way the research is perceived (Staddon, 2017). As said, I am a citizen of the municipality where will be

studied. Furthermore, using my network I will have easier access to respondents. Additionally, due to my studies I already have an idea about governance and energy transition literature. In the grounded theory approach, it is important to reflect what is already known and be critical about the exciting knowledge and perspectives on the gathered data. I have found that it is rather difficult to work in this way since an already exciting knowledge about the topic can lead to a bias.

4. Results

This section describes the outcomes of the data analysis of the interviews. Every code group will be discussed based on what the interviewees have said. Quotes from the interviews will be used to show evidence for the findings. The code groups will be discussed on relevance and their interaction with each other.

4.1 Speed of Transition

All respondents were asked what the goals in the energy transition are and if they think these goals are going to be achieved. Among a variety of the interviewees, it was found that they do not think the goals are going to be achieved. The speed of the transition is seen as a serious issue. All interviewees mention the speed of transition in some way. For instance, interview 8 [citizen]: *"I think, within Twente, Enschede, everything is progressing too slowly."* Or: interview 6 [city council member]: *"Yesterday I happened to hear the latest figures. It turns out that for what we need to achieve by 2030, based on what we have contributed ourselves to the Regional Energy Strategy (RES), we have currently achieved 16 percent and have 17 percent in the pipeline, which means it has been promised, contracted, or at least it's coming. So, that adds up to 33 percent, which is not satisfactory. 33 is not 100, no. So, from what I understand, things are not going very smoothly yet."* So, the projects themselves take time, but the time to make decisions is even longer. Because of the difference in actors and different points of view, the reasons for this are very different. Almost all the other issues relate to the fact that the respondents think the energy transition progressing too slowly and that the goals are not going to be achieved. An example for this is the fact that there are no windmills in the whole of Twente, while there are agreements in the RES that there should be windmills in 2030. Interview 5 [employee municipality] explained why this is a serious problem: "*Even if we cover every roof of every henhouse with asbestos roofs with solar panels, we will still only achieve one-third of our goal*." In other words: even if every available roof in Enschede is covered with solar panels, only one third of the goal is going to be achieved. Specifically, the municipality needs bigger solar farms or other sources of renewable energy are needed to achieve the goals in 2030, but especially in 2050. Since Enschede is a city there is not much space for windmills. So, they need to use the space they have or use space of other municipalities. As said, all respondents mention that the speed of the transition is too slow, which will lead to not achieving the goals. While all respondents mention this, they all have other ideas of what the reasons are for this phenomenon. This, because of the complexity of the issues, but also because the diversity amongst the respondents. In the next part of the results section the reasons the respondents mention will be discussed.

4.2 Technical/practical issues

4.2.1. Grid congestion

This might be the most obvious issue, nevertheless important to mention. While local governments might struggle with governing, there are many external factors which influence the process. The one which is mentioned the most is net congestion. Interview 8 [citizen]: "*The biggest issue within the energy transition in Enschede, which is for the whole of Twente I think, is net congestion, because nothing can be done."* When interviewees were asked what the exact problems are, they mention the network operator Enexis. Enexis is the network operator for some parts of the Netherlands, including Enschede. However, when asked about the net congestion Enexis named TenneT, who is responsible for the high voltage part of the electricity network. Interview 9 [Enexis]: *"Yes, of course it is an issue, however, congestion is currently only present in our area on the high-voltage power grid."* However, Interview 9 [Enexis] also mentioned: "*Suppose TenneT would suddenly increase their capacity, then it would also become a bottleneck for us."* So, the issue remains the same, the electricity net does not have the capacity for bigger projects. This has become an issue for other organizations such as the energy corporation. Interview 7 [Enschede Energie]: *"Yes, it takes up much time. We are already a year further, so in February 2024, we are now at a point where we can get a connection, but then it just lies there, we cannot feed anything back with it."*

4.2.2. Resources

Another issue, which is close to economic issues is the effect of the ongoing war. The Ukraine-Russia conflict has impacted the energy transition by disrupting energy supply chains and increasing material costs. The rising prices of energy resources and construction materials pose challenges for the affordability and implementation of renewable energy projects. Next to this, there are issues in capacity in the Dutch market, so companies and staff, interview 2 [citizen]: *"There is a lack of capacity everywhere. So, if you come up with an idea or a plan and you're looking for a company to execute it, well, there's not much chance that the company will be available in the short term."* The resource issue influences the expenses of the transition, in the way that there is a shortage of materials and companies, which means that the costs of the transition will increase.

4.2.3. Space

The issue of space has become a hot topic in the Netherlands. The case of Enschede is no different. First and foremost, the issue of windmills. Interview 7 [Enschede Energie]: *"If you were to map out all the residential properties in Enschede, you would find that a wind turbine must be situated approximately 400 meters away from any given house. Consequently, if we were to exclude all the houses, we would be left*

with only about three suitable locations across the entirety of Enschede." As mentioned, this causes issues in the speed of transition, since a decision is to be made, with little options. However, this is not the only issue with space. The network operator also deals with this issue, when talking about net congestion: interview 9 [Enexis]: *"Sometimes, we're talking about ten, fifteen additional transformer stations per neighbourhood. These stations aren't very large, but they do require around 35 square meters each, and we have limited available space. Municipalities face significant spatial challenges due to the need for climate adaptation. This often involves adding more greenery. Moreover, we also have water-related challenges, and there is a pressing need for the construction of numerous houses. Ideally, we want to focus on urban infill, building in areas where building has already taken place rather than building further into natural areas. Hence, everyone is staking a claim on public space, including us, as we need to install transformer stations for electricity supply, posing an additional challenge. How can we collectively find the space we need?"* So, this complex puzzle makes it difficult for the municipality to make decisions because there is not much space to complete all these goals.

4.3 Cultural/behavioural change

This topic has some controversial views. While most of the interviewees were quite sceptical about the views of the citizens and municipality on these issues. Interview 3 [Municipality of Enschede] and interview 10 [Domijn] see a change that has happened over the last decades. Interview 10 [Domijn]*: "Alright, and I may be exaggerating here because it's not exactly how things are, but I do believe it's a generational difference. In the past, we weren't concerned about energy transition, climate adaptation, or anything of the sort. Now, everyone is much more aware that it's necessary, because otherwise, the Earth will reach its limits at some point. I can't say for certain if that will happen. However, I do believe that awareness will grow with each generation. So, when you talk about 2050, I think we will have continued this path we've set ourselves on."* Interview 3 [Municipality of Enschede]: *"Well, now everyone is always spreading the sustainable message, so that's something that has set things in motion, initiated a momentum that ensures that the call, well, the call that initially came only from Greenpeace or nature organizations, now comes from other directions as well."* While it seems that there has been progress made on the awareness and cultural change, many interviewees mention there is still a long way to go. For instance, interview 1 [municipality of Enschede]: *"There is still a sense among the population, well among some people, that the urgency of the energy transition is not yet fully recognized."* When interview 5 [municipality of Enschede] was asked what the most difficult part of her job was the answer was: *"Ignorance and lack of understanding from people who claim there is no issue, that there is no climate problem."* This all contributes to the main issue, if people do not believe climate change is a real issue, they do not feel the urgency to take steps and contribute to work on the issue. Without urgency, the speed of transition will decrease. This is not only for

renewable energy, but also saving energy. If the population of Enschede does not feel the need to use less energy, the transition will take even more time. An example form interview 6 [city council member]: *As long as we still sit on the terraces of the old market, next to patio heaters, and inside buildings where all the air is heated no one sits, and nobody finds that strange, it seems like we are missing something in terms of awareness and behavioural change. That's why I submitted an amendment to include behavioural change in the heat vision. It was emphasized that the transition is not just a technical one, but also a cultural change. Unfortunately, the amendment did not receive a majority vote."* In this quote you can find the cultural and behavioural change on two sides, on the one hand the population which is still living in a non-sustainable way and the politics who do not see that a cultural and behavioural change is necessary.

4.4 Public Administrative issues

Local governments are often known for their slow processes, which can hinder timely decision-making and progress. Complex regulations, bureaucratic systems, and the involvement of multiple stakeholders contribute to delays. This is no different for this specific case, interview 2 [citizen]: *"The slow processes within the government are an issue."* This issue within the government is mentioned by multiple interviewees. While the municipality must deal with local stakeholders, they also must navigate through all government levels of the Netherlands. As explained, there are 3 main government levels, with the RES as a regional governmental actor only for the energy transition. However, in practice there are more governmental organisations the municipality must cooperate with. Interview 5 [Municipality of Enschede]: *"One of the challenges we encounter is the multiple layers of governance involved. We must deal with six entities, including Rijkswaterstaat (Department of Waterways and Public Works), the province, Waterschap (Water Board), EZK (Ministry of Economic Affairs and Climate Policy), Rijksvastgoed (State Real Estate), and RVO (Netherlands Enterprise Agency). These entities are involved because they handle the tenders on behalf of the government."* Next to these entities there are multiple municipalities which they have to work with, not only in the RES, but also the closest municipalities for issues of space and other collaborative projects. This collaboration is explained by interview 9 [Enexis] in comparison to the other part of Overijssel: "*At the bureaucratic level, I see a lot of collaboration, while at the administrative level, it seems somewhat less prominent. In West-Overijssel, on the other hand, I notice a slightly different dynamic, with more individual handling of matters. There is still collaboration happening, but perhaps to a slightly lesser extent compared to Twente, particularly at the bureaucratic level. However, at the administrative level, I do see a greater willingness to hold each other accountable compared to Twente*." So, what is said here is that in Twente the collaboration amongst the staff of municipalities, the civil servants, is very prominent. However, there is a lack of accountability amongst the municipal authorities (mayor and aldermen). This lack of accountability might originate from the fact that the decentralization does not clarify the role the

municipality has and who is responsible for taking the lead in this issue, which is why it came up in the interviews.

4.5 Role of Municipality and Responsibility

4.5.1. Role of Municipality

Most respondents already brought up the role of the municipality before the question was asked. This, in the way that the national government is mentioned as the one who sets the goals which are eventually the goals of the municipality itself. When asked if the role the municipality of Enschede has in the energy transition is right, almost all respondents agree. The most typical answer to this question is: interview 5 [municipality of Enschede]: *"Yes, because the municipality is closest to the citizens, in the Hague they do not know where the problems are."* These problems refer to the demographic, but also the social problems that arise in the municipality. Most interviewees also mention the "closeness to citizens" and participation as a reason why the role of the municipality is right. In this context, the concept of "closeness to citizens" emphasizes the unique position of municipalities in understanding local needs and resources within their jurisdictions. Municipalities possess valuable knowledge about the specific challenges their citizens face and can identify those in need of assistance as well as potential contributors to the energy transition. For instance, the projects the municipality has in some neighbourhoods, which need help with saving energy. The municipality provides goods and services for those in need. Additionally, municipalities have a deep understanding of the spatial characteristics and available areas within their jurisdiction, enabling them to make informed decisions regarding the placement and development of energy projects. However, there are some parts of policy they do not agree on. Interview 3 [Municipality of Enschede/RES]: *"Yes, in some ways they are the right fit to govern the energy transition, but there are some problems, such as windmills, which are very problematic to govern."* The absence of windmills in the Twente region remains a significant challenge despite the consensus among municipalities in Twente to achieve a 60% share of wind energy. The absence of windmills in Enschede is a hot topic, all interviewees have mentioned it at least once. This mostly because it is a sensitive issue for people. Primarily, interviewees have pointed out two key factors contributing to this problem: the vocal opposition from a small group of individuals and the relatively passive stance taken by a larger, silent group. Additionally, the role and willingness of local politicians have also been cited as influential factors in the lack of progress, which will be discussed later.

4.5.2. Responsibility

An additional concern raised by the respondents is the lack of responsibility demonstrated by the municipality of Enschede regarding the energy transition. This issue is attributed to the understanding that the energy transition is a shared responsibility that involves collaboration among various stakeholders. All

respondents which were not in the municipality itself or citizens complained about the fact that there is a lack of control. Interview 9 [Enexis]: *"For us, clarity and concreteness at the earliest possible term is the most important thing, and whether you achieve this by asking a little more from local governments or from national government does not really matter."* This quote is a typical case from the organisations which work with the municipality. All these organisations are ready to act in the energy transition but have issues with the amount of time it takes and the lack of clarity.

4.6 Politics

When asked if local politics influences their work, all responded agreed. In what way differs amongst the actors. When asked why the goals of the energy transition are not going to be achieved respondents said: Interview 1 [Municipality of Enschede]: *"There is one political party in Enschede who only aims to do the bare minimum."* Interview 5 [Municipality of Enschede]: "*The issue is political choices, well, that's democracy. It is frustrating."* This is a clear example for the political landscape in Enschede. There seems no priority to work on the energy transition, at least not in the political parties which are currently in charge. This could be because there is just no interest in the energy transition, however, Interview 1 [Municipality of Enschede] mentioned: *"People who are against windmills scream the loudest, and some politicians listen to that."* And interview 3 [Municipality of Enschede/RES]: *"On one hand, you have residents who are hesitant about certain measures that need to be taken, and on the other hand, you have officials who are reluctant to ask their residents to comply with those measures."* So, it is not only a case of priority and interest, but also a case of courage to make tough decisions. This is not new in politics, if you decide something which has some opposition from the public, you might lose votes in the next election. So, together with the lack of urgency, there is the problem of making decisions that will cause issues. An example: Interview 6 [City Council]: *"So, let's spend more money on offering an hour of free parking, just to give an example, and less on energy efficiency. These are political decisions, and I mean, outside of election time, I must comply with them, but of course, I can still have my own opinions about it."*

4.7 Participation

During the interviews, many types of participation have been mentioned. Interview 2 [citizen]: *"the participation and area process, that does require some time. Of course. However, the formal decision-making doesn't necessarily have to take so long that it, when everyone already knows what they want, purely becomes a matter of lengthy procedures. Yes, that's unnecessary."* This does describe the view the interviewees have on participation well, there seems to be a general understanding that this process will take time. The participants mention that there has been much participation over the years on this topic, however they do mention some issues. First, the issue of getting in contact with citizens. While local

governments might be closer to citizens, a city like Enschede still has some problems with getting people to participate. Interview 1 [Municipality of Enschede]: *"Well, I think the willingness from civil servants to involve citizens is already there. I also believe that we have the tools for it and are willing to use them. However, for some reason, it remains challenging to engage citizens in processes."* Next to this, there is some criticism on the amount of participation which has happened. While it seems right to make sure everyone is heard in the process, it does not always mean that the right decisions will be made. Interview 8 [citizen]: *"That's what you can see now. Yes, there has been a lot of participation in the regional energy strategy 1.0, and everyone was allowed to participate and contribute, which is good. However, you can now see that after two years, it all comes to a halt."* This interviewee discussed the fact that the goals are not going to be achieved. This, because everyone had something to say about it which caused that no real and though decisions were made. The RES 1.0 was the first strategic policy document of the RES and has will be revised and made up to date in July 2023. Additionally, the interview 8 [citizen] discussed the responsibility the local government must take in this issue: *"Well, it's very bottom-up now, which is good. I believe that participation is important, but if you really want to make progress, you need a slightly more directive role from governments or companies."* As said, the issue of participation is close to the public administrative issues. While participation is important, especially in controversial and challenges issues, the municipality might need to take on a more directive role. So, there still are some issues in participation, such as finding people to participate and the level of participation, but this is not the bottleneck in the transition. Additionally, the issue of finding participants is close to financial issues. Interview 5 [Municipality of Enschede]*: "To invite people to participate we send letters. The costs are €1.20 per letter, and I have to send 32,000 letters. It adds up, and we don't have that much money in general for sustainability implementation."* This raises a whole new issue to the energy transition, namely the 'invisible' cost for including people in the decision making.

4.8 Economic issues

Interview 1 [Municipality of Enschede]: *"From the municipality's perspective, they always claim that they aim to make things as cost neutral as possible. So, affordability is indeed a significant factor in their decision-making, I believe."* This is the most common response when discussing the policy of the municipality. The decision-making process is based on monetary value. The reason for this is clear, to make sure the goals feasible. Since the budget is public money, there is a limit what can be spend. Interview 3 [Municipality of Enschede/RES]: *"In the end, those costs will land somewhere, either in the form of taxes that end up affecting the residents, or through rates. And some people can bear that burden better than others."* However, interview 3 [Municipality of Enschede/RES] also recognizes the other economic issue: *"Well, yeah, so the people who are not doing so well have to deal with higher rates than necessary, while*

the people who have some extra to spare already have their roofs covered with solar panels and are now enjoying the benefits." These issues all relate to the same problem, the fact that people who can invest in renewable energy will benefit from the energy transition. This was specifically clear when asked about the members of the energy corporation. Interview 7 [Enschede Energie]: *"It's mostly people who are already engaged in sustainability that generally have more resources to insulate their homes, purchase solar panels, and prioritize such actions."* So, next to having the resources to invest, it is also about interest and prioritizing sustainability. However, to prioritize sustainability, there needs to be time and money. For instance, interview 4 [Municipality of Enschede] talking about people who struggle with finances: *"They really struggle to make ends meet. Well, they are less concerned about these matters in general. Hey, I can't blame them. We understand their past, but they are less focused on climate goals because they have difficulty putting food on the table every day."* This issue can have many consequences in the future if it will not be considered in the policy making process.

4.9 Future and Fairness

While their arguments differ, all respondents do not think the goals are going to be achieved. For this reason, respondents were asked what they think what is going to happen, what the solutions are, but also what Enschede is going to look like after the energy transition if they were to continue this path. Interview 2 [citizen] had a view on this: *"Yes, you should really separate that group completely or implement a stair system where those with lower incomes receive more support in the subsidy scheme for sustainability. But now it's just the richer ones getting richer."* This comment is very close to the economic and fairness issues and provides an idea how to tackle this issue. Most of the respondents do think people with low income should be considered and some provide examples such as subsidies or other initiatives, but it still seems that it is not an urgent issue. The answers the respondents gave on this issue were very different. While some respondents do not think the transition is ever go end, because there always will be better way to save energy or new technologies which would contribute to the cause, they all had a vision on what is going to happen in the future. To help the respondents, the question was rephrased as is there are winners and losers after the transition. This question raised some interesting answers, interview 4 [Municipality of Enschede]: *"I think the eventual goal is that in the end we are all better off"*; interview 7 [Enschede Energie]: *"Yes, I think there will always be winners and losers. I hope that the system can be restructured in a way that allows people who are currently consistently losing out to participate."*; interview 8 [citizen]: *"Yes, because I believe that you simply have to take steps and ultimately make the world a bit better. Will you really lose out on that? Maybe from a political stand?"*; interview 10 [Domijn]: *"So should it be different, with no winners or losers? No, I ultimately think that everyone benefits from it. However, I do believe that there will be a difference in how much each person gains or doesn't gain."* So, in conclusion, the

respondents are quite positive about the future, almost all do think the population will be better off. However, the reality is that there will be a group which will be better off.

Discussion

Research based on grounded theory is used to understand a case. After this, the results are used to develop a new theory, which will be compared to existing theories in this section (Walker & Myrick, 2006). All factors that became relevant trough the analysis, which can be found in the methods and results section of this thesis, are going to be discussed and compared to existing theories. The first topic, speed of transition, was the most prominent which was found in the results. From the interviews it was found that all the other aspects are in some way related to the speed of transition. The speed of transition can be found in sustainability and governance research, terms like carbon lock-in or dealing with many stakeholders are mentioned as the reason for the time-consuming transition. However, these theories do not cover the magnitude of the problem. While in most sustainability literature the energy transition being called a long-term process next to other dimensions (Köhler et al., 2019), this research has found that the other dimensions and the speed of transition are interrelated. The technical issues this research has found can also be found in sustainability literature, especially grid problems which is part of the so-called carbon lock-in. Next to this, because of international conflicts, there are resource problems, which slow down the process even more. It is expected that issues like this will happen more often due to climate change and scarcity of resources (Child, Koskinen, Linnanen, & Breyer, 2018). Cultural aspects are also deep embedded in sustainability literature, in MLP the cultural component is an important part of the landscape. Cultural change can make substantial a difference in resistance, however, is difficult to manage. Additionally, it could take much time for such a change to occur.

The third topic, the public administrative issues are mostly related to dealing with many (governmental) actors. As mentioned in governance theories, it is more complicated than a single agency system (Andrew & Goldsmith, 1998). For instance, problems occur within the coordination between the governmental levels (local, regional and national) (Van Dijk et al., 2022). What is found in this case is that next to these governmental levels there are many other governmental organizations which all have different interests. Next to this, there is a problem amongst these governmental levels who is responsible. The responsibility issue found in this thesis is a clear example of issues in governance, due to the multiple actors which are involved in the decision-making process increase the odds of insufficient cooperation between jurisdictions. This leads miscommunications about which level of government is responsible and there is a lack of accountability amongst these levels of government (Van Dijk et al., 2022).

When working with governmental organizations, politics will always have an influence, just as the cultural aspects is politics a part of the landscape, which is found in MLP. The landscape level influences both the regime and the niches. For local governments it is even more difficult since national politics and local politics do not always comply.

The issues found in participation can all be found in governance literature. The fact that it is expensive and time consuming has already been concluded (Bishop & Davis, 2002). For this case it seems that there still is an optimal level of participation which needs to be found, this, to make sure it does not take up too much time, but also to make decisions some actors are not going to agree on.

The last topics, economic and fairness, relate to energy justice. From this case it seems that there are some injustices in some of the components of energy justice (distribution, recognition, procedural). From the interviews is does seem that there are groups in society who have more to spend, will eventually benefit more. The energy transition offers the chance to invest in energy sources, however only the people who can afford it will benefit. There seems to be a Matthew principle going on in a way that 'The rich are getting richer; the poor are getting poorer'. This can be found in the way that only high income and higher educated individuals are getting the chance to invest and benefit from the energy transitions as it is today.

All these challenges together determine the governance of the energy transition in Enschede. As mentioned, governance is different for every case. From the beginning of this research, it was clear that the status of the transition was not what it should be. The municipality has goals for the transition, but these goals are not set by themselves, these are the task they get from the national government. Within the municipality there are many actors which are working on the transition, the public and private sector are blurred. This also meant that the real status of the energy transition is not clear by the municipality itself. Think of citizens who have solar panels, which are not registered and other companies working on renewable projects, which are not known by the municipality. This can be found in NPM and governance theories, due to the complexity of all actors which are involved, it is difficult to keep the oversight of what is happening. This can also be found in the lack of responsibility which was mentioned by many respondents. This lack of responsibility might originate from the fact that the role of the municipality has changed for the transition, their say did in the matter did not. The municipality still has to answer to the national government and to the regional agreements. For now, it still seems that this is the right way since the municipality itself is not successful enough in ensuring the goals of the energy transition. This can be found in the MLP, the dominant regime will try to keep it the same, the national government, but also other levels of government, will try to keep everything the same. Only when there are successful niches, this pattern can be broken.

What is interesting to see is that for all the concepts which are found in the case of Enschede, so the speed of transition, cultural aspects, public administrative issues, responsibility/role of municipality, politics, participation, economic and fairness, all can directly be related to some parts of governance and sustainable literature. However, these concepts were not found in one theory, the estimate is that for every case that will be studied, there will not be a one size fits all theory applicable. The transition changes, which means

that all these concepts can be found in the future, but also new important concepts can be added. Which makes grounded theory very interesting to use as a method for sustainable studies.

Limitations

This thesis aimed to investigate the governance challenges in the energy transition within the context of the municipality of Enschede. However, it is important to acknowledge certain limitations and challenges encountered during the research process. Firstly, the scope of the study was quite extensive, covering various dimensions of the energy transition. It required a substantial amount of time and effort to gather information from diverse sources and stakeholders, making it challenging to look deeply into each aspect of the energy transition. Which also meant that some actors did not get a chance to participate in this research. Secondly, all respondents were on the somewhat progressive side of the energy transition. None of the interviewees were from groups which do not work together with the municipality or are against sustainability. While this is not problematic, it is important to acknowledge that the perspectives of individuals who might hold other viewpoints were not captured in the research. Including a range of perspectives, including those who may have reservations or concerns about sustainability, could have provided a more comprehensive understanding of the challenges and potential conflicts.

Next to this, there has not been an interview with the Aldermen responsible for sustainability in Enschede. This is a clear limitation since the aldermen play a crucial role in shaping and implementing policies related to the energy transition at the local level. Future studies could benefit from including the perspectives of aldermen to gain a more comprehensive understanding of the governance challenges faced by local policymakers.

Future research

Next to the limitations being considered when looking into future research, there are some other things which could contribute. Researchers could focus on conducting comparative studies with other municipalities. Additionally, exploring municipalities with different socio-economic characteristics or geographical conditions can provide valuable insights into the adaptability of specific solutions. This research was focussed on finding the challenges of this specific case, so the findings and recommendations are designed for this case only. This does not mean that it cannot be implemented in other municipalities, however it does not cover the complexity other municipalities might have to deal with. To comprehend the broader context of the energy transition, it is essential to broaden the scope of research beyond the municipal level. Future studies should consider national and regional perspectives to capture the interplay between local, regional, and national policies, regulations, and frameworks.

Conclusion

This research aimed to answer the research question *What are the governance challenges for Dutch municipalities in ensuring a transition towards a more sustainable local energy system?* For the case of Enschede, based on expert opinions it can be concluded that all the issues the municipality encounters in governing are all contributing to the lack of speed in the transition. First, the technical issues were identified, which is the net congestion in Twente, which limits the capacity of the electricity network. This, together with resource constraints makes it difficult for the municipality to carry out the existing plans. While this already slows the process down, there does not seem to be an urgent need to complete the energy transition. This from the public, in a way that a cultural change must be made, but also form a political point of view. Additionally, the municipality struggles with the already existing challenges in governing, such as slow process, red tape, complex regulations, and the involvement of many stakeholders. The task to oversee all these issues makes it even more difficult to make decisions, and this while there are many stakeholders which are reliant on the choices the municipality makes. All these issues make it difficult to govern, however, Regarding the role of the municipality, most respondents agree that the municipality of Enschede is in the right position to lead the energy transition due to its proximity to citizens and understanding of local needs and resources. However, challenges such as the governance of windmills and the lack of progress in that area highlight areas where improvements can be made.

The question remains if the municipality is the right fit to govern the energy transition. The miscommunications on who is responsible and the alignment with other stakeholders has a substantial effect on the outcome and speed of policy. However, governance is needed in a way that the local stakeholders are very motivated to work on the energy transition. The task of the municipality is to oversee and to make room for these niche innovations and project to start. This is where the municipality still needs to work, together with getting more autonomy. Which is quite the paradox, municipalities need to make room for niche innovations and support more local initiatives, but these actors also require clear rules and regulations on which they can build. Additionally, the social injustice should not be forgotten because if the transition is only up to the market and private stakeholders, there is no clear view on what the status of the transition is and there is not enough room for the social injustices that occur. For now, it seems that only curtain groups, who can afford to invest in renewable energy sources, can benefit from the transition.

Recommendations

These recommendations are based on the data which could be gathered, this part does not take the limitations of the research into account. To overcome the challenge of delayed progress due to the lack of direction, it is crucial to advocate for stronger involvement from the municipality of Enschede. The municipality should take on a proactive role by providing clear guidance, goals, and deadlines for the local actors involved in the energy transition. Especially for the housing corporations, network operator and energy corporation. This will enable local actors to take immediate action and work towards the defined objectives without unnecessary delays. This would also mean making decisions that are going to be controversial, or at least with some resistance. Especially the case for windmills since there are no other options for the municipality soon. This way achieving their goal does not seem plausible and it might be a better option to leave it to higher levels of government, since decisions are going to be made. Next to this, there should be more interest in making sure all parts of society are going to benefit from the transition. This can be in education and awareness, more community initiatives and financial inclusion. This, to prevent the rich getting richer, with options such as subsidies and financing options for low-income households.

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Appendix 1: Informed consent

Informatieblad voor onderzoek: De energietransitie in de gemeente Enschede

Doel van het onderzoek

Dit onderzoek wordt geleid door Tessa de Weerd

Het doel van dit onderzoek is uit te zoeken wat de problemen zijn in het besturen van de energietransitie in Enschede

Hoe gaan we te werk?

U neemt deel aan een onderzoek waarbij we informatie zullen vergaren door:

- U te interviewen en uw antwoorden te noteren/op te nemen via een audio-opname/video- opname. Er zal ook een transcript worden uitgewerkt van het interview.

Potentiële risico's en ongemakken

- Er zijn geen fysieke, juridische of economische risico's verbonden aan uw deelname aan deze studie. U hoeft geen vragen te beantwoorden die u niet wilt beantwoorden. Uw deelname is vrijwillig en u kunt uw deelname op elk gewenst moment stoppen.

Vergoeding

U ontvangt voor deelname aan dit onderzoek geen vergoeding .

Vertrouwelijkheid van gegevens

Wij doen er alles aan uw privacy zo goed mogelijk te beschermen. Er wordt op geen enkele wijze vertrouwelijke informatie of persoonsgegevens van of over u naar buiten gebracht, waardoor iemand u zal kunnen herkennen.

Voordat onze onderzoeksgegevens naar buiten gebracht worden, worden uw gegevens zoveel mogelijk geanonimiseerd, tenzij u in ons toestemmingsformulier expliciet toestemming heeft gegeven voor het vermelden van uw naam, bijvoorbeeld bij een quote.

In een publicatie zullen anonieme gegevens of pseudoniemen worden gebruikt. De audio-opnamen, formulieren en andere documenten die in het kader van deze studie worden gemaakt of verzameld, worden opgeslagen op een beveiligde locatie bij de Universiteit Twente en op de beveiligde (versleutelde) gegevensdragers van de onderzoekers.

De onderzoeksgegevens worden bewaard voor een periode van 10 jaar. Uiterlijk na het verstrijken van deze termijn zullen de gegevens worden verwijderd of worden geanonimiseerd zodat ze niet meer te herleiden zijn tot een persoon.

De onderzoeksgegevens worden indien nodig (bijvoorbeeld voor een controle op wetenschappelijke integriteit) en alleen in anonieme vorm ter beschikking gesteld aan personen buiten de onderzoeksgroep.

Tot slot is dit onderzoek beoordeeld en goedgekeurd door de ethische commissie van de faculteit BMS(domain Humanities & Social Sciences)

Vrijwilligheid

Deelname aan dit onderzoek is geheel vrijwillig. U kunt als deelnemer uw medewerking aan het onderzoek te allen tijde stoppen, of weigeren dat uw gegevens voor het onderzoek mogen worden gebruikt, zonder opgaaf van redenen. Het stopzetten van deelname heeft geen nadelige gevolgen voor u of de eventueel reeds ontvangen vergoeding.

Als u tijdens het onderzoek besluit om uw medewerking te staken, zullen de gegevens die u reeds hebt verstrekt tot het moment van intrekking van de toestemming in het onderzoek gebruikt worden.

Wilt u stoppen met het onderzoek, of heeft u vragen en/of klachten? Neem dan contact op met de onderzoeksleider.

Tessa de Weerd
t.deweerd@student.utwente.nl

Voor bezwaren met betrekking tot de opzet en of uitvoering van het onderzoek kunt u zich ook wenden tot de Secretaris van de Ethische Commissie / domein Humanities & Social Sciences van de faculteit Behavioural, Management and Social Sciences op de Universiteit Twente via ethicscommittee-hss@utwente.nl. Dit onderzoek wordt uitgevoerd vanuit de Universiteit Twente, faculteit Behavioural, Management and Social Sciences. Indien u specifieke vragen hebt over de omgang met persoonsgegevens kun u deze ook richten aan de Functionaris Gegevensbescherming van de UT door een mail te sturen naar dpo@utwente.nl.

Tot slot heeft u het recht een verzoek tot inzage, wijziging, verwijdering of aanpassing van uw gegevens te doen bij de Onderzoeksleider.

Door dit toestemmingsformulier te ondertekenen erken ik het volgende:

1. Ik ben voldoende geïnformeerd over het onderzoek door middel van een separaat informatieblad. Ik heb het informatieblad gelezen en heb daarna de mogelijkheid gehad vragen te kunnen stellen. Deze vragen zijn voldoende beantwoord.

2. Ik neem vrijwillig deel aan dit onderzoek. Er is geen expliciete of impliciete dwang voor mij om aan dit onderzoek deel te nemen. Het is mij duidelijk dat ik deelname aan het onder- zoek op elk moment, zonder opgaaf van reden, kan beëindigen. Ik hoef een vraag niet te beantwoorden als ik dat niet wil.

Naast het bovenstaande is het hieronder mogelijk voor verschillende onderdelen van

het onderzoek specifiek toestemming te geven. U kunt er per onderdeel voor kiezen wel of geen toestemming te geven. Indien u voor alles toestemming wil geven, is dat mogelijk via de aanvinkbox onderaan de stellingen.

3. Ik geef toestemming om de gegevens die gedurende het onderzoek bij mij worden verzameld te verwerken zoals is opgenomen in het bijgevoegde informatieblad. Deze toestemming ziet dus ook op het verwerken van gegevens betreffende mijn baan/politieke opvattingen/lidmaatschap van vakbond.	JA ☐	NEE ☐
4. Ik geef toestemming om tijdens het interview opnames (geluid / beeld) te maken en mijn antwoorden uit te werken in een transcript.	☐	☐
5. Ik geef toestemming om mijn antwoorden te gebruiken voor quotes in de onderzoekspublicaties.	☐	☐
6. Ik geef toestemming om mijn echte naam te vermelden bij de hierboven bedoelde quotes.	☐	☐
7. Ik geef toestemming om de bij mij verzamelde onderzoeksdata te bewaren en te gebruiken voor toekomstig onderzoek en voor onderwijsdoeleinden.	☐	☐
Ik geef toestemming voor alles dat hierboven beschreven staat.	☐	

Naam Deelnemer: Naam Onderzoeker: Tessa de Weerd

Handtekening: Handtekening:

Datum: Datum: