Master's Thesis – Master Sustainable Development

Community renewable energy (CRE): governed democratically?
– An analysis of democratic legitimacy in the governance of community renewable energy initiatives in Utrecht, The Netherlands

Initiators of Buurtstroom project Griftkwartier. Source: www.buurtstroom.nl.

N.W.R. (Nenya) Jochemsen
2637057
n.w.r.jochemsen@students.uu.nl
Supervisor: Dr. H.L.P. (Heleen) Mees
Second reader: Dr. Ir. D.L.T. (Dries) Hegger
Credits: 45EC

Track: Earth System Governance
Utrecht University, Copernicus Institute

Universiteit Utrecht

Earth System Governance

Wordcount: 42822
05/08/2022

Abstract

One of the biggest challenges of the 21st century is to shift from finite and fossil fuel-based energy sources to renewable and clean energy sources, in order to mitigate climate change. It is crucial that this transition enfolds democratically, to avoid the risk of exacerbating social inequalities within and between communities, instead increasing effectiveness and legitimacy of the transition and its outcomes. Practitioners and scholars increasingly point to community renewable energy (CRE) initiatives as legitimate agents in governing a democratic energy transition. In an attempt to fill the empirical knowledge gap on the often-assumed democratic legitimacy of CRE initiatives, the following research question is posed: *How and to what extent is democratic legitimacy pursued and met by community renewable energy (CRE) initiatives in their governance of energy generation projects in the city of Utrecht?*

In answering this question, an analytical framework of democratic legitimacy, operationalized by indicators borrowed from literature on energy democracy, was applied to governance practices of CRE in Utrecht. In a comparative case study containing four different CRE initiatives, varying in their energy form and maturity, data was primarily collected by means of interviews and document analysis. Triangulation of data sources and methods allowed an in-depth assessment of the pursuit and success of CRE initiatives in meeting democratic principles, nuanced by analytical considerations of different project stages and effects of municipal support.

Results show that CRE initiatives are democratically legitimate to a moderate to extensive degree, with transparency as a core principle. However, significant differences between principles and initiatives exist, so the assumption that CRE initiatives are per definition democratically legitimate is proved incorrect. Municipal support had mixed effects on the democratic legitimacy of CRE initiatives. By providing subsidies, network steering and adapting the regulatory and policy context, the municipality proved primarily supportive to input and throughput principles. Trade-offs were made by decision-makers in CRE initiatives, pressured by resource limitations and based on the perceived necessity of certain principles to achieve the envisioned outcomes, varying per initiative. Four factors that influenced differences in democratic legitimacy between initiatives included the maturity of the initiative, the pursued energy form, the complexity of the stakeholder arena and location practicalities.

Future research could build upon this first attempt to create an analytical tool suitable to assessing democratic legitimacy in the energy sector and could assess the potential of public-private-civil partnerships in strengthening democratic capacities of CRE initiatives in their emergence and upscaling. Decision-makers in CRE initiatives are recommended to discuss a collective perception of democratic legitimacy with participants and stakeholders, and to deploy its partnerships for sharing expertise and best practices. Municipal officials and policy makers are recommended to consider the specific democratic needs of CRE initiatives and the democratic effects of municipal support, and to adapt its regulatory and policy framework to increase the administrative role and facilitation of CRE initiatives. These considerations and adaptations are necessary to steer the ongoing energy transition in a democratic and legitimate way.

Acknowledgements

First, I would like to thank all the respondents of the CRE initiatives, their partners, companies, stakeholder groups, members, residents and the municipality, for participating in my research. All respondents were dedicated to supporting me in finding the right answers and getting into contact with other respondents. Their inexhaustive commitment to the energy projects is admirable. Second, I would like to thank Anne Marieke Schwenke and Piet Hein Speel for their time and reflexion on my results. Third, I would like to thank Dries Hegger for his feedback on my research proposal, and most of all, I would like to thank Heleen Mees for all her time, commitment and helpful recommendations.

Table of contents

List of figures and tables

1. Introduction

1.1. Problem definition

One of the biggest challenges of the 21st century is to shift from our unsustainable practices to developing more sustainably. One of the challenges is to mitigate climate change by switching from finite and fossil fuel-based energy sources to renewable and clean energy sources. This so-called energy transition has been subject to policy directives and regulatory frameworks at all levels. At the international level, the Paris Agreement of 2015 formulated "Clean and affordable energy", as its seventh Sustainable Development Goal, with the vague target 7.2 being to "increase substantially the share of renewable energy in the global energy mix" (United Nations General Assembly, 2015, 19). At the European level, the 'Clean energy for all Europeans' package was launched in 2019, which was translated into national energy and climate plans (NECPs) by all member states of the European Union (EU). The EU Renewable Energy Directive, established in 2009 and revised in 2021, formulates the goal of generating at least 32% of the European energy from renewable energy sources in 2030, a percentage that is adopted as a Dutch energy ambition (European Commission, 2018). In the Netherlands, the goal that had been set for 2020 to achieve a 14% share of renewable energy was not achieved, and a recent climate and energy investigation shows that the current speed of the emission reduction must double in order to achieve the aspired emission mitigation goals for 2030 (Planbureau voor de Leefomgeving, 2020).

It is crucial that this transition enfolds not only quickly, but also democratically. Energy, and likewise the energy transition, have been subject to a primarily technical approach with little attention being paid to good governance and societal aspects (Hendriks et al., 2009; Weis et al., 2015). Consequently, energy governance remains and is becoming undemocratic, resulting in the creation and exacerbation of social inequalities as well as limiting effective outcomes (Bommel & Höffken, 2021; Grover & Daniëls, 2017; Igalla et al., 2019; Park, 2012; Rommel et al., 2018). If, however, society manages to govern the transition democratically, this increases its legitimacy, which has both substantive and normative benefits (Ruggiero et al., 2014). First, a democratic transition is expected to have a positive effect on the effectiveness and efficiency of realising a carbon neutral energy system (Szulecki, 2018). For example, democratic procedures ease the acceptance of relevant stakeholders; the accountability of energy producers leads to higher energy efficiency; and inclusive participation allows combining expert and community knowledge to come to optimal solutions in a complex environment (Fischer, 2000; Szulecki, 2018). Secondly, a democratic energy transition is more likely to ultimately deliver a socially just energy system (Sweeney, 2014; Stephens, 2019; Szulecki, 2018).

In response to the material energy transition with both risks and opportunities for democracy, as well as by identifying an emergent democratic energy movement in society (Fairchild & Weinrub, 2017; Kunze & Becker, 2014), the concept of 'energy democracy' emerged in the literature in the beginning of this decade (Szulecki & Overland, 2020). The concept represents a call for more decentralized and democratic control of the energy system, as an alternative to the centralized and "old, technocratic, closed-door regulatory model" that is "ill-suited for present conditions" (Szulecki & Overland, 2020; Thombs, 2019; Welton, 2018, 612). It emphasises a deepening of democratic participation and a consideration of an increased number of stakeholders to increase legitimacy in the energy sector (Szulecki, 2018; Szulecki & Overland, 2020).

Literature on energy democracy largely focuses on shifts in architecture and agency on a system-level. However, by describing energy decentralisation, community ownership and control, and prosumerism as crucial elements of this system, proponents of energy democracy assign a crucial role to local and community-based renewable energy (CRE) initiatives as key agents - actors who have the authority to exert power over people or resources - in a democratic energy system (Brisbois, 2020; Kunze & Becker, 2014; Van Veelen & Van der Horst, 2018). The concept of CRE initiatives deserves some explanation, which can be provided by combining the notions of 'community initiatives' and 'community energy'. A community initiative can be defined according to a comprehensive definition provided by Igalla et al. (2020, 604): "a (formal/informal) form of self-organization, providing public services or goods to a community, being in control of internal decision-making, not-for-private profitmaking, mainly operating on voluntary work, and being community based". Continuing, community energy is defined as "projects where communities (of place or interest) exhibit a high degree of ownership and control, [and are] benefiting collectively from the outcomes" (Seyfang et al., 2013, 978). By combining these two concepts, CRE initiatives are defined in this research paper as community-based forms of self-organisation devoted to carrying out renewable energy projects. CRE initiatives according to this definition include energy cooperatives and collective associations under private law, which exhibit much internal organisational variety, and their democratic workings are explained as an "assemblage of heterogenous elements" (Becker et al., 2017, 27; Seyfang et al., 2014; Van Veelen & Eadson, 2020, 231). These forms of self-organisation often enjoy some sort of external support (Berka et al., 2018); whereas in situations in which municipalities are not supportive, rescaling of energy decision-making to the local and city level can be "subversive and uncoordinated" (Brisbois, 2020, 49).

The relevance of CRE initiatives in creating a democratic energy system is not only theoretical, but also visible in policy practice, where they have grown in influence. The Renewable Energy Directive of 2020 (RED-II) and the European Clean Energy Package of 2019 introduce the concept of renewable energy communities. These important policy documents recognize the role of communities in energy governance, propose energy sharing within the energy community and provide a framework to put them on equal footing with market competitors. These directives are supportive in the broad-scale recognition of CRE initiatives. Subsequently, citizens and local communities emerge as "a legitimate actor for co-driving Europe's energy transition" (De Brauwer & Cohen, 2020, 1). Empirical research also shows how citizens and communities have actively claimed agency in the energy transition (Hoppe & Warbroek, 2021). This increasing role parallels a broader trend in sustainability governance, where agency is shifting from the state to local institutions, complemented by an increasing focus on the responsibilities and actions of citizens and civil society (Fuhr et al., 2018; Hasanov, 2021; Mees et al., 2019).

The new governing spaces that emerge and the shifting agency trigger the question of how exactly CRE initiatives fit into our understanding of democracy: while their emergence is identified and their potential role for the energy transition emphasized, empirical evidence of how and to what extent CRE initiatives commit to democratic principles is relatively unknown. Scholars and practitioners have often linked CRE initiatives with the pursuit of democratic values (Becker & Naumann, 2017; Berka et al., 2018; McCauley & Stephens, 2017; Rydin & Turcu, 2019; Van Veelen, 2018), subsequently using this as a source of legitimacy: democratic legitimacy, defined as the recognition of the decision-

making by community initiatives to be justified (Igalla et al., 2021). However, the democratic legitimacy of CRE initiatives is often assumed rather than proved, originating primarily from false promises of inclusive participation and representation that the label "community" carries with it. Consequently, CRE initiatives are falsely perceived as democratically legitimate and can thereby unintentionally create and exacerbate inequalities (Bakker et al., 2012; Hicks & Ison, 2018; Lund, 2018; Purcell, 2016; Radtke, 2014; Van Veelen, 2018). Gaining evidence of their democratic degree, or lack thereof, is therefore crucial for evaluating the democratic legitimacy and their current role in the energy transition.

Unavoidable 'trade-offs' in pursuing democratic legitimacy, run the risk of creating democratic deficiencies on some aspects in the governance of CRE initiatives: research has shown inherent contradictions within democratic legitimacy, such as between procedural and representative aspects, or democratic input and output of the process (Barnard, 2003; Bellamy, 2010; Habermas, 2001; Hidalgo, 2019; Landman & Lauth, 2019). The likelihood of such trade-offs happening in the governance of CRE initiatives is strengthened by the practical constraints that CRE initiatives face in their pursuit of democratic legitimacy, which pressure them to prioritise some democratic aspects over others (Lund, 2018; Van Veelen, 2018). The municipality may exacerbate or smoothen these prioritisations depending on the focus of its support (Bakker et al., 2012; Hara et al., 2016). Without a deeper understanding of the nuanced differences of democratic legitimacy in the governance of CRE initiatives, the necessity and effects of municipal support on this democratic legitimacy cannot be correctly estimated and anticipated. To conclude, the inability of some CRE initiatives to govern their project(s) in a democratically legitimate manner hampers a legitimate and effective energy transition, exacerbated by insufficient and inconsiderate support of the (local) government.

1.2. Geographical scope: Utrecht, The Netherlands

The Netherlands makes an interesting case to investigate the democratic legitimacy of these initiatives. First, the emergent agency of CRE initiatives in Europe is clearly visible in the Netherlands. Since a taking-off in 2010, the number of Dutch CRE initiatives has grown exponentially, showing a peak growth in 2018 (Schwenke, 2022). These initiatives are usually legally organised as cooperatives, have a local and environmental orientation and primarily aim to establish renewable energy projects that provide collective benefits to the community (Becker et al., 2017; Boon & Dieperink, 2014; Heldeweg & Saintier, 2020; Oteman et al., 2017; Van der Schoor & Scholtens, 2015; Wagenaar et al., 2015). Although their initial grassroot and small-scale character is still visible in the 'lower layer' of the CRE movement, the 'upper layer' has upscaled and matured; national and regional umbrella organisations like 'Energie Samen' and 'Energie van Utrecht' have been established for political lobbying, knowledge sharing and financial support (E1; P1).

Secondly, CRE governance in the Netherlands is characterized by a broad stakeholder involvement, which is characteristic of European CRE governance: local authorities and commercial parties have taken up partnership and facilitating roles in local citizen-led energy projects (Berka et al., 2018). As a national follow-up to the Paris Accord of 2015 and paralleling the European Union Clean Energy Package of 2019, a Dutch Climate Accord has been established via extensive stakeholder participation (Van Dijk, 2022). One of the agreements in the Climate Accord includes the promise that choices of how and where to realise renewable energy projects are to be made in a

decentralised fashion: regional and local governments should collaborate with a variety of stakeholders to determine their Regional Energy Strategy. This implies the embeddedness of local authority and decision-making through a multi-stakeholder polder model (Heldeweg & Saintier, 2020). The involvement of (local) governments, residents, civil society organisations and private actors in the collective governance of CRE poses both opportunities and risks for energy democracy: while increased focus on community involvement can empower a broader range of citizens, more powerful stakeholders may heavily influence the governance and ownership structure of the CRE initiatives (Heldeweg & Saintier, 2020). Here, the observation by Heldeweg & Saintier (2020, 9) is explanatory:

> "When we look at the Dutch […] experience the gap between theory and practice is evident. While there are no indications that formal rules are violated, the reality is that of major de facto outside influence, seemingly much desired to actually get projects established – prompting Lammers & Diestelmeier to suggest a more '*expansionist*' frame in which other actors, semi-public (e.g. DSOs and housing companies) and private (e.g. energy companies, aggregators) come into the picture – a suggestion that raises questions on if and how this can be arranged in a way that leaves energy democratization ambitions intact."

The local level is a relevant and suitable scope for this research since Dutch CRE governance is characterised by a local orientation, with "little bridging across to the national level" (Heldeweg & Saintier, 2020, 10; Hoppe et al., 2015; Oteman et al., 2017). The city of Utrecht is selected as the city under investigation, due to the importance and embeddedness of CRE initiatives in this city: multiple and diverse CRE initiatives are active in a complex, multi-stakeholder arena. Moreover, the municipality is very involved and has high ambitions for the energy transition. Next to this, Utrecht makes a suitable geographic focus because of the University's existing local network of community initiatives in the city, and paralleling research conducted with similar research objects within Utrecht.

1.3. Scientific background and knowledge gap

Early research on renewable energy governance in the Netherlands focused mainly on community participation in municipal plans, and the perception and socio-institutional acceptance of implementing solar panels or wind turbines (Agterbosch et al., 2004; Jolivet & Heiskanen, 2010; Walker et al., 2010). In the years that CRE initiatives took off, Oteman and colleagues (2014) characterized Dutch energy governance still as predominantly market-oriented but identified an increasing recognition and new institutional space for community energy. Dutch CRE initiatives have been studied primarily from the perspective of transition theory and social movement theory, exploring their emergence and transformative potential (Boon & Dieperink, 2014; Dóci et al, 2015; Hoppe et al., 2015; Hufen & Koppenjan, 2015; Laes et al., 2014; Oteman et al., 2014; Van Der Schoor & Scholtens, 2015; etc.). Many such studies exist in The Netherlands due to its pioneering role, academically in launching the transition management framework (Leas et al., 2014; Loorbach, 2010) and socially in its decentralised energy system and rapidly growing number of CRE initiatives (Schwenke, 2021). Studies on CRE initiatives in The Netherlands have focused on success factors and critical conditions (Hoppe et al., 2015; Radtke, 2014); on the role of motivations in their emergence (Boon & Dieperink, 2014; Mees, 2022) and on the impacts on democracy and shifting governance roles (Becker et al., 2017; Silva et al., 2018; Wagenaar & Van der Heijden, 2015). Building on these

studies, Dusyk (2017) provides an extensive overview of the emergence, characteristics and impacts of community energy, which is useful for gaining a basic understanding of CRE initiatives.

In the years that follow, scholarly focus seems to parallel societal developments. Since a peak number in 2018, growth in the emergence of energy cooperatives – the most common form of CRE in the Netherlands – has flattened and instead, cooperatives have started to mature and grow in membership size (Schwenke, 2022). This is reflected in scholarly research, shifting attention from understanding their emergence and potential towards understanding the complex role, organisational processes and governing challenges when upscaling CRE initiatives (Creamer et al., 2019; Warbroek et al., 2019; Verkade & Höffken, 2019). Approximately ten years into the existence of CRE initiatives in the Netherlands, studies reviewing the role and concept of CRE emerge (Hasanov, 2021; Van der Schoor & Scholtens, 2019). Scholars increasingly pose critical and normative questions, notably regarding the democratic capacity of CRE initiatives and their successes and failures in attempts to democratise and legitimise energy governance (Heldeweg & Saintier, 2020; Van Bommel & Höffken, 2021; Van Veelen, 2018). Illustrative of this change in focus is the study of Walker and Devine-Wright in 2008 titled "Community renewable energy: What should it mean?", and its successor eleven years later, titled "Community renewable energy: What does it do? Walker and Devine-Wright (2008) ten years on" (Creamer et al., 2019). These critical studies build on theory of energy democracy: promoting decentralisation and community control as crucial developments for realising a more democratic and just energy system (Becker & Naumann, 2017; Burke, 2018; Burke & Stephens, 2017; Kunze & Becker, 2014; Sweeney, 2014; Szulecki, 2018; Van Veelen, 2018).

Although CRE initiatives gained scholarly attention when critical theories of energy democracy emerged and gained attention in the early 2010s in the Netherlands and beyond, their system-oriented approach lacked a critical analysis of democratic procedures on the level of the initiative, with its democratic character being assumed rather than demonstrated (Heldeweg & Saintier, 2020; Van Veelen, 2018). Also, discussions on the role of CRE in energy democracy were predominantly focused on material aspects rather than democracy in decision-making. Some governing aspects of CRE initiatives have been researched, but very few have conducted an analysis of their democratic legitimacy by including a multiplicity of stakeholders and considering a comprehensive framework of democratic principles (Van Veelen, 2017). Moreover, a democratic analysis has not been combined with a transitional perspective, investigating democratic legitimacy in different stages of the initiative. As such, evidence is notoriously lacking on the democratic performance of CRE in the Netherlands (Edelenbos et al., 2018). As Hendriks & Dzur (2021) state, there is much to learn about how CRE initiatives operate: "to what extent are they inclusive and participatory, how do they evolve and sustain participation over time, and how do citizens involved effectively negotiate with state, market and civil society?" (Hendriks & Dzur, 2021, 15).

Building on the last question by Hendriks and Dzur (2021), the dynamics of how initiatives "interact with their external policy and political context also deserves empirical attention", depicting the role of the "institutional context" in affecting CRE initiatives (Heldeweg & Saintier, 2020; Hendriks & Dzur, 2021, 2). However, these studies ignore the role of the municipality. Other studies and preliminary research have explained the role of municipal officials in adapting their role and local policies to suit the emergence, actions and desires of CRE initiatives. Due to inexperience and little available knowledge of the municipality as well as regulatory novelty of the energy form, democratic

procedures are not always followed in governing CRE projects. However, these studies generally ignore the effects on democratic legitimacy. Thus, although much research exists on how (local) governments can support CRE initiatives in their survival, success and upscaling, no studies yet exist on how municipal support influences the democratic legitimacy of CRE initiatives.

1.4. Research objective and research questions

The primary aim of this research is to present a diagnosis of how and to what extent democratic legitimacy is pursued and met by CRE initiatives, by investigating the relative presence of democratic principles in the governance practices of four different community initiatives in Utrecht in their governance of renewable energy generation projects. This aim is achieved in three different ways. First, the activities of each initiative regarding different principles of democratic legitimacy are identified and held against an analytical benchmark, while categorizing results into different project stages to avoid falsely generalizing results and instead identify stage-specific results. Second, the influence of municipal support on the democratic legitimacy of CRE initiatives is identified, subsequently investigating the municipal role in how and to what extent democratic legitimacy was met by the initiatives. Third, the research presents trade-offs between principles within each initiative, as well as differences and similarities between initiatives, to interpret the results. By pursuing these three aspects, this research paper contributes to improving our understanding of the democratic role of CRE initiatives in a more legitimate energy system. Several questions guided the research process and provided the required knowledge to reach this research objective. The main research question steering the research reads as follows:

How and to what extent is democratic legitimacy pursued and met by community renewable energy (CRE) initiatives in their governance of energy generation projects in the city of Utrecht?

Before starting the analysis, a better understanding of democratic legitimacy is required to ensure an accurate diagnosis. Therefore, the concept of democratic legitimacy was unpacked by making use of different strands of literature on democratic theory, and consequently, a set of principles to operationalize the democratic legitimacy of CRE initiatives is presented. This can be found in the analytical framework (section 2.4, page 24).

Subsequently, the following three sub-questions are posed that guide the main research question. Each question is being answered for every initiative under investigation separately.

Sub-question 1: How and to what extent does each CRE initiative pursue and meet principles of democratic legitimacy in its governance of renewable energy projects?

Sub-question 2: How and to what extent has the municipality been supportive of the democratic legitimacy of each initiative in its governance of energy projects?

Sub-question 3: How can the democratic legitimacy in the governance practices of each CRE initiative be interpreted as a result of trade-offs between principles and stages, and municipal support?

Based on the high variety of organisational characteristics between CRE initiatives and the governance of their projects, this is likely to subsequently result in several differences in democratic

legitimacy between the initiatives. Therefore, a comparison is conducted between cases, which allows more nuanced conclusions on the role of democratic legitimacy in CRE in Utrecht, while interpreting the comparative results may offer additional insights as to why democratic legitimacy is pursued in a certain way and met to a certain degree.

1.5. Research framework

Figure 1 (see next page) presents an overview of the steps that were taken in order to answer the research question. Democratic legitimacy was analysed by investigating the governance practices of a selection of four different CRE initiatives in Utrecht. Prior theoretical research on democratic legitimacy and criteria found in the literature to analyse the democratic legitimacy of a governance practice formed the basis for principles of democratic legitimacy to be used. Additionally, theoretical literature on energy democracy and the role of CRE initiatives therein provided the input for a set of indicators to measure democratic legitimacy in CRE initiatives. Combined with literature on the role of local governments in supporting CRE initiatives and in influencing their democratic legitimacy, the input for the interviews with initiators and key stakeholders of four CRE initiatives has been formed through desk research. Field research conducted preliminary to the research added to this input, by means of a workshop that was conducted with initiators and municipal officials in CRE in Utrecht as well as two interviews with key figures in the field, with the purpose of gaining a basic understanding of the organisational landscape of CRE in Utrecht and the relationship that exists between the municipality and CRE initiatives.

The analytical framework functioned as guidance for the interviews, and for the analysis of interview output, policy documents and grey literature to evaluate the democratic legitimacy of CRE initiatives and the role of the municipality therein (sub-question 1 and 2). Several plenary meetings of the CRE initiatives and the regional renewable energy sector were attended and informal conversations increased understanding. Subsequently, the findings were interpreted (sub-question 3) and compared across initiatives. The findings were reflected upon by one academic and one practical expert in the field of CRE initiatives and energy democracy, to validate and contextualise the results. This analysis resulted in a set of conclusions on the democratic legitimacy of CRE initiatives in Utrecht. In a final discussion, several recommendations are made to policymakers, initiators and scholars.

1.6. Scientific relevance

This research is scientifically relevant, first, because it provides empirical evidence as to whether CRE initiatives are in fact democratically legitimate, rather than implicitly assuming that they are. It thus contributes to filling the knowledge gap recently identified by scholars (Edelenbos et al., 2018; Igalla et al., 2021; Van Veelen, 2018). Related to this, it provides empirical evidence to on-the-ground energy democracy-related analyses and discussions, called for by energy democracy researchers Szulecki and Overland (2020). It thus has a theory testing function, and by this, a contribution is made to the understanding of the role of CRE initiatives in achieving a more democratic energy system. Secondly, a theoretical contribution is made by expanding our understanding of democratic legitimacy to the field of energy. This is relevant because traditional democratic legitimacy and energy democracy have remained largely separate in the literature, except from a few theoretical contemplations about their overlap (Szulecki, 2018). Instead, when combining these theoretical bases in an empirical study, this results in an understanding of the democratic legitimacy of the

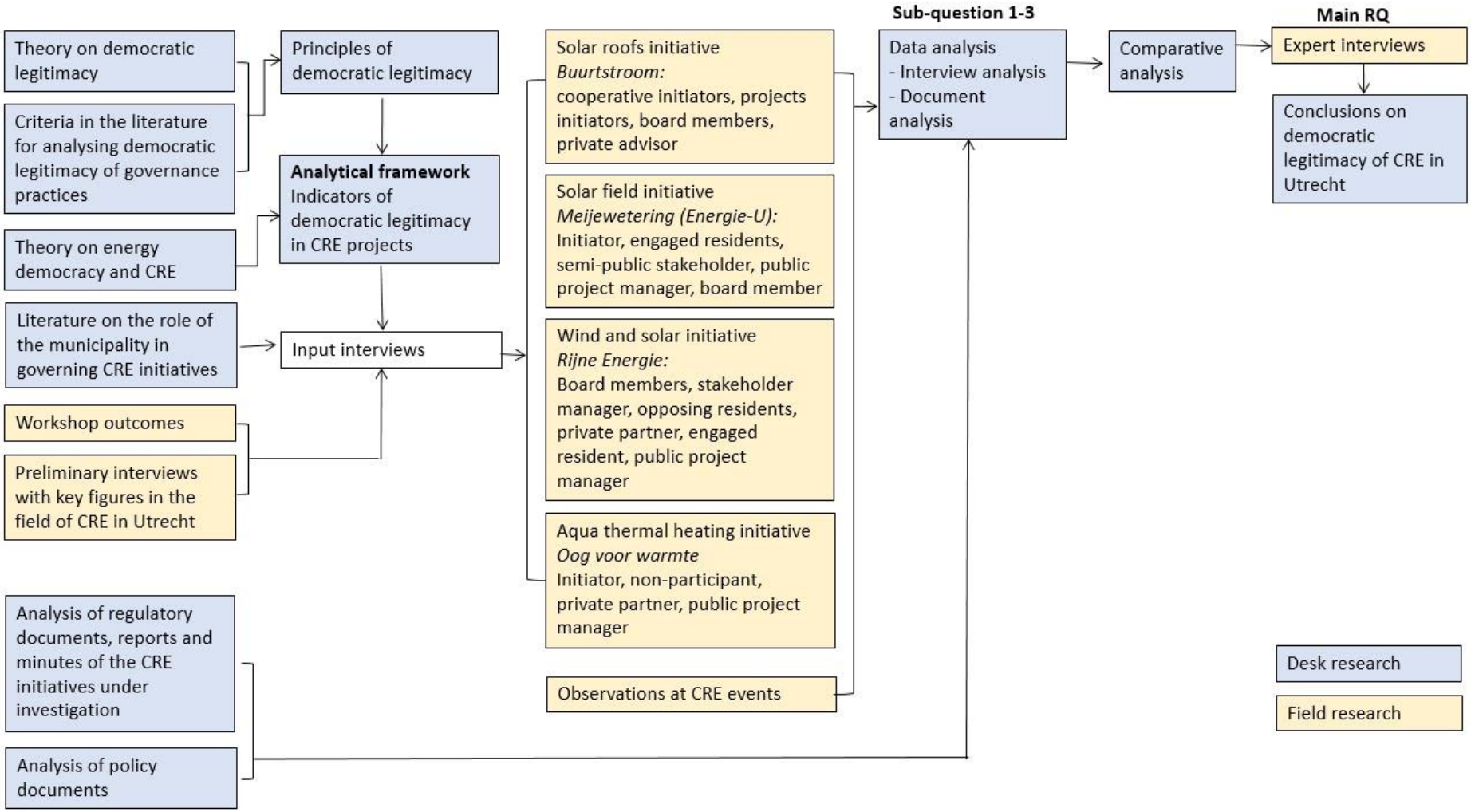

Figure 1: Research framework

suggested elements of a democratic, just energy system, rather than keeping the analytical strengths of traditional democratic legitimacy principles separate from the normative and abstract promises of energy democracy. Moreover, the study as conducted in this paper is analytically relevant because it provides nuance to general democratic claims of CRE initiatives, because it analytically distinguishes different stages and principles and accounts for the effects of municipal support.

1.7. Societal relevance

Increasing the understanding of democratic legitimacy in the governance of CRE projects is relevant for society for two general reasons. First, this research is societally relevant because it contributes to a better understanding for policymakers and pioneers in the energy sector of how renewable energy governance in the form of community initiatives does and does not yet result in establishing a democratic renewable energy system in the Netherlands. This is both relevant and urgent in the context of current energy decentralisation and the environmental and political necessity of switching from finite and polluting to renewable and clean energy sources (Van Veelen, 2018). Since community energy initiatives cut on so many sides, various stakeholders operating at multiple, interacting scales and domains are involved. This governance complexity makes the pursuit of democratic legitimacy a challenging but highly relevant issue (Provan & Kenis, 2008).

Secondly, the outcomes of this research provide useful insights for practitioners and citizens who aim to further legitimize the CREs under study or to initiate or support similar initiatives. The recent Dutch climate agreement included a new directive: aiming for at least fifty percent of large-scale energy projects owned by the local community. This directive was adopted as a target by the Regional Energy Strategy (RES) regions and the Province of Utrecht but was already proposed by the Municipality of Utrecht for new energy projects as early as 2016. This indicates an increasing role for the local energy cooperatives that exist in the city and makes questions regarding their democratic governance highly relevant (Schwenke, 2021). Paralleling academia, inclusivity, inequality and energy poverty have very recently become a topic for discussion in the Dutch community energy sector, which makes energy democracy a highly useful theoretical basis to investigate democratic legitimacy in CRE initiatives.

2. Conceptual design

This research uses theory of democratic legitimacy as a baseline, complemented by theoretical literature on the concepts of community energy initiatives and energy democracy. The primary aim is to test theory of energy democracy by assessing its principles on a local level, with one of its key subjects – CRE initiatives – as a research subject. In addition, following the relative novelty and rapidly developing understanding of CRE initiatives, the research design opens the floor for theory building and adding to existing understandings of democratic legitimacy.

2.1. CRE initiatives: defining the concept

The concept of CRE initiatives has suffered from conceptual unclarity. No satisfactory definition or typology yet exists in the literature, in part explained by the large diversity and variety of energy initiatives that exist in practice (Becker & Kunze, 2014). When defining the concept of CRE initiatives, a governance approach is suitable in this research, since democratic values and legitimacy are key aspects of "good governance" in the energy sector (Szulecki, 2018). The concept can be defined according to a community-based initiative, different than but borrowing features from a social movement, a social or civic enterprise, a socio-technological innovation and a citizen initiative (Becker et al., 2017; Hatzl et al., 2016; Agterbosch et al., 2004; Toke, 2011). Igalla et al. (2020, 604) present a summary of the characteristics identified in a systematic literature review of these different bodies of literature by Igalla et al. (2019), which is adopted in this research paper to define CRE initiatives: "a (formal/informal) form of self-organization, providing public services or goods to a community, being in control of internal decision-making, not-for-private profitmaking, mainly operating on voluntary work, and being community based".

2.1.1. Defining the community

Most CRE initiatives are place-based and rooted in civil society: citizen-led and community-based from the start (Seyfang et al., 2013). One of the aspects of energy democracy is the idea of the community as *prosumer*; thus, community energy can be defined as energy that is both generated and consumed by the community (Kunze & Becker, 2014). In the Dutch context of community energy, the term "local ownership" is used in energy policy, promoting at least 50 percent community control and financial ownership of the CRE project. However, the definition of community is ambiguous, and its meaning differs across concepts and over time (Bauwens et al., 2022). Community initiatives can be locality- or interest-based (Becker et al., 2017; Seyfang et al., 2013). In the case of Dutch CRE initiatives, they are both: only residents can participate in the initiative (locality-based), and the initiative is controlled by interested residents that have become a member (interest-based).

A recent systemic review identifies an academic shift away from community as a participatory and politically transformative process, towards a place-based community with economic objectives (Bauwens et al., 2022). This is an interesting development when investigating the governance of CRE, since this may affect their democratic legitimacy. A recent factor for the understanding of 'community' in CRE is the new regulation of the current subsidy scheme *Stimulatie Duurzame Energieproductie en Klimaattransitie* (SDE++) of 2021. This scheme allows members of energy cooperatives to keep financial co-ownership and control after moving outside of the local area, thereby affirming the growing focus on economic objectives as identified by Bauwens and colleagues

(2022), while eroding the local character of the energy community. This shift may affect the democratic legitimacy of the governance of the energy project especially since academics and practitioners have fallen into the 'local trap' (Walker & Devine-Wright, 2008; Walker et al., 2007; Walker et al., 2010): falsely assuming that community initiatives are per definition democratic or legitimate, resulting from questionable claims of representing the local community (Purcell, 2006).

2.1.2. Defining the initiative

The concept of initiatives is susceptible to multiple interpretations. Many scholars of CRE initiatives use the term without defining what it represents; and where they do, definitions differ. In governance literature, it seems to depict a type of (self-)organisation or institutional arrangement with its own agency and governance structures (Becker et al., 2017; Becker & Kunze, 2017; Connelly, 2011; Oteman et al., 2014; Radtke, 2014; Silva et al., 2018). Innovation studies approach it as a site or context (Pesch et al., 2018; Wagenaar et al., 2015), while others define it as a project carried out by community groups (Rydin & Turcu, 2019). By considering these different conceptual inputs, it can be concluded that initiatives can be conceptually defined as formal or informal forms of organisations that originate from a local community with the purpose of carrying out projects for their community (Becker et al., 2017; Becker & Kunze, 2014; Igalla et al., 2020).

In the case of Utrecht, initiatives, projects and cooperatives are much related. Their relationship is different for every initiative and thus a complex organisational structure has emerged. For the sake of conceptual clarity and drawing correct conclusions, separate definitions are distinguished here. Following the above definition, a CRE initiative is a form of organisation that originates from a community with the purpose of conducting one or more renewable energy projects. It goes through several stages: a) initial phase, b) growing phase, c) mature phase, d) upscaling phase, and e) finishing phase (Igalla et al., 2020). As is partly included in these steps and is true for Utrecht, additional projects may be initiated by the same organisation or emerge, again bottom-up, from other yet unconnected citizens and be adopted and facilitated by the already formalised organisation, as is the case for, for example, projects from the cooperative Buurtstroom and the cooperative Energie-U.

2.2. Democratic legitimacy: defining the concept

2.2.1. From legitimacy to democratic legitimacy

Legitimacy is defined by Suchman as "a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate with some socially constructed system of norms, beliefs and definitions" (Suchman, 1995, 574). The legitimacy of a governance practice equals "the quality of being acceptable and accepted, based on its conformity to shared norms and the consent of those affected' (Beetham, 1991; Connelly, 2011; Connelly, 2020, 395), and "being in accord with established legal norms and requirements, or conforming to recognized principles or accepted rules and standards of behaviour" (Biermann & Gupta, 2011, 1858).

Scholars who have evaluated the legitimacy of governance practices include both its procedural aspects and substantive content (Connelly, 2011; Cowie & Davoudi, 2015; Bäckstrand, 2010). Comparable to procedural and substantive legitimacy are 'input' and 'output' legitimacy (Scharpf, 1999), with the addition of 'throughput' legitimacy added by some authors to provide extra attention

to the quality of participation and deliberation in decision-making procedures (Bekkers & Edwards, 2007; Mees et al., 2013; Schmidt, 2013).

The concept of *democratic* legitimacy focuses on democracy as the dominant "legitimation principle" which is "a procedure that sets the terms for reaching legitimate decisions" (Eriksen & Fossum, 2004, 445). Democratic legitimacy, then, describes the degree to which a governance practice is recognized as democratically justified (Igalla et al., 2021). It is assumed that non-state governance practices can be as legitimate as (inter)state governance, "if they conform to equivalent democratic prerequisites, such as transparency, accountability and inclusiveness" (Schouten & Glasbergen, 2012, 66; Keohane, 2011). It should be noted here that "democracy can mean different things, and how we understand democracy influences how we see potentials and pitfalls related to legitimacy" (Hendriks, 2009; Røiseland, 2021, 8).

2.2.2. Democratic legitimacy in energy democracy

The democratic governance of CRE initiatives can be placed in the context of energy democracy. In this case, a CRE initiative is considered democratically legitimate when it meets governance principles of energy democracy. No straight-forward definition or agreed-upon conceptualisation of energy democracy exists. An extensive literature review by Szulecki & Overland (2020) reveals three broad understandings of energy democracy based on different driving forces: a process driven by social movements with agency as driving force (Armstrong, 2021; Van Veelen & van der Horst, 2018); an outcome of a socio-technical transition with materiality as driving force (Thombs, 2018); or a goal to which stakeholders aspire with multidimensional driving forces (Lieu et al., 2018). These different conceptualisations resemble a relative focus on agency versus architecture in creating a democratic energy system. The understanding of energy democracy as "an ideal political goal" (Szulecki, 2018, 35) is tested in this research, which allows for assessing the governance of CRE in Utrecht on its democratic degree.

Szulecki (2018) proposes an analytical tool with indicators that can be used to spot 'democrativeness' of energy governance. This includes material aspects of ownership and control next to governance issues, while only the latter are considered in this paper in light of the research question. Szulecki (2018, 36) includes the following "components", or principles, in his proposed framework: 1) *inclusiveness* through open participation, bringing community concerns on the agenda and representing all affected stakeholder interests, 2) *transparency* through due process, clear procedures and regulating lobbies, 3) *access to information* by reporting on legislation and deliberation, and independent research possible and available, and 4) *energy education and awareness raising* through dedicated educational programmes to enable participants equally to make qualitative arguments and informed decisions. These components align with 'deliberative participatory democracy': "decisional processes in which, under conditions of equality, inclusiveness and transparency, a communicative process based on reason may transform individual preferences, leading to decisions oriented towards the public good" (Della Porta, 2009, 1; Szulecki, 2018).

Energy democracy scholars contrast this form of democracy with representative democracy, which is instead characterized by delegation and majoritarian voting (Della Porta, 2018). This form of democracy is most common in established democratic institutions at a regional and state level and forms the basis of the traditional understanding of democratic legitimacy. Although scholars of

energy democracy promote deliberative participatory democracy, in practice, governance structures in CRE initiatives are usually a mixture of representative and participatory democracy (Van Veelen, 2018). This mixture fits the landscape of CRE initiatives in the Netherlands, where energy cooperatives are the most common form: cooperatives have an appointed board to represent its members, acting and making decisions on behalf of its members, but every member holds direct and equal decision-making power (Bauwens & Devine-Wright, 2018; Kunze & Becker, 2014).

2.2.3. Democratic trade-offs in CRE initiatives

Initiatives and decision-makers are prone to make trade-offs between different principles of democratic legitimacy, due to inherently conflicting characteristics. Scholars and practitioners have theorised and identified trade-offs of democratic and legitimacy principles in governance practices: input versus output legitimacy, procedural versus substantive legitimacy, efficiency versus representation, responsiveness versus effectiveness and participation versus representation (Barnard, 2003; Bellamy, 2010; Habermas, 2001; Hidalgo, 2019; Landman & Lauth, 2019). On the other hand, other scholars have found enforcing connections between principles, instead arguing that input and output necessarily go together (Cowie & Davoudi, 2015; Lindgren & Persson, 2010; Sternberg, 2014). Although the literature is inherently conflictual, it can be concluded that one democratic principle can partly be explained by the presence of another democratic principle.

These studies analyse democracy and legitimacy on a higher level than is the case in this research, often taking the European Union as its research subject, and they assign the source of these trade-offs and interdependencies to the inherent characteristics of democratic principles. However, trade-offs may also occur as a result of reasoned prioritisations of decision-makers when resources and capabilities to organise democratic activities are limited. It can be argued that this is likely to occur in CRE initiatives, where time and resources of volunteers are limited and in the first place dedicated to realising a viable energy project. This appears implicitly from studies by Lund (2018) and Van Veelen (2018) but has not been a topic of research yet.

2.2.4. The municipality and the democratic legitimacy of CRE initiatives

Several studies show that municipal support can affect aspects of democratic legitimacy. If the municipality aims to support CRE initiatives in resisting the dominant fossil fuel-based, commercial agenda, they must support in “developing new policies, strengthening existing policies, and integrating efforts” (Burke & Stephens, 2017, 35). Likewise, scholars promote the role of the (local) government in supporting the legitimacy of CRE initiatives by creating “an institutional legal format [that] may provide the socio-legal context necessary to embed and regulate governance structures (e.g. energy communities) to ensure that they can validly and lawfully meet their aims" (Heldeweg & Saintier, 2020, 5).

However, municipal support can also bring out a “dark side” of CRE initiatives (Igalla et al., 2019, 1190): when governments view CRE initiatives as a political tool to allocate resources without regards of community representation, they risk enforcing social inequality within communities. Moreover, municipalities expect better solutions and view initiatives as a cost-effective alternative for providing energy and revenues to the community and tackling the collective problem of environmental sustainability (Bakker et al., 2012; Berka et al., 2018; Burke, 2018; De Participatiecoalitie, 2021; Dryzek, 2007; Scharpf, 1999). However, when “insufficient time, resources or effort are allocated to

community-based initiatives", this can result in "incomplete or ineffective efforts, dashed expectations, cynicism and 'participation fatigue'" (Cleaver, 2001; Wismer & Mitchell, 2005, 1).

2.2.5. Differences between initiatives

Although some early attempts have been made, far from a comprehensive and agreed-upon definition or typology of CRE initiatives exist in the literature, let alone one that suits the current community energy landscape in the Netherlands (Becker et al., 2017; Szulecki, 2018; Van Veelen, 2017). As a result of the ambiguity of the concept, the question whether certain internal characteristics such as organisational forms of CRE initiatives are better equipped to achieve democratic legitimacy has remains underexposed (Becker et al., 2017; Slee, 2015). However, two potential factors can be identified when combining knowledge from the literature with own preliminary research: (1) maturity, comprising of professionalisation, experience and membership size; and (2) energy form.

First, democratic legitimacy of CRE initiatives may vary due to the maturity of the initiative, including experience, size and professionalisation. Since CRE initiatives start out as small-scale, loosely organised entities, democratic procedures are usually not on top of the list of priorities (Connelly, 2011). The longer they operate, the more they learn and professionalise into democratically operating cooperatives (Becker et al. 2017; Kunze & Becker, 2014). Also, since initiatives usually grow rapidly in membership during the early years of their existence, representation and accountability become more relevant democratic values rather than wide public participation (Lowitzsch & Hanke, 2019).

Secondly, democratic legitimacy can differ according to energy form, a factor based on preliminary research. Energy form is tied for example to complexity of the project, size of the project and acceptance. To take solar energy initiatives as an example, these are relatively easily accepted and desired by stakeholders and their complexity is manageable. This is less so the case for wind turbines, which have higher impacts on their environment and are thus less easily accepted by nearby residents. District heating projects in turn have a high complexity, require large investments and need most of the residents to participate in order to make the project viable. It will likely affect deliberative and participatory characteristics and accountability of decision-makers.

However, these factors are backed up by limited scientific evidence. Therefore, the just mentioned potential factors function only as a) a guideline for bringing variety in the selected cases, and b) a justification for conducting a comparative analysis and formulating the expectation that differences are likely to be identified.

2.3. Identifying the stakeholders

A complex and diverse stakeholder landscape is characteristic of the community energy sector (Van Veelen, 2017). The governance of CRE projects can be framed as an "assemblage of heterogenous elements", where distributed actors are socially and politically related to each other in varying ways (Van Veelen & Eadson, 2020). This distributed agency-oriented perspective overcomes the binary perspective that views community initiatives as "inherently democratic responses to undemocratic systems or as co-opted actors in governmental programmes" (Van Veelen & Eadson, 2020, 231). Civil society, public and private sector actors interact with varying roles according to the project in

question. Civil society actors include initiating citizens, residents living nearby the project installation and citizens living in the area available for participation; as well as other CRE initiatives, interest groups and associations. From the private sector, actors include paid experts, energy companies and project developers. In the public sector, policymakers and project managers from various municipal departments such as energy, participation, spatial planning and real estate are involved. These local actors moreover interact with regional and state actors, including nationally operating energy companies, the regional net provider, the waterboard and umbrella interest organisations. These actors create and operate in a regulatory context of governmental energy policy and support schemes. Four common stakeholder groups with clear links to the democratic legitimacy of CRE initiatives are discussed below, with the purpose of providing an understanding of their role and how and why they are relevant to the analysis.

The first group of actors are the initiators. Usually, CRE initiatives are initiated bottom up from one of a few citizens, starting as a loose and informal form of self-organisation. Prior literature has framed these initiating citizens in different but not mutually exclusive roles: as pioneers, necessary for changing the traditional ways of doing things and promoting transformative change; as activists, strongly engaged and motivated to "do something good" for the environment; and as privileged elites representing a minority who see a smart investment or attractive addition to their career profile (Chilvers & Pallett, 2018; Connelly, 2011; Healy, 2015). They are generally oriented towards achieving community benefits and climate mitigation and therefore tend to associate democratic legitimacy with substantive outcomes (Becker et al., 2017; Connelly, 2011).

Energy initiatives are regarded in this study as a second group of actors. Professionalisation of the initiative into an energy cooperative is necessary to realise a project with the purpose of collective energy generation. However, this usually involves more than solely producing energy and delivering financial revenues. Cooperatives can be defined as "autonomous associations of people who join voluntarily to meet their common economic, social, and cultural needs and aspirations through jointly owned and democratically controlled businesses" (Viardot, 2013, 757). Their purpose is to deliver goods and services for its members, while including social principles such as collaboration, social responsibility, in-company democracy and communal self-help (Heldeweg & Saintier, 2020; Yildiz et al., 2015). Cooperatives are generally assumed to be internally democratic, since their decision-making process is based on the principle of one-member-one vote and they are represented by elected board members acting on the interests of the community they serve (Becker et al., 2017; Kunze & Becker, 2014; Yildiz et al., 2015).

A third stakeholder group is the municipality. Community initiatives are actively encouraged by governments, illustrated by the directive of fifty percent local ownership in energy projects. By shifting responsibility unto citizens, expectations of municipal involvement change (Mees et al., 2019). In the literature, various roles of the municipality in their interaction with CRE initiatives can be identified, ranging from (1) letting go, to (2) facilitating, (3) stimulating and (4) network steering, to (5) regulating. Preliminary research of the municipal role in Utrecht shows that civil servants are unsure about their potential role in CRE projects and how to adequately fulfil this role, especially since CRE initiatives are quite new: policy frameworks are not fully suited to prosumers and experience with energy cooperatives is lacking, which makes the municipality at times feel uncomfortable and act in a stunted manner; a more common problem according to preliminary

research (P1; P2). What makes this especially challenging is the multidimensionality of CRE projects, for which cooperation with a broad range of municipal departments is necessary.

A fourth group of stakeholders are the citizens living directly in the area where the project is to be realised, referred to as 'residents' in this research. Since community initiatives are not necessarily inclusively representative of the local community, they can face resistance from non-participating and opposing residents. Collaboration and successful negotiations between initiators and these stakeholders are crucial for a successful implementation. Democratic values such as qualitative deliberation, transparency and accountability are key in these negotiations to create legitimacy. A common term heard in these scenario's is Not-In-My-Backyard (NIMBY) behaviour, describing resistance from neighbours based on expected local nuisance, which can be avoided or turned around by including these actors in deliberation, participation and ownership (Batel et al., 2013; Bauwens et al., 2016).

2.4. Analytical framework

The decision-making process of CRE governance in Utrecht is assessed by making use of a conceptual framework by Bekkers and Edwards (2007), designed for evaluating the democratic legitimacy of governance practices. The framework has formerly been proved useful in assessing the democratic legitimacy of Dutch governance practices for sustainability (Eshuis & Edwards, 2012; Hendriks, 2009; Mees et al., 2013; Schmidt, 2013), and many of its principles have been used in smaller sets to evaluate the decision-making process of CRE initiatives by energy scholars (Sweeney et al., 2015; Van Veelen, 2018). Reason for using this framework is its completeness, its suitability for governance processes, and the combination of 'democracy' and 'legitimacy'. Since all principles have been proved to be interesting in prior studies on the democratic legitimacy of community initiatives, they are deemed suitable and satisfactory as principles for this research and are therefore in a similar format adopted from the original framework. However, the principles of effectiveness and efficiency are merged, since preliminary research on CRE in Utrecht has shown that these are intertwined. Moreover, they are barely mentioned in the literature on energy democracy. A remark needs to be made on the interpretation of input, throughput and output legitimacy that is inherent to the framework. This analytical distinction that is applied by Bekkers and Edwards (2007), is adopted in this research because it is conceptually supportive. However, the distinction must not be confused with a clear chronological or linear order: complex and indicative processes characterise the governance of an initiative, including both consecutive and paralleling decision-making loops. Lastly, the principles of democratic legitimacy as proposed by Bekkers and Edwards (2007) are operationalised according to the concept of energy democracy. How this is being done can be observed in Table 1 and is explained per principle in the following paragraphs.

Open agenda setting and *open participation* are often mentioned in the same breath by scholars investigating democratic legitimacy in citizen-led initiatives (Berthod et al., 2022). Together, they define the opportunity for every citizen to participate in decision-making, equally and inclusively. However, they also have their own definitions and elements. *Open agenda setting* describes the ability for citizens to get their concerns and interests on the agenda of decision-makers and set their own goals and conditions. In the case of CRE initiatives, putting concerns on the agenda is interpreted in two ways: how easy it is for participants and for non-participants to get their concerns on the agenda of the initiative, but also, to what extent is the community initiative able to resist a

dominant fossil-fuel based, commercial agenda in the governance of its project(s). The latter is an important element for energy democracy scholars, who encourage the community to resist top-down agenda-setting by powerful industries (Sweeney, 2014; Park, 2012). Instead, the community can consider the public sphere in reclaiming control over the energy sector, where the initiative sets the agenda for the municipality: when communities come with a vision and a goal that align with government goals of strengthening communities and climate mitigation, they can set the energy agenda for the government (Hoffman & High-Pippert, 2005; Sweeney, 2014). This also means the ability to initiate projects in the place and with the goals the community itself desires (De Participatiecoalitie, 2019). Thus, open agenda setting is interpreted as the opportunity for citizens to be in control of setting the agenda for their energy concerns and interests, where a) citizens grab the opportunity to start the initiative, provide the opportunity to all citizens to determine the location, goals and conditions for the project, and bring in their concerns to be discussed during the decision-making process, while b) resisting attempts of national governments or powerful industries to enforce an agenda top-down.

Greater public engagement in environmental decision-making lies at the core of democratising the energy sector (Bándi, 2014). *Open participation* describes the wide, equal and inclusive participation opportunities in collective decision-making to all stakeholders and those subjected to outcomes: “an obvious and non-negotiable baseline” (Burke & Stephens, 2017; Bekkers & Edwards, 2007; Knox et al., 2022; Sovacool et al., 2019; Szulecki, 2018, 28). This is in line with the energy democracy principles of sovereignty, prosumerism and community control, where citizens participate in collective decision-making regarding their own energy provision (McHarg, 2016; Walker et al., 2015). This requires transforming energy from a technocratic, closed-door matter of technical elites to an open and public matter, where society can engage in decision-making about the structure of the project and the development of the initiative (Szulecki, 2018; Hendriks, 2009). This can be achieved by the introduction of public consultations at all levels of decision-making (Szuelcki, 2018). Additionally, the initiative should provide different types of participatory mechanisms and decision-making spaces that suit the desires of the participants, not being hampered by participatory barriers such as high membership fees or requirements (Heldeweg & Saintier, 2020; Hendriks, 2009; Lund, 2018).

Responsive representation presents the question of whether the representatives represent the interests and concerns of the community inclusively and qualitatively. Inclusive representation includes the full representation of the diversity of interests of citizens and local stakeholders in the community, not only the interests of local elites or disconnected activists, in negotiations with partners and stakeholders (Connelly et al., 2020; Cowie & Davoudi, 2015; Edelenbos et al., 2018; Igalla et al., 2019, 2021; Wagenaar et al., 2015). This is where most criticism of CRE initiatives is focused on: false claims of community representation, which makes it a highly relevant principle on which to test the initiatives (Wahlund & Palm, 2022). Inclusive representation moreover requires the full representation of member interests in decision-making; which can be challenging in larger initiatives, especially since active membership and meeting attendance is usually low, and decisions are often made outside of direct overview (Van Veelen, 2018). Reliance on representation challenges the direct, participatory democracy promoted in energy democracy literature; some initiatives have introduced alternative formats to uphold responsive representation of members, such as virtual meetings (Lowitzsch & Hanke, 2019).

Another element relevant for representation is that the initiatives and its representatives are reflective of the community in terms of its characteristics (Wahlund & Palm, 2022). Research shows that energy cooperatives are prone to hold a gender and age bias: the majority of members is male and old, and female members are more often found in positions where they have little or no influence on decision-making (Romero-Castro et al., 2021). Also, preliminary research shows that the profile of participants to CRE initiatives is predominantly white and of a high socio-economic background, unreflective of the wider local community (P2). Consequently, CRE initiatives may unintentionally "reinforce existing inequalities, as the people who have the time and resources to participate, tend to be those who are already privileged"; subsequently, interests of a privileged homogenous minority are represented (Angel, 2016; Grossman & Creamer, 2017; Igalla et al., 2019, 2021; Szulecki & Overhand, 2020, 8; Van Veelen, 2018).

Legality follows from warnings in empirical and theoretical research on community initiatives that governance practices should adhere to laws from democratically established institutions and rules created by members of the community to be legitimate (Davoudi & Cowie, 2015). It is primarily relevant in adding the 'legitimacy' to the 'democratic', and in its most basic form reflects the compatibility with laws (Bekkers & Edwards, 2007). However, the literature also considers rules, directives and policies from established democratic institutions (Biermann & Gupta, 2011; Wagenaar et al., 2015). Rules in CRE include for example the allocation of rights (of initiative, of superficies, etc.), environmental permits, obligatory participatory opportunities, and requirements of support schemes (Heldeweg & Saintier, 2020; Wagenaar et al., 2015). In the Dutch CRE sector, policies include the Dutch Climate Agreement and Regional Energy Strategies, which formulated directives of 50% local ownership in new energy projects, oblige municipalities to facilitate citizen participation in energy policy and support CRE initiatives, and assign search areas for large-scale renewable energy generation (De Participatiecoalitie, 2019). Initiatives also make their own internal rules for decision-making, which may "conflict with the external (democratic) governance framework stipulated by law" (Brummer, 2018, 111). Compatibility is likely to be higher when the initiative is organised as legal entity, usually a cooperative (Heldeweg & Saintier, 2020). Rules and agreements that are formed additional to formal, general rules and laws, need to have a legal basis, such as community benefit agreements: "legal measures designed to distribute the benefits of projects or programs among a community" (Burke & Stephens, 2017, 39; De Participatiecoalitie, 2019).

Transparency is considered a key value in democratic legitimacy, energy democracy and deliberative participatory democracy and is part of the move away from the "secrecy and arcana technical knowledge" of a technocratic sector (Szulecki, 2017, 2018, 27). It includes information provision on decision-making and deliberation, and a clarity of the - sometimes complex - participatory procedures and choices: decision-making procedures can only be considered fair if all participants are aware of the various aspects (Igalla et al., 2019; Szulecki, 2018). Also, members of the initiative are transparent about the interests they hold and represent, which can be challenging since participants in the initiative often represent multiple interests and/or organisations (Connelly et al., 2020; Igalla et al., 2019; Sovacool et al., 2019). Lastly, independent research must be possible and available for citizens and inform decision-making, to avoid citizens being informed only by partial media and politics that jeopardize neutrality and independence of decision-making (Szulecki, 2018).

Transparency makes an interesting criterium since literature on the performance of community initiatives is conflicted on this subject (Igalla et al., 2019, 2021).

To uphold the *quality of participation and deliberation*, the governance structure must be suited to citizens to influence discussions and decision-making equally and inclusively (Szulecki, 2018). The debate is characterised by a diversity of perspectives, motivations and interests, and when perspectives conflict, this is resolved peacefully (Bauwens, 2016; Dusyk, 2017; Van Veelen, 2018). Participation can be considered legitimate according to energy democracy literature when those whose energy provision is directly affected holds as much decision-making power over the energy generation as possible (De Participatiecoalitie, 2019; Kunze & Becker, 2014; Szulecki, 2018). This also requires the protection and empowerment of 'weak' interests and minority interests, who have fewer ability to organise themselves professionally, often those living next to the project installation (Bekkers & Edwards, 2007; Lund, 2018; De Participatiecoalitie, 2019, 2021).

Also, characteristic for participation and deliberation in CRE is the inclusion of both community and expert knowledge in decision-making, operating on an equal footing (Hoffman & High-Pippert, 2005; Szulecki, 2018). This builds upon elements discussed in open participation and transparency about the technocracy of the conventional energy sector. Research shows that volunteer CRE initiatives often do not hold enough expertise themselves to realise projects. However, community input brings in "local knowledge and a level of nuance than can be missed in centralised, technocratic governance" (Fischer, 2000; Szulecki, 2018, 30). Consequently, CRE initiatives and the experts with whom they interact can act as "educators and mediators of complexity" for society (Szulecki, 2018, 29). Subsequently, explanatory information provision and procedural clarity result in educated and aware participants that operate in a high-quality discursive space, where they can bring in qualitative arguments based on reason, while "understand[ing] the reasons of the others, assessing them against emerging standards of fairness" (Della Porta, 2009, 2018, 606).

Next, it is important that decision-makers can be held *accountable*: citizens can communicate feedback to decision-makers about performance in decision-making an implementation, implying that the decision-making authority is accountable and information is provided on the decisions and their effects (Bekkers & Edwards, 2007). This includes mechanisms like regular checks-and-balances that require decision-makers to report on performance and respond to subsequent (critical) questions (Bekkers & Edwards, 2007). Initiatives act within the confines of what is consented to by citizens where direct oversight is missing and can be held accountable for acting in line with the expressed interests, desires and concerns of those affected, as well as members and shareholders (Schouten & Glasbergen, 2011; Van Veelen, 2018; Szulecki, 2018). This is challenging for CRE initiatives, since even where formal accountability mechanisms are in place, initiative representatives driving the project do not always follow these procedures due to a lack of time, knowledge and project complexity (Van Veelen, 2018). Lastly, the initiative should construct a way to cover risks and ensure quality of service for project participants (Szulecki, 2018).

This is to lead to *decisions* that are *responsive* to the expressed values and demands of citizens and the local community, often mentioned as a criterium for legitimate outcomes of CRE and implicit in deliberative democracy (Dryzek, 2007; Heldeweg & Saintier, 2020). In this fashion, decisions should reflect expressed input and acceptable to all stakeholders as a workable agreement for the benefit of

the community (Della Porta, 2009; Szulecki, 2018). This includes accounting for all expressed community concerns in decision-making while weighting them on an equal footing (Szulecki, 2018). Consensus and majority decision-making should not diminish the value of minority interests and opinions (McHarg, 2016; Van Veelen, 2018). However, conflicting interests are likely to remain, and the inevitability of disagreement underpinning decisions therefore should result in a workable agreement rather than a unanimous consensus (Szulecki, 2018). Lastly, acceptability is more likely when decisions reflect the good of the community (Szulecki, 2018).

Lastly, an initiative is often judged by substantive (output) legitimacy, relating to its *effectiveness and efficiency.* This requires decision-making to realize the goals set for the specific (stage of the) initiative in time-, energy- or cost-efficient ways (Burke et al., 2018). This principle is known to clash with other principles of democratic legitimacy, primarily wide participation and representation. On the other hand, this principle is necessary due to the voluntary nature of the initiative, to the competition with more powerful actors and to avoid the risk of 'participation fatigue'; the lack of enough time and resources while high-demanding participation is required from the community can risk the long-term survival of the CRE initiative (Kenny et al., 2015; Viardot, 2013). Moreover, decisions must be effective to the extent that they benefit the public good, formulated as contributing to climate mitigation and community benefits (Becker & Kunze, 2014; Cowie & Davoudi, 2015; Kunze & Becker, 2014).

Legitimacy	Principles of democratic legitimacy	Description by Bekkers & Edwards (2007)	Operationalising of democratic legitimacy in CRE initiatives in Utrecht
Input	Open agenda setting	The governance process is open to specific concerns in society: how easy is it for someone who is not a politician or powerful stakeholder to get issues on the political agenda?	- Initiators start the initiative on behalf of the local community and citizens can (co-)decide on the location of the project (Participatiecoalitie, 2019) - Citizens can set their own goals and preconditions and can resist a top-down (fossil-fuel based) agenda (Sweeney, 2014; Park, 2012) - Citizens can bring their energy concerns on the agenda (Hoffman-High-Pippert, 2005; Sweeney, 2014; Szulecki, 2018)
	Open participation	Citizens are enabled to express their wishes and interests and engage in the public debate, in other ways than merely the right to vote in elections.	- Public consultations are organised at all levels of decision-making (Bándi, 2014; Szulecki, 2018) - Citizens can engage in the decision-making spaces they desire (Hendriks et al., 2021; Lund, 2018) - Potential participation barriers are accounted for (Heldeweg & Saintier, 2020) - Citizens can join in collective decision-making regarding their energy provision (Burke & Stephens, 2017; McHarg, 2016; Walker et al., 2015)
	Responsive representation	Where involvement is indirect or participation lacks, interests are represented responsively by intermediaries: do representatives stand for the interests of their constituency, inclusively?	- Inclusive representation: All interests in the community are being represented by the initiative, not only the interests of local elites or disconnected activist (Connelly et al., 2020; Cowie & Davoudi, 2015; Edelenbos et al., 2018; Igalla et al., 2019; Wagenaar et al., 2015; Wahlund & Palm, 2022)

			- Quality of representation: Interests and preferences of the community are represented qualitatively (Van Veelen, 2018; Lowitzsch & Hanke, 2019) - Representatives reflect the characteristics of the local community in terms of gender, socio-economic opportunity and cultural/ethnic background (Angel, 2016; Grossman & Creamer, 2017; Wahlund & Palm, 2022)
Throughput	Legal compatibility	The initiative and its governing process is compatible with existing laws, rules, directives and policies	- Rights and obligations are allocated according to prescribed procedures from (local) government, such as licensing and right of superficies (Heldeweg & Saintier, 2020; Wagenaar et al, 2015) - Process is compatible with (new) policy directives and agreements from (local) government and the renewable energy sector, such as the Klimaatakkoord and the RES (Bierman & Gupta, 2011; De Participatiecoalitie, 2019) - Rules and agreements that are formed additional to formal, general rules and laws, have a legal basis (Brummer, 2018; Burke & Stephens, 2017; Participatiewaaier, 2019).
	Transparency	Citizens and decision-makers are transparent about interests, facts and risks	- Citizens are informed about developments in the decision-making process (Szulecki, 2017, 2018) - Procedures, participation opportunities and impacts are clear and transparent for citizens (Igalla et al., 2019; Szulecki, 2018) - Citizens are transparent about the interests they hold and represent (Connelly et al., 2020; Igalla et al., 2019; Sovacool et al., 2019) - Independent research is possible and available for citizens and decision-makers (Szulecki, 2018)
	Quality of participation and deliberation	Citizens holding a variety of (competing) perspectives and interests are equally involved and enabled to influence discussions and decision-making	- Governance structure is suited for citizens to influence discussion and decision-making equally (Szulecki, 2018) - A diversity of perspectives, motivations and interests is included and encouraged (Bauwens, 2016; Dusyk, 2017; Szulecki, 2018) - Community and expert knowledge are both included and weighted on an equal footing (Fischer, 2000; Hoffman & High-Pippert, 2005; Szulecki, 2018) - Citizens are enabled through education and content-related information provision to bring in qualitative arguments (Della Porta, 2009, 2018) - Those whose energy provision is most affected by the decisions holds most decision-making power (De Participatiecoalitie, 2019; Kunze & Becker, 2014; Szulecki, 2018). - Institutional devices constrain majority power, to protect 'weak' interests (those not able to organise as a group) and minority interests (Bekker & Edwards, 2007; de Participatiecoalitie, 2019, 2021; Szulecki, 2018) - Conflicts are resolved peacefully (Van Veelen, 2018)
Output	Accountability of decision-makers	Citizens can communicate feedback to decision-makers about performance in decision-making and implementation, implying	- Decision-makers report on actions and outcomes of their decisions to those who are affected by these decisions (Bekkers & Edwards, 2007; Van Veelen, 2018) - Decision-makers respond to (critical) questions, demands and preferences from citizens (Szulecki, 2018)

		that the decision-making authority is accountable and information is provided on the decisions and their effects.	- Decision-makers need the consent from citizens to proceed with their activities (Schouten & Glasbergen, 2011; Szulecki, 2018) - Decision-makers feel responsible to act only within the confines of what is consented to by citizens, when direct oversight is absent (Schouten & Glasbergen, 2011; Szulekci, 2018; Van Veelen, 2018) - Citizens can hold decision-makers accountable for risk coverage and quality of service (Szulecki, 2018)
	Responsive decisions	Decisions are responsive to the expressed wishes and concerns of the citizens	- All expressed concerns are accounted for in decisions (Dryzek, 2007; Heldeweg & Saintier, 2020) - Consensual decision-making or majority decision-making, are not at the expense of minority interests and opinions (McHarg, 2016; Van Veelen, 2018) - Every opinion is weighted at an equal footing when making decisions (Szulecki, 2018) - All citizens can find themselves in decisions that reflect the public or community benefit (Della Porta, 2009; Szuelcki, 2018)
	Effectiveness and efficiency	Decisions and decision-making realise the goals that were set beforehand	- Decisions solve the initial problem or realize the set goals, in time-, energy- or cost- efficient ways (Burke et al., 2018; Kenny et al., 2015; Viardot, 2013) - Decisions result in benefits to the public good and climate mitigation (Becker & Kunze, 2014; Cowie & Davoudi, 2015; Kunze & Becker, 2014)

Table 1: Analytical Framework: Principles and indicators to assess the democratic legitimacy of CRE initiatives. Inspired by Bekkers & Edwards (2007)

Changes in the relative presence of democratic values can be expected between different stages of project, since each stage has its own stakeholders, goals and decisions. The study by Igalla and colleagues (2020) that proposes different phases of CRE initiatives is used as a basis here: "the 'initial phase' (researching, preparing, experimenting), 'growing phase' (mobilizing supporters, recognition by established parties), the 'mature phase' (fully operational), the 'upscaling phase' (exploring additional, new services) and finishing phase (initiative is drawing to a close, completion)" (Igalla et al., 2020, 617). The analysis of the democratic legitimacy of initiatives is divided into different stages of the project when relevant. Stages follow project stages rather than the initiative itself, although they logically are partly overlapping; this focus is chosen since the stakeholder arena and decision-making loops primarily follow project phases rather than organisational phases, which is the analytical focus of the research. The phases as described by Igalla and colleagues (2020) are relevant here but applied to the project rather than the organisation.

Section 2.2.4 has highlighted the relevance of investigating the role of municipal support in strengthening (or weakening) the democratic legitimacy of CRE initiatives, but no specific indicators could be formulated beforehand. Instead, the role of the municipality is discussed for each initiative and subsequently analysed based on its effect on the principles in Table 1. Additionally, section 2.3.3 has highlighted the existence of trade-offs between democratic principles, which are considered to be supportive in interpreting the results.

Finally, it is important to note that the analytical framework has been designed in the first place to steer the evaluation of the democratic legitimacy of CRE initiatives from a perspective of energy democracy. However, additional value is expected from empirical investigation of how democratic legitimacy is perceived and substantiated in practice by the actors involved. Therefore, contributions from this investigation are expected to emerge as suggestions for refinement of the framework and are thereby expected to contribute to the theory of energy democracy. Apart from having conducted an analysis of the democratic principles in the CRE initiatives separately, findings are compared and potential explanations are suggested.

3. Methods

3.1 Case study design

A multiple embedded, comparative case study design is applied to conduct the research. The reason for choosing a case study is to gain a profound and full insight into a small number of cases, each with its own character (Verschuren & Doorewaard, 2010; Yin, 2009). This allows qualitative and intensive data generation as a holistic approach to gaining a comprehensive idea of each case, including a multiplicity of principles, perspectives, stages and projects within each case. The in-depth understanding of cases is supported by triangulation of sources and of methods. Since there are reasons to assume that initiatives might vary in their democratic legitimacy based on differences in maturity and primary energy source, it is necessary to reflect this variance in the case selection, in order to draw general conclusions about the democratic legitimacy of the four CRE initiatives together. Therefore, a most similar case design is thus used whereby experimental variance on the principles of democratic legitimacy (table 1) is assumed, while keeping all contextual factors as similar as possible to neutralise their effect on the democratic legitimacy of CRE governance in Utrecht.

A hierarchic method is used for the research project. In the first stage, the cases are examined independently form each other. Their analyses are based on the application of the analytical framework as described in section 2.4. Next, the findings from the individual cases provide the input for a comparative analysis, to identify similarities and differences between the cases and find potential explanations, based on the findings from the first stage.

Using a case study in this way has several advantages. First, it offers a general picture of each CRE initiative. Second, not much pre-structuring is required as opposed to a survey or experiment and is thus more flexible; suitable to the relatively novel research focus of this research paper. Third, the practice-oriented nature of the case study design makes the findings more acceptable and usable to practitioners, because of the proximity between the researcher and the respondents, and the results are more identifiable to the people in the field. Especially since little scientific knowledge yet exist for CRE initiatives and they have much freedom to operate and implement changes, this last argument is relevant.

3.2 Case selection

The four initiatives that are selected for analysis are all based and active in Utrecht. The city of Utrecht has been selected as geographical focus because of theoretical and practical reasons. The city is a practical choice because of the network that is relatively easily accessible to the author, and because of the author's involvement in the Utrecht University research group for Citizen Engagement and Urban Sustainability that runs parallel to this research on CRE initiatives and is also conducting research specified to Utrecht. Societal relevance of the city of Utrecht is supported by the high number of CRE initiatives it hosts that shows that Utrecht is quite a frontrunner in this respect (Schwenke, 2020). Theoretically, it supplements prior research on CRE initiatives in Utrecht that focus on participation conditions for joining a CRE initiative (Bosma, 2020) and the legitimacy of citizen participation in renewable energy projects in Utrecht (Van Rossem, 2020).

The four initiatives selected for this research are Buurtstroom, Energie-U, Rijne Energie and Oog voor Warmte. They include the realization or planning of one or multiple CRE projects in the city of Utrecht. An overview of these initiatives and their characteristics is presented in Table 2, including the project(s) they carry out, the status of the projects and the type of energy source.

Initiative	**Project(s)**	**Initiation - (projected) realisation period**	**Energy source**
Buurtstroom U.A.	11 projects, 3 under investigation: - Buurtstroom Rehobthkerk - Buurtstroom Molenstraat - Buurtstroom Hoograven de ARM	 2021 2016-2017 2016-2017	Solar (roof)
Energie-U U.A.	Solar field Meijewetering	2016-2022	Solar (field)
Rijne Energie U.A.	Energy landscape Rijnenburg & Reijerscop	2017-2026	Wind & solar (field)
Oog voor Warmte	District heating network in Oog in Al	2021-unknown	District heating (aquathermal)

Table 2: Overview of cases. Based on data from Lokale Energie Monitor (Schwenke, 2020)

The reason for the selection of these four initiatives is as follows. First, they are all similar in that they are located in the same city, they are community-based from the start and they have the primary purpose of generating renewable energy for the local community. Contextual factors are therefore neutralised as much as possible. Second, these cases are selected to create experimental variance: they differ in the two potential factors that can explain differences in democratic legitimacy: maturity and energy form.

For the project of Meijewetering from Energie-U, it is important to note that the core activity of Energie-U is not in CRE generation but in other energy activities. In 2016, Buurtstroom emerged as an initiative from Energie-U but soon operated as a separate entity. Around the same time, Meijewetering was initiated by an active member of Energie-U and is planned to become a separate entity as well. The focus of this initiative is therefore on the project team steering the project rather than Energie-U as a whole, since it is just a minor activity for them, whereas the other three initiatives all consist of a cooperative that has the investigated project(s) as its only focus.

Additionally, from the eleven existing Buurtstroom projects, a selection of three projects was made, since it was expected that their analysis is satisfactory to draw representative conclusions on the democratic legitimacy of Buurtstroom. Hoograven de ARM was selected since it was the project initiated first; Molenstraat was selected since research showed the role of the community was relatively large here; and Rebothkerk was selected since it was the most recent and successful one in terms of efficiency and effectiveness. Moreover, the chronological spreading of the three projects is such that it rules out effects of maturity within the initiative in conclusions made on its democratic legitimacy. Buurtstroom is the only CRE initiative in Utrecht that has realised multiple energy projects.

3.3 Research materials and data collection

As mentioned in section 1.5, preliminary research was conducted to grasp the CRE organisational landscape and interconnections between projects, cooperative and municipality. This was done in three different ways. First, by exploring local policies concerning public participation and community initiatives in the energy transition, websites and formal plans of the four CRE initiatives to understand its organisation and goals, and online news outlets to grasp the public debate and stakeholder arena. Second, two explorative interviews were conducted with a board member and project leader in the largest community energy initiative in Utrecht. These interviews held three different aims: to understand the relations between projects, initiators and cooperatives in the city, to understand the political context and how CRE initiatives receive democratic legitimacy from the municipality, and to understand the challenges CRE initiatives encounter in their cooperation with the municipality. Third, observations and output from a transdisciplinary workshop with municipal officials and CRE representatives in the city were made, with the purpose of gaining an understanding of the most important elements in the collaboration between municipality and CRE initiatives, and challenges and opportunities therein.

The evaluation of democratic legitimacy and the role of municipal support is based on content analysis of 7 policy documents, 20 qualitative interviews, 3 field observations, and a variety of formal documents and minutes from the initiatives, formal reactions from stakeholders, municipal letters and news articles. A list of all materials from desk research (consulted documentation and grey literature) and sources of field research (field observations and interviews) are presented in Appendix A and B.

The policy documents were retrieved from the website of the municipality of Utrecht. They provided data on the conditions required from the CRE initiative, the support the initiatives received from the municipality and the procedures they went through, and the input from and response to residents and stakeholders on draft versions of new policy documents regarding the project. The purpose of using these documents was twofold: to identify the responsiveness of the CRE initiative to input from residents and local stakeholders, and to identify the role of the municipality. They thus were useful in the first place to answering the second research question, and in the second place to answering the first research question.

The interviews were the most important source of data. They were conducted with initiators, board members, municipal officials, private and semi-public stakeholders and experts, participating residents, opposing residents and non-engaged residents. For each initiative, a set of four to six interviews were conducted of each initiative, which included at least one initiator, one board member, one municipal official, one stakeholder and one resident. Two respondents provided information for two initiatives at once. The equally spread amount of interviews and representation of different stakeholder groups for each initiative ensured the sufficiency of data to form a comprehensive understanding of the democratic legitimacy of each initiative. Most respondents were found via the website of the initiative, except for the residents, municipal respondents, and initiators from Buurtstroom, who were contacted via the other respondents. The set of questions posed during the interviews are presented in Appendix C. The interviews provided data on the internal and external democratic workings of the CRE initiative as well as the factual nature and

perceived success of the relationship between the initiative and the municipality. They thereby provided the majority of data for answering all three research questions.

Field observations were retrieved from a public, transdisciplinary dialogue with key figures in private, public and third sector positions in the regional energy transition; a wind excursion from one of the initiatives; and a general assembly of one of the initiatives. The first event clarified the political context and municipal vision on the role of CRE initiatives. The second event clarified the risks, opportunities and experienced nuisance of a wind park, and provided the opportunity to gain understanding of the perception of residents of the energy plans. The third event provided data on the dynamics during a general assembly and provided the opportunity to talk to members of the cooperative about their perception of the democratic workings of the initiative. Together, these observations provided a deeper understanding of the democratic legitimacy as constructed by the initiatives and perceived by the municipality and thereby added to all three research questions.

Lastly, a variety of documents from the initiative, residents and municipality were analysed. Documentation from the initiatives included submitted project plans, minutes from general meetings and information sessions; statutes; information flyers; and formal reactions to municipal documentation. These were retrieved from the website of the initiative and personal correspondence with the respondents. This data was very supportive in providing the facts and context to statements and anecdotes from the interview, as well as providing details and aspects that could not all be tackled in the interviews. Secondly, reactions and statements from residents were considered, primarily in the Rijne Energie case. These were retrieved by personal correspondence with the respondents. Thirdly, news articles that reflected on the developments of the CRE initiatives were considered. These were found on the website of the initiative, on the website of CRE umbrella organisations via personal correspondence. These two types of sources provided data about the perceived democratic legitimacy of the CRE initiatives from an opposing and an external perspective, useful for answering the first research question. Fourth, council letters and minutes provided data on the role of the municipality, their decision-making about the CRE initiatives and the intended support. This was useful for answering the second research question.

Additional to the preliminary research and core research, two expert interviews were conducted. These were held with two key figures in the field of CRE, with the purpose of data generalisation and validation. The first expert has been both academically and practically active for many years in the field of CRE initiatives. She is primarily knowledgeable about initiatives in Leiden, secondly in Utrecht, and thirdly elsewhere in the Netherlands: she yearly issues the national CRE monitor, providing her with knowledge about every single energy cooperative in the Netherlands as well as the trends and context of these initiatives. The second expert has been practically active, in CRE initiatives of different energy forms in Utrecht, as well as in the regional and the national CRE umbrella organisations.

3.4 Data processing

First, all the data collected from interviews, policy documents, documentation from the initiatives, council documents, resident reactions and news articles were imported into the program NVivo. They were coded according to the principles of the analytical framework. The coding scheme can be found in Appendix D. Typical or divergent findings were annotated. Information about the municipal

role, about the differences between initiatives and about perspectives on sources of legitimacy deserved separate categories. Next, the findings per principle were analysed per initiative and categorized per stage. For answering the first research question, each indicator is dealt with in reporting the results. For the sake of legibility, the full reports were included as Appendices E, F, G and H, while conclusions on the findings can be found in the result section, supported by a summarizing table for each initiative. The extent to which each principle is present, is indicated by labels on a five-points scale, ranging from '(almost) absent' to 'limited', 'moderate', 'extensive' and 'fully present'. The label that is given to the principle is based on the relative presence of the principles, where a principle is absent when no indictors are present, and a principle is fully present if all indicators are present.

Then, findings on the democratic legitimacy of initiatives were interpreted as a result of municipal involvement and trade-offs by identifying patterns within each table. Lastly, in a comparative analysis, remarkable differences and similarities between the democratic legitimacy of initiatives and municipal support were identified by comparing the tables and could be interpreted by using insights from the qualitative interviews.

3.5 Ethical considerations, reliability and validity

With respect to ethical considerations, respondents were asked to sign a form of informed consent and permission before the interviews were conducted, for recording the interviews and using their statements as data input. The form that was used for informed consent can be found in Appendix I. Moreover, when quotes from the interviews were used in reporting the results, they were asked whether their statements had been interpreted correctly and were allowed to be published as such.

Data triangulation was achieved by combining documentation with interviews that go deeper into stakeholders' perceptions. As such, the research project is assured of cross-confirmation. The in-depth nature of the case study as well as the selection of multiple cases and its multiple projects furthermore increase completeness of the findings. Together, these characteristics enhance the internal validity. Also, internal and external validity were strengthened by the expert interviews, who could reflect on the findings from their own knowledge about the initiatives. Moreover, as the experts could make statements about the generalisability of the findings since they were common with other initiatives as well. Last but not least, they could link the results on the role of municipal support on the democratic legitimacy of the initiatives to their knowledge about the political and policy context at a regional and national level.

A disadvantage of doing a case study is the limited external validity of the findings, as opposed to, for example, statistical research (Verschuren & Doorewaard, 2010). This is especially true since only one city is selected, and the in-depth knowledge on the cases makes generalizability more difficult (Verschuren & Doorewaard, 2010). However, the number of cases provide the opportunity to find patterns that can be used for conceptual generalisation to other frontrunning cities in The Netherlands. External validity can be tested and potentially strengthened by future research on the democratic legitimacy of CRE initiatives in other Dutch cities.

4. Buurtstroom-Energie-U U.A.: Collective solar roof projects

4.1 Key findings and setting the stage(s)

4.1.1 Key findings on Buurtstroom

The first initiative under analysis is Buurtstroom. Conclusions on the extent to which different principles of democratic legitimacy are being met by the initiative in each stage, supported by findings on how each principle is being pursued, can be observed in Table 1 (Table 1, column 1-4), and supporting arguments are found in Appendix E. The role of the municipality is found in Table 1, column 5 and explained in section 4.3. Key conclusions for sub-question 1, 2 and 3 are presented in the following box (Box 1). The table and the box are provided in the beginning of this chapter to guide the reader.

Key conclusions on how and to what extent principles of democratic legitimacy have been met and pursued by the CRE initiative Rijne Energie in governing the energy landscape in Rijnenburg en Reijerscop, and how and to what extent this has been supported by the municipality of Utrecht:

--> Efficiency and effectiveness are core values for project development, with important roles for professional input from the mother cooperative and expert bureau, resulting in successes that benefit climate mitigation and local financial revenues

--> Transparency is perceived to be high, due to the honesty and patience of board members in explaining the process, opportunities, risks and outcomes, and clear information provision especially during (the second half of) project development

--> Representation is primarily achieved by qualitatively pursuing the representation of core interests from initiators and the target group within the community, while diversity and inclusion is limited

--> A trade-off between principles is made between open participation and quality of participation and deliberation versus effectiveness and efficiency

--> A trade-off between project stages shows an emphasis on transparency and open agenda setting during initiation and community recruitment (first and second stage), versus quality of participation and deliberation and accountability during project management (third stage)

--> The municipality has been supportive especially in principles that are also identified extensively in Buurtstroom: legal compatibility, transparency and output principles

Box 1: Key conclusions on democratic legitimacy, municipal support and democratic trade-offs in the case of Buurtstroom

Principle of democratic legitimacy	Feasibility stage	Project development stage		Management stage	Support from municipality
Open agenda setting	Fully present: community members initiated 'Buurtstroom'; projects are initiated by residents who set the location; goals and preconditions are set by the community in the establishment of Buurtstroom U.A.; residents can bring in concerns	Limited: agenda set by Buurtstroom and delegated to other organisations who develop the plan: little opportunity left for residents to bring in concerns, but few exceptions when actively pursued by initiators		Extensive: participants can start new projects, set new goals for the cooperative and bring in concerns to the general assembly; no adaptions possible to the project or its revenues	Unsupportive: provided roofs as potential locations, but limited number of roofs, practically unfeasible, unhelpful negotiations (see participation & deliberation) and no community support
Open participation	Limited: limited, informal and selective public consultation; only initiators are engaged in decision-making spaces	Limited: nearly no community engagement; one public consultation meeting		Moderate: no public meetings, possible to engage in financial or meetings when being a member; member participation in general assemblies; and participation barriers attempted to be limited.	Absent
Responsive representation	Moderate: Buurtstroom and initiators represent primarily sustainability interests; representativeness of interests differs per neighbourhood/project; Buurtstroom accurately represents the residents. However, representatives are not reflective of the local community in terms of personal characteristics.	Moderate: Buurtstroom and initiators accurately represent the interests of the attendants and representation of interests, but the attendants do not represent the interests from the community, and do not reflect the characteristics of the community.		Moderate: board members qualitatively represent the interests of the members, but inclusive representation not ensured; the board does partly reflect the characteristics of the members, and interests and characteristics of the wider community are not reflected in the cooperative.	Limited: supported in attempt to set up support scheme for poor people; limitedly successful. But: risks the exacerbation of socio-economic inequalities within neighbourhoods
Legal compatibility	Fully present: rights and obligations are considered in a declaration of intent; initiative is compatible with policy directives for reaching 20% of solar roofs	Fully present: Buurtstroom complies with all rules and regulations, supported by the delegation to expert parties		Fully present: cooperative acts according to statutes, house rules, member agreement which are compatible with law, and contributes to policy countering energy poverty	Moderate: subsidised establishment of cooperative and statutes; recognized role of Buurtstroom in policy directives
Transparency	Extensive: representatives are open, knowledgeable, and explaining. Neighbourhood is informed, but to a limited extent. Based on independent research.	(Almost) absent in the research part of this stage	Extensive in the recruitment part of this stage. Information	Moderate: Members are moderately informed of developments (69% sufficient), open about goals and activities to the public, public information provision of assembly	Extensive: subsidised community communication and information provision in early projects; promotion through municipal channels

			provision perceived sufficient by 94%	documents is limited, no educative devices provided	
Quality of participation and deliberation	Limited: conflicts not always resolved (peacefully), little educative efforts, difficult stakeholder negotiations. However, attempts to protect the interests of the community against more powerful parties, and open to discussing the interests and perspectives of the initiator	Limited: structure unsuited for citizen influence; a diversity of interests is not encouraged; primary hinges on technical expertise; citizens aim to understand the plan and pose critical questions, but are not educated/experienced enough to bring in qualitative arguments; those who disagree can abstain from participation		Moderate: governance structure and lack of education limit qualitative discussion; a diversity of perspectives is included but not encouraged; one-member-one-vote; absence of devices present that protect 'weak'/minority interests; community input and expert knowledge not on an equal footing but both included; conflicts resolved	Limited: failed attempts to facilitate in roof owner negotiations because of misconception of financial vulnerability Buurtstroom
Accountability of decision-makers	Moderate: Explains risks and procedures to roof owner; notifies Energie-U when project starts and go/no go by the board; but no internal reporting or consent	Extensive: Buurtstroom board reports to Energie-U and residents about the resulted project conditions; responds well to (critical) questions; does not need consent from but reports to its members; division of risk coverages and rights of allocations are established		Fully present: board members report on actions and outcomes to members regarding their project, respond to critical questions and can be held accountable for risk coverage and service	Moderate: regular change civil servants require repeated accountability, but lagging knowledge and experience minimizes ability to hold them account; but subsidized the establishment of a cooperative which requires accountability
Responsive decisions	Extensive: acts upon the expressed concerns, but sometimes must give in on community input; members always agree with the investigation of a new roof.	Moderate (but extensively pursued): all expressed concerns are tried to be reflected in decisions but limited by technical or financial constraints; every participant can choose participation for him/herself; and citizens usually can find themselves in the plan presented to them when they understand the practical confines.		Extensive: generally reflect the interests of citizens and benefit the collective, but decisions risk being at the expense of minority interests. consensus is seeked and citizens can ultimately find themselves in decisions. Revenues distributed as agreed upon	Moderate: provide subsidy for making a viable business case, which increases choice opportunities and ability to respond to community desires
Effectiveness and efficiency	Fully present: study and risk assessment effectively provide an indication whether to continue the process; efficient task division; aimed to benefit the community and contribute to climate change	Fully present due to much experience by both the external experts and Buurtstroom, with an efficient task division; results in plans for maximum renewable energy and highest revenues		Fully present: decisions have resulted in the realisation of the project, and revenues are partly used for starting new projects, further contributing to climate mitigation and financial benefits	Moderate: subsidy and information provision increased effectiveness and efficiency; efficiency affected by a regular change of civil servants and unconnected departments, and failed locations

Table 3: Overview of democratic legitimacy and municipal support of Buurstroom

4.1.2. Setting the stage(s)

A national support scheme called 'regulation lowered tariff' *(Regeling Verlaagd Tarief),* more commonly known as the 'zip code rose scheme' (*Postcoderoosregeling*, *PCR*), was established in 2012 as a result of a bottom-up lobby from citizens with a desire to start collective solar projects but who were yet unable to make a viable business case. In its early years, the PCR was plagued by child's diseases and was not yet suitable for collective solar panels on external roofs: in its first year the scheme was too complex, then too narrow to make a viable business case. Citizens and energy cooperatives lobbied for further adaptations and early 2015, the scheme was adapted such that it became attractive to start solar projects. Throughout the Netherlands, the number of solar projects increased exponentially from this moment onwards (HIER Lokale Energiemonitor, 2022).
The initiative 'Buurtstroom' emerged in this context in late 2015, soon established as a cooperative in 2016, alongside its first two projects: Molenstraat and Hoograven de ARM. After these two projects, the cooperative Buurtstroom-Energie-U U.A., abbreviated here to 'Buurtstroom', facilitated nine more projects in and around the city of Utrecht, the most recent project being the Rebothkerk. The cooperative is still very active and has ambitions to realise more energy projects in the future. Each Buurtstroom project consists of three different stages alongside which its democratic legitimacy can be measured:

1. The feasibility stage
2. The project development stage
3. The management stage

Before a project formally starts, the idea of the initiator goes through a feasibility stage. During this stage, a modest feasibility study is conducted, where Buurtstroom checks the roof for availability; a practical suitability study is conducted and a social indication is provided; and the financial viability is checked. If the idea appears feasible to become a successful project, project development can officially start. During this project development stage, technical and administrative aspects are developed, and subsequently, participants for the project are recruited. When all solar panels are sold, the project is installed. This is when the management stage starts, which consists of evaluation, monitoring and revenue distribution, and the inclusion of the participants as members in the cooperative Buurtstroom.

The evaluation of democratic legitimacy is structured alongside these stages for three reasons. First, it reflects the chronological structure as it is used by the initiative itself. Second, each stage has its own clear goal and role division of stakeholders that structure decision-making. Third, the stages defined as such overlap with the phases as defined by Igalla et al. (2020). They equate the stages 'initial phase' (researching, preparing, experimenting; acting as a reference category), 'growing phase' (mobilizing supporters, recognition by established parties) and 'mature phase' (fully operational). The interviews of Buurtstroom provided hints of a next stage being in eyesight comparable to the 'upscaling phase' (exploring additional, new services) of Igalla et al. (2020).

During the processing of the results, it appeared that the second stage could also have been split into two different analytical stages, where the first part would include the research agenda and the second part would include the community engagement. However, this would have been supportive for only a minor set of principles, whereas the majority of principles would be similarly pursued and

met in both stages. Therefore, and to avoid analytical fuzziness, the results are structured according to these three stages.

4.2. How and to what extent is democratic legitimacy pursued and met by Buurtstroom in its governance of multiple solar roof projects throughout the city?

As can be observed in Table 1, principles of democratic legitimacy are met to varying degrees, and the presence of most principles appear to change when entering a next stage, while a few stay the same throughout the process. How each principle is being pursued and met during each stage, is described in this section and is supported by column 1-3 in the table (Table 3). Additional insights to how each principle is being pursued are provided in Appendix E.

Open agenda setting is pursued to varying extents by Buurtstroom, with a dip in the second stage. The projects are in full community ownership and generally initiated bottom-up, although there have been two projects that were initiated more top-down in a collaboration between Buurtstroom and the municipality and subsequently had less local support. Since 2018, Buurtstroom requires an indication of the local support base, also known as the social feasibility study, before starting the project, thereby opening the agenda to the community. When moving to the next stage, the agenda closes and Buurtstroom delegates project development as assignments to external organisations: cooperative Energie-U and consultancy Soft Energy. These organisations develop the plan, and when this is plan is finished and presented to the community, there is little to no room left to bring in new concerns, despite one or two exceptions. When the project is finished and participants can engage in the wider group that makes the cooperative, they can bring in concerns regarding 'their' project installation, other project installations or repeat the process by initiating a new project on another location.

Open participation and *qualitative participation and deliberation* are present to quite similar extents throughout the stages. Both are pursued and met to a limited extent because they are not perceived as useful in realising successful projects, based on the following assumptions: a) it is not necessary for reaching enough project participants, b) there is no resistance to the project, c) all knowledge and expertise required for realising projects is already present and deployed, and d) the limited business case limits choice and preferences. However, participation is not fully absent. In the first stage, initiators start conversations with neighbours, and the initiators participate in negotiations with the board and the roof owner. In the second stage, there is one opportunity for participation and deliberation for the community: an open information session where the plan is presented. In the last stage, participation opportunities and quality of participation and deliberation slightly increase, since all members can choose to engage in three different decision-making spaces (general assemblies, board meetings and a financial committee) and are all awarded with the same influence according to a one-member-one-vote principle established in the statutes. Also, with the financial revenues that flow into the cooperative, there is room for discussion on what to do with these revenues. Moreover, quality of deliberation improves since the knowledge of some active participants increases along the way through learning effects. However, the knowledge gap between the board members and participants (members) remains intact and continues to limit a good debate and qualitative arguments from the latter.

Representation by the cooperative is moderately responsive throughout the process. It is primarily present in the quality of representation rather than inclusivity of representation: it represents the expressed interests of participants (members) qualitatively in both internal and external matters but represents only the interests and concerns of those who are interested and able to participate, not those of the larger group of residents who do not desire to or can participate. Attempts have been made for those without the ability, but this appeared unsuccessful. This has resulted in a specific profile of participants, unrepresentative of the wider community. The represented interests remain similar throughout the process: In the first stage, the initiator represents a sustainability interest; in the second stage, affordability becomes more important to get enough interested participants on board; and in the third stage, the securing of the installation and revenue distribution are the most represented interests. Although Buurtstroom represents in the first place the interest to generate additional renewable energy in the city, they slightly change their focus throughout the stages to qualitatively adapt to the interests of those involved. Although representation might be expected to increase in the third stage due to a demarcated group that is being represented, this remains moderate due to a limited show-up in the infrequent (yearly) assemblies.

Legal compatibility is fully present during the process. This was supported by the establishment of the cooperative and statutes and through an investigation of the required formalities during the feasibility stage of the very first two projects. Each stage has its legal aspects which are required or helpful, including a declaration of intent in the first stage, a right of 'superficies' in the second stage, and the application of the PCR for financial distribution in the third stage. Additionally, all stages are ensured of professional oversight by the experienced Energie-U and a technical and juridical expert of Soft Energy, which ensures that actions from Buurtstroom are legally compatible. This explains how Buurtstroom meets legal compatibility and does so throughout the three stages.

Transparency is generally high throughout the process, with highlights being 1) the clear procedure explained to the initiator at the start of the process, which they appear to highly appreciate; 2) open and honest communication from board members and clear information provision during the project development stage; and 3) the ability for participants to view the generated energy of 'their' project installation at any times. However, also some deficits are identified for each stage separately that describe their differences. During the first stage, information provision towards the neighbourhood and to the public is very low. During the research part of the second stage, when tasks are being executed by external parties, transparency is nearly absent. In the third stage, assembly documents are not made public. The results can be complemented with findings on the perceived sufficiency of information provision for the second and third stage by residents: 94% of respondents to a membership survey answered affirmative to being sufficiently provided with information on their project and Buurtstroom in general in the second stage, and 69% affirmed this for the third stage. (Survey Buurtstroom, 2021). However, this presents the results for those who participated, while multiple interviews have indicated that, for at least several of the projects, there was also a group of residents in the zip code rose that was not reached.

The *accountability* of Buurtstroom clearly increases from the first to the last stage. Since the first stage is only an inventory, Buurtstroom must account not backwards but forwards: it describes what will be the procedures, risks and opportunities, discussed with the initiator and roof owner. Energie-U is notified, and a go/no go moment determines whether to proceed to the next stage, which makes

the board as decision-maker accountable. In the second stage, accountability becomes more relevant, since Buurtstroom and Soft Energy receive and respond to many (critical) questions from residents when the plan is presented. Additionally, accountability becomes relevant towards the roof owner, with whom a right of 'superficies' is drawn up, and additional accountability is required when the roof is in ownership of the municipality. Also, members are made aware of the development of the new project. In the third stage, accountability is fully present, since Buurtstroom can be held accountable for the earlier agreed upon risk coverage towards the roof owner and members. Moreover, the performance of the project installation is regularly reported on; and the financial exploitations and budgetary plans need consent from the general assembly. Risk coverage and division of responsibilities are secured in the first two stages, which support claims made in the third stage. What supports ability of Buurtstroom to account for their decisions and performance each stage, is how the process is demarcated with sub-goals and sub-activities for each stage, and an accompanying decision-making cycle for each stage. This is further built upon in the next paragraph.

Effectiveness and *efficiency* are fully present in Buurtstroom throughout the process. As mentioned in the former section, each stage has its own procedure and own goal. These goals are simple and clear, and the procedure is structured to contribute solely and maximally to this goal. What is notable for this case, is that each stage contributes in its own way to the effectiveness and efficiency of the full process. First, the feasibility study makes sure the project can be developed to avoid the risk of unforeseen expenses, technical malfunctioning, or participation barriers later in the process. The second stage gets is effectiveness and efficiency through the delegation of tasks to professional parties with more capabilities and resources, which provides a solid plan proposal, which in turn increases the quick and easy recruitment of sufficient participants. The third stage again contributes to the initial goal by using all revenues that flow into the cooperative as well as the newly joined members to start similar projects elsewhere in the city, where the circle starts again. In this way, Buurtstroom can be characterised as a high performing, self-sustaining and growing organism.

What appears from this analysis is, first, that legal compatibility and effectiveness and efficiency are fully present in each stage, showing a significant gap with the presence of the other principles. Open participation and quality of participation and deliberation are least present, but also the presence of representation is no more than moderate. What moreover follows from this analysis, is that output principles of democratic legitimacy seem slightly more present than input and throughout principles. Trade-offs between principles and stages are further touched upon in section 4.4.

4.3. How and to what extent has the municipality been supportive of the democratic legitimacy of Buurtstroom?

Buurtstroom has mixed experiences with the support from the municipality, that has been supportive of principles of democratic legitimacy in various ways and to varying extents. This can be observed in the last column of Table 3. By providing a role in energy policy, granting subsidies and facilitating information provision, the municipality has been especially supportive of legal compatibility, transparency and effectiveness. No examples were found of municipal support in *open participation*.

The municipality has affected *open agenda setting* in two ways, which proved to have mixed effects. First, they have provided Buurtstroom with much freedom to operate and set their own agenda, and included their role in policymaking: in 2018, the municipality formulated the goal of using 20% of all roofs for solar panels in 2025, and explicitly recognized the role of community initiatives in reaching this goal. This brought Buurtstroom on the political agenda and gave an impulse to municipal engagement and financial support to new Buurtstroom projects. Second, following from a council's order, they provided ten roofs as potential locations for a collective solar project.

However, both attempts had a few snags. First, their perceived role as project developer which resulted from the recognized position in policy, while no mechanisms in place to empower them in the market. It is observed by respondents that Buurtstroom struggles to compete with commercial parties and to resist the dominant commercial agenda. Second, the number of roofs was limited to ten which had to be shared over multiple cooperatives, and in turn proved to be practically unviable. One project came out of a municipal roof, but since this was initiated not bottom-up by the community, this led to recruitments issues and much effort from Buurtstroom representatives in realising the project. It was thus unsupportive in location-setting and resisting the dominant agenda. The municipality has been supportive to a moderate extent of *responsive representation*. It was supportive in its attempt to set up a support scheme for residents with limited capabilities to participate financially, although this ultimately turned out to be unsuccessful from the side of the community. Additionally, an interesting point to touch upon is the effect of its subsidies on existing inequalities. By subsidising an initiative that solely benefits the socio-economically privileged minorities and reaches only the already sustainably aware residents in the neighbourhood, the municipality risks exacerbating inequalities within neighbourhoods. On the other hand, what must be noted, is that financial benefits are geographically well-spread, generating income for the socio-economically less privileged neighbourhoods as well.

Legal compatibility is also moderately supported in two ways. First, the municipality granted of subsidies for the establishment of the cooperative Buurtstroom when Energie-U started with the first projects, providing a legal basis. Second, the policy directives it established were inspired by the successes of Buurtstroom and provided them with a recognized role in policies on the energy transition.

Similarly, *transparency* has been extensively supported in two ways. First, the municipality subsidised community communication and information provision in the early projects. The cooperation between the municipality and Buurtstroom in this regard was experienced positively by at least one of the initiators, who received funding from a municipal liveability fund multiple times and held good contact with the connected district manager. Second, Buurtstroom and project initiators have been facilitated in promoting new projects by deploying the municipal communication channels, which reached more residents than would have been possible with the limited resources of Buurtstroom. The municipality has been very limitedly supportive of the *quality of participation and deliberation* by Buurtstroom. It engaged in roof owner negotiations to come an agreement but was not understanding of the (financially) vulnerable position of Buurtstroom: "We have to do with a commercial partner, who cannot estimate us financially. We are not a company. If costs increase with a few thousand euros, it is not so much for them, but for us the whole installation will be totally unviable. The municipality said: it's only a few thousand euros. Really laughed at us. While for us,

every ten euros matter" (R1). The misconception of Buurtstroom is illustrated by the perception that "the municipality is unsure what to think of and do with community initiatives" (Notulen 4e ALV Buurtstroom, 2020).

Accountability has been supported to a limited extent by the municipality. This is explained by the change of the municipal officials in the collaboration with Buurtstroom and consultancy Soft Energy, perceived by the latter to happen regularly. This results in a scenario where the initiative must explain and account for their procedures and legal compatibility repeatedly, while they conduct the exact same steps every time and this is formally consented to every time. But, since not every contact is experienced with the energy sector or community projects, this limits their ability to hold the more experienced initiative and experts accountable, since they cannot accurately judge their performance. However, the experience from the side of the municipality has increased over the years, which improved the quality of accountability.

The municipality has been moderately supportive of *responsive decisions* by Buurtstroom. It did so by making a viable business case by providing subsidies for project development in a few cases, which increased choice opportunities subsequent additional opportunities to implement input from citizens in decisions, since more desires can realistically be responded to.

Last of all, the municipality has, despite slightly affecting efficiency, overall increased *effectiveness and efficiency*. Efficiency was affected by the earlier described change of municipal contacts and lack of internal departmental alignment about Buurtstroom support, although it helps that in the city of Utrecht, there is relatively more and increasing experience with collective solar roof projects. Information provision and granted subsidies has significantly supported both these principles by increasing the business case and saved time and resources in reaching a broad audience necessary for selling all the panels. Support was thus moderate.

4.4. Drawing conclusions and connecting results: stage-related patterns, trade-offs between principles and the role of municipal support

A few conclusions can be drawn from observing the democratic legitimacy of Buurtstroom. First, a distinguishment is made between the perceived democratic legitimacy by stakeholders as opposed to results from my own research perspective based on the analytical framework as described in Chapter 2. Second, when looking at the summarizing table (Table 3), several patterns and trade-offs can be distinguished that explain the varying presence of democratic legitimacy principles. Third, the interaction between municipal support and governance practices from Buurtstroom is described.

First, the perception from respondents of democratic legitimacy principles generally shows a higher presence than appears from my analysis. This is especially the case when considering quality of participation and deliberation. This can be explained by the narrower conceptualisation from respondents of the different principles, exceeded by the indicators from the analytical framework. Additionally, the perceived legitimacy of Buurtstroom appears to rely heavily on the openness of board members to questions and input from members, even though these generally do not influence decisions; and their successful performance in realising CRE projects.

The patterns described in section 4.2. implicitly indicate several trade-offs that are being made between principles and between stages. Between principles, a notable trade-off that is being made is between open participation and quality of participation and deliberation on the one hand, and effectiveness and efficiency on the other. Factors that enforce this trade-off include a) the limited business case of each project and of Buurtstroom as a cooperative, and b) the amount of knowledge and expertise required for project development, which is centred in board members and professional experts, in combination with time constraints that result from the voluntary nature of the initiative. The municipality is barely supportive of this, providing subsidies to a limited extent, which otherwise would enable more choice opportunities and educative devices for the members.

Between stages, the most important trade-off that is being made is between the emphasis on transparency and open participation around the moment of initiative (first stage) and the plan presentation (second stage), while pursuing quality of participation and deliberation, accountability and open agenda setting when the project has been realised and revenues and distributed and managed (third stage). The municipality appears not to play a role in aggravating or relieving this trade-off.

Notable is the fact that the extent to which principles of democratic legitimacy are met, is comparable to the extent to which they are supported by the municipality: it is most supportive of democratic principles that are already pursued and met to quite an extent by Buurtstroom, whereas it provides little support or even risk causing adverse effects on the principles that Buurtstroom does not significantly meet. In first eyesight, this implies the dependency of democratic legitimacy in Buurtstroom on municipal support. However, this assumption appears to only partly hold foot when zooming in on the different principles, as is explained in the following paragraph.

On the one hand, legal compatibility is extensive for Buurtstroom as well as the municipality, since they strengthen this in one another. This is partly the case for effectiveness as well, where subsidies have supported expert salaries and business case viability; thus, municipal support increased effectiveness and efficiency of Buurtstroom. On the other hand, parts of the pursued principles have been successfully reached in other ways than following from direct municipal support. Transparency has been achieved by Buurtstroom not only through municipal support, but also by communicating in open and transparent ways, and clearly explaining procedures that it has set up itself. Also, accountability has been reached partly by formally agreeing on clear responsibilities and risk coverage, and in their personal expressions of pursuing accountability towards members that exceed formal requirements. Last but not least, Buurtstroom has quite successfully pursued open agenda setting, in which the municipality has been significantly unsupportive.

5. Rijne Energie U.A.: An energy landscape in Rijnenburg and Reijerscop

5.1. Key findings and setting the stage(s)

5.1.1. Key findings on Rijne Energie

Conclusions on the democratic legitimacy of Rijne Energie can be observed in Table 4. The table presents the extent to which different principles of democratic legitimacy are being met by the initiative, supported by findings on how each principle is being pursued (Table 4, column 1-4). As is the case for Table 3, Table 4 as well shows the extent to which principles are met, but this can diverge from the extent to which a principle is pursued. This is especially true for effectiveness and efficiency, which are pursued extensively but met to only a limited to moderate extent. The principles are categorised according to three different stages along which the process is structured, which are further explained in section 5.1.2. The summarized answers to all three sub-questions for this case are summarized in Box 2.

Key conclusions on how and to what extent principles of democratic legitimacy have been met and pursued by the CRE initiative Rijne Energie in governing the energy landscape in Rijnenburg en Reijerscop, and how and to what extent this has been supported by the municipality of Utrecht:

--> Open participation is a core principle throughout the process, followed by open agenda setting, accountability, legal compatibility and transparency

--> Most principles follow an increasing trend between the stages due to increased responsibilities and professionality, which applies to responsive representation, legal compatibility, transparency and accountability

--> Quality of participation and deliberation and effectiveness decrease throughout the process, due to unfruitful negotiations with landowners

--> Effectiveness and efficiency extensively pursued, but to a lesser extent met

--> A trade-off between principles shows that responsiveness is ‘traded’ for open agenda setting and open participation

--> A trade-off in principles between stages shows that open agenda setting, quality of participation and deliberation make room for efficiency, but this is backed up by increasingly responsive representation, accountability and transparency

--> Strong interactions between municipality and Rijne Energie showing mutual and mixed effects, with support primarily identified in pursuing and meeting principles of open participation and legal compatibility

Box 2: Key conclusions on democratic legitimacy, municipal support and democratic trade-offs in the case of Rijne Energie

Principle of democratic legitimacy	Starting stage	Condition-setting stage	Plan elaboration stage	Support from municipality
Open agenda setting	Extensive: Opened the political agenda for stakeholders' concerns; conditions to be filled in collectively; primary goal set by a small community group	Fully present: Launch note, council order for scenario formation; Rijne Energie U.A. established with local sustainability and community goals; Community concerns put on political agenda via framework and vision; fair selection procedure	Extensive: Earlier expressed community concerns moved up on the agenda; community input set the NRD; NRD set the agenda for the m.e.r; m.e.r. set the agenda for predesign, permit and destination plan; internally according to cooperative agenda setting	Extensive: Fully supportive in open agenda setting, but with mixed/adverse effects
Open participation	Fully present: Door-to-door meetings and city conversation; indication of questions and concerns; attended external meeting places	Fully present: Open general assemblies; Negotiations with landowners and polder residents; Several public meetings and internal working groups for collectively designing a landscape; Member growth	Fully present: Small-scale negotiation, larger scale information sessions; growth in membership flattened, active recruitment	Fully supportive: Supported In organising various participation opportunities in the first 2 stages; Then handed over to Rijne Energie
Responsive representation	Moderate: Representative group of stakeholders and residents in public conversations, limited but accurate representation of supporters	Moderate: Diversity in the working group; formal representation of members after cooperative establishment. Primarily represents 'city' interests, pursues but fails to include local 'polder' interests in representation; Rijne Energie becomes only community representative in the consortium	Extensive: New audience engaged; inclusivity developments internally; stronger emphasis on representation over participation	Moderate: Demands local representation, required diversity in participating stakeholders, add indirect representation by project team involvement, and require 50 percent local ownership
Legal compatibility	Extensive: Different from but exceeds legally required participation; and supportive of policy by organising community participation early on but no policy yet exists here	Extensive: Selection procedure and extra-legal agreements; legal norms for wind turbines not viable anymore; statutes align with law; proposal compatible with conditions from vision and invitation framework	Fully present: Followed the several formal steps, legally compatible. Goes through the process by parallel instead of subsequent order	Extensive: Provided legal defines; adapting policy framework; supportive in preparing for formal decision points
Transparency	Extensive: Early awareness raising under polder and surrounding residents; much information provision; clearly communicated	Extensive: Attempts to bring more research in to deal with scepticism from residents; transparent about interests; untransparent about continued	Fully present: Extra attempts for information & education in a complex stage; risks and conditions for large investments well explained;	Mixed: supportive in information provision and explanation, but lack of clarity/openness in goals and

	interests and goals; identified knowledge gaps to be filled later; representation unclear	negotiations with municipality; extensive information provision in line up to submittance of proposal; informed decision-making	negotiations more by project team, less visible	interests and negatively affected perceived transparency
Quality of participation & deliberation	Extensive: Diversity of perspectives is encouraged, discussion based on opinions; participatory structure suited for minority interests and concerns; smaller deliberative spaces most suitable. But not educated arguments of participants	Extensive: failed working group, no qualitative negotiations with landowners. But: constructive negotiation with municipality and partners; recognized community strengths and technical expertise within consortium and cooperative, combined for decision-making; external expertise for landscape design	Moderate: Negotiations with landowners run aground; dichotomy of houses <> energy; more passive (informative) forms of participation; gap between active and experienced and inactive/new members	Unsupportive/adverse: Brought in facilitators and expert bureaus; But did not protect weaker interests and unsupportive in landowner negotiations
Accountability of decision-makers	Extensive: Community feedback moment organised and reported; no formal accountability mechanisms to ensure later follow-up	Fully present: Agreements about responsibilities and confines drawn up; accountability provided to stakeholders; members' consent to ambitious financial plans; accountability in plan proposal	Fully present: Responses to reactions on NRD; dealing with responsibility for high investments from members	Moderate: Keeps ultimate decision-making accountability away from Rijne Energie; lot of responsibility and risks for Rijne Energie
Responsive decisions	Extensive: Conclusions more responsive to concerns than desired outcomes of participants	Extensive: Unintendedly slightly responsive to 'no-wind' demands; extensive financial compensation requirements from local residents; Responsive to interests and preferences from members; Measures as response to concerns; implement useful input;	Extensive: m.e.r. as response to nuisance concerns; many inputs on NRD implemented; decisions do not reflect input from landowners and polder residents	Limited: moderate responsiveness required when following the invitation framework
Effectiveness and efficiency	Fully present: Established topics for concern and interest and future research	Limited: all external but not internal desires and concerns adopted in the final conditions, but not effective or efficient because of limited land positions	Moderate/mixed: Efficiency fully present in speeding up the process, looking for synergies with stakeholders. Effectiveness limited due to limited land positions.	Moderate/mixed: Slows the process and unsupportive in convincing landowners, but provided land positions and strongly supports in complying with formal procedures and reaching goals

Table 4: Overview of democratic legitimacy and municipal support of Rijne Energie

5.1.2. Setting the stage(s)

The case of Rijnenburg and Reijerscop has a long and rich history. As a result of a municipal feasibility study, the council of Utrecht ordered the college to bring together companies and landowners to stimulate renewable energy generation and facilitate initiators in two potential areas for large-scale energy generation: at Lage Weide and in the polders of Rijnenburg and Reijerscop. The opportunity of Lage Weide was picked up by the cooperative Energie-U, then consisting of no more than a handful of active citizens who had recently organised themselves with the purpose of making energy use in the city more sustainable. However, the plan for Lage Weide was not accepted by the council at the last moment, due to societal resistance and political turnaround (Planbureau voor de Leefomgeving, 2014). The provincial spatial structure vision of 2013-2028 stimulates municipal initiative for renewable energy generation and a recalibration in 2016 declared Rijnenburg and Reijerscop as a break landscape: an area meant for housing in earlier times, but which lost this intended function and no suited function is currently available (Provinciale Ruimtelijke Structuurvisie, 2013). Subsequently, the area was not included in the housing development plans as described in the municipal spatial strategy of 2016 and no new developments are allowed until 2030 (Ruimtelijke Strategie Utrecht, 2016).

The CRE initiative Rijne Energie emerged in this context, starting as an initiative from Energie-U in 2016 and established as independent cooperative in 2018, to generate renewable energy in Rijnenburg and Reijerscop. Rijne Energie acts within legal confines as established by the law for spatial planning (*Wet Ruimtelijke Ordening*) and collaborates closely with the municipality and partners, while at the same time engaging the local community and managing its internal affairs. The steps that have been set in the past and will be set in the future are presented in the figure below (Fig 1.). The draft 'environmental effect report' (*milieueffectrapportage,* also known as a *MER*) based on a preferred design (*voorkeursalternatief, VKA)* that was commissioned by Rijne Energie, has been drafted and lies with the municipality for inspection, and the request for destination plan change and environmental license application are nearly finished to be submitted. Currently, Rijne Energie is further elaborating its plans. When the college and council decision, expected for 2023, are positive, the project can be developed. This implicates that the project is still in the phase of 'policy process', and we cannot yet speak of 'project process' which starts from the moment that project development officially starts. All three stages together can thus be viewed as comparable to a very elaborate version of the first stage of Buurtstroom, conducting research and investigating the feasibility of the preferred project location(s). The role of Rijne Energie in creating a democratically legitimate governing process is described according to different chronological stages, demarcated by formal decision-points in the process that were crucial for the governing role and subsequently the democratic workings of Rijne Energie. This resulted in the following structure:

1) The starting stage
2) The stage of condition-setting
3) The stage of plan elaboration

The starting stage primarily describes agenda setting by Rijne Energie. A goal is set for energy generation and residents and stakeholders are invited to communicate their concerns. The process results in a formal launch note by the municipality, which marks the start of policy formation for the area (Startnotitie Energielandschap Rijnenburg en Reijerscop, 2017). Secondly, the condition-setting stage describes the elaborate process for designing different scenarios, consisting of deliberative and

design sessions from Rijne Energie, paralleling a participatory design process organised by the municipality. The process results in a formal vision and invitation framework that indicate specific search areas and conditions and an initiative proposal from Rijne Energie that describes its plans for the project and ends with the formal selection of Rijne Energie as initiator (Initiatiefvoorstel Rijne Energie c.s., 2021; Raadsbrief Selectiebesluit Energielandschap Rijnenburg en Reijerscop, 2021; Uitnodigingskader Rijnenburg en Reijerscop, 2020; Visie Energielandschap, 2020). The third stage, describing plan elaboration, includes further defining the project plan, investigation of environmental impacts and receiving formal consent from the (local) government to start project development. This consists of creating a notion of scope and level of detail, commissioning an environmental effect report and establishing a preferred alternative and final design; with the purpose of accomplishing a destination plan change and receiving the required permits (Notitie Reikwijdte en Detailniveau Energielandschap Rijnenburg en Rijerscop Utrecht, 2022).

5.2. How and to what extent are principles of democratic legitimacy pursued and met by Rijne Energie in its governance of the energy landscape in Rijnenburg and Reijerscop?

The democratic legitimacy of Rijne Energie is evaluated by investigating the elaborate governance practices of Rijne Energie during different stages and in various governing spaces (internally within the cooperative Rijne Energie U.A., within Rijne Energie consortium, and externally with the wider public) (Appendix F). Several conclusions can be drawn on its democratic legitimacy, based on how and the extent to which different principles of democratic legitimacy are met and pursued.

Open agenda setting was always met to a high extent, most prominently in the second stage. In all stages, agenda setting was open for every resident and stakeholder. However, in the first stage, Rijne Energie was one of the two initiators and there was little room for others to initiate; in the second stage, this opportunity was broadened by means of the participatory process and invitation framework. Also, agenda setting internally became better regulated due to professionalisation of Rijne Energie. In the third stage, formal procedures ensured agenda setting: for example, stakeholders could communicate their interests for crucial research topics via a formal ‘note for scope and level of detail’, which can be considered the agenda for research on expected impact.

Open participation was fully present in each stage of the process. This can be considered a core value for this initiative. Rijne Energie organised a variety of decision-making spaces for a wide range of stakeholder groups across different types of participation. The nature of these deliberations changed: whereas the early stages were characterised by large-scale events with deliberation in small groups, halfway through the process public participation was split in either personal negotiations with landowners and residents, or large-scale public information sessions. Participation within the initiative became characterised by a combination of small working groups, and general assemblies with a primarily consultative nature.

Responsive representation was moderate in the first and second stage, but slightly increased in the last stage. This can be observed by the fact that Rijne Energie became responsible for protecting the community interest inclusively when a) the consortium was established and b) it was selected as initiator. Internally, representation became more important because of member growth,

intensification of formal procedures and growing complexity. As a response, Rijne Energie attempts to retrieve member input and indicate preferences in various ways to increase quality of representation in negotiations within the project team and with landowners. Representation of participants in external deliberative spaces changed between stages, shifting from those with strong stakes in the area to those living further away and with little to no stake in the area apart from potentially deciding to participate as a member of Rijne Energie.

The process was always *legally compatible* but increased from extensive to fully present between the second and third stage. The lack of policy frameworks or standard procedures in the period until selection complicated legal compatibility. However, in the third stage, Rijne Energie follows long established procedures and has much support from the municipality, which improved legal compatibility. It must however be noted that distance norms for wind energy are not legally valid since 2021, and instead of waiting for the establishment of new norms for wind on land in the current absence of any such norms, Rijne Energie continues with its plans while the council of state has advised projects to wait until new norms are known. This does not make their plans currently illegal although viewed as such by opposing residents but provides a risk to the initiators since new norms might be stricter than the distances used by Rijne Energie.

The principle of *transparency* similarly increased from extensive to fully present when reaching the third stage. In each stage, Rijne Energie provided extensive information towards participants and non-participants when this concerns them; have clarified the planned procedures and decisions, provide its members with alternatives through deliberation and discuss the risks and opportunities; was transparent about its goals; and recognized the role of independent research to increase mutual understanding and clarify the impact of different scenarios. Transparency in the first stage was primarily characterised by the contribution of Rijne Energie to awareness raising under the local community about future plans in their surroundings; but many facts, impacts and conditions were unknown, and there was some unclarity about the interests Rijne Energie represented. In the second stage, the first research was conducted in a combined effort of residents and initiators to guarantee full transparency and information provision was extensive; but negotiations with the municipality in the run-up to formation of a policy framework was unknown to the public. It was only in the third stage that transparency was fully present. Concerns of landowners and polder residents could finally be researched to a full extent by means of an elaborate environmental effect report (*milieu effect rapportage,* also known as *m.e.r.*), whereas the research conducted beforehand remained inadequate and prone to strategic use of knowledge (Van Enst et al., 2014; Appendix F). The complexity of the formal procedures and the increased activity from the project group required extra transparency from Rijne Energie, which was provided by them via several public information sessions, much explanation and increasing regularity of general assemblies, and extensive information provision via newsletters and website.

Quality of participation and deliberation remained almost the same, but slightly decreased from extensive to moderate when entering the third stage. In the first two stages, a diversity of perspectives was actively encouraged since it would provide the best understanding of concerns and conditions to be considered in the plans to be formed. Minority and weaker interests were specifically included and were subject to personal communication. However, the lack of knowledge about what were the opportunities and risks limited a qualitative debate: arguments were based on

opinions rather than facts. The second stage started out with qualitative participation, but conflicts emerged and were not peacefully resolved. Those with weaker interests felt not taken seriously and pointed to power imbalances. However, between consortium partners and between members of Rijne Energie, different sources of knowledge and expertise were smartly mobilised for qualitative and integral decision-making, and community input and professional expertise were on par. In the third stage, negotiations with stakeholders ran aground due to conflicting interests and frustrations from the earlier stage. Between members, it appears a gap begins to emerge between those who are active and knowledgeable and those who are inactive and ignorant, which limits a qualitative debate in plenary sessions.

The principle of a*ccountability* was high throughout the process, increasing from extensive in the starting stage to even fully present in the two stages after. After most participatory sessions or submittance of formal plans, Rijne Energie reports on the outcomes and ensures community feedback opportunities in the form of public and assembly meetings, personal conversations with those affected, complementing formal municipal procedures. In the first stage, although accountability was incorporated in the process, the responsibility to act upon outcomes was not fully present due to lack of concreteness and lack of following responsibilities. However, in the next two stages, accountability to act upon outcomes was more clearly present. Responsibilities and division of risks are discussed and formally pinned down where relevant, with cooperating landowners, the municipality, consortium partners and members. Within the cooperative, a board is held accountable by a critical general assembly and receives high levels of trust from its members to act and decide responsibly, in spaces where direct oversight is often missing.

Responsiveness of decisions was extensive in every stage. The concerns expressed as input from residents and stakeholders are responded to by including them as conditions and compensations in the project plan, most importantly by leaving room in the landscape design for future housing, the implementation of nuisance limiting measures and a fair system of financial benefit distribution and plan cost coverage. However, although those living near the project installation and project developers have expressed resistance to wind energy in the polder altogether, this has not influenced the choice of energy source from Rijne Energie. Although concerns and desires are reflected in decisions, those with a high stake in the landscape do not find themselves in decisions; showing a difference between the perceived responsiveness by Rijne Energie and by stakeholders. Decision-making by the cooperative is most responsive to the input from members, where decisions are formally made by majority, but when preferences are diverse this is also considered in decisions. Also, minor decisions are made in multiple working groups throughout the stages, which ensured the implementation of member input in the final plans. Moreover, the implementation of feedback and responses to draft is presented in the launch note (stage 1), the initiative proposal (stage 2), and preferred design, the note for scope and level of detail and the environmental permit application (stage 3). In this way, the responsiveness to input is always checked before establishing the outcome.

Effectiveness and efficiency, although fully present in the first stage, decreased significantly in the second stage, to again climb up a bit in the third stage. The goal of the first stage was to retrieve input from various stakeholders to get an overview of topics and conditions to consider in the coming stages. Every participation opportunity was useful in coming to this outcome, with meeting outcomes and a launch note that provided a solid basis for future plans. By making use of municipal

resources and capabilities, as well as events from external parties, Rijne Energie reached this goal in time- and cost-efficient ways. However, in the second stage, the many design sessions ultimately appeared useless because not enough land positions were yet retrieved. In the third stage, negotiations with landowners remained rigid and largely unfruitful. Although the plans presented by Rijne Energie included many contributions to the public good and climate mitigation, the realisability is questionable since the energy generation will be limited, good for providing 37.000 instead of the earlier set goal of 60.000 households.

Two conclusions about the presence of different principles over the different stages. First, the input principles of open agenda setting and open participation remain highly present in each stage. This can be explained by the fact that each stage has its own decision-making cycle, and open participation is a core value from Rijne Energie. Second, responsive representation and decisions, accountability, legal compatibility and transparency increased between the first and the last stage. This can altogether be explained by the greater role for formal procedures externally, professionalising internal workings, and interests have become clearer and 'grouped' over time. Quality of participation and effectiveness have instead decreased, which is partly explained by the unfruitful negotiations with landowners.

Overall, a high level of democratic legitimacy is identified in the governance practices from Rijne Energie, with every democratic principle well accounted for. When considering the different 'governing spaces', different principles stand out. Between members, quality of representation, transparency and effectiveness are present to the highest extent. In the interaction with its consortium partners, all principles are extensively met, with an emphasis on quality of participation and deliberation, responsive decisions and effectiveness and efficiency. Externally, Rijne Energie an emphasis is on principles of input legitimacy, with a primary focus on open agenda setting and open participation. Overall, the principles *open participation* and *accountability* are met to the largest extent, followed closely by *open agenda setting, legal compatibility* and *transparency*. Less prominently present is *responsiveness of representation* and *quality of participation and deliberation*. This is however primarily true for the interaction with the wider community, while it is more prominently present within the initiative.

5.3. How and to what extent has the municipality been supportive of the democratic legitimacy of Rijne Energie?

Table 4 presents conclusions on how and to what extent the municipality has been supportive of the initiative in pursuing and meeting each principle of democratic legitimacy (Table 4, column 5). It appeared from the analysis of this case that the municipality was especially determining for the democratic legitimacy of the process through its networking role and resource contribution in facilitating a broadly set-up design process for the community and stakeholders, and through political guidance in the intensive negotiation and deliberation with the initiators. What appears from this analysis is a stark difference between the support of principles of input legitimacy, as opposed to throughput and output legitimacy.

The municipality contributed strongly to *open agenda setting*: 1) it deliberately opened the agenda for Rijne Energie to come forward as initiator and demanded fifty percent ownership in a scenario

where the cooperative had to compete with more powerful parties, and 2) it provided ample space for Rijne Energie and the wider community to put their concerns on the agenda and setting the confines for the project. The former resulted in a fruitful combination of community input and expert knowledge, but the latter had more negative effects on the quality of participation and deliberation and on responsiveness: how the landscape was to be designed was partly dependent on the intended amount of energy, but the latter was not set or at least not communicated. Thus, although supportive of open agenda setting, this had adverse effects on some aspects of democratic legitimacy.

The municipality was supportive of *open participation* since it provided space for Rijne Energie to organise public participation before any confines had yet been determined and put in a lot of resources to organise wide participation and different deliberative and decision-making spaces in the early two stages of the process. Respondents recognise the wide scale participation opportunities provided by the municipality and Rijne Energie together.

The municipality contributed to *responsive representation* in two ways: a) it complemented the direct representation of local and renewable energy interests through the indirect representation via the political electoral system and b) by inviting direct representatives of other interests and concerns held in the community, such as recreation, housing, infrastructure and ecological values in their co-organised participation processes. But also, a diverse group in terms of personal characteristics and home location was invited in the process.

An interesting point was made by BVRR, who argued that the plans for the energy landscape conflicted with the policy framework provided by the Regional Energy Strategy of Utrecht (requirement of local support for wind on land) and as described in the launch note, since there was no support for the project from residents, landowners and project developers. Whether or not their argument is considered viable, depends on the definition of support; there is some support from the mentioned stakeholder groups, but also opposition from residents. As a resident explains: “support is relative. Yes, it’s widely supported, but primarily by people from the east of Utrecht, who are barely affected. I have attended every conversation, and you notice: the closer you come, the more questions” (R18). Also, a stakeholder manager explains: “I find it annoying sometimes, a politician who says: oh there is a cooperative, so there is support. Yeah no, you cannot state it like that. There is still resistance. Maybe less, because they can talk to people like them, residents, but that does not mean, the flag out, and all people are massively buying shares. No.” (R17). Regarding the launch note, this speaks not of wide support necessarily but only of wide participation and consultation, which has been done, regardless of what has been the impact of that decision.

The municipality was supportive of *legal compatibility* in three ways. First, it provided the legal framework for spatial development and spatial planning policy as prescribed by the spatial planning law and supported Rijne Energie c.s. in drawing up successful applications and documents in the last stage. Second, it provided local norms and directives that supported plans by Rijne Energie and made sure Rijne Energie complied with these norms and directives. In doing so, it remained flexible in communication with the initiators and kept room in the policy framework for delivering customization, and even adapting its procedures and policies to recent developments.

The municipality contributed to *transparency* to the extent that it was formally responsible to make all plans and decisions regarding the process public, as well as the received reactions, and the responses to these reactions. This elaborate administrative task would not have been realistic for Rijne Energie to do only by itself. The municipality subsequently explains the process on the municipal website, with the relevant policymaking documents and reports attached to each stage. The municipality has however not been supportive of democratic legitimacy to the extent that it has not openly communicated its goals and broader interests, which affected the perceived transparency of Rijne Energie, from stakeholders who were confused about what to expect from Rijne Energie, and some residents being under the impression that goals and conditions were set in their cooperation 'behind the scenes'. Concluding, the municipality was supportive of the transparency in terms of information provision and process explanation but had adverse effects on their perceived transparency.

The municipality was supportive of the *quality of participation and deliberation* to the extent that it hired an independent conversation facilitator and external agencies. The municipality has, however, not been supportive in multiple ways. Most importantly, it was the responsibility of the municipality as a democratically established institution to keep the weaker interests engaged and facilitate the deliberation, especially until Rijne Energie was selected as initiator. However, they failed in creating an equal level playing field at least as perceived by the 'weaker' interests, the deliberative space of residents blew itself up and resistance exacerbated. When these processes finished, the municipality continued to communicate and negotiate intensively with Rijne Energie c.s., which again provided additional room for influence from these organised and thereby more powerful voices in the community and to a lesser extent provided influence from those with weaker voices. Subsequently, the outcome was not at all responsive of the participation process, which surprised everyone involved and frustrated all stakeholders that had participated. Subsequently, when Rijne Energie was selected as initiator, accommodating the weaker and resisting stakeholders became the full but implicit responsibility for Rijne Energie; who then had to negotiate with a large group of highly frustrated project developers, landowners, citizens and polder residents which limited the quality of participation and deliberation with these stakeholders.

What can be concluded from this process is that the municipality was unable to facilitate and equal level playing field, encourage and accommodate a diversity of perspectives and ensure peaceful conflict resolution, which affected the subsequent quality of participation and deliberation between Rijne Energie and stakeholders. For residents, this can be explained by the following quote: "Then Rijne Energie started with the public meetings for residents, 'lets talk about the local fund'. 'No', said those people: 'we are still here with our anger, I cannot think about a local fund.' So, these conversations all kind of failed." (R15) Moreover, this has affected the conversations with landowners, whose unwillingness to cooperate has a background in the participation outcomes, when the municipality did not include any of the input early in the participation process in their decisions for the initial Uitnodigingskader. In the limited and unsuccessful negotiations that followed between the municipality and large landowners (project developers): "We have some conversations with landowners, but those are dramatic. That is nearly war between municipality and landowners, completely different opinions and interests. The landowners want housing. And the municipality does not want housing. It's as simple as that." (R15) No consensus could be reached: "it's also a bit an attitude of: if you don't want to cooperate with our building plans, we don't cooperate with your

energy plans" (R15). Concluding, this has obstructed the quality of participation and deliberation in the negotiations between Rijne Energie, residents and large landowners.

The municipality contributed to *accountability* to the extent that they are ultimately accountability for decisions, keeping this accountability and all of its risks away from Rijne Energie. They are being held accountable by the council for delivering upon council's requests and reporting on performance, and indirectly by elections, they also feel it that way and act accordingly. Also, they had the responsibility to describe how and why (or why not) they implemented received feedback. However, the municipality has not been supportive to the extent that no mechanisms were in place that obliged the municipality to act upon outcomes of the participation process, and thus stakeholders and citizens had no way of holding decision-makers accountable, Moreover, since Rijne Energie is treated as a commercial party and not as initiative of residents, they carry most of the responsibilities and risks when the project is realised, for example in terms of plan damage coverage and large financial investments, but also landscape development in the more general sense.

The municipality had mixed effects on the responsiveness of decisions by Rijne Energie. All parties recognized that during the participatory design process, although there had been a lot of participation, this had done little for influencing decisions: "If you ask, has everyone been able to participate, I say yes. Those work meetings, hundreds of people attended. But I find that not so important. If you ask if there is listened to people, you get a completely different answer" (R15). This resulted in vision and framework from the municipality that had absolutely no support base. Since this was the framework that Rijne Energie had to comply with, Rijne Energie was not pressured to be more responsive, and therefore also not supported in this. '

The municipality contributed to *effectiveness and efficiency* to the extent that they made sure the plans realize the set goals and that is complies with legal requirements, to increase chances of success. Their decisions also reflect ambitions towards climate mitigation, prioritising energy generation over other considerations. However, it is mentioned that their accountability requirements and compliance with formalities have slowed down the collaborative process with Rijne Energie c.s. in the last stage. Moreover, question marks can be placed by the effectiveness and efficiency of the participatory design process, "that whole circus" (R17), set up by the municipality: "We had to do two years of participation process to develop scenarios, which resulted in six scenarios but that did not lead to uniformity, or happiness, or love for the project with other people than the initiators." (R15) The process had cost one million euros, covered a period of two years and a lot of time and energy from participants, with only adverse effects on the engagement of residents. (R15). The municipality has moreover been unsupportive in negotiations with large landowners. They were overall moderately supportive in this regard.

5.4. Drawing conclusions and connecting results: stage-related patterns, trade-offs and the role of municipal support

The data rich casus of Rijnenburg and Reijerscop has resulted in an extensive analysis. To make sense of the data, results for each principle are not only summarised as is done in 5.2, but in this section also subjected to an analysis from a helicopter view: how does the relative presence of principles differ within and between stages, and how can these differences be interpreted? As appears implicitly from the analysis in prior sections (5.2. and 5.3.), differences are often based on trade-offs or external factors, most primarily being the role of the municipality in the process. Stage-related patterns and trade-offs between principles are identified in this section, and the relative influence of municipal involvement on the democratic legitimacy of Rijne Energie is shortly discussed. Before diving into trade-offs and the role of the municipality, two sidenotes must be made regarding 1) the perceptions of democratic legitimacy and 2) the difference between traditional theory on democratic legitimacy and energy democracy.

First, it is notable from this analysis that there is again a gap between the perception of some of the respondents and the conclusions from my analytical framework based on theory of democratic legitimacy. In this case, it is primarily the opposing residents who hold divergent perceptions. This appears from their criticism on legality and transparency, with arguments based on the absence of legal norms, the roots of the appointed research bureaus in the wind sector and the strong relationship between the municipality and Rijne Energie that results in their mutual responsiveness. Although their perception must be considered for legitimacy, their arguments do not align with the reality when investigated in detail or are irrelevant for democratic principles as defined in my analytical framework. However, their resistance is understandable according to most respondents, but well-based criticism is based on activity from the municipality rather than Rijne Energie.

Second, different conclusions can sometimes be drawn based on the conceptual theory used: traditional democratic legitimacy sometimes differs slightly in wording than energy democracy, with a large impact on the conclusion to be drawn. This appears for example from a deficit in democratic legitimacy that touches upon a point made earlier about the understanding of local support. Those that will be most affected by the energy source, have little to no decision-making power. Here, different conclusions come from the viewpoint of traditional democratic legitimacy and from the viewpoint of energy democracy. In the former case, it can be concluded that the more a citizen is affected by a decision, the more influence he or she should have in making this decision. This implies that the polder residents should have most decision-making power, which they do not. Even if they would join the cooperative for decision-making, they would have a relatively minor influence. From the perspective of energy democracy, however, decision-making power lies with those *whose energy provision* is affected by the decision in question, and since polder residents keep their power to decide whether to join the cooperative in energy generation and provision, no harm is done to democratic legitimacy. Although this difference is true for every case, it is primarily relevant for Rijne Energie because there is a relatively large difference between those who hold a stake in the energy generation and those affected by the project installation.

Overall, a trade-off between principles appears to be made between input and output principles. Since Rijne Energie continuously aims to involve every stakeholder (group) and put their interests and concerns on the agenda, it is nearly impossible to implement all of these to a full extent in

decisions and outcomes, especially since they are in some regards conflicting. Also, a trade-off becomes visible when considering a change between stages. Whereas stage 1 and stage 2 are relatively similar, stage 3 is different. Open agenda setting and participation and deliberation with members and residents become less significant in this stage, but are backed up by an increase in responsive representation, accountability and transparency. This can be explained by the increased influence and responsibilities that were awarded to Rijne Energie when they were selected as initiator of the energy landscape, as well as the increasing professionality internally that was required from them as responsible and recognized actor in a high-demanding power arena. This also shows a shift in focus from the direct participation of members and stakeholders to more representative democracy relying on the project team of Rijne Energie c.s.

The role of the municipality has had both negative and positive effects on democratic legitimacy. Most dominantly, the unspoken goals for the participatory design process and subsequent unresponsive decisions have caused frustration and resistance from residents and landowners. This limits the quality of participation and deliberation and, more importantly, the effectiveness of Rijne Energie. Most supportive from the municipality has been the open agenda, strong engagement and facilitation to make it through formal procedures and decision-making points. This had a positive effect on the quality of participation and deliberation and legal compatibility of Rijne Energie. When comparing the principles as to how and to what extent they have been pursued and met by Rijne Energie, to how and to what extent they have been supported by the municipality, a strong interaction between the two is identified. This interaction is in some cases of complementary, and in some stages of a substantive nature. What is meant by that can be explained per principle.

Open agenda setting, transparency, legal compatibility, quality of participation and deliberation and responsiveness of decisions and effectiveness and efficiency show enforcing effects between the municipality and Rijne Energie: higher or lower presence of these principles in Rijne Energie could for an important part be explained by the effects from municipal involvement. Open agenda setting could be extensive by Rijne Energie only because the municipality opened their agenda to community input. Information provision from the municipality throughout the process has helped Rijne Energie in being transparent, but Rijne Energie themselves translated this in more comprehensible and manageable information; however, the lack of transparency from the municipality in goals and interests negatively affected the transparency of Rijne Energie in second stage. Thus, the mixed effects from the municipality have resulted in mixed results for transparency of Rijne Energie. Legal compatibility of Rijne Energie is clearly higher due to municipal support, while internally assured by its statutes. Quality of participation and deliberation decreased for Rijne Energie externally because of effects from the participatory process and recent political factors. Responsiveness of decisions was pursued to the extent that was required by the municipality.

The other principles instead show shifts in the responsibility between the municipality and Rijne Energie for complying with a democratic principle. When considering responsive representation, it shows how the responsibility to be representative is in the first two stages primarily carried by the municipality but implicitly handed over to Rijne Energie when being selected as initiator, making them a community representative. This interaction is clearly visible in Table 2. Accountability increased for Rijne Energie when the municipality let more go of that, paralleling the shift in

representation. Open participation is unique in that it was pursued by both parties because they were aware of the local impacts but were complementary rather than interacting.

6. Oog voor Warmte: A district heating network in Oog in Al

6.1 Key findings and setting the stage(s)

6.1.1. Key findings on Oog voor Warmte

Conclusions on the democratic legitimacy of Oog voor Warmte are found in Table 5. It can be observed that the results are not categorized into multiple stages, which can be explained by the fact that the initiative has gone only through its first stage yet. The context of this initiative and the stage it finds itself in are described in section 6.1.2. Concluding statements that answer the three sub-questions are summarized in Box 3.

Key conclusions on how and to what extent principles of democratic legitimacy have been met and pursued by the CRE initiative Oog voor Warmte in governing the introduction of a local heat network, and how and to what extent this has been supported by the municipality of Utrecht:

--> Open agenda setting, open participation and transparency are extensively present, illustrating an openness towards the community, with the aim of creating a support base, gaining legitimacy and mobilizing expertise

--> Legal compatibility is characterized by unsuitability of, but attempts at adaptation of, policies and laws, with a low but increasing role for initiatives like Oog voor Warmte

--> Complexity and a large role for expertise negatively affect participation, quality of participation and deliberation and accountability

--> The municipality has been very supportive in open agenda setting, open participation, legal compatibility, transparency and quality of deliberation, but additional support is necessary to increase throughput and output principles for the initiative to become fully democratic and succeed.

Box 3: Key conclusions on democratic legitimacy, municipal support and democratic trade-offs in the case of Oog voor Warmte

Principle of democratic legitimacy	Feasability stage	Support from municipality
Open agenda setting	*Extensive*: started from the community and able to resist a top-down dominant agenda, puts community concerns on the municipal agenda, but other residents had less opportunity engage in goal- and condition setting by the initiative	Extensive: brought together community and companies together in equal level playing field; actively opened the agenda and adopted community concerns. However, limitedly supportive in resisting a dominant commercial agenda on a structural level
Open participation	*Extensive*: different participation opportunities and decision-making spaces (public consultations, friends of, association, board) to suit the different opportunities and desires of the residents	Extensive: added public deliberative spaces for knowledge sharing, particularly on community mobilisation; and provided education in setting up a community participation plan
Responsive representation	*Moderate*: sustainability interests not reflective, but community affordability interest prioritised when necessary; not all concerns represented in decision-making (due to limited show up); characteristics partly reflective of the neighbourhood	Absent
Legal compatibility	*Extensive*: comply with small subsidy schemes and inspire law-making and potential role in the new heat transition policy plans; legal entity. Challenging to comply with complex requirements	Moderate: adapted municipal policy on heat transition to recognized role for residents and community initiatives; unsupportive of complicated permits, technical requirements and provincial subsidy schemes
Transparency	*Extensive*: multiple, directed and inclusive information provision; clear procedures; transparent communication; independent research conducted and openly shared; but no openness of meeting documents	Extensive: promotion via municipal channels, subsidised professional support in creating a communication plan
Quality of participation and deliberation	*Moderate*: high within the project team, and in the neighbourhood, specific expertise is attracted at public meetings; however, the high level of expertise is perceived difficult to regulate into qualitative deliberation; no decision-making mechanisms to uphold inclusivity or equality; and disinterest from a large part of the neighbourhood limits active debate	Extensive: brought stakeholders and initiatives together for collaboration and mutual knowledge sharing
Accountability of decision-makers	*Limited*: representatives respond to (critical) questions, not responsible to act according to community interests, does not regularly or formally report on actions and outcomes; no formal consent	Moderate: require justification for use of subsidies, and subsidised establishment of cooperative which will increase accountability
Responsive decisions	*Moderate:* decisions are made pragmatically and on equal footing of community and experts; input adopted only when relevant at this stage; decision-making happens naturally. Few choices are currently made	Absent
Effectiveness and efficiency	*Moderate:* expert-oriented and small-scale decision-making process is equipped for efficiency, resources focus on a core goal	Moderate: facilitation of knowledge sharing and minor financial support

Table 5: Overview of democratic legitimacy and municipal support of Oog voor Warmte

6.1.2. Setting the stage(s)

The heat transition is one of the three directives from the energy challenge as formulated by the municipality. The municipality designed a plan where neighbourhoods make the transition in a stepwise, chronological order. They categorized the neighbourhoods in three blocks that follow each other up, where block 1 is handled first and block 3 is the last in line, ending in 2050. By doing so, they take a neighbourhood-level approach, where neighbourhood specific plans are designed in a collaborative process with all the local stakeholders, including residents. This plan is established in policy framework *Transitievisie Warmte* (2021). In the meanwhile, community initiatives have been rapidly emerging, organising heat alternatives for their neighbourhood. To support and learn from these initiatives for drawing up the Transitievisie, the municipality organised the project 'Expeditie Warmte', starting late in 2020.

The CRE initiative 'Oog voor Warmte' emerged in this context. It has existed for nearly two years and is still in its initiating stage, comparable to the 'feasibility stage' of Buurtstroom: "It's all still very early, starting, researching, we know it is theoretically possible, but we hope to have a business case at the end of the year... that we know we can officially start working out the plans" (R10). The governance practices of this initiative up until now are therefore structured in one stage only. The initiative has its next (growing) stage in eyesight, hoping to start project development at the end of the year.

6.2. How and to what extent are principles of democratic legitimacy pursued and met by Oog voor Warmte in its governance of a heat network in Oog in Al?

Conclusions on the democratic legitimacy in the governance practices by Oog voor Warmte are presented in column 1-2 of Table 5 and described in this section, with further details to be found in Appendix G. The findings on the presence of democratic legitimacy principles show a focus on input and throughput principles. Although there is little opportunity to compare the way and extent that democratic principles are met between stages, the results are explanatory for the early stage that Oog voor Warmte finds itself in, especially since this connection is often drawn by the involved stakeholders.

Oog voor Warmte pursues *open agenda setting* extensively. The initiative has been one of the first to put heat energy concerns of the community on the political agenda and set goals and conditions in a new and unknown energy policy space. They did so during Expeditie Warmte and continue this line in a community of practice. However, goal- and condition setting for Oog voor Warmte in its most early stage was set by the initiators without input from neighbours.

The initiative pursues multiple low-barrier opportunities, showing extensive *open participation.* Still, residents are participating to a little extent. This appears from a low degree of participation, and a primarily passive attitude from most residents. Two potential reasons for this that appeared from the interviews, are the fact that 1) they do not feel affected, whether positively or negatively, and 2) the focus on (technical) expertise in deliberation. First, since the chances of success are insecure and the realisation is perceived to be far away, residents are unaware of potential opportunities or consequences, whereas: "when it will come to more concrete follow up steps in the future, that will cost money, others will, and maybe me as well, be more on it, like, what is happening here" (R12).

Secondly, since the energy form is new and complex and the required knowledge is not all held by the project team, they invite residents personally to open meetings if they know this person holds a relevant expertise. Instead, those who do not have a (perceived to be) relevant knowledge background, can feel unneeded, which was also expressed by one of the residents (R12).

The lack of participation and emphasis on expert knowledge results in moderate to limited *responsive representation*, *accountability* and *quality of participation and deliberation* within the neighbourhood. First, a stronger emphasis is on inclusive representation since direct participation is limited; however, deficits in responsiveness of representation are therefore especially problematic: unexpressed voices of concern or resistance are represented to a limited extent in decision-making, where all decision-making is focused towards realising the heat network. Second, the gap between active and inactive residents limits the accountability of the former by the latter. Third, a significant knowledge gap that is expressed during such meetings, when residents with significantly more knowledge overwhelm those without any of the relevant expertise, thus constraining in upholding quality of participation and deliberation. However, within the project team, quality of participation and deliberation is high, with a useful sharing of knowledge and practices, and combining professional, specific knowledge with community knowledge. This had resulted in responsive decisions and strategic steps.

This subsequently results in a stronger focus on the need for extensive information provision and explanatory power, resulting in extensive *transparency*: if most decision-making is done by a small group of residents on complex issues, whereas wider public engagement is primarily informative, it requires open, extensive and explanatory information provision from decision-makers to uphold democratic legitimacy in the process. This is successfully filled in by Oog voor Warmte, who use newsletters, an informative website, flyers and personal communication to inform the neighbourhood. The communicate openly and honestly about procedures, goals and insecurities.

Output legitimacy principles are present to a more limited extent. *Accountability* is limited, because is it not yet perceived important by both decision-makers and other residents, since no significant decisions are being made or steps being taken that will affect residents. Responsive decisions, and effectiveness and efficiency, are characterised by strategic plan-making and pragmatic decision-making practices. *Responsiveness* is thus present to the extent that both community and expert knowledge inform decisions and are weighted on an equal footing, but suggestions that diverge from the core goal are not adopted at this point. The initiative explicitly and extensively pursues *effectiveness and efficiency;* however, the values are only moderately met in practice, because of a strong lack in expertise, time, manpower and financial resources. This is fully recognized by the initiative and its partners, but solutions are limitedly available, which makes them stuck in the current explorative stage.

6.3. How and to what extent has the municipality been supportive of the democratic legitimacy of Oog voor Warmte?

Table 5 additionally presents conclusions on how and to what extent the municipality has been supportive of the initiative in pursuing and meeting each principle of democratic legitimacy (Table 5, column 3). How these conclusions came to be is laid out in this section.

The municipality has been supportive of Oog voor Warmte in governing their initiative in a democratically legitimate way in various ways and to varying extents. Their primary contributions so far have been in open agenda setting, quality of participation and deliberation, open participation and transparency. Also, accountability and effectiveness are (positively) affected. There have been identified no ways of how the municipality contributed to responsive representation or responsive decisions. The municipal support is summarised in the last column in Table 5, and further explained in this section.

Notably, the municipality has been quite supportive of *open agenda setting* by the community, in two ways. They had picked up on the demands from motivated residents who were lacking sufficient time and knowledge, and from the companies who wanted to learn more about the community interest. Subsequently, they brought these two together: this created a collaboration between Oog voor Warmte and two companies. When bringing together these different stakeholders, they provided an equal level playing field in a controlled environment, which enabled the residents to work together with instead of competing with more dominant and powerful actors in the energy sector. The municipality also set a first step in open agenda setting in the wider governance of the urban heat transition. For the municipality, cooperation with citizens and stakeholders was part of their agenda of the neighbourhood-oriented approach to the planned heat transition. Expeditie Warmte was a successful tool in learning from and incorporating the role of residents, resulting in a recognized role of residents and CRE initiatives for the energy transition in policymaking. The next step, however, would be the outcome and impact of this increased recognition: will it lead to an administrative position for CRE initiatives, and enables them to influence (sub)national subsidy schemes and resist the dominant fossil-fuel based and commercial agenda?

Following, a deficit in *open agenda setting* has been identified in the passivity of the municipality to contribute financially to a more significant extent, and think along in countering solutions, thus exceeding their networking function. As an experienced initiator illustrates: “The municipality facilitates talking about problems, instead of solving them […] Why not help them in subsidy applications?” (E2). Municipal subsidies are inadequate for really bringing CRE initiatives like Oog voor Warmte to the next step, while the more significant provincial funding requires a high own financial contribution which is unrealistic for an initiative. A viable option for dealing with this lack of professionality, knowledge and finances, is to collaborate with or be taken over by a commercial party, but this would in turn strongly complicate holding on to the values from energy democracy. Concluding, municipal support can be labelled as extensive since on a minor level they have been very supportive in enabling the initiative to be adopted in policy for the first time, but with placing the side note of not at all being enough to enable the unequipped Oog voor Warmte in resisting the dominant top-down commercial agenda.

Open participation and *transparency* have been extensively supported principles by the municipality. First of all, since they established a community of practice, which brings together a variety of community heat initiatives in the city with the purpose of sharing best practices and lessons learnt. Oog voor Warmte is part of this community as well. Topics that are discussed in this community include how to increase one’s membership base and effectively mobilise and regulate expertise in the neighbourhood. This is applicable to the barriers experienced by Oog voor Warmte in pursuing open participation and transparency. The municipality has been supportive of these principles in

several other ways, via its facilitation of community communication and participation. They granted subsidies to Oog voor Warmte to hire a communication bureau for creating a communication and participation plan, which increased their local support base. Additionally, to support in communication and participation, Oog voor Warmte was invited to a professional 'work atelier' about community participation. Moreover, the initiative has made use of the information channels by the municipality, reaching more people.

Quality of participation and deliberation has been extensively supported by the networking activity of the municipality. Again, this was due to their role in bringing together the community initiators with commercial parties, as well as community initiators reciprocally, in an inspiring and controlled setting. The first facilitated the integration of professional expertise in heat techniques and communication with the enthusiastic residents bringing in community input. The second facilitated a mutual learning environment by sharing best practices. By doing so, the municipality contributed to the quality of participation and deliberation between those parties, as well as coming to qualitative plans and limiting future inefficiencies due to misunderstandings or ignorance. The continuance of this collaboration was moreover strengthened by the municipality by awarding a price to the project team in the form of a large financial contribution.

The municipality has been moderately supportive for Oog voor Warmte in becoming *legally compatible.* They were supportive by adapting their policies to CRE initiatives in a policy area that was not so suitable to Oog voor Warmte before they had started. Expeditie Warmte and subsequent policy framework Transitievisie Warmte provided them with a position in the future municipal activities. Additionally, by granting them subsidy for becoming a cooperative, they provide them the opportunity to become formally complying with law via its statutes. However, room for improvement is identified in facilitating with the required but complicated permit applications, funding requirements and technical regulation.

Additionally, the municipality has moderately supported in the *accountability* of Oog voor Warmte by requiring a justification of how they spend their received subsidies. This pressured the initiative to act responsibly, reported on activities and measure impacts. Also, a subsidy was recently granted for establishing a cooperative: this will likely improve the internal accountability of decision-makers because of the principles that lie to the basis of a cooperative, which will increase the need but also the opportunities of becoming more accountable.

Lastly, the municipality increased *effectiveness* by the facilitation of knowledge sharing and financial support in the ways just explained. However, it is notable that the municipality is not having its priority with Oog voor Warmte because they are in the last block that must go over. The plans are in an early stage and the municipality is still unsure what is the role of CRE initiatives in the future heat network. They are therefore hesitant to strongly support initiatives at this point, in particular those in the second and third block since there is less urgency there.

6.4. Drawing conclusions and connecting results: stage-related patterns, trade-offs and municipal support

Several conclusions can be drawn from the above analysis by identifying trade-offs in how and to what extent democratic legitimacy principles are pursued and met by Oog voor Warmte, and to what

extend this has been supported by the municipality. First, differences in perceptions of democratic legitimacy by respondents as opposed to my own analysis are touched upon.

The perceived and measured democratic legitimacy of Oog voor Warmte align with each other. Principles that were actively pursued and perceived to be met – openness, transparency and responsiveness – were indeed moderately to extensively present. Instead, accountability was said to be a long way from being on the radar, which was reflected in a limited presence. Efficiency and effectiveness of decision-making were explicitly pursued and met to a slightly higher extent than is expressed by the respondents, who primarily mention walking against a wall of limited resources and capabilities that limit growth and professionalisation.

First, what appears is that most extensively present are input and throughput principles, while output principles are present to a more limited extent. This can be explained by a logical trade-off and unintended effects. The volunteers in the board of Oog voor Warmte do not have the opportunity in terms of time as well as effort to increase effectiveness on their own. Partly because of this reason, they seek to include more residents and mobilise different types of expertise: therefore, they set up several participation opportunities and provide extensive and qualitative information provision. However, their call for expertise has some adverse effects for other principles. It results in assertiveness only from experts in deliberation who communicate past those with no expertise in the according field, and limit participation of those without specific skills. This subsequently leads to limited inclusiveness in representation, and there is no one to hold the few active residents accountable.

Secondly, there is a negative interaction between the lack of (quality of) participation and deliberation on the one hand and responsive representation and transparency on the other. This can be explained in two ways. First, board members and their modest sound board group are active and quickly learning, as opposed to participation by the wider community, which is characterised as limited and passive. As a result of this gap, responsive representation and transparency from the former towards the latter group becomes more important for upholding a certain level of democratic legitimacy. Secondly, the importance of expert knowledge of residents in decision-making has negatively affected the openness of participation and quality of participation and deliberation in public consultation. However, in its collaboration with the company Nieuwe Warmte, quality of participation and deliberation is rather positively affected by the combination of community expertise and technical expertise.

Following up on this, the limited capabilities and resources available are constraining for most of the democratic principles. This not only appears from my own analysis based on the described analytical framework but is repeatedly mentioned by respondents as reason to why certain principles are not being met. For example, conducting additional research and introducing educative devices could increase the quality of deliberation, accountability and effectiveness, but is too costly. Limited finances also constrain the ability to compensate hard-working volunteers and subsequently increase time and manpower; which in turn limits more extensive information provision, wide participation and inclusive representation. Also, with a limited business case, little choice or preference is possibly and constrains the responsiveness to additional suggestions or concerns expressed in input.

This leads to the role of municipal support in increasing democratic legitimacy for Oog voor Warmte. What appears from the relationship between the extent to which principles are met by the initiative and have been supported, is that there is again some overlap. Both parties show high records in open agenda setting, open participation and transparency. When looking into these principles, Oog voor Warmte indeed owes much of their democratic achievements to support from the municipality in providing the right resources. However, the municipality has also managed to provide multiple structural participation opportunities and deliberative spaces that significantly exceed municipal support but this has had little effect on this quality in participation and deliberation with residents.

7. Energie-U U.A.: A solar field in Meijewetering

7.1 Key findings and setting the stage(s)

7.1.1. Key findings on Energie-U

Conclusions on the democratic legitimacy of Energie-U in governing the Meijewetering project are found in Table 4. It can be observed that the results are not categorized into multiple stages, which can be explained by the fact that the activities of the initiative have so far taken in place as one single stage. The context of this initiative and the stage it finds itself in are described in section 7.1.2. Conclusions on the democratic legitimacy in the governance practices of Energie-U in its governance of Meijewetering are found in column 1-2 of Table 7 and described in section 7.3., with further details to be found in Appendix H. The third column shows conclusions on municipal support, further discussed in section 7.3. Box 4 found below presents the main conclusions for this case.

Key conclusions on how and to what extent principles of democratic legitimacy have been met and pursued by the CRE initiative Energie-U in governing the Meijewetering project, and how and to what extent this has been supported by the municipality of Utrecht:

--> The moderate to extensive presence of representation, transparency, accountability and responsive decisions illustrates an emphasis on representative democracy, supported by the resources and capabilities of Energie-U

--> A variety of practical barriers specific to the location proved a barrier for initiators to organise open participation or encourage quality of participation and deliberation in the (local) community

--> Initiators, semi-public partner and municipality operated on an equal footing in the project team and brought in different types of expertise, combined in problem-solving

--> A trade-off is visible between input and output principles, and between participation and representation, both based on a substantive orientation of democratic legitimacy

--> The municipality was limitedly supportive, due to inexperience of the officials and deficient policy, regulatory and legal framework. This strongly affected legal compatibility and efficiency of the process

Box 4: Key conclusions on democratic legitimacy, municipal support and democratic trade-offs in the case of Energie-U, Meijewetering

Principle of democratic legitimacy	Initiation/Project development stage	Support from municipality
Open agenda setting	Limited: Pioneering by initiators, but no opportunities for residents to put their concerns or interests on the agenda; no difficulty in resisting top-down agenda	Limited: fully community initiative, no agenda (to compete with), no opportunity to express concerns. No attention for other potential locations, unsuitable location appointed.
Open participation	Limited: Soundboard group meetings with 2 residents; 3 public sessions	Absent: no process participation or social indication
Responsive representation	Moderate: Initiators represent sustainability interests rather than financial interests, represent a community minority in terms of interests and characteristics, quite similar representation of interests within project team. All stakeholder groups represented in the project (decision-making) team.	Limited: Adding indirect representation by municipal representation in the project team, allowing community control
Legal compatibility	Limited: following the statutes of Energie-U, but legal procedures not followed in multiple aspects; not following policy directives and regulations (were nonexistent/ unsuitable)	Limited/mixed: No policy framework, did not follow procedures; uncommon speed procedure; permit is granted late and without private law agreement; but later improved
Transparency	Extensive: three information sessions about process, financial details and participation opportunities; door-to-door flyers; transparent about interests and stakeholder arena; explanatory Q&A document; draft permit shared; independent research conducted. But limited transparency about deliberation or technicalities.	Limited/mixed: procedures and requirements unclear, but supportive in information provision to the community and most documentation about project decision-making openly accessible
Quality of participation and deliberation	Moderate: interaction with community was informative, with sound board group qualitative but consultative. In project team and sound board meetings: different types of expertise included; complementary. There was no room for diversity of perspectives, decision-making was pragmatic. Qualitative negotiations with a variety of stakeholders.	Absent
Accountability of decision-makers	Extensive: representatives report on performance and needs consent from Energie-U board and members, feedback was asked for the draft plan and risks are covered, and critical questions are responded to, but no reporting to or consent from the local community is asked	Moderate: Right of superficies; plan costs agreement; stands accountable for missed procedures and requirements; provides community feedback opportunities to plans of the initiative
Responsive decisions	Extensive: expressed concerns moderately accounted for; consensual decision-making not at the expense of minority interests; opinions weighted at an equal footing; decisions accepted by residents.	Absent
Effectiveness and efficiency	Limited: very inefficient due to limitations of the location, many and failed negotiations, and effective in climate mitigation but not in local financial revenues	Limited/mixed: timelines not met; inefficiency in process between departments; however, e.g. permit and subsidy granted.

Table 6: Overview of democratic legitimacy and municipal support of Energie-U, Meijewetering

7.1.2. Setting the stage(s)

The Meijewetering project of Energie-U ultimately covered the same aspects as the first stage and first half of the second stage of Buurtstroom, but the different aspects did not happen according to chronological stages, and there can be identified no clear separation into different stages. Therefore, despite its long process running from 2016 until now, its democratic legitimacy is treated according to one single stage. Due to inexperience from both the initiators and the municipality when the project was initiated, there was no feasibility stage before starting project development: “There was an intention to do a further study, but the initiator was already there to take up project development" (Evaluatierapport Gemeente Utrecht, 2020). The process runs from initiation in 2016 onwards and recently the design and business case are finished and consented to, and directly after, project participation opened.

7.2. How and to what extent are principles of democratic legitimacy pursued and met by Energie-U in its governance of a solar field in Meijewetering?

Open agenda setting by Energie-U is present to a limited extent. On the one hand, the initiator set the agenda by pioneering in the absence of a municipal agenda. With no commercial interests at play and a full control granted to the community from the outset, the initiative was able to resist a dominant commercial or fossil fuel-based agenda; no selection process was present, and the initiator could set its own agenda. However, due to inexperience, there was no social feasibility indication done and no opportunity for the community to put their concerns on the agenda at initiation. Also, throughout the process, the location or pre-set goals were not adapted because of agenda adaptations from the community.

Open participation is also present to a limited extent, with however three public sessions in the two recent years. During the first years of the process, no public sessions took place. These were held only when the plan became more concrete. A participation opportunity present from the beginning was, however, the meetings between the initiator and a modest ‘sound board group’ consisting of two engaged residents. No participation opportunities were opened to the members other than the topic passing at few general assemblies.

Responsive representation is present to a moderate extent. Initiators represent primarily sustainability and local ownership interests rather than financial interests, as does the group of residents that has shown an interest. Since most residents seem to hold in the first place financial interests, a minority of residents are represented in their interests. Since initiators make decisions and negotiate with this interest always as a baseline, it is qualitatively represented. The project team consists of representatives from each relevant stakeholder group. However, in terms of characteristics, the representatives are responsive to a moderate extent: the homogenous group is reflective of the quite homogenous neighbourhood, apart from the gender bias that strongly favour men. Although this shows a moderate extent, residents are quite neutral towards the project and responsiveness is not a result of strongly expressed community interests.

The principle of *legal compatibility* is present to a limited extent. Community representatives follow the statutes of Energie-U; however, the Meijewetering project does not have its own, more suitable statutes, as had been the case for Buurtstroom when it emerged from Energie-U as a separate cooperative. More importantly, formally required procedures were not followed and required

aspects, such as a preliminary participation moment or a private law agreement before environmental permit application, were skipped. This was due to inexperience and the respective unsuitability and nonexistence of a regulatory and policy framework.

Transparency instead is present to a higher, extensive extent. Information about the premature plan was provided via door-to-door flyers early in the process. Three public sessions later in the process provided information about the process, financial details and participation opportunities, which were recorded and published on the website, together with a document with common questions and answers. Initiators and decision makers were transparent to residents about interests, barriers, risks and (limited) alternatives and revenues. A draft plan was sent to the local community, and independent research was conducted to clarify opportunities and impacts. However, information provision really started only two years after initiation, and decision-making takes place in closed meetings with no transparency afterwards.

Quality of participation and deliberation is moderate. On the one hand, interaction with the community was not suitable for residents to influence discussions or engage in decision-making but demanded a more passive attitude from them. Sound board group meetings produced more qualitative deliberation but provided no opportunity to the residents to influence decisions. Here, and in the project team meetings, different types of expertise operated on an equal footing and complemented each other to uphold a high quality of deliberation. Discussions were characterised as problem-solving and pragmatic, with few discussions or conflicting perspectives. The stakeholder arena was relatively large and diverse, and a variety of qualitative negotiations took place, with arguments based on reason; however, negotiations with the waterworks did not proceed qualitatively.

Decision-makers are *accountable* extensively. Representatives report on developments in the process to the board, and need consent, primarily based on the business case, to continue the process. Decision-makers presented their plan to the local community when it was drafted for the environmental permit application; however, how and why input was reflected in the plans was not made clear. Feedback from residents and Energie-U members were responded to at respectively the three public sessions and general assemblies. There is no further reporting to the local community or consent asked from the local community. Risk coverage is explained and established in formal agreements.

Decisions are *responsive* to an extensive extent as well. Expressed concerns from residents are moderately accounted for: renewable energy is generated for the community and nature interests are reflected in the design, but financial interests are limitedly reflected; however, the final plan was positively received and accepted by the local community. Negotiations with local stakeholders were also responded to extensively to be able to continue the process. Within the project team, input of each representative was weighted equally regardless of expertise, and consensus was always found without repressing minority interests.

Lastly, the process is *effective and efficient* to a limited extent. Practical barriers and limitations to the location limited opportunities and project size; not following the set procedures affected efficiency; and a lack of (suitable) policy, regulations and feeling of urgency at the municipality

slowed down the process. Outcomes are in favour of climate mitigation, but to a more limited extent than initially was aimed for, and ownership was partly provided to the waterboard instead of full ownership by local households as was planned at initiation. Moreover, time nor effort was spared to bring the project towards realisation, but with much fewer financial returns than anticipated.

7.3. How and to what extent has the municipality been supportive of the democratic legitimacy of Energie-U?

The support of the municipality can in short be observed in Table 6. What directly appears when observing the results, is that municipal involvement was strong, but its success limited.

Open agenda setting was supportive to the governance of the Meijewetering project of Energie-U in terms of granting full community ownership to Energie-U, without competition of more powerful, commercial parties. However, it did not open the agenda to the larger community, but it directly started closed collaboration with the initiator and the quickly formed project team. It went along with the desire of the initiator to start a project at this location. However, it had appointed this location without suitability study, and it later appeared unsuitable. This principle thus shows mixed effect, but it can be concluded it was supportive to a limited extent, with the most prominent principle about opening the agenda to all residents' concerns significantly missing.

Open participation was not supported by the municipality. At initiation, it is municipal policy to design and conduct a form of process participation before continuing with project development (Evaluatierapport Gemeente Utrecht, 2020). The initiator had to conduct a feasibility study itself with advice from the municipality, but although there was much attention for financial participation, the part of process participation deserved too little attention.

Responsive representation was not significantly supported, but by taking a position in the project team, the municipality ensured representation of political interests and indirect representation of city-wide interests in decision-making. They also supported community representation by allowing community representatives to carry out the process by pursuing community interests as they desired.

The municipality was very involved with *legal compatibility* but was supportive to only a limited extent. Regulatory and legal frameworks were yet unsuited to the project, and no policy framework existed. The municipal representative was unsupportive because it was not known with the procedures that did exist and did not follow those it knew. Processes took much time, with much time pressure when a deadline came near, resulting in an illegitimate decision on a granted permit; a process perceived as "an enormous hassle" (R7). More legal requirements were not met, not all discussed in this paper (Evaluatierapport Gemeente Utrecht, 2020). However, four years after initiation, there was critique from the council and college on how the process had been pursued, and legal compatibility increased, strongly supported by the municipality; most requirements were met after all. Along the way, learning effects increased policy in the area of CRE projects, and the municipal official state: "It was the very first project […] I had never done an energy project before. So, my first year consisted solely of learning. And now, I would do it more strictly, more smoothly in our processes […] We have adapted protocols, processes and policies along the way." (R15)

Transparency was also supported to a limited extent as well, however with mixed effects. Since the procedures and requirements were not clear to the municipal representative, neither was it to the initiative, and in turn to the wider community. However, the municipality supported the initiative in its information provision to the local community about the permit application, and most of its formal decision-making and written communication about the project is made accessible.

There has been found no support from the municipality to the *quality of participation and deliberation* of the initiative, but also no unsuccessful involvement with adverse effects. The same goes for the principle of *responsive decisions.*

Accountability is best supported by the municipality, showing a moderate level of support. Division of risks and responsibilities is formally established in a right of superficies and a plan costs agreement. In a large in-between evaluation report, the municipality stands account for the unlawful practices by the project team. It also pursued accountability by providing feedback opportunities to the community at draft documents before formal decision points; but there can be found no public response to how the received feedback was being implemented.

The municipality has had adverse effects on efficiency of the process. Firs, timelines were not met, and a proposal had laid still for a long time: officials did not feel a sense of urgency in handling the application. A municipal official sketches the feeling as follows: “sometimes you think, where do those years go, but that’s how it goes” (R15). Second, since no department felt responsible for the project, the initiative was sent past fourteen different departments to come to a right of superficies. Effectiveness was, however, supported by granting the necessary permit and subsidy.

7.4. Drawing conclusions and connecting results: stage-related patterns, trade-offs and municipal support

For this initiative as well, perceptions of democratic legitimacy from respondents are shortly touched upon to nuance the findings that appeared from an evaluation based on the described analytical framework of democratic legitimacy. Next, several conclusions can be drawn from the analysis of democratic legitimacy by identifying trade-offs and interactions between different principles. Also, interactions between municipal support and the extent to which principles are met by the initiative can be identified to interpret the results from section 7.2.

The perceptions of respondents resemble with my own objective findings. The legitimacy perceptions of respondents were primarily oriented towards locality: “making good use of the local area” (R7), “supporting local initiatives” (R9) and creating “a feeling of local ownership and thereby contributing locally to the energy transition” (R8). This substantively oriented perception of legitimacy resembles with the presence of throughput and output principles as opposed to input principles. The absence of these principles was also acknowledged: “No, there has been little room for input from residents and such” (R7); “There were absolutely no... there were too few frameworks. And those that were there, were not applied.” (R15).

When considering differences in the extent that principles were pursued and met, there is thus a clear difference between input principles on the one hand, and throughput and output principles on

the other, with effectiveness and efficiency as an exception. This can partly be explained by three assumptions from decision-makers: 1) meeting input principles would not have added to meeting output principles, which was perceived as primary motivation and basis for legitimacy, and 2) the practical limitations of the location and subsequently the business case limited choice opportunities, and 3) without being fully aware of all practical details specific to this project, participation and deliberation were not fruitful. The decision-makers have thus implicitly made a trade-off between input and output/throughput principles.

A second interaction that can be observed is the high presence of transparency. This can be explained as a compensation of the limited participation from the community, to still engage them but while providing them with a passive role. In the absence of direct oversight, this enabled citizens to be aware of process developments, decision-making and performance of representatives.
The results can be connected to the stage of the project, which was characterised by practical investigation and pragmatic decision-making, and a long period of insecurity to whether a realisation of the project was even realistic. It can moreover be explained by the role of representation, which each relevant stakeholder group represented in the project team: the Energie-U board, a local stakeholder, a municipal official and the initiating resident, with two residents on his side. It was therefore assumed all relevant interests were represented, so wide participation can be assumed not to have significantly changed decisions.

Although the initiators leaned quite strongly on the municipality, the latter has not been very supportive of the democratic legitimacy of the initiative. The most notable principle in this case is legal compatibility, where the initiators from Energie-U and the municipal official did a lot of pioneering work. Protocols, procedures and policies were adapted and created together, based on learning experiences of the governance process of this project. A significant support was provided to the principle of accountability, through formal accountability agreements and feedback procedures.

8. Comparative analysis

8.1. Introduction

When looking at the four different cases, many similarities are identified, as well as stark differences. These can be treated per principle, describing how the principles are present in different ways and degrees depending on the case. Every section will treat each principle separately, where 8.2. describes similarities and differences in democratic legitimacy, 8.3. describes similarities and differences in municipal support, 8.4 describes the similarities and differences in the trade-offs that were made and 8.5. aims to interpret the differences and similarities of 8.2. by means of the findings from 8.3 and 8.4. The final section 8.5 presents potential factors to explain differences and similarities other than municipal support (8.3) and practical trade-offs between principles and stages (8.4) that resulted inductively from the analysis.

8.2. Similarities and differences in democratic legitimacy

Open agenda setting is extensively met by Oog voor Warmte and Rijne Energie, strongly varying per stage by Buurtstroom and limitedly met by Energie-U. Similarities and differences in how initiatives pursue and meet the principle of agenda-setting is explained alongside four similarities and two differences. First, all four initiatives show an extensive amount of room for initiators to set their own agenda and resist a dominant commercial agenda. Second, for each initiative the goal is being set by the initiators without input from the community. Third, all initiatives pursue open agenda setting internally by sharing the agenda for an assembly meeting in advance and provide the opportunity for members to add an agenda point. Fourth, what appears is that every initiative manages to get energy concerns from residents on the political agenda. However, the extent to which they manage the latter differs: most notably, in the case of Energie-U, only the concerns of the initiator and the two Energie-U board members are put on the agenda. Also, what differs is that Buurtstroom and Oog voor Warmte chose their own location(s) when they initiated their project, whereas Rijne Energie and Energie-U started with an already appointed search area by the municipality.

Open participation is highly pursued and met by Rijne Energie and Oog voor Warmte, while identified to a more limited extent in the governance practices from Buurtstroom and Energie-U. Similarities between the four initiatives are identified in the fact that every initiative organises public meetings in the form of information sessions, and every initiative has shown attempts to lower barriers for participation. However, differences are found in the variety of deliberative spaces. Opportunities for citizens to engage in various decision-making spaces are provided only by Rijne Energie and Oog voor Warmte. Especially in the case of Rijne Energie, an elaborate assemblage of decision-making spaces is organised with different target groups and purposed.

Responsive representation is moderate throughout the four cases and pursued in similar ways. Although qualitative responsiveness to the initiative's known support base is large, inclusive responsiveness proves more challenging: show-up in meetings is low and representation of the interests from non-participants is low. Representatives are generally not reflective of the rest of the participants in terms of gender (respectively male versus balanced) and primary interest (respectively sustainability versus financial reasons). Also, the initiatives do not reflect the rest of the local community in terms of socio-economic level, ethnicity, and sustainability interests. However, also some differences are identified in how the principle is met. Rijne Energie is on the one hand hampered in inclusive representation more than the other initiatives, since the local and interest

community it represents are larger and the interest in these communities more divergent; on the other hand, they successfully pursue attempts to increase inclusive representation of the larger community both in terms of characteristics, and interests and has used creative ways to increase quality of representation within the cooperative. Buurtstroom, Oog voor Warmte and Energie-U have used a survey to increase representation of interests of (potential) participants.

Legal compatibility is fully met by Buurtstroom, extensive for Rijne Energie and Oog voor Warmte and limited for Energie-U. The high presence in Buurtstroom can be described by how it investigated all relevant legal and technical requirements and established status before any of the projects was realised and were well in line with the policy framework and political directives. This can be explained by the longer run up before initiating the initiative: since the initiators were waiting two years for the support scheme to become usable, they had a long preparation time. Also, their decision to hire an expert for all the legal aspects at initiation proved beneficial. Instead, in the other three projects, the regulatory and policy framework was created and adapted along the process, emerging from interactions between initiative and municipality. This explains the very limited presence of legal compatibility in the Meijewetering project of Energie-U, contrasting with the other three initiatives: few formal procedures and requirements existed but these were either unsuitable to the field of (community) energy or were not followed during the process, explained by the complete lack of experience at the municipality with this type of energy initiative. A municipal official explained how Meijewetering of Energie-U was the very first large-scale CRE project, when "there were no frames at all. There were too little." (R15)

The principle of *transparency* is extensive in all initiatives. All initiatives appear highly transparent about goals, interests, risks and alternatives. Moreover, there is a role for (independent) research for every initiative. Each initiative provides extensive information to citizens and does explanatory attempts. However, Rijne Energie and Oog voor Warmte pursue the indicators from the analytical framework more devotedly than Buurtstroom and Energie-U. Rijne Energie shows extensive to full transparency by the openly sharing all types of documents about the process, deliberation, plans and content from the municipality, research sources, partnering organisations and its own cooperative. Also, it repeatedly provides explanations in a variety of ways. Oog voor Warmte has set up an elaborate and professional long-term communication plan including different target groups. Although Buurtstroom and Energie-U are also very transparent and informative, they do not much exceed the extent that is required for a successful and legitimate project in the way that Rijne Energie and Oog voor Warmte do. What moreover appears from the analysis is the different roles of independent research between cases: for Buurtstroom and Oog voor Warmte this research was primarily for own technical use, whereas for Rijne Energie and Energie-U, its primary purpose to increase external transparency and provide clarity about expected project impacts towards stakeholders.

The *quality of participation and deliberation* is met to a moderate extent by Oog voor Warmte and Energie-U, whereas Buurtstroom shows a more limited presence in its first two stages, and Rijne Energie shows a more extensive presence in its first two stages. Differences and similarities are described along five aspects. A first similarity is identified in the governance structure of each initiative. This structure puts most decision-making power with the initiators of the project and with the board member(s) of the corresponding cooperative. Next in line are stakeholders who must be

convinced to collaborate for the project to succeed, who hold a stake or ownership of the location and this always proves challenging; and lastly, decision-making power lies with the residents who live close to the project and/or become participants. A second similarity is found in the fact that, in every case, one or two organizations are involved that provide the missing professional expertise, hired by the cooperative, and in some cases joining as a project partner (Rijne Energie, Energie-U). These experts and the initiative representatives operate on an equal footing: community input, organizational experience and technical know-how are combined in decision-making. Third, each initiative struggles to uphold the quality of the debate in the interaction with residents, affected by the required level of expertise and protection of weaker interests. Rijne Energie and Oog voor Warmte use education and content-related information provision as tools to overcome these barriers. However, a difference can be identified in the decision-making character of the initiatives. In the Buurtstroom projects, the Meijewetering solar field and the district heating network of Oog voor Warmte, participation and deliberation are similar in that they are governed by primarily pragmatic decision-making: how to generate as much energy as possible (within legal confines) with a most beneficial business case. Instead, in the decision-making process of Rijne Energie, there is more room for participation and deliberation, explaining the slightly higher presence of this principle in this case. However, Rijne Energie stands out negatively regarding the presence of conflict resolution instead: although each initiative pursues peaceful conflict resolution with stakeholders, this was not fully met by Rijne Energie.

Accountability of decision-makers is almost fully present in Rijne Energie and Buurtstroom, both increasing between the first and last stage, extensive for Energie-U and more moderate in Oog voor Warmte. A similarity is found in that all representatives report on actions and outcomes to project participants and members. However, a first difference is identified in how and to what extent consent is asked for and provided. In Oog voor Warmte, consent is not present. In Buurtstroom and Energie-U, consent from participants is needed only in a yearly assembly regarding financial policy, and in Rijne Energie, consent from members is more often (implicitly) asked and provided on a variety of aspects. Also, in Buurtstroom projects, the Meijewetering project of Energie-U and the energy landscape in Rijnenburg, the project team in turn needs consent from the board to make (financially) impactful decisions, like officially starting project development. A second difference is found in feeling of external responsibility, where Rijne Energie positively stands out. In each initiative, the initiators and project team are not generally aware of their responsibility towards the (local) community, whereas a board feels a stronger responsibility in this regard. However, Rijne Energie is the only initiative that is also pursuing accountability to the non-participating community. A third aspect is found on which one of the initiatives differs, in this case Energie-U: agreements on risk coverage and quality of service are ultimately issued in each initiative, but in the Meijewetering project, this took more time and hassle to get established than with other initiatives.

Responsiveness of decisions appears challenging for CRE initiatives, but they still manage to uphold the principle in a moderate to high extent. This principle is met moderately in Oog voor Warmte, moderately to extensively in Buurtstroom, and extensively in the Rijne Energie and Energie-U. Similarities are found in in how opinions are generally weighed on equal footing in decision-making, despite of who holds most professional expertise, and in coming to workable agreements. Decisions by members are made with majority rule and with equal voting power and by representatives in the project team through consensus. In every case, there are no indications that a minority was unhappy

with the final decision, since they are always made for the benefit of the public good. A difference can be found in the direct responsiveness to input from citizens. For Oog voor Warmte and Buurtstroom, many concerns and desires are initiated by residents but are often not considered realistic by decision-makers due to technical and financial constraints, resulting in a gap between the extent to which the principle is pursued and met. Responsiveness by Energie-U is higher because citizen input is limited and participants are little opiniated. For Rijne Energie, responsiveness is challenging in this regard because the demands of citizens are outcome focused, but it responds to this by being highly responsive in the means: instead of letting go of their wind turbine plans, it extensively limits nuisance in the design of the project and plan for local benefits.

Lastly, *effectiveness and efficiency* are present to varying degrees across the four cases. The initiative Buurtstroom managed to meet effectiveness and efficiency throughout the stages. Although some deficiencies on this principle are identified in some of its projects, they learned from this and effectively adapted their procedure, resulting in a currently fully effective and efficient process. In the other three cases, there is again a significant gap between the extent to which the principle is pursued and to which it is met. Rijne Energie and Energie-U appeared less effective and efficient than expected beforehand, whereas Oog voor Warmte was aware beforehand of its deficiencies but fails to become more effective and efficient in the future.

To conclude: similarities in principles are primarily found in the extent to which the initiatives meet the principles of transparency (extensive), quality of participation and deliberation (limited to moderate), responsive representation (moderate) and responsive decisions (moderate to extensive). The strongest differences are identified in the realised degree of open participation (fully present for Energie-U and Oog voor Warmte, limited for Buurtstroom and Energie-U) and effectiveness and efficiency (various). In the next section, municipal support is compared between cases.

8.3. Similarities and differences in municipal support

First, the municipality has proved to be either very supportive or very unsupportive in *open agenda setting*. Although they pursued to be supportive in every initiative, their attempts appear hardly successful for Buurtstroom and Energie-U, in both cases because their provided locations proved to be unfeasible. In the case of Rijne Energie and Oog voor Warmte, the municipality invited initiatives to put their concerns on the political agenda and provided them with the opportunity to set their own goals and conditions.

For *open participation*, the municipality was very supportive for Oog voor Warmte and Rijne Energie, however with mixed effects on other principles for Rijne Energie. In the case of Oog voor Warmte, the municipality added deliberative spaces in which Oog voor Warmte was invited and facilitated to grow; while in the case of Rijne Energie, the municipality was supportive by providing additional spaces that provided input from stakeholders to initiators like Rijne Energie to adopt. The purpose for Oog voor Warmte was thus different than for Rijne Energie, although they were at that time at a similar stage. For the other two cases, no indications of a supportive role for open participation were identified.

The municipality was again supportive of r*esponsive representation* in Rijne Energie, through representative requirements and by inviting a diversity of representatives from stakeholders in

participation. Instead, they were only supportive to a limited extent for Buurtstroom and Energie-U in this regard, showing some attempts but with mixed results in Buurtstroom. There have been no indications of support for this principle in Oog voor Warmte.

Unsurprising is the significant municipal role for *legal compatibility* in all four cases, however supportive to varying degrees. For Rijne Energie, the municipality has been extensively supportive; for Buurtstroom and Oog voor Warmte moderately supportive, and for Energie-U support was very limited, however increasing when the municipal knowledge and compatibility was enhanced. In every case, policies were adapted to include a role for these initiatives. In the case of Energie-U and Rijne Energie, the regulations and procedures were even adapted. This flexibility and adaptability of policies is highly valued by officials: "All these projects proceed differently. Every situation asks for something else. So these frameworks are killing for good projects" (R15); "Natural shaping of the process works better than writing down how the initiatives must relate themselves to the system: that would neglect the opportunity to offer customization. Every initiative is different and not to be put on one line" (R20). However, for Energie-U, the absence of suitable frameworks and procedures was so significant that the municipality was in fact unsupportive to the initiative.

Transparency is supported by the municipality to some extent in each initiative, although more in one than the other. Buurtstroom and Oog voor Warmte were extensively supported, both through promotion via municipal channels and granted subsidies for communication and information provision. Rijne Energie and Energie-U also made use of municipal channels but additionally were negatively affected in the transparency of their project: the municipality was unclear about their goals and conditions for the process to come to the project, which complicated communicating clear procedures and staying transparent on their own goals and interests towards the community.

The support for *quality of participation and deliberation* shows very mixed results between the four cases: it was extensively supportive for Oog voor Warmte, while being unsupportive for Rijne Energie, limited for Buurtstroom and absent for Oog voor Warmte and Energie-U. The strength in the case of Oog voor Warmte is found in the ability to bring together the initiatives with each other and with stakeholders to promote knowledge sharing and to create a powerful collaboration in a controlled level playing field. In Rijne Energie and Buurtstroom, the municipality has been unsupportive of negotiations with stakeholders that are necessary for providing the project location. This can be explained by the inability to understand and protect weaker interests in the negotiation. In the Meijewetering project of Energie-U, there are no notions of support for this principle.

The municipality has been moderately supportive of the *accountability* of decision-makers, similarly across the cases. In each case, the municipality subsidised the establishment of a cooperative, which increased internal accountability. In the cases of Rijne Energie and Energie-U, accountability for consent to plans from the initiative ultimately lies with the municipality, and they are supportive of accountability by establishing responsibilities in formal agreements and providing a permit. The municipality holds itself accountable for governance failures in the project via checks and balances between the council, the college and the project managers. In Buurtstroom, accountability is required and pinned down when the municipality is roof owner, and in both cases, subsidies required reporting from the initiators.

Responsiveness of decisions has been supported to different extents. The support the municipality provided is the ability to receive feedback on draft plans regulated via formal channels that can then be implemented in final plans; and to provide subsidies to increase choice opportunities in a more viable business case. The first was primarily true for Rijne Energie, and the second more applicable to Buurtstroom. Oog voor Warmte and Energie-U have not been supported or hampered in the responsiveness of their decisions.

Lastly, *effectiveness and efficiency* have been supported to highly varying degrees. The municipality was moderately supportive in Rijne Energie, Oog voor Warmte and Buurtstroom. It was supportive to a limited extent in the case of Energie-U, having adverse effects on the efficiency of the project. Support for the effectiveness of all initiatives was primarily dependent on granting subsidies, information provision, procedural guidance and providing locations, while slowing the process down through inefficiencies internal to the municipal system.

Concluding, the municipality was overall primarily supportive in the principles of transparency, closely followed by open agenda setting and legal compatibility. Municipal support for Oog voor Warmte had only positive effects and the initiative is dependent on this support on their survival. Support for Rijne Energie and Buurtstroom was moderate to extensive, but also shows some unsuccessful or even adverse impacts. Rijne Energie and Energie-U are both much dependent on the municipality for providing consent at formal decision-making points, granting rights and permits and steering them through municipal procedures and requirements. However, this proved significantly more successful in the case of Rijne Energie than Energie-U, since in the former, the project developer had already learned from the latter.

8.4. Similarities and differences in stage-related patterns, trade-offs among principles and the role of municipal support

The trade-offs between input, throughput and output principles are made differently for each case. In Buurtstroom, there is a larger difference between principles and stages than is the case for the other three cases. In Buurtstroom, the highest presence of principles is found in output principles rather than input and throughput principles; in Oog voor Warmte, there is trade-off between input and throughput principles as opposed to output principles; in Energie-U, there is a focus on throughput principles as opposed to input and output principles; and in Rijne Energie, there is no clear difference in the extent to which either input, throughput or output principles are met. When considering the trade-offs between stages, the democratic legitimacy of Buurtstroom generally increases along the stages, primarily in throughput and output principles. In Rijne Energie, also a slight increase in democratic legitimacy is visible.

When comparing the four cases across stages and when interpreting differences and similarities in stage-related trade-offs, the comparability of the stages itself must be considered: 1) Oog voor Warmte is comparable to the first (feasibility/initiating) stage of Buurtstroom, 2) Energie-U is comparable to the second (project development/growing) stage of Buurtstroom and 3) Rijne Energie can be considered the odd one out since it is treated as spatial planning project, but it can be compared to Oog voor Warmte or the first (feasibility/initiating) stage of Buurtstroom: permits are requested and the viability of the business case is calculated. The project stages are separate from

the maturity phases of the initiative. To clarify the projects stages and paralleling phases of the initiatives, the following figure is presented (Fig 2).

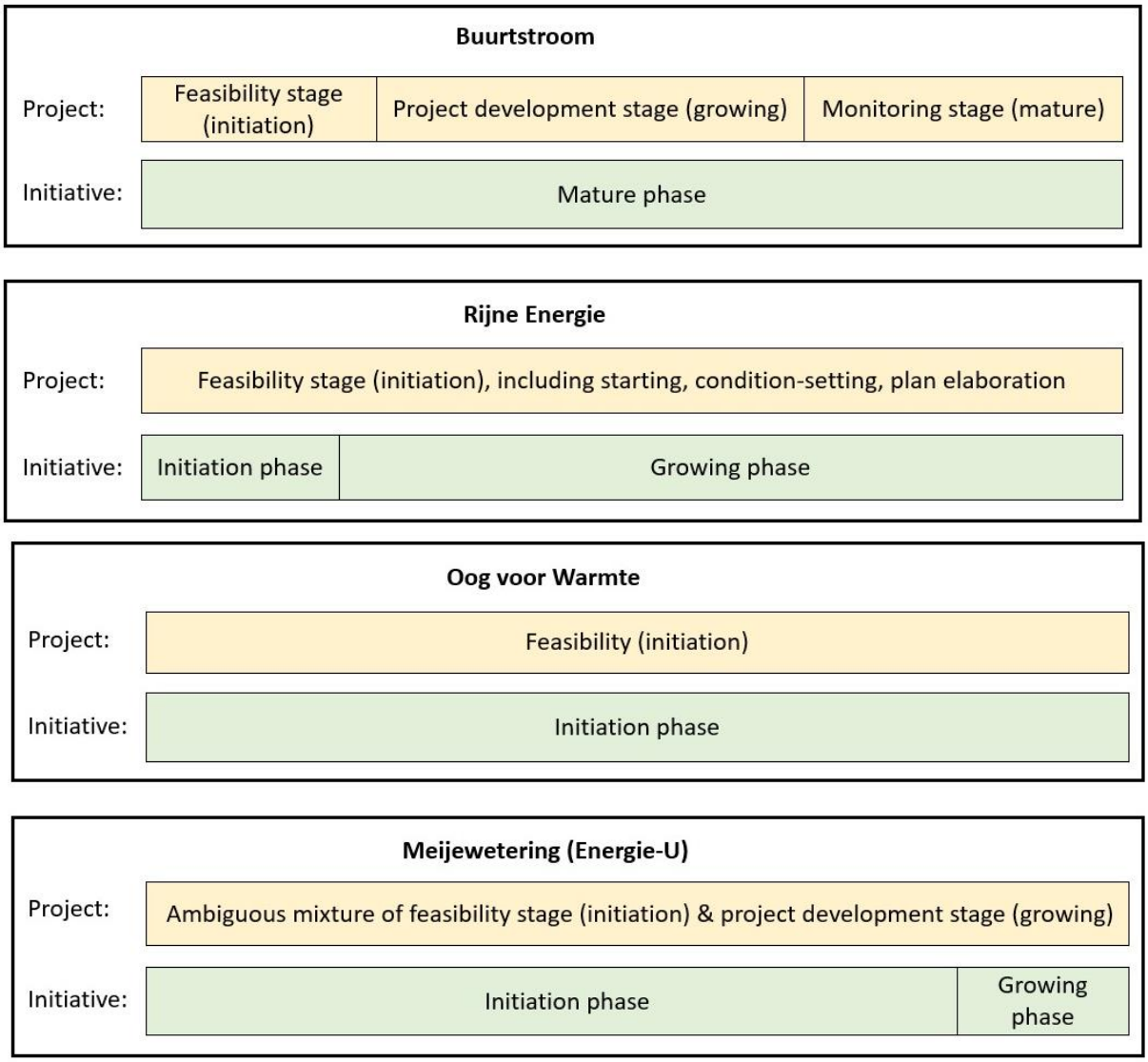

Figure 2: Initiative phases and project stages of the four CRE initiatives

In both Oog voor Warmte and Rijne Energie, input and throughput principles are important since their stages are primarily dedicated to mobilizing the community to bring in concerns and expertise, and to have smaller group that conducts feasibility investigations and set out strategic steps. By Energie-U, a focus is on quality of participation and deliberation in the project team to come to technically and financially viable case and transparency towards the community, similar to the second Buurtstroom stage. However, it scores lower on output principles than Buurtstroom in this stage with regards to how it is met, not how it is pursued.

When zooming out, the democratic legitimacy of initiatives in general terms behaves like a pendulum between principles of participation, deliberation and representation. First, the agenda is opened to the community to (co-)initiate a project and communicate concerns. Then, a small group of active citizens and stakeholders work out the project conditions and design into problem-solving negotiations based on reason, expertise and represented interests. Next, the process opens up to the

community to present a draft plan, to which the community can respond; subsequently, the decision-makers discuss privately how and why to implement community feedback. Ultimately, a final plan is presented while decision-makers account for its responsiveness, leaving the choice to participate with each resident individually.

A recurring theme influencing democratic legitimacy and pressuring representatives towards making trade-offs among principles, is the important role of expertise. The governance of CRE initiatives is characterised by technical, legal, financial, political and organisational complexity. At the same time, energy democracy prescribes fully informed and educated decision-making by the local community, participating directly and inclusively in decision-making; while upholding deliberation that is understood by all participants, and coming to smart decisions together. Initiatives dealt with this challenging role of expertise quite adequately: initiators and board members of CRE initiatives functioned as a spider in the web of community knowledge, stakeholder input and professional expertise, combining this effectively and transparently in decision-making. However, the role of expertise remained at times challenging, limiting open participation, quality of participation and deliberation and accountability.

When comparing the differences and similarities in the interaction between municipal support and the democratic legitimacy of the initiative, several things can be noted. First, the presence of input and throughput legitimacy in the initiatives Rijne Energie and Oog voor Warmte can for a significant part be explained by municipal support, whereas in the case of Energie-U and Buurtstroom, only the presence of throughput principles could (partly) be explained by municipal support. Second, Oog voor Warmte was only positively influenced by municipal involvement, whereas in the other three cases, the municipality had mixed effects on the democratic legitimacy of the initiative. Third, the extent to which the initiatives were dependent of their democratic legitimacy on municipal involvement differs. This appears to be dependent at least partly on a) the extent to which the initiative has access over resources that are needed to organise its governance in a democratic way, and b) whether the municipality has control over the intended location. The first factor explains the strong dependence of Oog voor Warmte on the municipality to be democratically legitimate, and the second factor explains why Rijne Energie, Energie-U, and two of the Buurtstroom projects, are strongly involved with and therefore dependent on the municipality.

8.5. Interpreting similarities and differences of democratic legitimacy between cases

The differences and similarities between cases in their democratic legitimacy can be explained with other reasons than just municipal support and the stage they find themselves in. Factors that were formulated beforehand include 1: maturity (membership size, experience, professionality) and 2: energy form (novelty, acceptance, technical complexity). Two additional factors that appeared inductively include 3: the local stakeholder arena (diversity of perspectives and interests, governance complexity) and 4) the characteristics of the location (owner, potential project size, technical practicalities). These factors imply a strong role of technical expertise, local (community) knowledge and communication/negotiation tools. The effect of each factor on the democratic legitimacy of CRE initiatives is explained in this section.

The maturity of an initiative, first of all, influenced democratic legitimacy based on the size of the initiative. As the initiative grew, it became more dependent on responsiveness from a small group of

members acting as representatives of the initiative. This challenged representative decision-making, since participant attendance in governance spaces decreases. Also, upholding qualitative participation and deliberation became more challenging when the group of participants grew. Secondly, the experience of the initiative negatively influenced the openness of the process, because a small group of active participants that have become familiar with the process legitimise closed decision-making based on efficiency. While positively influencing effectiveness and efficiency, this negatively affected open agenda-setting, open participation and responsive decisions. Third, professionality in a CRE initiative is strongly dependent on its legal form: when established as a cooperative, responsiveness, quality of participation (and deliberation) and accountability became more actively present. Professionality also included the involvement of (paid) experts in governing the initiative, which had mixed effects for the quality of participation and deliberation and positively influences output principles. Concluding, maturity generally decreased input principles and increases output principles. Buurtstroom is illustrative of how maturity influenced decision-making.

The energy form on which the initiative focuses was a factor for democratic legitimacy in various ways. First, novelty was determining in the absence and unsuitability of a regulatory and policy framework, positively influencing agenda-setting and negatively influence legal compatibility. Also, novelty increased the necessity of expert mobilisation, since not all knowledge is held or easily available to decision-makers. Novelty was somewhat intertwined with the second aspect of energy form, namely the acceptance of the project. Solar roofs are easily accepted by the community, because citizens are familiar with the process and impacts; the impact of wind on land is less accepted because impacts are yet ambiguous; and the district heating initiative is so novel that the community is little interested – which all affect the quality of participation and deliberation and the responsiveness of decisions. Third, technical complexity of the energy form increases the role of expertise and the variety of mixed effects this has input, throughput and output principles of democratic legitimacy. Together with the novelty of the energy form, it increases the need of expert mobilisation. This factor partly explains why Buurtstroom can be very efficient, whereas Oog voor Warmte has trouble upholding most throughput and output principles but more strongly meets input principles and transparency.

A third factor, that appeared inductively from the analysis, is the local stakeholder arena. When the stakeholder arena hosts a variety of perspectives and interests, this increases the need for open agenda setting, open participation, qualitative participation and deliberation and accountability. However, it also complicates the ability to uphold the quality of participation and deliberation and responsive decisions, because stakeholders are likely to disagree with each other and with the initiative. Negotiations between the initiative and stakeholders appeared challenging and could result in consensus agreements or lead to unresolved conflicts. Rijne Energie is illustrative for this how this factor has determined its democratic character and why its process is so open, and accountability is high. A second element is the governance complexity. When there is a high number of stakeholders involved and a variety of governance spaces exists, this emphasises the need for pursuing transparency and qualitative participation and deliberation, but also strongly complicates meeting these principles. This explains why Rijne Energie and Energie-U are extensive in their information provision and repeatedly clarify the process.

A fourth and last factor is the location. The elements that are distinguished here are ownership, project size and technical practicalities. First, municipal ownership increased the dependency on a successful cooperation between the initiative and the municipality, and subsequently increased the likelihood of meeting the principles legal compatibility and accountability. Where residents were the (co-)owners, this positively influenced the openness of the process. Where private stakeholders were the owners, this complicated quality of participation and deliberation. Negotiations between the initiative and the location owners generally appeared challenging for effectiveness and demonstrated a need for (often lacking) negotiation tools. Ownership thus had mixed effects. Second, the size of the project that is practically possible based on location-specific characteristics, influences the number of people able to participate and the business case of the project. Consequently, a larger project size positively influenced open participation, quality of participation and deliberation and responsive decisions. Last, the technical practicalities of the project can influence democratic legitimacy. In the Meijewetering project, energy landscape Rijnenburg and Buurtstroom roofs, location-specific constraints such as the suitability of the soil and the strength and durability of the roof affected the feasibility of the project and the project design, thereby limiting choice opportunities.

The above interpretations of the differences and similarities can explain the democratic character of each initiative. First, Buurtstroom is characterised by an efficient mobilisation of expertise, deals with a manageable stakeholder arena; has been professionally organised from the start and has built up experience. Together with a relative independency from the municipality, and three key stages that is has followed many times, its democratic legitimacy is relatively high and characterised by legal compatibility, transparency, (increasing) accountability and effectiveness and efficiency.

Second, Rijne Energie deals with a complicated stakeholder arena, but it behaved professionally both internally and externally and it grew in membership quickly, and it partnered with experienced companies who tackle technical complexity. Adding to this its strong relation with the municipality and process stage, its democratic legitimacy is very high and characterized by open agenda setting, open participation, legal compatibility, transparency and accountability.

Third, Oog voor Warmte is centered around a novel, complex and impactful energy form, in which it holds no specific expertise, and more professionality and membership is needed than is currently the case. Combined with the absence of an administrative position, lack of policy framework and unsuitable regulation and support schemes, it struggles to meet principles of democratic legitimacy on some aspects. Its democratic legitimacy is characterised by openness and transparency, while the role of expertise complicates participation and deliberation and limits output principles.

Fourth, Energie-U is plagued by technical complications and a subsequent barely viable business case, lacks professionality and experience and dealt with a complex stakeholder arena; however, experience grew over time and expertise is brought in by external parties. Combined with an unsupportive regulatory and procedural framework coming from the municipality and the stage it finds itself in, it struggled to uphold a moderate level of democratic legitimacy. Although democratic legitimacy was high within the project team and Energie-U, interaction with the community was limited and so were input and output principles.

9. Discussion

9.1. Theory testing

This is the first study that uses a novel comprehensive analytical framework to systematically evaluate the democratic legitimacy of a CRE initiative: other evaluations focus on only one or a limited set of democratic principles. By doing so, the findings contribute to testing theory in two different ways. First, theoretical relevance can be found by testing the ascribed democratic role of CRE initiatives in energy democracy. Second, the framework allows to provide nuance to claims of democratic legitimacy in decision-making of CRE initiatives based on analytical distinctions between principles, project stages and the role of municipal support, and by making these distinguishments, conflicting scholarly claims about general trade-offs between principles were tested and complemented by insights into how these are expressed in CRE initiatives. These two aspects are further explained below.

First, the democratic legitimacy of CRE initiatives, that has so far been assumed rather than tested, is thoroughly and systematically evaluated. Whereas most scholars only present or even assume the democratic contributions of CRE initiatives (Becker & Naumann, 2017; Berka et al., 2018; McCauley & Stephens, 2017; Rydin & Turcu, 2019; Szulecki, 2018) few have critically evaluated this in practice (Van Veelen, 2018). In the first place the results of this research counter the assumption that CRE initiatives are necessarily democratically legitimacy. The assumed democratic legitimacy appears to be partly present when considering the findings described in sections 4.2, 5.2, 6.2 and 7.2: principles of democratic legitimacy are met quite extensively. However, the research has shown in various ways that CRE initiatives also have democratic deficits. The results show a variety in the extent to which principles are met, with some principles only sparsely pursued or met by CRE initiatives. Notably, the principle of responsive representation is met only moderately, which undermines the claim that community initiatives are representative of their local community. To conclude, the theoretical suggestion that CRE initiatives are a democratically legitimate governance form is true generally speaking, but it is not right to automatically assume full democratic legitimacy of each initiative.

Secondly, results on the role of trade-offs in interpreting the results on democratic legitimacy, inherent input/output and procedural/substantive contradictions claimed by democratic theorists are barely identified; However, neither can the theoretical claim that these principles necessarily go together be affirmed. Instead of showing a significant “either A or B” or “if A, than B”, results show dependencies between principles that differ per situation and follow from reasoned trade-offs based on practical constraints and perceptions of legitimacy; and often, a combination of both. This resembles with and more elaborately describes findings from Van Veelen (2018), that show that energy cooperatives are usually governed according to a mixture of participatory and representative elements of democracy, and the combined pursuit of substantive and procedural forms of legitimacy (Connelly et al., 2011, 2020; Cowie & Davoudi, 2015); with the balanced presence varying between initiatives based on the legitimacy perceptions and activities of governing actors.

By more systematically demonstrating if, how and why trade-offs between principles occur in CRE initiatives, a theoretical contribution is subsequently made here. A variety of local and contextual characteristics define the democratic character of an initiative and the trade-offs between principles that are made. What is repeatedly observed in initiatives where an extensive amount of case-specific

knowledge is required for fully grasping the process and choice opportunities, combined with strong financial and time constraints and a large-sized initiative, is that this results in following reasoned trade-offs by governing actors: decision-makers tended to focus on more representative forms of democracy, pursuing transparency, accountability and responsive decisions to support this, rather than organising open agenda setting, open participation and various opportunities to influence discussions. This can moreover be explained by the legitimacy perception of actors that are in the first place outcome-focused and believing that results can more efficiently be achieved via representative forms of democracy.

9.2. Scientific contributions

This research builds logically on previous studies of CRE, following earlier work and taking it one step further: it builds upon the transitional, organisational and critical questions from the last decade, and provides scientific novelty by applying a traditional analytical framework of democratic legitimacy from Bekkers and Edwards (2007) to the system-level promises of energy democracy. By combining theory of democratic legitimacy with energy democracy, this research has provided new insights that complement studies that have so far been characterised either by principles and indicators unsuitable to CRE initiatives as part of a democratic system; or that on an abstract level provide empty promises of energy democracy that lack analytical capacity to test democratic legitimacy. By doing so, it 1) adds empirical insights to the dimension of decision-making to the body of literature on energy democracy, that has so far primarily focused on material aspects of democracy (Kunze & Becker, 2014), 2) leads to theoretical findings on governance spaces and the gap between 'meeting' and 'pursuing' democratic legitimacy, that appeared inductively when conducting the analysis, 3) adds novel findings to the role of the municipality in strengthening democratic legitimacy in the governance practices from CRE initiatives, 4) identified factors of difference and similarity between the democratic legitimacy of initiatives, 5) leads to theoretical findings that appeared inductively from the research on how energy democracy differs from and complements theory of democratic legitimacy, and 6) methodological contributions are made by the novel framework that was created, applied, and in this section evaluated and given several recommendations for improvement.

First, insights follow from not only testing the extent to which CRE initiatives are democratically legitimate (see section 9.1), but also from investigating *how* these principles are pursued. Common activities that show how democratic legitimacy is pursued include public information sessions where plans are presented and questions are answered plenarily; information provision via regular newsletters, flyers and door-to-door conversations; and accounting for performance and financial policy via general assemblies. Most decision-making takes place in a small project team consisting of representatives of the initiative and its private or semi-public partner(s), and in cases in which the municipality is involved in the location, a public project manager as well. Negotiations with a variety of local stakeholders is always necessary, often resulting in consented agreements from which the initiative and the stakeholder both benefit. All initiatives have performed pioneering work to set the agenda, they have inspired the adaptation of policies and regulations and they have conducted independent research. Additional benefits are incurred in some initiatives by increasing ecological value, organising educational activities and sharing revenues with the wider community via an independent local fund. What these discoveries illustrate is that CRE initiatives pursue democratic principles in various, innovative ways and construct their legitimacy by creating unique democratic successes, with signs of positive spill-overs to the institutional context in which it is embedded. It

hereby also provides empirical backing to the perception of democratic legitimacy as a construct rather than a pre-given (Connelly, 2011).

Second, two findings on the democratic legitimacy in CRE initiatives appeared inductively when conducting the analysis. The first finding is that the democratic character differs significantly in different governance spaces. Whereas deliberation and participation with the wider community is mostly organised with an open and informative character (participatory); decision-making within a project team is characterised by problem-solving, reasoned arguments and making use of different sources of expertise (deliberative); and within a cooperative, decision-making is primarily based on an interaction between members, and members and a board, based on responsiveness (representative). Negotiations with stakeholders are primarily focused on negotiations and conflict resolution (deliberative). These findings provide a theoretical contribution since they overcome a false duality of internal/external legitimacy that is common in the literature and that does not exceed a distinction between "within", "between" and sometimes "beyond" initiatives (Provan & Kenis, 2008; Van Bommel & Höffken, 2021). The second finding is an identified gap between the pursuit of democratic principles and the extent to which these are met in practice. This was especially true for output principles: responsive decisions, effectiveness and efficiency. This finding resembles with - and provides more elaborate empirical refinement to - the study of Van Veelen (2018), who recognizes the democratic intentions and ambitions of CRE initiatives, but also identifies constraints in meeting these principles in practice.

Third, when testing the role that energy democracy theorists ascribe to CRE initiatives as drivers of a democratic energy transition, this included investigating the democratic effects of municipal support, which had never been investigated before and subsequently yielded novel results. In general, where the municipality offered support to initiatives to create a positive impact on the democratic legitimacy of project governance, this also increased the democratic legitimacy of governance practices from the initiative. However, the opposite is also true: in cases where the municipality was inconsiderate of the (potential) impact of its involvement on the democratic legitimacy of the project, this hampered the role of CRE initiatives as democratic agents in legitimising energy governance. This shows that the democratic role of CRE initiatives in a legitimate energy system is partly dependent on its interaction with the (local) government. This finding complements empirical studies of general municipal support of CRE initiatives and theoretical contemplations of how the energy policy and legal frameworks can create a role for CRE initiatives in democratising the energy system, and responds to an identified knowledge gap in investigating the interaction between municipality and initiatives for democratising energy governance (Burke & Stephens, 2017; Hendriks & Dzur, 2021; Heldeweg & Saintier, 2020; Hendriks & Dzur, 2021; Igalla et al., 2019, 2020).

Fourth, by conducting a comparison of the democratic legitimacy between the initiatives and interpreting these based on the elaborate analysis of how principles were pursued, this resulted in the identification of four factors explaining their differences: 1) maturity of the initiative, 2) energy form of the project, 3) the stakeholder arena and 4) location-specific practicalities. Maturity has been mentioned before in the organisational studies of CRE initiatives, while my results only partly endorse these studies: although maturity increased output principles, it had mixed but predominantly negative effects on input and throughput principles (Becker et al. 2017; Kunze & Becker, 2014; Lowitzsch & Hanke, 2019). It was moreover found that maturity influenced democratic

legitimacy based on membership size, experience and professionality, whereas earlier studies focused on only one or two of these elements. The other three factors are newer to the literature, of which energy form (novelty, acceptance and technical complexity) was deliberately used in case variance, while the stakeholder arena (diversity of perspectives, governance complexity) and the location specifics (ownership, project size, technical practicalities) appeared fully inductively from the research. These findings partly resemble with literature that ascribe these factors to the local acceptance of CRE initiatives but add insights by its comprehensiveness and nuance: all four factors did not simply either positively or negatively influence democratic legitimacy, but had mixed results based on its different elements (Fischer, 2000; Jolivet & Heiskanen, 2010; Walker et al., 2010).

Fifth, a contribution is made by combining theory on democratic legitimacy with the concept of energy democracy. During the analysis, it appeared that using indicators based on energy democracy yielded different conclusions than would likely have been the case when more traditional understandings of democratic legitimacy had been used. For example, energy democracy places a strong emphasis on direct and inclusive participation, whereas the principles as they were interpreted by Bekkers and Edwards (2007) were based on representative democracy. This increased the evaluated democratic legitimacy of CRE initiatives, since they appear to pursue and meet a mixture of participatory and representative democracy; aligning with an earlier study by Van Veelen (2018). A second example follows from what was discussed already in the case of Rijne Energie, where a fair division of participation and decision-making power has a different meaning in energy democracy than in traditional understandings of democratic legitimacy, because of the added focus on prioritising those affected *in their energy provision.*

Additionally, energy democracy stands out from other strands of democratic legitimacy in its unique emphasis on expertise, which had a profound impact on the democratic legitimacy of the CRE initiatives. Expertise has a theoretical role in input, throughput and output principles, but upholding this role while meeting principles of democratic legitimacy appeared complicated for initiatives and resulted in trade-offs between principles. These three findings contribute, first, to theoretical relevance by demonstrating how governance of CRE initiatives in practice resembles more strongly with theoretical understandings of energy democracy than with a traditional interpretation of democratic legitimacy. Second, a methodological contribution follows from this: by combining principles of democratic legitimacy with indicators of energy democracy, a useful analytical framework to evaluate CRE initiatives has been developed in the research design.

Sixth, I propose two adaptations to this analytical framework to draw more nuanced conclusions and connect these to theory: A) effectiveness and efficiency were combined in one category due to the little relevance awarded to it in decision-making for energy democracy. However, they both appeared relevant principles in the legitimacy perception of the involved actors and were pursued and met in different and sometimes conflicting ways. It can therefore enhance analytical nuance to split them again into two different categories. In addition, a theoretical addition to energy democracy is made by demonstrating how the 'effectiveness and efficiency' of decision-making forms a connection to the more material dimensions of energy democracy. The study shows that CRE initiatives decision-making strongly pursue local-environmental outcomes in decision-making and are in many cases substantively oriented, resembling an emphasis on the elements of climate mitigation, community ownership and fair benefit distribution in energy democracy. Also, initiatives aim to come

most efficiently to decisions and outcomes, based on their limited resources and capabilities coming from their voluntary nature as emphasized by energy democracy scholars. However, there appeared a large gap in the extent to which this is pursued and met: democratic decision-making does not necessarily lead to material democracy as promoted by energy democracy theorists. Investigating this link within energy democracy further would be a recommendation for further research.

B) A second analytical adaptation is suggested to the quality of participation and deliberation. This category has proved too conceptually large to make unilateral conclusions, even if the principle reflects the understanding of democracy as deliberative and participatory, a key baseline for energy democracy. In future research, it can be recommended to split this into 'quality of participation' and 'quality of deliberation', where the former includes the equal opportunity to make reasonable arguments and influence discussions, and the latter focuses rather on the pursued dynamics in decision-making, including consensus-seeking or majority voting in coming to a workable agreement while celebrating disagreement. By making this distinction, democratic principles of equality and quality are conceptually distinguished.

What appears from this list of scientific contributions, is how the cutting-edge research subject of CRE initiatives is treated in a likewise cutting-edge analysis, by using 1) a relatively novel theoretical concept, 2) a novel analytical framework, 3) a nuanced analytical focus on different stages, and 4) investigating under-researched trade-offs and municipal support. This has yielded results on the frontiers of science.

9.3. Societal contributions

When translating these findings to their practical use, this can be divided into 1) a contribution specific to the key actors in this study, and 2) a more general contribution to CRE initiatives as a form of democratic governance.

First, the results provide useful insights to the CREs under investigation. Interviews showed that respondents were sometimes unaware of and curious about how their perspectives of democratic legitimacy differ from other stakeholders, and whether their initiative would be regarded as democratically legitimacy in this research and why. Also, some respondents expressed their earlier ignorance of some aspects of democratic legitimacy and the intention to pursue this in the near future. Moreover, respondents were curious about whether they pursued democratic legitimacy in the same way and faced the same barriers as other initiatives under investigation. These communicated curiosities and ignorance demonstrate the contribution of the evaluation of this research by increasing the understanding and awareness with stakeholders in the CRE domain. This can in turn be used by them to increase democratic legitimacy.

Secondly, the study contributes to society in a more general sense. Since the municipality of Utrecht can be considered a pioneer in facilitating the emergence and growth of CRE initiatives, the geographical scope of the study provides new and insightful results of best practices and lessons learnt of the municipal role in influencing democratic legitimacy. The findings provide policymakers with insights into the democratic potential of community initiatives as a legitimate energy agent. This can take away their hesitance about whether community initiatives should be recognized in the governance of a future energy system. The findings provide scientific arguments to recent policy

directives at all levels of policymaking that promote the facilitation of energy communities in the governance of the energy sector.

More importantly, it includes insights into the potential role of (local) governments in supporting initiatives to drive the energy transition in democratic and legitimate ways, while avoiding adverse democratic effects from inconsiderate involvement, for example by exacerbating inequalities from making the false assumption that CRE initiatives are necessarily democratic or representative of the community (Brisbois, 2020). This is highly relevant, since research shows that officials in Utrecht legitimize CRE practices by falsely pointing to the community initiative as evidence for local support. Instead, considerate support from policy makers can contribute to the earlier described substantive and normative benefits of a democratically legitimate transition, including a higher efficiency due to public acceptance, more qualitative decisions from combining expert and community input, and an ultimately more just energy system. The necessity of collaboration in setting up democratic procedures for the success of the energy transition is recognized and emphasized by all stakeholders, ranging from residents to initiators to regional energy decision-makers.

9.4. Limitations

Limitations can be identified on internal and external validity and the knowledge gaps left behind. Internal and external validity is touched upon in this section. Theoretical and empirical knowledge gaps left behind can inspire other scholars, which is touched upon in the next section on recommendations for further research (section 9.5).

The first limitation touches upon reliability (internal validity). The reliability of the findings can be questioned based on the unavoidable limitation of data and the constructive nature of knowledge. The core of the research is based on in-depth interviews, which faces inherent limitations of time (not all questions could be discussed) and human errors (misunderstandings, personal experience influencing the 'facts', or deliberately disguising ugly truths). This is especially relevant for this research, since some cases showed conflicting perspectives from respondents. Secondly, desk research draws findings from the documents that were analysed, but documents that were not analysed may present divergent results. However, cross-triangulation of sources and methods has been applied, and experts with knowledge about the initiatives have reflected upon the results, to increase internal validity. Also, the inclusion of a variety of perspectives in interviews as well as analysed documents is a strong addition to internal validation. Alternative explanations were ruled out by thoroughly investigating conflicting data, finding additional sources.

Second, a significant limitation of this analysis is the generalisability (external validity) of results. First, generalisability of results across the initiatives appears limited, with strong differences between initiatives. However, the qualitative nature of the research, reflected in an elaborate description of the pursuit of principles, is supportive of generalisability: it enables drawing valid general conclusions even when the mere presence of principles differs. Secondly, generalisability to other initiatives differs per case. On the one hand, the Meijewetering project and the energy project in Rijnenburg and Reijerscop were claimed by respondents and experts to be unique cases, due to location-specific characteristics and a unique political context respectively. On the other hand, Oog voor Warmte and Buurtstroom were said to be respectively "in the same boat as other heat initiatives in the city" (R10; E2) and "a nationally similar phenomenon" (R1; R2; E1). The extent to which generalisability is

applicable to the results is thus supported by a reflection from experts that have knowledge of other initiatives and contexts as well.

9.5. Recommendations for further research

Three recommendations can be made about relevant topics for further research that appear logically from this research, by building further upon the findings this study yielded and contributing to the knowledge gaps it leaves. First, the distinction between stages was applied in the first place for analytical clarity and to make more nuanced conclusions. However, the results showed clear differences in democratic legitimacy between stages, especially in the case of Buurtstroom. This could be further tested in future research by systematically selecting initiatives that go through multiple, similar stages. This can also be taken one step further, which could yield very interesting insights, according to the following. The analysis of municipal support and its influence on democratic legitimacy of CRE initiatives was limited to results *per principle*, not stretching to an analysis *per principle per stage*. It can be recommended to conduct such an analysis based on theory of strategic niche management: it has been demonstrated that CRE initiatives focus on different principles depending on the project stage, and municipal support can have a significant influence; by connecting these dots, a knowledge gap can be filled that is left in the intersection of democratic legitimacy, energy democracy and transition theory.

Second, differences between initiatives appeared from the study, partly supported by a deliberate variance in energy form and maturity in the case selection. A third factor that appeared inductively from the analysis is the stakeholder arena. These three factors can be further explored in follow-up research. This would add empirical evidence to maturity as a hypothesized factor in the literature, and could yield new insights into the literature on the interaction of CRE initiatives with local characteristics (Van Veelen, 2018) and on managing stakeholder relations in CRE projects (Chilvers & Pallett, 2018; Heldeweg & Saintier, 2020; Ruggiero et al., 2014).

Third, scholars are recommended to investigate how connections between local CRE initiatives on the one hand, and the national policy level as well as other CRE initiatives and umbrella organisations on the other hand, can be deployed for strengthening democratic legitimacy in CRE initiatives. To survive in a regime dominated by private energy companies and neoliberal market logics, it repeatedly appears challenging for CRE initiatives to uphold principles of democratic legitimacy. The national trend of CRE initiatives has professionalised and created regional and national umbrella organisations, and it has been shown that maturity of an initiative as well as the project process have an enforcing effect on democratic legitimacy. It is observed in practice that these links are conducive for knowledge sharing and for providing financial support schemes. Further research could focus on how these supportive links can be applied in ways that increase democratic legitimacy. Also, it appears from prior studies that Dutch initiatives primarily build bridges to other organisations in civil society rather than to the national policy level (Heldeweg & Saintier, 2020). However, this research has just demonstrated that the municipality has much influence on the democratic legitimacy of CRE initiatives. Therefore, further research could focus on how this can be strengthened in a national-local interaction. Such an investigation can build on a combination of results from this research and the proposed “analytical/decision-making tool” for assessing the “democrativeness” of national and regional energy policy by Szulecki (2018, 35-36).

9.6. Recommendations to society

Recommendations to society build further on the societal contributions that are discussed in section 9.3. First, recommendations can be made to decision-makers in CRE initiatives and project managers. Perspectives on what constitutes legitimate practices in governing CRE projects differs significantly between stakeholder groups. Initiative representatives primarily emphasize open participation and contributions to climate mitigation. Non-participating residents and participants supportive to the project prioritise responsive representation, transparency and accountability. Critical residents and stakeholders/partners base their legitimacy perception on quality of participation and deliberation; and municipal respondents prioritise legal compatibility. It is advisable to decision-makers to discuss perceptions of legitimacy and subsequent expectations from the initiative, in order to be democratically legitimate to everyone involved. Additionally, project managers and CRE representatives are recommended to document their process and lessons learnt, to increase democratic legitimacy in its potential future projects, and to share best practices with other CRE initiatives and municipalities, to horizontally spread democratic legitimacy.

Secondly, recommendations can be made to policymakers, programme managers and project managers from the (local) government. CRE initiatives primarily miss regulatory suitability, a recognised administrative position and financial resources in being able to organise their process such that they meet principles of democratic legitimacy. These factors will additionally add to their survival, professionalisation and upscaling. If (local) governments adapt their regulatory and policy framework and provide financial resources, thereby empowering CRE initiatives to operate on an equal footing with other market parties and local stakeholders, they can thus strengthen democratic governance of CRE in two ways. However, since the research shows how municipal support can also have adverse effects, it is necessary for policymakers to consider the project stage of the initiative and discuss which democratic principles deserve special attention. The results have shown that the municipality of Utrecht has so far been successful in open agenda setting and transparency but can improve on legal compatibility and efficiency. Lastly, it must be emphasized that, although several patterns and similarities are identified, every CRE initiative has different strengths and needs and each CRE project has its unique characteristics. Municipal officials in Utrecht have recognized this diversity and are successful in applying a tailor-made approach per initiative, which can be recommended to officials in other cities as well.

10. Conclusion

Results show, first are foremost, CRE initiatives are democratically legitimate to a moderate to extensive degree. However, significant differences between principles and initiatives exist, so the assumption that CRE initiatives are per definition democratically legitimate is proved incorrect. Initiatives treat *transparency* as a core principle, by providing extensive information about the process developments, procedures and project details; by being open and honest about interests, opportunities and risks; and by explanatory and clarifying attempts. This is perceived necessary due to governance complexity and project-related complexities that challenge the transparency of CRE initiatives. Instead, *responsive representation, quality of participation and deliberation* and *responsive decisions* are in general more moderately present across the initiatives. Findings on these principles confirm claims made in the literature that CRE initiatives primarily consists of, and benefits, privileged and activist minorities, and decision-making relies strongly on (technical) expertise.

Representatives aim to reflect the community interests in decision-making, with maximum energy generation as a baseline interest, but a gap between active/experienced and inactive/ignorant participants complicate upholding a qualitative participation, deliberation and representation. Next, the initiatives varied in pursuing and meeting principles of *open agenda setting* and *open participation.* These principles were primarily pursued when it was necessary to include a large variety of diversities and perspectives in the community to increase acceptance, as well as to mobilise expertise when governing a complex project. *Accountability, effectiveness* and *efficiency* vary highly across stages and initiatives, tending to be higher when the initiative matures, in terms of experience and professionality (socio-legal form). In every case, differences are found between perceptions of democratic legitimacy among different stakeholder groups. Also, a gap is identified between the extent to which principles are aimfully pursued versus practically met, due to practical limitations from the initiative itself in terms of resources and capabilities, and external limitations in its institutional environment.

Differences between the presence of democratic principles within an initiative can be interpreted in light of municipal involvement and trade-offs. First, CRE initiatives appear to be strongly influenced, primarily positively but sometimes negatively, by municipal involvement. The municipality opens the energy agenda to community concerns, brings initiatives together with the right stakeholders and facilitates the organisation of large-scale participation. Its communication channels and formal requirements of public information provision are deployed for increasing transparency of the initiatives. However, adverse effects can occur when municipal officials lack experience and understanding of CRE projects and when policy and regulatory frameworks are inadequate. Second, trade-offs can be made by decision-makers when resources are limited and when some principles are perceived more necessary for decision-making than others. Since initiatives appear to be in the first place outcome-oriented in their decision-making, they prioritise principles that most prominently help in achieving these outcomes. In some cases, this can include increasing open agenda setting and open participation to increase knowledge mobilisation and participant base, while in others, it instead means focusing on indirect representation, accountability and efficiency to realise a viable and easily acceptable project.

Next to this, differences in how and to what extent democratic principles are met, can be explained by four factors, of which 'maturity' is more commonly mentioned in the literature on community initiatives. These factors include 1: maturity (membership size, experience, professionality), 2: energy form (novelty, acceptance, technical complexity), 3: the local stakeholder arena (diversity of perspectives and interests, governance complexity), and 4: the characteristics of the location (owner, potential project size, technical practicalities). An investigation of how these factors influenced the democratic legitimacy of CRE initiatives, show that they imply a strong role of technical expertise, local (community) knowledge and communication tools. Expertise and community knowledge can increase throughput and output principles when effectively combined in decision-making, and communication tools can positively influence input and throughput principles when pursuing to increase acceptance, manage the stakeholder arena and negotiate with location owners.

Following from this, the democratic role assigned by scholars of energy democracy to CRE initiatives in a democratic and legitimate energy system is backed by empirical evidence from this study. The main contributions to academia are found in several substantive, analytical and theoretical

contributions. The insights from this study add substantive knowledge to energy democracy by describing how democratic legitimacy is being constructed by CRE initiatives. An analytical contribution is made in the form of the proposed comprehensive analytical framework that resulted from combining democratic legitimacy principles and energy democracy indicators, complemented by its recommended adaptations. Theoretical contributions are made by describing the energy-specific democratic contributions that energy democracy adds to democratic legitimacy as identified in practice: the emphasis on direct participation, a different perception of the stakeholders who deserve most decision-making power, and the role of expertise. Scientific recommendations include filling an observed knowledge gap between energy democracy, municipal support and transition theory, thereby adding democratic legitimacy to strategic niche management; investigating interactions between governance spaces to combine their different democratic strengths; and investigating ways of knowledge sharing to increase democratic legitimacy.

The insights of this study can be used for societal reasons as well. They fill a societal knowledge gap about the internal democratic workings of CRE initiatives and provide members of CRE initiatives with a tool for self-reflection on its democratic strengths and laggers. Understanding and awareness of these strengths and laggers provide a first step in increasing democratic legitimacy. CRE initiatives are subsequently advised to discuss its specific democratic needs with project managers, policymakers, commercial partners. Furthermore, they are advised to discuss and specify perceptions of democratic legitimacy in a collective process with an inclusive variety of stakeholders. Moreover, the demonstrated ability of CRE initiatives to pursue and meet democratic legitimacy criteria, provide empirical backing to recent policy directives at all levels of policymaking that promote the facilitation of energy communities in the governance of the energy sector. Policymakers are advised to adapt the institutional framework of energy governance by recognising and facilitating the role of initiatives as legitimate agents in governing the energy transition.

Bibliography

Angel, J. (2016). *Strategies of Energy Democracy*. Brussels: Rosa-Luxemburg-Stiftung.

Agterbosch, S., Vermeulen, W. & Glasbergen, P. (2004) Implementation of wind energy in the Netherlands: the importance of the social-institutional setting. *Energy Policy, 32*(18), 2049-2066. https://doi.org/10.1016/S0301-4215(03)00180-0

Armstrong, J.H. (2021) People and power: expanding the role and scale of public engagement in energy transitions. *Energy Research & Social Science, 78*, 102156. https://doi.org/10.1016/j.erss.2021.102136

Bäckstrand, K. (2010) From rhetoric to practice: the legitimacy of global public-private partnerships for sustainable development. In: Bexell, M. & Mörth, U. (eds.) Democracy and public-private partnerships in global governance, 145-166. Palgrave Macmillan, London. https://doi.org/10.1057/9780230283237_8

Bakker, J., Denters, B., Vrielink, M.O. & Klok, P.J. (2012) Citizens' initiatives: How local governments fill their facilitative role. *Local government studies, 38*(4). https://doi.org/10.1080/03003930.2012.698240

Bándi, G. (2014). *Environmental Democracy and Law*. Europa Law Publishing.

Barnard, F.M. (2003) Democratic legitimacy: plural values and political power (New title ed.). Amsterdam University Press.

Batel, S., Devine-Wright, P. & Tangeland, T. (2013) Social acceptance of low carbon energy and associated infrastructures: a critical discussion. *Energy Policy, 58*, 1-5. https://doi.org/10.1016/j.enpol.2013.03.018

Bauwens, T. & Devine-Wright, P. (2018) Positive energies? An empirical study of community energy participation and attitudes to renewable energy. *Energy Policy, 118*, 612-625. https://doi.org/10.1016/j.enpol.2018.03.062

Bauwens, T., Gotchev, B. & Holstenkamp, L. (2016) What drives the development of community energy in Europe? The case of wind power cooperatives. *Energy Research & Social Science, 13*, 136-147. https://doi.org/10.1016/j.erss.2015.12.016

Bauwens, T., Schraven, D., Drweing, E, Radtke, J., Holstenkamp, L., Gotchev, B. & Yildiz, Ö. (2022) Conceptualizing community in energy systems: a systematic review of 183 definitions. *Renewable and Sustainable Energy Reviews, 156*, 111999. https://doi.org/10.1016/j.rser.20221.111999.

Becker, S. & Kunze, C (2014) Transcending community energy: collective and politically motivated projects in renewable energy (CPE) across Europe. *People, Place and Policy, 8*(3), 180-191. https://doi.org/10.3351/ppp.0008.0003.0004

Becker, S. Kunze, C. & Vancea, M. (2017) Community energy and social entrepreneurship: addressing purpose, organisation and embeddedness of renewable energy projects. *Journal of Cleaner Production, 147*, 25-36. https://doi.org/10.1016/j.jclepro.2017.01.048

Becker, S. & Naumann, M. (2017) Energy democracy: mapping the debate on energy alternatives. *Geography Compass, 11*(18). e12321. https://doi.org/10.1111/gec3.12321

Beetham, D. (1991) Towards a social-scientific concept of legitimacy. In: The legitimation of power: issues in political theory, 3-41. Palgrave, London.

Bekkers, V. & Edwards, A. (2007). Legitimacy and democracy. In: V. Bekkers, G. Dijkstra, A. Edwards, & M. Fenger (eds.), Governance and the democratic deficit (pp. 35–60). Ashgate Publishing Limited, Aldershot.

Bellamy, R. (2010) Democracy without democracy? Can the EU's democratic 'outputs' be separated from the democratic 'inputs' provided by competitive parties and majority rule? *Journal of European Public Policy, 17*(1), 10-19. https://doi.org/10.1080/13501760903465256

Berka, A.L., MacArthur, J.L. & Gonnelli, C. (2018) Explaining inclusivity in energy transitions: local and community energy in Aotearoa New Zealand. *Environmental innovation and societal transitions, 34*(1), 165-182. https://doi.org/10.1016/j.eist.2020.01.006

Biermann, F. & Gupta, A. (2011) Accountability and legitimacy in earth system governance: a research framework. *Ecological Economics, 70*(11), 1856-1864. https://doi.org/10.1016/j.ecolecon.2011.04.008

Boon, F.P. & Dieperink, C. (2014) Local civil society based renewable energy organisations in the Netherlands: exploring the factors that stimulate their emergence and development. *Energy Policy, 69*, 297-307. https://doi.org/10.1016/j.enpol.2014.01.046

Bosma, S. (2020) Community energy: an analysis of public initiatives in the energy transition in Utrecht. Bachelor's thesis. Utrecht University, Utrecht.

Brisbois, M.C. (2020) Decentralised energy, decentralised accountability? Lessons on how to govern decentralised electricity transitions from multi-level natural resource governance. *Global Transitions, 2,* 16-25. https://doi.org/10.1016/j.glt.2020.01.001

Brummer, V. (2018) Of expertise, social capital, and democracy: assessing the organizational governance and decision-making in German Renewable Energy Cooperatives (RECs). *Energy Research & Social Science, 37*, 111-121. https://doi.org/10.1016/j.erss.2017.09.039

Burke, M.J. & Stephens, J.C. (2017) Energy democracy: goals and policy instruments for sociotechnical transitions. *Energy Research & Social Science, 33*, 35-48. https://doi.org/10.1016/j.erss.2017.09.024

Burke, M. (2018) Shared yet contested: Energy democracy counter-narratives. *Frontiers in Communication, 3*(22). https://doi.org/10.3389/fcomm.2018.00022

Chilvers, J. & Pallet, H. (2018) Energy democracies and publics in the making: a relational agenda for research and practice. *Frontiers in Communication, 3*(14), https://doi.org/10.3398/fcomm.2018.00014

Cleaver, F. (2001) Institutions, agency and the limitations of participatory approaches to development. In: Cooke, B. & Kothari, U. (eds) Participation: the new tyranny? (pp. 23-55) Zed Books, London.

Cowie, P. & Davoudi, S. (2015) Is small really beautiful? The legitimacy of neighbourhood planning. In: Davoudi, S. & Madanipour, A. (eds) Reconsidering localism (Chapter 9) Routlegde, New York

Creamer, E., Aiken, G.T., Van Veeeln, B., Walker, G. & Devine-Wright, P (2019) Community renewable energy: what does it do? Walker and Devine-Wright (2008) ten years on. *Energy Research & Social Science, 57,* 101223. https://doi.org/10.1016/j.erss.2019.101223

Connelly, S., Byrant, M. & Sharp, L. (2020) Creating legitimacy for citizen initiatives: representation, identity and strategic network. *Planning Theory & Practice, 21*(3), 392-409. https://doi.org/10.1080/14649357.2020.1776892

De Brauwer, C.P. & Cohen, J.J. (2020) Analysing the potential of citizen-financed community renewable energy to drive Europe's low-carbon energy transition. *Renewable and Sustainable Energy Reviews, 113,* 110300. https://doi.org/10.1016/j.rser.2020.110300

De Participatiecoalitie (2019) Participatiewaaier: opties voor projectparticipatie bij zon en windprojecten op land. https://www.klimaatakkoord.nl/documenten/publicaties/2019/11/18/participatiewaaier (11-1-2021)

De Participatiecoalitie (2021). Bewonersinitiatief in de warmte transitie: De Participatiecoalitie deelt 20 lessen uit de praktijk. https://departicipatiecoalitie.nl/document/bewonersinitiatief-in-de-warmtetransitie-participatiecoalitie-deelt-20-lessen-uit-de-praktijk-2/ (11-1-2021)

Dóci, G., Vasileiadou, E. & Petersen, A. (2015) Exploring the transition potential of renewable energy communities. *Futures, 66*, 85-95. https://doi.org/10.1016/j.futures.2015.01.002

Dryzek, J.S. (2007) Theory, evidence and the tasks of deliberation. In: Rosenberg S.W. (eds) Deliberation, Participation and Democracy (pp. 237-250). Palgrave Maxmillan, London. https://doi.org/10.1057/9780230591080_11

Dusyk, N. (2017) Community energy: diverse, dynamic, political. In: Solom, D. & Calvert, K.E. (eds) Handbook on the geographies of energy (pp. 502-514). Edward Elgar Publishing. https://doi-org.proxy.library.uu.nl/10.4337/9781785365621

Edelenbos, J., Meerkerk, I. van & Schenk, T. (2018) The evolution of community self-organization in interaction with government institutions: cross-case insights from three countries. *American Review of Public Administration, 48*(1), 52-66. https://doi.org/10.1177/0275074016651142

Eriksen, O.E. & Fossum, J.E. (2004) Europe in search of legitimacy: strategies of legitimation assessed. *International Political Science Review, 25*(4), 435-459. https://doi.org/10.1177/0192512104045089

Eshuis, J. & Edwards, A. (2012) Branding the city: the democratic legitimacy of a new mode of governance. *Urban Studies, 50*(5), 1066-1082. https://doi.org/10.1177/0042098012459581

European Commission (2018). EU Directive 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources. PE/48/2018/REV/1. https://eur-lex.europa.eu/legal-content (23-7-2022)

Fairchild, D., Weinrub, A. (2017). Energy Democracy. In: Lerch, D. (eds) The community resilience reader (pp. 195-206). Island Press, Washington, DC. https://doi.org/10.5822/978-1-61091-861-9_12

Fischer, F. (2000) Citizens, experts and the environment: the politics of local knowledge (illustrated ed.) Duke University Press Books.

Fuhr, H., Hickmann, T. & Kern, K. (2018) The role of cities in multi-level climate governance: local climate policies and the 1.5°C target. *Current Opinion in Environmental Sustainability, 30*, 1-6. https://doi.org/10.1016/j.cosust.2017.10.006

Grossman, M. & Creamer, E. (2017) Assessing diversity and inclusivity within the Transition movement: an urban case study. *Environmental Politics, 26*(1), 161-182. https://doi.org/10.1080/09644016.2016.1232522

Grover, D. & Daniels, B. (2017) Social equity issues in the distribution of feed-in tariff policy benefits: a cross sectional analysis from England and Wales using spatial census and policy data. *Energy Policy, 106,* 255-265. https://doi.org/10.1016/j.enpol.2017.03.043

Habermas, J. (2001) Constitutional democracy: a paradoxical union of contradictory principles? *Political Theory, 29*(6), 766-781. Sage Publications.

Hasanov, F.J. (2021) Theoretical framework for industrial energy consumption revisted: the role of democgraphics. *Eneryg Report, 7*, 2178-2200. https://doi.org/10.1016/j.egyr.2021.04.002

Hatzl., S., Seebauer, S., Fleiss, E. & Posch, A. (2016) Market-based vs. grassroots citizen participation initiatives in photovoltaics: a qualitative comparison of niche development. *Futures, 78*, 57-70. https://doi.org/10.1016/j.futures.2016.03.022

Hendriks, C.M. (2009) Policy design without democracy? Making democratic sense of transition management. *Policy Science, 4,* 341-468. https://doi.org/10.1007/s11077-009-9095-1

Hicks, J., & Ison, N. (2018). An exploration of the boundaries of 'community' in community renewable energy projects: navigating between motivations and context. *Energy Policy*, 113, 523-524. https://doi.org/10.1016/j.enpol.2017.10.

Hidalgo, O. (2019) The theory of democratic antinomies and the identification of value trade-offs in political practice. *Politics and Governance, 7*(4), 264-274. https://doi.org/10.17645/pag.v7i4.2243

Hoffman, S.M. & High-Pippert, A. (2005) Community energy: a social architecture for an alternative energy future. *Bulletin of Science, Technology and Society, 25*(5), 387-401. https://doi.org/10.1177/0270467605278880

Hoppe, T. & Warbroek, B. (2021) Agency of citizen collectives in sustainable transitions: the case of renewable energy cooperatives in Europe. In: Teerikangas, S., Onkila, T., Koistinen, K. & Mäkelä, M. (eds) Research handbook of sustainability agency (Chapter 12) Edward Elgar Publishing, Cheltenham, UK. https://doi.org/10.4337/9781789906035

Hoppe, T., Graf, A., Warbroek, B., Lammers, I. & Lepping, I. (2015) Local governments supporting local energy initiatives: lessons from the best practices of Saerbeck (Germany) and Lochem (the Netherlands). *Sustainability, 7*, 1900-1931. https://doi.org/10.3390/su7021900

Hufen, J.A.M. & Koppenjan, J.F.M. (2015) Local renewable energy cooperatives: revolution in disguise. *Energy, Sustainability and Society,* 5(18, 1-14). https://doi.org/10.1186/s13705-015-0046-8

Igalla, M., Edelenbos, J. & Meerkerk, I. van. (2019) Citizens in action, what do they accomplish? A systematic literature review of citizen initiatives, their main characteristics, outcomes and factors. *VOLUNTAS: International Journal of Voluntary and non-profit organization, 30*, 1176-1194. https://doi.org/10.1007/s11266-019-00129-0

Igalla, M., Edelenbos, J. & Meerkerk, I. van (2020) What explain the performance of community-based initiatives? Testing the impact of leadership, social capital, organizational capacity, and government support. *Public Management Review, 22*(4), 602-632. https://doi.org/10.1080/14719037.2019.1604796

Igalla, M., Edelenbos, J. & Meerkerk, I. van. (2021) Institutionalization or interaction: Which organizational factors help community-based initiatives acquire government support? Public *Administration, 99*, 803-831. https://doi.org/10.1111/padm.12728

Jolivet, E. & Heiskanen, E. (2010) Blowing against the wind – an exploratory application of actor network theory to the analysis of local controversies and participation processes in wind energy. *Energy Policy, 38*(11), 6746-6754. https://doi.org/10.1016/j.enpol.2010.06.044

Knox, S., Hannnon, M. & Ford, R. (2022) The (in)justices of smart local energy systems: a systematic review, integrated framework, and future research agenda. *Energy Research & Social Science, 83*, 102333. https://doi.org/10.1016/j.erss.2021.102333

Keohane, R. O. 2011. Global governance and legitimacy. *Review of International Political Economy, 18*(1), 99-109.

Kunze, C. & Becker, S. (2014) Energy democracy in Europe: a survey and outlook. Rosa Luxemburg Stiftung, Brussels.

McCauley, S.M. & Stephens, J.C. (2017) Changing human geographies of the electricity grid: shifts of power and control in the renewable energy transition. In: Solomon, B.D. & Calvert, K.E. (eds) Handbook on the geographies of energy. Edward Elgar Publishing.

McHarg, A. (2016) Community benefit through community ownership of renewable generation in Scotland: power to the people? In: Barrera-Hernandez, L., Barton, B., Goddne, L., Lucas, A., Ronne, A. (eds) Sharing the costs and benefits of energy and resource activity (pp. 297-337). Oxford University, Oxford.

Landman, T. & Lauth, H.J. (2019) Political trade-offs: democracy and governance in a changing world. *Politics and Governance, 7(4)*, 237-242. https://doi.org/10.17645/pag.v7i4.2642

Laes, E., Gorissen, L. & Nevens, F. (2014) A comparison of energy transition governance in Germany, The Netherlands and the United Kingdom. *Sustainability, 6*(3), 1129-1152. https://doi.org/10.3390/su6031129

Lieu, J., Spyridaki, N., Alvarez-Tinoco, R., Van der Gaast, W., Tuerk, A. & Van Vliet, O. (2018) Evaluating consistency in environment policy mixes through policy, stakeholder, and contextual interactions. *Sustainability, 10*(6), 1896. https://doi.org/10.3390/su10061896

Lindgren, K.A. & Persson, T. (2010) Input and output legitimacy: synergy or trade-off? Empirical evidence from an EU sruvey. *Journal of European Public Policy, 17*(4), 449-467. https://doi.org/10.1080/13501761003673591

Lowitzsch, J. & Hanke, F. (2019) Renewable energy cooperatives. In: Lowitzsch, J. (eds) Energy Transition (pp. 139-162). Palgrae Macmillan, Cham. https://doi.org/10.1007/978-3-319-93518-8_7

Pesch, U., Spekkink, W. & Quist, J. (2018) Local sustainability initiatives: innovation and civic engagement in societal experiments. *European Planning Studies, 27*(2), 300-317. https://doi.org/10.1080/09654313.2018.1464549

Porta, D. Della (2009) Democracy in social movements. Palgrave Macmillan, Basingstoke.

Porta, D. Della & Felicetti, A. (2019) Innovating democracy against democratic stress in Europe: social movement and democratic experiments. *Journal of Representative Democracy, 58*(1), 67-84. https://doi.org/10.1080/00344893.2019.1624600

Proka, A., Hisschemöller, M. & Loorbach, D. (2018) Transition without conflict? Renewable energy initiatives in the Dutch energy transition. *Sustainability, 10*(6), 1721. https://doi.org/10.3390/su10061721

Provan, K.G. & Kenis, P. (2008) Modes of network governance: structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, *18*(2), 229–252. https://doi.org/10.1093/jopart/mum015

Mees, H.L.P., Driessen, P.P.J., & Runhaar, H. (2013) Legitimate adaptive flood risk governance beyond the dikes: the cases of Hamburg, Helsinki and Rotterdam. *Regional Environmental Change, 14*, 671-682. https://doi.org/10.1007/s10113-013-0527-2

Mees, H.L.P., Uittenbroek, C.J., Hegger, D.L.T. & Driessen, P.P.J. (2019) From citizen participation to government participation: an exploration of the role of local governments in community initiatives for climate change adaptation in the Netherlands. *Environmental Policy & Governance, 29*(3), 198-208. https://doi.org/10.1002/eet.1847

Mees, H.L.P. (2022) Why do citizens engage in climate action? A comprehensive framework of individual conditions and a proposed research approach. *Environmental Policy and Governance, 32*(3), 1677-178. https://doi.org/10.1002/eet.1981

Oteman, M., Wiering, M. & Helderman, J.K. (2014) The institutional space of community initiatives for renewable energy: a comparative case study of the Netherlands, Germany and Denmark. *Energy, Sustainability and Society, 4*(11), 1-17. https://doi.org/10.1186/2192-0567-4-11

Oteman, M., Kooij, H. & Wiering, M. (2017) Pioneering renewable energy in an economic energy policy system: the history and development of Dutch grassroots initiatives. *Sustainability, 9*(4), 550-571. https://doi.org/10.3390/su9040550

Park, J.J. (2012) Fostering community energy and equal opportunities between communities. *Local Environment*, *17*(4), 387–408. https://doi.org/10.1080/13549839.2012.678321

PBL, TNO, CBS & RIVM (2020). Klimaat- en Energieverkenning 2020. Planbureau voor de Leefomgeving, Den Haag. https://www.pbl.nl/publicaties/klimaat-en-energieverkenning-2020
Purcell, M. (2006) Urban democracy and the local trap. *Urban Studies, 43*(11), 1921-1941. https://doi.org/10.1080/00420980600897826

Radtke, J. (2014) A closer look inside collaborative action: civic engagement and participation in community energy initiatives. *People, Place and Policy, 8*(3), 235-248. https://doi.org/10.3351/ppp.0008.0003.0008

Røiseland, A. (2021) Co-creating democratic legitimacy: potentials and pitfalls. *Administration & Society,* 00953997211061740, 1-23. https://doi.org/10.1177/00953997211061740

Romero-Castro, N., Pińeiro-Chousa, J. & Pérez-Pico, A. (2021) Dealing with heterogeneity and complexity in the analysis of the willingness to invest in community renewable energy in rural areas.

Rommel, J., Radtke, J., Jorck, G. von, Mey, Franziska, M. & Yildiz, O. (2018) Community renewable energy at a crossroads: a think piece on degrowth, technology, and the democratization of the German energy system. *Journal of Cleaner Production, 197*, 1746-1753.

Ruggiero, S., Onkila, T. & Kuittinen, V. (2014) Realizing the social acceptance of community renewable energy: a process-outcome analysis of stakeholder influence. *Energy Research & Social Science, 4*, 53-63. https://doi.org/10.1016/j.erss.2014.09.001

Rydin, Y. & Turcu, C. (2019) Revisiting urban energy initiatives in the UK: Declining local capacity in a shifting policy context. *Energy Policy, 129*, 653-660. https://doi.org/10.1016/j.enpol.2019.02.054

Scharpf, F. (1999). Governing in Europe: effective and democratic? Oxford University Press, Oxford.

Schmidt, V.A. (2013) Democracy and legitimacy in the European Union revisited: input, output *and* 'throughput'. *Political Studies, 61*(1), 2-22. https://doi.org/10.1111/j.1467-9248.2012.00962.x

Schouten, G. & Glasbergen, P. (2011) Creating legitimacy in global private governance: the case of the Roundtable on Sustainable Palm Oil. *Ecological Economics, 70*(11), 1891-1899. https://doi.org/10.1016/j.ecolecon.2011.03.012

Schwencke, A.M. (2020) Lokale energie monitor. HIER Opgewekt: Utrecht, The Netherlands.

Schwencke, A.M. (2022) Lokale energie monitor. HIER Opgewekt: Utrecht, The Netherlands.

Seyfang, G., Park, J.J. & Smith, A. (2013) A thousand flowers blooming? An examination of community energy in the UK. *Energy Policy, 61*, 977-989. https://doi.org/10.1016/j.enpol.2013.06.030

Silva, D.S. da, Horlings, L.G. & Figueiredo, E. (2018) Citizen initiatives in the post-welfare state. *Social Sciences, 7*(12), 252. https://doi.org/10.3390/socsci7120252

Slee, B. (2015) Is there a case for community-based equity participation in Scottish on-shore wind energy production? Gaps in evidence and research needs. *Renewable and Sustainable Energy Reviews, 41,* 540-549. https://doi.org/10.1016/j.rser.2014.08.064

Stephens, J.C. (2019) Energy democracy: redistributing power to the people through renewable transformation. *Environment: Science and Policy for Sustainable Development, 61*(2), 4-13. https://doi.org/10.1080/00139157.2019.1564212

Sternberg, S. (2014) Political legitimacy between democracy and effectiveness: trade-offs, interdependencies, and discursive constructions by the EU institutions. *European Political Science Review, 7*(4), 615-638. https://doi.org/10.1017/S1755773914000356

Sweeney, S., Benton-Connell, K., & Skinner, L. (2015). Power to the people: toward democratic control of electricity generation. *Trade Unions for Energy Democracy (TUED), Working Paper*, (4).

Suchman, M.C. (1995) Managing legitimacy: strategic and institutional approaches. *The Academy of Management Review, 20*(3), 571-610. http://www.jstor.com/stable/258788

Sweeney, S. (2014) Working toward energy democracy. In: State of the World 2014 (pp. 215-227) Island Press, Washington, DC. https://doi.org/10.5822/978-1-61091-542-7_20

Szulecki, K. (2018) Conceptualizing energy democracy. *Environmental Politics, 27*(1), 21-41. https://doi.org/10.1080/09644016.2017.1387294

Szulecki, K. & Overland, I. (2020) Energy democracy as a process, an outcome and a goal: a conceptual review. *Energie Resarch & Social Science, 69*, 101768. https://doi.org/10.1016/j.erss.2020.101768

Thombs, R.P. (2019) When democracy meets energy transitions: a typology of social power and energy system scale. *Energy Research & Social Science, 52*, 159-168. https://doi.org/10.1016/j.erss.2019.02.020

Toke, D. (2011). Ecological modernisation, social movements and renewable energy. *Environmental Politics*, *20*(1), 60-77. https://doi.org/10.1080/09644016.2011.538166

UN General Assembly (2015). *Transforming our world: the 2030 Agenda for Sustainable Development.* A/RES/70/1. https://www.refworld.org/docid/57b6e3e44.html (2-3-2022)

Van Bommel, N. & Höffken, J.I. (2021) Energy justice within, between and beyond European community energy initiatives: a review. *Energy Research and Social Science, 79,* 102157. https://doi.org/10.1016/j.eerss.2021.102157.

Van der Schoor, T. & Scholtens, B. (2015) Power to the people: local community initiatives and the transition to sustainable energy. *Renewable and Sustainable Energy Reviews, 43*, 666-675. https://doi.org/10.1016/j.rser.2014.10.089

Van Dijk, J., Wieczorek, A.J. & Ligtvoet, A. (2022) Regional capacity to govern the energy transition: the case of two Dutch energy regions. *Environmental Innovation and Societal Transitions, 44*, 92-109. https://doi.org/10.1016/j.eist.2022.06.001

Van Rossem, N. (2020) Citizen participation in Utrecht: the involvement of citizens in mitigation projects for the energy transition. Bachelor's thesis. University of Utrecht, Utrecht

Van Veelen, B. (2018) Negotiating energy democracy in practice: governance processes in community energy projects. *Environmental Politics, 27*(4), 644-655. https://doi.org/10.1080/09644016.2018.1427824

Van Veelen, B. & Van der Horst, D. (2018) What is energy democracy? Connecting social science energy research and political theory. *Energy Research & Social Science, 46*, 19-28. https://doi.org/10.1016/j.erss.2018.06.010

Van Veelen, B. & Eadson, W. (2020) Assembling community energy democracies. *Voluntary Sector Review, 11*(2), 231-249. Https://doi.org/10.1332/204080519x15740562779512

Verkade, N. & Höffken, J. (2019) Collective energy practices: A practice-based approach to civic energy communities and the energy system. *Sustainability*, *11*(3230). https://doi.org/10.3390/su11113230

Verschuren, P. & Doorewaard, H. (2010). Designing a Research Project (2nd ed.) Eleven International Publishing, The Hague.

Viardot, E. (2013) The role of cooperatives in overcoming the barriers to adoption of renewable energy. *Energy Policy, 63,* 756-764. https://doi.org/10.1016/j.enpol.2013.08.034

Wagenaar, H., & van der Heijden, J. (2015). The promise of democracy? Civic enterprise, localism and the transformation of democratic capitalism. In: S. Davoudi & A. Madanipour (eds.) Reconsidering localism (pp. 126–147). Routledge, New York.

Wahlund, M & Palm, J. (2022) The role of energy democracy and energy citizenship for participatory energy transitions: A comprehensive review. *Energy Research & Social Science, 87,* 102582, 1-19**.**

Walker, G., & Devine-Wright, P. (2008) Community renewable energy: what should it mean? *Energy Policy, 36*(2), 497-500. https://doi.org/10.1016/j.enpol.2007.10.019

Walker, G., Devine-Wright, P., Hunter, S., High, H & Evans, B. (2010) Trust and community: exploring the meanings, contexts and dynamics of community renewable energy. *Energy Policy, 38*(6), 2655-2663. https://doi.org/10.1016/j.enpol.2009.05.055

Warbroek, B., Hoppe, T., Bressers, S. & Coenen, F. (2019) Testing the social, organizational, and governance factors for success in local low carbon energy initiatives. *Energy Research & Social Science, 58,* 101269. https://doi.org/10.1016/j.erss.2019.101269

Weis, L., Becker, S., & Naumann, M. (2015). ENERGIE DEMOKRATIE. *Grundlage Und Perspective einer Kritischen Energieforschung*. Rosa Luxemburg Stiftung, Berlin.

Wismer, S. & Mitchell, B. (2005) Community-based approaches to resource and environmental management. *Environments Journal Volume 33,* 1-4.

Yildiz, O., Rommel, J., Debor, S., Holstenkamp, L., Mey, F., Müller, J.R., Radtke, J. & Rognli, J. (2015) Renewable energy cooperatives as gatekeepers or facilitators? Recent developments in Germany and a multidisciplinary research agenda. *Energy Research & Social Science, 6,* 59-73. https://doi.org/10.1016/j.erss.2014.12.001

Yin, R. K. (2009). *Case study research: Design and methods*, 5. Sage.

Appendices

Appendix A: Overview of sources for desk research

Document title	Source	Publication date
Buurtstroom		
Notulen 1e ALV	Website archief Energie-U	9-11-2017
Notulen 2e ALV	Website archief Energie-U	28-5-2018
Notulen 3e ALV	Docplayer	unknown
Notulen 4e ALV	Docplayer	13-7-2017
Statuten Buurtstroom-Energie-U.A.	Personal correspondence	30-8-2016
Informatiebrochure Hoograven de ARM	Personal correspondence	2017
Informatiebrochure Molenstraat	Personal correspondence	2017
Informatiebrochure Rebothkerk	Personal correspondence	2021
Energie-U		
Anton Kiewiet, initiatiefnemer Zonnepark Meijewetering: “zonnestroom voor en door bewoners”	Website Energie-U	Retrieved 1-3-2022
Evaluatierapport Gemeente Utrecht	Personal correspondence	March 2020
Omgevingsbesluit omgevingsvergunning zonnepark Meijewetering	Gemeenteblad Nr. 260516	9-10-2020
Voorstel verruiming van de algemene verklaring van geen bedenkingen voor zonne-energieproject Meijewetering	Website gemeente Utrecht	unknown
Statuten Energie-U U.A.	Website Energie-U	2013
Rijnenburg & Reijerscop		
Onderzoeksrapport: Barstjes in de lokale gemeenschap	Wouter Mensink	2021
Webinar: Barstjes in de lokale gemeenschap	Public webinar	21-6-2022
Commentaar op NRD Energievisie (BVRR)	Personal correspondence	21-4-2022
Conferentiepaper (BVRR)	Personal correspondence	28-5-2021
Brief naar de gemeenteraad (BVRR)	Website Provincie Utrecht	2019
BVRR Reactie op college voorstel energielandschap Rijnenburg & Reijerscop	Website BVRR	5-02-2022
BVRR krijgt geen tafel in De Schalm (article)	Website BVRR	1-5-2022
Windmolens in jouw “achtertuin” (BVRR flyer)	Website BVRR	17-5-2018
Plan ingediend (news article)	Website Rijne Energie	31-10-2020
Hoe bepalen we de hoogte van de windmolens in Rijnenburg? (news article)	Website Rijne Energie (Verhoef, I.)	22-1-2018
Rijne Energie presenteert resultaten MER Energielandschap (news article)	Website De Windvogel	14-6-2022
Hoe Rijne Energie bewoners meekrijgt via de Deep Democracy-methode (article)	Website HIER Opgewekt	8-5-2017
Presentatie Informatieavond Nieuwegein	Doc player (Verhoef, I.)	9-5-2017
Uitwerking terugkoppelgesprek duurzame energie Rijnenburg	Docplayer (Dijkstra, R.)	12-4-2017

Initiatiefvoorstel Rijne Energie c.s.	Website Rijne Energie	18-1-2021
Statuten Rijne Energie U.A.	Website Rijne Energie	9-2018
Notulen 1ste ALV van Rijne Energie	Website Rijne Energie	19-11-2018
Notulen 2e ALV van Rijne Energie	Website Rijne Energie	13-3-2019
Notulen 3e ALV van Rijne Energie	Website Rijne Energie	20-6-2019
Notulen 4e ALV van Rijne Energie	Website Rijne Energie	14-7-2020
Notulen 5e ALV van Rijne Energie	Website Rijne Energie	14-10-2021
Notulen 6e ALV van Rijne Energie	Website Rijne Energie	14-10-2021
Notulen 7e ALV van Rijne Energie	Website Rijne Energie	10-3-2021
Notulen 9e ALV van Rijne Energie	Website Rijne Energie	27-10-2021
Notulen 10e ALV van Rijne Energie	Website Rijne Energie	30-11-202
Notulen 11e ALV van Rijne Energie	Website Rijne Energie	23-2-2022
Notulen 8e vergadering gemeenteraad	Website Gemeente Utrecht	6-7-2017
Duurzame energie in Rijnenburg en Reijerscop / Stappen naar energielandschap	Website Gemeente Utrecht	Retrieved 21-2-2022
Raadsbrief Voortgang Energielandschap Rijnenburg & Reijerscop	Website Rijne Energie	1-11-2017
Raadsbrief Energielandschap Rijnenburg & Reijerscop	Website Provincie Utrecht	3-4-2019
Raadsbrief Selectiebesluit Energielandschap Rijnenburg & Rijerscop	Website Rijne Energie	2021
Raadsbrief Vervolg ontwerpproces Energielandschap Rijenburg en Reijerscop	Website Gemeente Utrecht	8-10-2018
Reactienota Notitie Reikwijdte en Detailniveau Energielandschap Rijnenburg & Reijerscop	Personal correspondence	3-2022
Startnotitie Energielandschap Rijnenburg & Reijerscop	Website Rijne Energie	27-6-2017
Voorstel aan de raad startnotitie energielandschap Rijnenburg & Reijerscop	Docplayer (Werfsch, S. van)	6-6-2017
Uitnodigingskader Gemeente Utrecht	Website Rijne Energie	7-2022
Zienswijze Rijne Energie c.s. op Visie en Uitnodigingsakder	Website Rijne Energie	20-5-2019
Vraag en antwoorddocument Energielandschap Rijnenburg en Reijerscop	Docplayer (Linde, J. ter)	12-2018
Oog voor Warmte		
Whitepaper Expeditie Warmte	Website Gemeente Utrecht	1-10-2021
Artikel: Utrecht neemt bewoners mee op ‘Expeditie Warmte’	Website Warmtenetwerk Energietransitie	8-12-2020

Appendix B: Overview of interviews and field observations

Interviews:

Preliminary:

Respondent	**Date**
P1 Energie-U Board member	18-3-2022
P2 Energie-U Team leader Community initiatives and energy poverty	8-3-2022

Research:

Case and respondent	**Date**
Case: Buurtstroom	
R1 Two board members (group interview)	18-3-2022
R2 Project Hoograven de ARM initiating citizen	2-3-2022
R3 Project Molenstraat initiating citizen	18-5-2022
R4 Project Rebothkerk initiating citizen	5-5-2022
R5 Hired expert (Soft Energy)	25-3-2022
Case: Meijewetering	
R5 Hired expert (Soft Energy)	25-3-2022
R6 Municipal project manager	27-4-2022
R7 Engaged citizens	3-5-2022
R8 Initiating citizen	4-3-2022
R9 Semi-public partnering stakeholder (waterboard: HDSR)	29-4-2022
Case: Oog voor Warmte	
R10 Initiating citizen and board member	11-5-2022
R11 Collaborating private company (Nieuw Warmte)	4-6-2022
R12 Non-participating resident	15-6-2022
R13 Municipal policy advisor housing & energy	4-7-2022
Case: Rijnenburg & Reijerscop	
R14 Five board members (group interview)	23-2-2022
R15 Municipal project manager	27-4-2022
R16 Representatives advocacy opposing group BVRR	9-5-2022
R17 Stakeholder manager	22-4-2022
R18 Engaged resident	18-3-2022
R19 Representative partnering company (Eneco)	16-6-2022
General	
R20 Municipal programme and project managers Energy (group conversation)	8-6-2022

Table iii: overview of collected and coded materials from field research

Experts:

Respondent	**Date**
E1 Independent researcher HIER Opgewekt	6-6-2022
E2 Teamleader EnergieSamen / Energie van Utrecht / Veemarkt Samen	13-6-2022

Field observations:

Subject	Data collection	Date
Speeches by EnergieSamen / Energie van Utrecht and Energy programme manager Municipality of Utrecht	Observations Energy dialogue event for stakeholders in the renewable energy sector	21-6-2022
Reactions and experiences from residents to the plans of Rijne Energie to place wind turbines in the polder (proponents and opponents)	Observations and conversations wind excursion organised by Rijne Energie U.A.	16-5-2022
Presentation and discussion by members from the cooperative Rijne Energie	Observation general assembly Rijne Energie	23-2-2022
Workshop outcomes municipal officials, researchers and CRE representatives (part of preliminary research)	Transdisciplinary workshop on collaboration between municipality and CI's in Utrecht	14-4-2022

Appendix C: Interview guide

Since the respondents were all Dutch speaking, the interviews were conducted in Dutch. The topics that were discussed included a) the list of democratic principles, with specific questions dedicated to the indicators as presented in the analytical framework; b) differences between stages and alongside the maturity of the initiative, c) the perception of democratic legitimacy by the respondent, and d) the role of the municipality.

Introductie: uitleg over het onderwerp en voorbereiding op de vragen die gaan komen. Respondent geeft toestemming voor het afnemen van het interview, het opnemen van het interview en het (anoniem) verwerken van de data.

Welke verschillende fasen in het besluitvormingsproces zijn er (geweest)?

[In geval dat er verschillende fasen waren: in de onderstaande vragen onderscheid maken tussen de verschillende fasen].

Openheid van de agenda

Hoe werd de agenda opgesteld?

Op welke manier konden bewoners en leden topics op de agenda krijgen?

Waaruit kwamen de doelstellingen voort?

In hoeverre was het voor het initiatief mogelijk haar agenda te bepalen, ten opzichte van meer dominante partijen zoals de overheid of bedrijven?

Open participatie

Wie waren er betrokken bij de besluitvorming?

Op welke momenten in het proces, en op welke manier, namen de betrokkenen deel aan de besluitvorming?

In hoeverre was er sprake van publieke consultatie tijdens het proces?

Wie waren er niet betrokken bij de besluitvorming? Waarom waren zij niet betrokken?

Responsieve representatie

Wiens belangen representeert het initiatief?

Op welke manier wordt ervoor gezorgd dat de verschillende belangen zijn vertegenwoordigd?

In hoeverre waren er ook belangen in het spel die niet werden vertegenwoordigd gedurende het proces? Waarom waren deze niet vertegenwoordigd?

Hoe divers is jullie initiatief in termen van geslacht, etnische afkomst, leeftijd, sociaaleconomische achtergrond en eventuele andere kenmerken? Is dit een reflectie van de lokale omgeving, denkt u?

Legaliteit:

Welke regels zijn er opgesteld specifiek voor dit initiatief?

Met welke externe wet- en regelgeving heeft het initiatief te maken?

In hoeverre werd deze regelgeving nageleefd en waarom?

In hoeverre past het initiatief in de beleidscontext van de gemeente?

Transparantie:

Welke aspecten van het project werden wel en niet openlijk gedeeld en met wie?

In hoeverre waren de processen, procedures, regels en impacts voor iedereen in het proces duidelijk? Kunt u een voorbeeld geven van wanneer dit wel/niet zo was?

Op welke manieren werden belanghebbenden geïnformeerd over het project en op de hoogte gebracht van het proces?

In hoeverre is er onafhankelijk onderzoek gedaan en werd dit openlijk inzichtelijk gemaakt?

In hoeverre is het initiatief duidelijk en transparant in haar doelen en belangen? Kunt u hier een voorbeeld van geven?

Kwaliteit van deliberatie en participatie:

Op welke manieren konden deelnemers invloed uitoefenen op de besluitvorming?

Op welke aspecten van de besluitvorming had iedere betrokkene wel en geen invloed?

Hoe vond besluitvorming plaats? (Waren er bijvoorbeeld regelmatig overleggen? Wat was hier de procedure? Welke regels voor discussie en besluitvorming golden hier? Wie maakte de uiteindelijke beslissingen?)

In hoeverre was er sprake van een diversiteit aan meningen en hoe werd hiermee omgegaan?

In hoeverre was er sprake van een combinatie van professionele expertise en kennis over de lokale gemeenschap, en wat was de relatieve rol van beiden in besluitvorming?

In hoeverre waren de verschillende participanten in de mogelijkheid om geïnformeerde argumenten te vormen en geïnformeerde keuzes te maken? In hoeverre werden participanten bijvoorbeeld opgeleid in het onderwerp?

Werden conflicten vreedzaam opgelost? Kunt u daar een voorbeeld van geven?

Verantwoording:

Wie werd er verantwoordelijk gehouden voor de besluiten?

Op welke manier legden deze personen verantwoording af? In hoeverre werd er bijvoorbeeld gerapporteerd aan de participanten en de lokale omgeving?

In hoeverre en op welke manier werden (kritische) vragen en opmerkingen van bewoners, participanten en andere belanghebbenden beantwoord?

Voor welke zaken was er toestemming nodig voor het initiatief en hoe en door wie werd deze toestemming verleend?

Wie is er verantwoordelijk in geval van schade, extra kosten, et cetera? En voor het leveren van de (kwaliteit van) energie? Hoe zijn de verantwoordelijkheden vastgelegd?

Responsiviteit van besluiten:

In hoeverre werden de belangen van betrokkenen meegenomen in de plannen en besluiten? Kunt u daar een voorbeeld van geven?

In hoeverre konden de betrokkenen zich vinden in de besluiten die werden genomen?

In hoeverre waren er belangen die niet waren vertegenwoordigd in de genomen besluiten? Waarom niet?

Hoe werden de besluiten genomen? Was dit bijvoorbeeld met meerderheidsstemmen of consensusvorming? Op welke manier werden minderheidsbelangen gereflecteerd in besluiten?

Effectiviteit en efficientie:

In hoeverre was besluitvorming efficiënt in termen van tijd en kosten?

In hoeverre werden vooraf gestelde doelstellingen gehaald en wat droeg hieraan bij?

In hoeverre leverden de projecten voordelen op voor de gehele wijk?

In hoeverre werden financiële opbrengsten eerlijk verdeeld?

In hoeverre hebben de besluiten bijgedragen aan klimaatmitigatie?

Legitimiteit:

In hoeverre was er sprake van draagvlak voor het project in de buurt? Waar bleek dat uit?

Vindt u dat het opzetten van het project legitiem (rechtvaardig, op acceptabele wijze) is verlopen? Waarom vindt u dat? Welke principes waren daarin belangrijk?

Vergelijking op basis van maturiteit:

In hoeverre zijn genoemde aspecten van het besluitvormingsproces veranderd sinds de initiatiefneming tot nu?

In hoeverre zijn specifieke democratische aspecten meer of minder belangrijk geworden?

Wat zou daar, volgens u, een verklaring voor kunnen zijn?

Rol van de gemeente:

Op welke manieren was de gemeente betrokken bij het initiatief en de besluitvorming daarvan?

Was het gevolg van deze betrokkenheid en hoe wordt de interactie tussen initiatief en gemeente ervaren?

In hoeverre en op welke manier droeg de gemeente bij aan de democratische legitimiteit van het initiatief?

Appendix D: NVivo coding scheme

1. Democratic legitimacy principles
    a. Open agenda setting
    b. Open participation
    c. Responsive representation
    d. Legal compatibility
    e. Transparency
    f. Quality of participation and deliberation
    g. Accountability
    h. Responsive decisions
    i. Effectiveness and efficiency
2. Legitimacy perceptions
3. Difference factors
    a. Maturity
    b. Energy form
    c. Other
4. Municipal role
    a. Policy framework
    b. Subsidy/support schemes
    c. Law and regulation
    d. Other

Appendix E: Details supportive of section 4.2. (Buurtstroom)

1. The feasibility stage

1.1. Open agenda setting

While the agenda for collective solar roof projects was set nationally, the agenda in Utrecht was set as a combined effort of the local cooperative Energie-U and enthusiastic citizens. As a result of the improved PCR in 2015, the idea of realising collective solar roof projects was "sort of hanging in the air" (R2) when Energie-U picked up on the national trend. In the winter of 2015-2016, Energie-U informed its members of the PCR and invited citizens to start collective solar projects for their neighbourhood, offering full support along the process. Subsequently, engaged citizens from sustainability collective 'Hoograven Duurzaam', as well as two neighbours from the Molenstraat attending the information evening by Energie-U, were inspired and both approached the board of Energie-U to start a project. It was relatively easy for them to put their concerns on the agenda; while Energie-U was an initiative of 'Buurtstroom', they were the initiators of the project in their neighbourhood.

The first step was to find a roof that was both available and practically suitable. Mostly, initiators came with a roof in their neighbourhood, and if this appeared feasible, they thus had chosen the location of the project. Along the way, the board of Buurtstroom also has attempted to collaborate with the municipality to start projects on municipal roofs that the municipality offered, but most of these appeared practically infeasible during a first inventory. One project has been conducted from the initiative of the municipality who offered a roof, but here the citizens who reported to take up the task – still called "initiators" – quit soon, so this did not provide effective. The most recently realized project, the Rebothkerk, was considered a success, due to its initiation by active and enthusiastic members of a local church. A small group of participants from earlier projects are also sometimes active in looking for new roofs on which a project could be initiated, which resulted for example in the projects Griftkwartier 1, Griftkwartier 2 and Griftkwartier 3.

Although initiators could theoretically bring in specific issues for the agenda of Energie-U, this barely happened due to the expertise of those people in charge. However, they held the goal of finding a suitable roof that was suitable for realise a collective sun project, generating energy for their own neighbourhood; under the condition that revenues must be significant enough to play even over the lifetime of the project. The goal of Energie-U members of this stage was to make an informed decision for a 'go' or 'no go' on the project; under the condition that a technical, and later also social, feasibility study had been conducted.

Concluding, open agenda setting in the feasibility stage is fully present: community members initiate the initiative 'Buurtstroom' and projects are usually initiated by residents in the neighbourhood who also set the location; goals and preconditions are set by the community in the establishment of Buurtstroom, any resident can initiate a project. Internally to Buurtstroom, members can also become initiator of a new project, as was the case in the three consecutive 'Griftkwartier' projects. Moreover, residents can put their concerns on the Buurtstroom agenda, and Buurtstroom has put their concerns on the political agenda.

1.2. Open participation

During the feasibility phase, the stakeholders engaged in decision-making are the roof owner, user of the building, Buurtstroom board members and initiators. No public consultations are organised at this stage and residents are not engaged in decision-making spaces, except the initiator: he or she is usually engaged in the conversations with the roof owners and Buurtstroom board members. The initiator also has some informal conversations with his/her neighbours to estimate interest, so the latter can communicate their energy preferences. However, in the cases of Hoograven and Molenstraat, this was not yet a formal part of the feasibility stage and did not happen naturally; in

the case of the Rebothkerk project, this was given as an assignment from Buurtstroom, so the initiators started conversations about the intended project with the church community and the neighbourhood. It can be concluded that open participation is limited at this point, with only the initiators engaged in decision-making spaces, and the community only indirectly involved via information deliberation.

1.3. Responsive representation

The primary interest represented by Energie-U and Buurtstroom initiators was to have more renewable energy in Utrecht. The main interest represented by initiators to initiate a project slightly differs, although all were based on the motive of contributing to climate change mitigation. The initiator of Hoograven became involved via the initiative 'Hoograven Duurzaam' and thus represented primarily the interests of its sustainable neighbours who wanted to contribute to the sustainability challenge; for the initiator of the Molenstraat, the interest was to offset the energy use from himself with clean energy as well as contributing to offsetting the energy use of his neighbours. For the Rebothkerk, the initiator was personally interested in sustainability from a professional background and he represented the interest of the church community to do something -not necessarily sustainability oriented- for the community. Whether these interests are reflective of the neighbourhood differs per neighbourhood and partly explains why some initiators got their neighbours easily along for participation whereas in other cases this proved more difficult because the residents were not very interested.

The extent to which representation was inclusive of interests in the neighbourhood at this point differs per project: in the case of Hoograven and Rebothkerk, the initiators had already a small community at this stage which they represented, whereas this was not the case for the Molenstraat. Initiators usually do not communicate with the rest of the neighbourhood before approaching Buurtstroom with their idea, but during the feasibility study they measure the interests of the community: this allows for other community interests to pop up which are consequently represented by the initiator in external communication. Buurtstroom in turn is claimed to represent the interests of the initiator and neighbourhood accurately, by aiming for the most sustainable options and pursuing the highest amount of energy as practically possible.

Lastly, in terms of direct representation regarding the characteristics of the neighbourhood, nearly all initiators as well as Buurtstroom and Energie-U representatives are middle-aged and white coloured. The gender bias that is common in the energy domain, seems not to be present for Buurtstroom initiators: "What I notice: it is usually the women, when it is a couple, that the woman takes the initiative" (R1).

Concluding, representation is moderate and differs per project: Buurtstroom and initiators represent primarily sustainability interests, and responsiveness to community interest at this stage differs per project. Representatives are not reflective of the local community in terms of personal characteristics.

1.4. Legal compatibility

The PCR allowed only residents living in the area with a certain zip code to join the project, which was known and complied with from the start. Apart from the PCR, any knowledge of the legal framework dedicated to collective solar roof projects was yet missing in Utrecht when the first two projects were initiated. This had to be formed alongside the start of the first two projects. They found out a declaration of intent from the roof owner is needed, which was signed for the first projects in the summer of 2016. Technical rules are already considered in this stage: for example, regarding the installation distance of panels from the side of the roof, which influences the feasibility of a viable business case.

The initiative learned from the experimentation and pioneering of the first two projects and laid the basis for later projects to follow clear rules and procedures that also comply with national laws. The initiative moreover fits within the directive of the municipality to facilitate and support collective energy initiatives, especially when in 2018 they formulated the goal of using 20% of all roofs for solar panels in 2025 and collective initiatives were mentioned as relevant actor and should be supported in convincing roof owners to cooperate. This stage can thus be considered legally compatible to a full extent, due to the support from legal and technical experts in the early stage of Buurtstroom.

1.5 Transparency

When the first two projects were initiated, procedures and next steps were much unclear at this stage, for everyone involved; along the way, a script that laid out the different stages was developed which proved very explanatory to initiators in later projects. The initiator usually joins the negotiations with roof owners and a roof investigation, but in their absence, he or she is kept informed by Buurtstroom. It is up to the initiator to which extent he or she informs the neighbourhood, although a first, informal notice of the intended project is encouraged by Buurtstroom: “they will then poke the neighbours already, they put it in a neighbourhood newspaper, like, this will be happening, who is interested.” (R1).

In communication with the roof owner, Buurtstroom is very transparent about the risks, opportunities and (in)securities. In the first two projects, the negotiations were done by a paid expert from consultancy bureau Soft Energy, which much added to transparency in terms of knowledge and honesty: “his knowledge was very convincing, so they had faith in that” (R2). According to this person, he can be fully transparent because he as an independent party has no stake in the matter. Although these negotiations are now done by Buurtstroom and initiator, this expert still does the technical feasibility study. The risks can thus always be clearly communicated by Buurtstroom.

Concluding, transparency in Buurtstroom is extensive. Board members are open and explaining about the risks and opportunities to roof owners, the procedure is clearly explained to the initiator(s) and the community is low-key informed.

1.6 Quality of participation and deliberation

If the project proves feasible, the board signs a declaration of intent with the roof owner. The distribution of risk and accountability in case of damage costs has been a reason for frustration between Buurtstroom and the roof owners, which has once required the interference of a jurist and a manager from higher up, which has resulted in disappointment for Buurtstroom. This goes easier when there is already a relationship with the owner, such as in the case of the Rebothkerk where the panels would be installed on the roof of the church that came with the initiative itself, or in the case of the Molenstraat, where there had already been fruitful contact with the owner beforehand. There are several tools that initiators and Buurtstroom can use in the negotiations with the, which is often necessary to use: they naturally have a ‘weak’ interest, with power dynamics primarily in the benefit of the owner. However, this sometimes means giving in on conditions that limit the benefits to the community in order to get the project realised.

The novelty of the projects and the less (known) existing frameworks and procedures provided more opportunity for input from initiators in the first projects than in the latter. For example, the initiators from Hoograven and Molenstraat were very engaged in the negotiations with the roof owner. However, little opportunity for residents exist to influence discussions. Since the conditions are still quite open at this point, a diversity of perspectives is possible at this stage, but rarely takes place. The feasibility study, which is not very complicated for an experienced Buurtstroom, is on par with technical insights from Soft Energy. Apart from explanations to the initiator, residents are provided with little educative information at this point; however, it is identified that Buurtstroom has learned a lot over the years and can therefore do more and more on its own.

Concluding, the quality of participation and deliberation is limited: conflicts are not always resolved (peacefully), little education takes place, and stakeholder negotiations are arduous. However, Buurtstroom tries to use institutional devices to protect the interests of the community against more powerful parties, and they are open to discussing the interests and perspectives of the initiator.

1.7 Accountability

Buurtstroom learned from projects where after project development when they came realize there was little interest in the neighbourhood, this made the realization of the project very difficult. To limit the risks of blowing off the project halfway through its development, a social indication was added to the technical indication to come to a risk assessment, used by the board to decide whether it is wise to continue to the project development phase.

The project only continues when a declaration of intent has been drawn by the roof owner: “on the moment you do not yet have an intention agreement, you do not have to worry about all those things that come later, because without a roof you cannot do anything” (R3). Risk coverage was a difficult point in the negotiations with roof owners and insurers. Especially in the early projects, there was little evidence that the risks were limited, so accountabilities and responsibilities were thoroughly investigated. Buurtstroom increased its perceived accountability with the help of Energie-U and Soft Energy during negotiations, which helped in getting the roof owners along. In agreements with roof owners, it is usually agreed that Buurtstroom covers potential damage costs. However, the next challenge is to convince insurers to cooperate and because of the perceived risks and complex accountability distribution of a cooperative. This failed in a recent initiative on the municipal archive.

Accountability is also ensured internally to the extent that at the end of the feasibility stage, a note goes to the board of Energie-U which explains all the details, and Buurtstroom continues with the project only if it has performed the first stage correctly and the project seems feasible. However, no consent is specifically asked from the members of Buurtstroom, but they do consent to budgeting every year that includes investing in new projects. Accountability is thus present to a moderate extent: Buurtstroom becomes accountable to the roof owner for any risks and receives consent from the Energie-U board, but no consent or reporting takes place within the cooperative.

1.8 Responsive decisions

The expressed concerns are accounted for in decisions as much as practically possible: the desire of Hoograven to have financial partitions between the projects was adopted, and projects continue only if they appear socially and technically feasible and revenues exceed costs. When an idea for a new roof is brought in, this is always followed up upon. The ultimate decision-point of whether to continue with the project is made by the Buurtstroom board, which between them is made with a majority vote but in practice is always unanimous. The opinion of the initiator is listened to and he or she could in practice desire to quit the project because of the feasibility study, but never happens because he or she trusts the board of Buurtstroom. There has not been criticism from members or residents on the decision to continue with the project. There have not been voices that resisted the project, which made responsive decisions easy.

Buurtstroom is responsive to concerns and interests from roof owners to the extent that it provides certain benefits in order to get the projects realized; for example, by providing the opportunity for the owner to invest in part of the installation or receive the installation after fifteen years when the support scheme for the cooperative has finished. A consensus is always searched for between the two parties, but this sometimes means giving in on input from the community: for example, when offering participation in the project with a significant part of the panels. One point for concern here is the role of the user of the building, who is not always the same party as the roof owner. The user can express concerns, but these are not adopted in decisions since decision-making power lies with the

owner of the building, thus Buurtstroom does not perceive it as its problem to account for decisions made by the owner.

Concluding, decisions taken by Buurtstroom are extensively responsive: the initiative acts upon the expressed concerns from residents, and decisions are usually understood and agreed upon by citizens.

1.9 Effectiveness and efficiency

In the early projects, the feasibility phase was less effective than in later projects, because communication with the neighbourhood and an indication of community interest was included only later. This meant that a project could be started that took much time and effort to be realised; but this has much improved over the years. For the first projects, effectiveness was more important than efficiency: no time nor costs were spared to investigate all snags along the way and establish a strong basis for later projects. This resulted in increased efficiency in later projects.

The different tasks are distributed as such that are most effective and efficient: the initiators have most contacts within their neighbourhood, thus are responsive for community contact; Buurtstroom who is known with every part of the project takes up the role for task delegation and communication with every involved party; Energie-U has most experience with organisational and legal and has a useful administrative network so is responsible for the administrative aspect of project development; and specific, technical parts are delegated to the paid expert. This role division is experienced by all parties as effective and efficient and leads to an informed risk assessment. Whereas most of the initiated projects in the region break down halfway through project development, this was rarely the case with Buurtstroom, illustrating their effective feasibility study. Lastly, decisions are made with the public good in mind, avoiding risks for the residents and stakeholders involved and agreeing upon benefit sharing, with the ultimate goal of realising a renewable energy project to increase the contribution to climate mitigation. However, the board must sometimes give in on community desires to convince the roof owner to cooperate or the roof appears socially or technically unfeasible. Members always applaud the investigation of a new roof. It can thus be concluded that effectiveness and efficiency are fully present.

2. The project development stage

2.1. Open agenda setting

When the project is deemed feasible, the ball comes to lie primarily by external parties: Energie-U and Soft Energy. These were involved via the outsourcing by Buurtstroom, because they did not have the time, resources or expertise to conduct project development by itself. Buurtstroom itself set the agenda, since they specify to these partners which topics needed to be investigated or worked out. Most goals and preconditions have yet been set and this stage primarily exists of working these out pragmatically. However, in some cases, the initiators held a specific desire for this stage which they brought in, namely to work out an opportunity to include people with little financial capabilities in the business case, or in case of the very first project, to have a financial separation between the project in question and the later projects. After the ball was given back to Buurtstroom and initiators, little room was left for new concerns. We can thus state that the open agenda setting was at this stage limited in Buurtstroom, despite the ability for citizens to bring their concerns on the delegated agenda when actively pursued; There was no opportunity for the rest of the neighbourhood to bring in their concerns.

2.2. Open participation

Project development is primarily outsourced to the local cooperative Energie-U and Soft Energy, with no participation from neighbourhood residents. The bureau does the funding requests, business case development, technical research and communication with the net provider. Board members and initiators are sometimes consulted but this rarely happens. The community is not at all involved in

this technical part because it is perceived too complicated and doing this together with them would be too time consuming and inefficient. After this is conducted and all conditions for the project are set, residents in the relevant zip code area participate in the form of a public information moment. They can apply via the website of Buurtstroom. Here, they can decide upon their energy provision: whether to invest or not.

In the Rebothkerk project, potential health or practical barriers like time constraints were overcome by setting up a digital streaming channel next to a live meeting, resulting in a high turn-out rate. In Hoograven, participation opportunities were not equal between neighbours, since not every part was as well informed as others. It can thus be concluded that open participation at this point is very limited.

2.3. Responsive representation

Number of attendants here is usually highest when there is "a group of initiators, who are passionate and enthusiastic" for getting their neighbours along (R1). The number of attendants at the public consultation meeting was perceived as high in Hoograven because the initiator was already part of a sustainability collective so could motivate many residents, and in the Molenstraat because initiators were enthusiastic and held a strong feeling of local control and ownership (R1).

As a Buurtstroom member explains, tenants often do not have their own electricity meter and pay their electricity price inclusive in their rent, making it impossible to join; or do not have the money to participate. The initiator of Hoograven experienced this lack of interest from tenants, which also represented the majority of ethnic minorities in the neighbourhood; however, their involvement was not attempted to be taken away: they were eventually left aside since their representation was considered too time consuming and unnecessary: "We let the tenants a bit aside, because it was harder to get them along. […] When delivering flyers, the response in the Julianaweg was ten times as high as in a rental block, or even more extreme, we got no response at all. So after a while, we just let them aside when handing out flyers." (R2) The Molenstraat initiators did more to try to get tenants represented in the projects via associations of homeowners, but this was unsuccessful: "I have been busy a long time with an apartment block, never doing that again. Because these associations of homeowners cannot come to a unanimous decision. Took me years, without results." (R3)

Participants and attendants to the public meeting are thus nearly all homeowners, who have lived or will be living in Utrecht for a relatively long time. The gender bias towards males seems to have eroded over time. The attendants represent only a specific group of citizens that is not reflective of the local community in terms of age, socio-economic opportunity and ethnicity: the majority is universally educated and "can easily miss the money", of senior age, white and native Dutch (R2). "Hoograven is a neighbourhood with at least forty percent Moroccan and Turkish people, but you did not see them on such an evening, maybe one or two but that's it" (R2). It can be concluded from this profiling that the interests of only a small group of citizens are represented.

The group of participants at this stage not only represents sustainability interests like the initiator, but also a financial and community interest. These interests are therefore also represented by Buurtstroom in their delegating to Soft Energy in drawing up the business case, as well as in the setup of their information provision. In the case of the Molenstraat project, also the specific interest from the neighbourhood to have the most good-looking solar panels was represented by the initiator. However, additional interests from the community are not represented, illustrated by a board member: "It is of course nice if people think along, but they might think everything is possible. For example, 'we can also put sedum on it'. Well yes, but then there are fewer panels possible, and then it is not financially viable. You can choose to make a sedum roof, but then you should not be with Buurtstroom" (R1).

It can thus be concluded that this group is moderately representative: although Buurtstoom and initiators accurately represent the interest and characteristics of the attendants, the attendants do not represent the interests from the community, and do not reflect the characteristics of the community.

2.4. Legal compatibility

To start project development responsibly and legally in the beginning of Buurtstroom, juridical documents were created to ensure this, including the statutes and membership agreements. This was drafted up primarily by Energie-U and legally checked by a jurist. During the project development, actors have to comply with rules from the PCR, which are quite extensive and complex; also, one of the reasons that part of project development is being delegated to experts, to make sure all rules are correctly complied with. This scheme is limiting for participation since it allows people to benefit financially only up until its energy use, and because panels have to be sold by the participants when he or she moves out of the zip code area. It also limits deliberation: Buurtstroom must comply with multiple conditions, which limits freedom to go wherever is desired. But also, other legal rules must be applied with in technicalities, such as the earlier mentioned distance of the panels from the roof side. Buurtstroom draws up a right for superficies with roof owners and applies for a permit before realizing the project. Buurtstroom thus complies with all rules and regulations.

2.5. Transparency

During project development, Buurtstroom board members and the initiator were kept informed by Energie-U and Soft Energy, while residents were not. After the project had been developed, recruitment of participants started. At this point, the business case, along with an explanation of the procedures, the expected revenues, the stakeholders, the risks and the requirements, was made publicly available and provided to every citizen in the neighbourhood in the form of a brochure (R2; R3; Informatiebrochure Buurtstroom Hoograven de ARM, 2017; Informatiebrochure Buurtstroom Molenstraat, 2017). The Molenstraat initiators took up this task of writing the brochure but found it difficult to find the right balance between providing technical and juridical details and promotional words for recruitment in the brochure. Information is being channelled to the rest of the community via door-to-door flyers, posters, social media, and local newspapers. Information brochures are primarily written by Buurtstroom board members, since they learned from Molenstraat that this worked best and have experience in which information to put in there to inform citizens well but not make it too complicated. This was experienced positively by the Rebothkerk initiators and participants, finding it very clarifying. The participants who signed up for the project were kept informed about the progress.

The perceived complexity of the zip code area scheme raises insecurities and questions from citizens, posed at the information evenings for the projects. This was especially the case in the first projects, when little was yet known about these types of projects. Questions revolved around about risk coverage, practical application and revenue distribution. These questions were very well responded to by the board members of Buurtstroom, and by being open about risks and interests, they gained enough trust of citizens to invest. When the novelty of the projects disappeared, this also increased transparency for citizens: “You can actually show that it works.” (R1). However, the technical organisation of the energy system and complex financial scheme for revenue distribution remain complex to the average citizen, resulting in questions repeatedly asked at information evenings and when new members join in general assemblies of Buurtstroom, but “this was all properly parried by Buurtstroom, so these barriers were quickly taken away” (R4). An important asset was the transparency of Buurtstroom, who are “open and honest, about, why we do this, what does it yield, and what are the risks” (R4). What helps here is that hired advisory bureau in turn is very open and transparent about the opportunities and risks towards Buurtstroom, due to the fact they do not have

any interests or stakes in the project. Overall, the transparency of Buurtstroom resulted in 94% of the members confirming they had sufficient information about the goal and general structure of Buurtstroom during the project development (Results member survey Buurtstroom, 2021).

Problematic is that a group of residents in the zip code rose area was not aware of the planned project. It appeared from the interviews that this group is characterised as tenders and those who are not naturally interested in sustainability. This is problematic because unequal knowledge and information provision can enlarge the gap of those who are included in and profit from the energy and those who are not. This thus touches upon other principles of open participation and representation as well.

Concluding, Buurtstroom is in the first half of the project not at all informative or explanatory towards the rest of the community, but in the community part extensively informative, explanatory and honest about risks, interests and possibilities.

2.6. Quality of participation and deliberation

In its early projects, expert knowledge and community input were intertwined: setting up the cooperative and conducting all technical, financial and legal research for the first projects, was conducted by two hired experts, who were also active members of Energie-U. When the cooperative was established, the support scheme was new and subsequent financial calculations did not yet exist, which was all figured out by these experts in the beginning of Buurtstroom. This expertise not only contributed greatly to the success of the projects in various ways, but it also resulted in the establishment of clear procedures. However, to keep the initiative independent of the hired experts, they left the board as soon as possible.

In later projects, projects are still governed by both community input and expert knowledge, but in a different dynamic: the cooperative Buurtstroom at this point has matured and found a most effective role division, regulating different types of knowledge, where the initiator brings in knowledge about its community dynamics, while technical and regulatory expertise is brought in from the advisory bureau. Buurtstroom takes up a position of intermediary between initiators and experts and has learned a lot over the years on both parts and are therefore able to uphold some quality of deliberation and decision-making. Initiators and (board) members can also educate themselves via a e-learnings and workshops from CRE umbrella organisations and learn along the way from locally hired experts.

The research by the expert bureau includes the contact with the net connector and potentially subsidy proposal. The permit application with net connector Stedin has recently become challenging. The fact that this is being done by Soft Energy bureau is beneficial since he holds a stronger position and can thus protect the ‘weak’ interests from Buurtstroom. However, apart from power disparities, technical limitations are constraining for the negotiations and feasible outcomes. This is best explained by a quote from the expert: “You make a request with Stedin, then first they say no it’s not possible, and when you say: but we really want it, they do a bit more effort and sometimes say: maybe it’s possible, or only until 100 kilowatt so you have to change the project a bit, or it’s not allowed right now but maybe we have some capacity in two years. So that really varies.” (R5) Also in the negotiation with Stedin at the first project, Stedin had not been very cooperative in fixing the necessary grid connection but was forced to due to knowledge and pressure from the expert.

Another example where deliberation with stakeholders are ineffective, is in negotiation with the municipality: when they facilitate conversations with stakeholders, it is experienced by respondents that they do not understand the limited financial capabilities of Buurtstroom and do not value them correctly. Moreover, discussions about the use of municipal roofs do not show much understanding

or willingness from the municipality. Thus, the dynamics between community input and the expert agenda are not operating on an equal footing.

Since neighbourhood residents become involved only after the business case, technical details, et cetera have already been researched and decided upon and the only choice they have is to participate or not in the energy project, the structure is not fitted for equal influence: “We often say, this is the package, this works well so this is how we will do it. Not to play the boss, but from our experience, from the business case” (R1). According to experts and decision-makers, this is due to technical and regulatory constraints, as well as the level of expertise required to understand what is possible within these constraints: “It is of course nice if people think along, but they think everything is possible, and then we know from experience or regulations that that is unfortunately not possible. It’s not like a neighbourhood garden or so, you have to deal with all sorts of financial and regulatory constraints […] So yes you would like people to bring in all sorts of new ideas, but that is quite difficult, due to this financial support scheme” (R1). Participants who disagree with the plans can either speak up and try to influence the plan, which rarely happens, or decide not to participate, which is more common. This is then always due to a lack of interest or financial capability.

Although the opportunity for input and discussion was very limited at this stage, the community of the Molenstraat project brought in a change in the project only after the plan was in principle finished and presented. They wanted to choose their own solar panels different than those proposed by Energie-U. They are a good example of active and aware citizens as prescribed by energy democracy: apart from bringing in an alternative, the initiators were relatively much active in informing their neighbourhood and thus also say to have learned a lot.

The quality of participation and deliberation during project development is thus limited: limited in the interaction with citizens, a diversity of interests is not encouraged, and citizens are not educated to bring in qualitative arguments. The stage primarily hinges on technical expertise, although Buurtstroom makes well use of the combination between community knowledge and external expertise in decision-making, and input that would change the plan is not encouraged but always allowed if actively brought in by the community.

2.7. Accountability

As follows from the transparency from Buurtstroom, the division of risks and responsibilities are clearly communicated by board members towards citizens. Critical questions are responded to. There is however little opportunity to hold Buurtstroom accountable for the plan that is represented: although the information brochure provides much relevant information, checking how and why certain outcomes came to be, is not possible because information about this part is very limited; however, questions from residents on this part are responded to be the expert bureau who then explains how and why the business case came to be as it is. In this stage, a right of superficies that establishes the division of risks and accountabilities is signed with the roof owner, where risk coverage is a responsibility for Buurtstroom. Internally, the cooperative again does not need the consent of members to continue its activities with the new project.

Moreover, Soft Energy has to account for their plans and procedures towards the municipality, which at times proves difficult: “Civil servants switch so often, you have to tell the story all over again. With a municipal roof, they figured out how to do this within the municipality, search out every detail. So, we did it all very neatly, walked through every step, what has to be consented to, even a right of superficies. And then for these next two roofs, it must be done all over again, because there has been a change in person, who does not know what has been researched before.” (R5).

Overall, Buurtstroom thus is accountable to participants and stakeholders quite extensively.

2.8. Responsive decisions

Decisions from the Buurtstroom at this stage were very responsive to the fact that all concerns were considered, however not all input was reflected in the outcomes because of practical constraints: “If I explain why we do not do it like that, they understand this is the best plan. I do not think we ever heard an idea and changed it afterwards.” (R1) The project was primarily pragmatically set up and therefore responsive to the interests of maximum amounts of energy use with maximum revenues. Only when other, specific interests exist that run contrary to these considerations, the plan is changed, even when this cost a lot of additional time and effort from Buurtstroom. Thus, all input was ultimately reflected in the output. As becomes clear from deliberation during project development, decisions between Buurtstroom and external stakeholders are not always reached in a way that results in the agreement of both parties, where it is most often Buurtstroom who ultimately pulls the short straw due to its lack of negotiation tools.

It can be concluded that responsiveness in decisions is extensively pursued but met to a moderate extent: all expressed concerns are reflected in decisions whenever possible but often limited by technical or financial constraints; every participant can decide for him or herself whether to participate; and citizens usually can find themselves in the plan presented to them when they understand the practical confines.

2.9. Effectiveness and efficiency

As was the case for the feasibility stage, project development did not go very efficient at first due to the lack of experience but gained effectiveness and laid the basis for more efficiency in the upcoming projects: during the development of the Rebothkerk, the whole organisation “went as a train: realised in half a year. With Buurtstroom, everything was known what had to be done, also with us everything was known, all documents… we could cycle right through it. It really helps when you know what the whole process entails” (R5).

Ultimately, the purpose of the community of doing and participating in these projects is to contribute to climate mitigation and be self-sufficient in energy production and consumption. This is also how the structure of this stage has developed and decisions are made: mainly pragmatic, with input from experts and a most efficient role division, realizing the highest amount of renewable energy generation and number of projects as possible. This is more important than financial gains, some projects being realised with very narrow profit perspectives; or than wide community participation in decision-making, illustrated by the limited opportunities for collective decision-making while still ensuring and informing residents of their generated energy. Efficiency is also necessary since the cooperative is carried by volunteers with limited time and resources, and effectiveness since it pursues primarily substantive goals of residents. The decision-making process and subsequent decisions thus efficiently result in pre-set goals.

However, this largely pragmatic focus has changed a bit over the years. As the group grows larger, collective decision-making becomes more important, and the increasing awareness of energy poverty and rising energy prices has put a focus on including more target groups than is necessary for realizing the projects. Also, effectiveness and efficiency are pursued within the confines of what is acceptable for the community, always responding to citizen input, fair procedures and receiving consent even when this slows down the process, explained from an outsider's perspective as: “A cooperative, that process is much longer than with a municipality or small and medium enterprises […] You must deal with all sorts of things in decision-making, a board that stands above it, and a general assembly above that, for decision-making. And we see, those volunteers want to learn all sorts of things... but it takes a lot of time." (R5). Concluding, effectiveness and efficiency of this stage are again fully present.

3. The monitoring stage

3.1. Open agenda setting

Participants of a project, who are then automatically also a member of the cooperative, can initiate new projects, as was attempted for example by the initiators of Hoograven and Molenstraat. They look for roofs throughout the city and approach the owner. They can also set new goals and conditions for the cooperative, for example, members recently started searching for roofs outside of the city of Utrecht. The board during the first assembly states that "own initiative is being encouraged, to think along, doing. The board can establish a committee. So, a call from the board that, if there is a desire, to please notify the board." (1e ALV Buurtstroom Energie-U, 2017). However, new ideas or concerns have little use being put on the agenda for the project that has just been realised, since, as one respondent puts it: "It hangs on the wall and it ticks" (R2). Thus, open agenda setting at this stage is less important but extensively present.

3.2. Open participation

In the management phase, the citizens receiving energy from the project, can participate in decision-making in general assemblies that are held once a year. What is notable, is that all citizens participating in one of the projects are indirectly involved in the governance of all the later projects as well, via automatic membership of the cooperative Buurtstroom. After the realisation of the project to which they participate, "you are a member, you are part of the cooperative, and thus you have influence: you can see it as a large oil tanker which, after a while, you can steer together" (R1). This is an interesting finding since it means citizens engage in the decision-making about energy generation that they do not invest in, receive, or are affected by. However, members cannot engage in decision-making about other projects.

Next to participating as a member in the general assembly, members can participate in board meetings or financial meetings, but only if they become a member of the board or committee. Any member can apply for board membership when a vacancy is open: no additional requirements are needed for this. Time constraints can be considered a barrier, requiring a few hours every week from a board member, but this is kept to a minimum by delegating these tasks to external organisations. Members are also invited to attend information sessions organised in collaboration with Energie-U. Thus, open participation is moderate: no public meetings take place; members can engage in the general assemblies, in the board or in committees, but are otherwise uninvited in other decision-making spaces; and barriers are attempted to be taken away.

3.3. Responsive representation

Since all participants are invited to the general assembly, they can represent their personal interests as well as the interests of 'their' projects here: overviews of the attendants for each general assembly show that usually from each project there are several attendants to represent the project's interest. Members are represented by the board in external matters: for example, when there is an issue with one of the projects, this is first tried to be solved between the board and the expert bureau. In this case, the board in the first place represents the interests of the members over the interest of the cooperative by standing accountable for potential setbacks.

Problematic for representation of members within the cooperative is that, during the yearly held general assemblies, only a minor percentage of the members attends, "maybe 10 percent of the people even shows up, which is problematic for accurate representation in decision-making" (R5). An attempt has been made to gain more knowledge about the interests from the members by means of a survey. Interests from the wider community are not represented. Moreover, the board is not responsive of the cooperative in terms of characteristics, in terms of age and gender: participants are about sixty years old, and gender is balanced, whereas the board is younger and predominantly male. All members have the same specific profile as in earlier stages.

It can thus be concluded that representation is moderate: board members qualitatively represent the core interests of the members, but few members are represented in decision-making spaces, complicating inclusive representation; the board does not fully reflect the characteristics of the members and interests, and characteristics of the wider community are not reflected in the board or cooperative.

3.4. Legal compatibility

Buurtstroom acts according to statutes, house rules and membership agreement in the governance of the monitoring stage of the project and in the cooperative, which were all checked by a juridical professional. The complex PCR scheme is followed in revenue distribution, ensured by a financial committee. Buurtstroom is also actively searching for opportunities to make the scheme more attractive and accessible for people with limited financial capability, or to let them profit otherwise, which inspired recent municipal awareness of and contribution to countering energy poverty. Legal compatibility is thus fully present in Buurtstroom.

3.5. Transparency

In the management phase, participants are still updated on their project from time to time via a regular newsletter, and on the general assembly's held yearly. Here, the board shows budgeting in a manner perceived easiest to judge the yearly result and provides insights in the financial choices. Members are also informed on the energy generation of each project and potential technical issues. A membership survey shows that, whereas 94% confirmed to have been sufficiently up to date during the project development stage, only 69% answered affirmative to the question of being sufficiently updated about their own project or Buurtstroom in general. Those who answered dissenting would have preferred additional information about the information of energy revenues of the projects and financial revenues, information about the situation of the renovation of the building on which the panels were installed, and more regular updates on the own project.

The wider community is informed of important news, upcoming meetings and details on the various projects via the website, however, they cannot sign up to receive a newsletter, and meeting document are not openly published. Information about Buurtstroom is moreover openly provided in a ‘frequently asked questions’ on the website, and general visibility is pursued via online video’s, social media and outreach via its partners.

It can be concluded from information provision internal and external to the cooperative, that at this last stage, transparency is moderate: members are extensively but not fully informed, and the wider community is limited informed.

3.6. Qualitative participation and deliberation

During the management phase, external stakeholders are not anymore involved in deliberation and decision-making, and all members are formally equal due to a one-member-one-vote principle: “It may seem like we impose things top-down, but that is not the case, because all participants are member of the cooperative, and every member has one vote.” (R1) However, this does not equal a full opportunity for each member to influence discussions. First, since general assemblies are held no more than yearly, any deliberation or discussion between members in between these moments is not taking place. Therefore, most decisions are made without the input from members. This happened for example in the case where the revenues of one project were lower than expected about how damage was internally divided was made by the board without participation and informed afterwards during the assembly.

Also, the approach of these assemblies is primarily informative, rather than actively engaging all attendants in decision-making. Since all knowledge and expertise is with the board and members are often uneducated and unaware of the content, this limits a qualitative discussion. It results also in a

situation where community input and expertise from the board are not on an equal footing: critical opinions often soften when decisions are further explained by board members, bringing together perspectives and resulting in an overall consensus. However, the board members of Buurtstroom combine community input and expert knowledge in decision-making, since they receive and interpret the information provided by the monitoring bureau while considering their knowledge from the community.

Thus, participation and deliberation are qualitative to a moderate extent: the governance structure and lack of education limited citizens to qualitatively influence discussions; a diversity of perspectives is included but not encouraged; there are no devices present that protect 'weak' or minority interests; community input and expert knowledge are not operating on an equal footing during deliberation, but these are combined by the board in internal decision-making, and conflicts are resolved peacefully.

3.7. Accountability

Financial risks of members are constrained for residents partly by means of the financial and legal separation between the different Buurtstroom projects: failing revenues for one project does not have an impact on the other projects. Also, Buurtstroom is accountable for risk coverage in case something happens to the panels or the energy it generates. And when there were technical errors at the side of Stedin in the Molenstraat project, they could hold Stedin financially accountable for compensation. However, each member is responsible for keeping ownership of his or her panels local, which means the member must sell its panels within the zip code area when moving away.

Energie-U is kept informed about the performance of Buurtstroom and is positive about the way it fulfils their purpose and achieves successes, as is Soft Energy. Also, after each project, Buurtstroom evaluates with the initiators, allowing for mutual feedback. Board members are evaluated for their performance by its members during general assemblies. Results from the monitoring of energy generation and revenues throughout the year are reported on at the assembly. Subsequently, the board receives yearly assent and discharge of its members for the pursued financial policy during the general assemblies (Notulen 4e ALV Buurtstroom Energie-U, 2020). They can only continue with their activities when the budget is approved by the members. They moreover respond to questions and concerns of members during assemblies and have personal contact afterwards when mutual understanding had not been reached to further clarify its actions and decisions.

Concluding, accountability is at this point fully present: board members report on actions and outcomes of their decisions to members regarding their project, for example when an error occurred in the Molenstraat; they respond to critical questions; and can be held accountable for risk coverage and quality of service.

3.8. Responsive decisions

Within Buurtstroom, decisions can be made by majority voting, with equal decision-making power for each citizen, but in practice, a consensus or a full consent is more common. Each member has one vote and a majority of the members decide upon how to use the money of the cooperative. This in principle also means the group of one project can be affected in their energy provision or revenues by the majority opinion of the cooperative. Critical citizens with a minority opinion or ideas are sometimes approached by one of the majority decision-makers after collective deliberation for clarifying purposes, after which understanding and consent from the citizen holding the minority opinion is reached. Decisions by board members are thus responsive to the interests of the members within the confines of what is technically possible, even though this is not reached because of input or participation in decision-making. An example where a decision was made without citizen input but was later understood by respondents as the fairest option, is when the revenues of the project where lower than expected, but these deficits were not carried by the other projects.

Decisions are extensively responsive: decisions reflect the interests of citizens where possible and benefit the collective, although they are often limited by practical constrains; majority decision-making risks being at the expense of minority interests, but consensus is pursued and citizens can ultimately find themselves in final decisions, that benefit the collective.

3.9. Effectiveness and efficiency

Governance at this point is almost fully informative and decisions are not anymore focused on project realization. However, Buurtstroom continues to be effective in realizing its goal of creating more solar roofs in the city. Efficiency is retrieved from the delegation of monitoring to an external party, limited deliberation to what is necessary, and revenues from projects are used for its core purpose: realizing more solar roofs. The realization of the project adds to climate mitigation and revenues benefit the community financially. Concluding, effectiveness and efficiency are fully present.

Appendix F: Details supportive of section 5.2. (Rijne Energie)

1. The starting stage

1.1. Open agenda setting

In 2016, active members of local energy cooperative Energie-U were waiting until the municipality officially declared the area as break landscape, who stepped to the municipality and presented itself as initiators as soon as this happened. This set in motion a long policy making process consisting of legal requirements and decision points as formally prescribed for area development. From the moment they approached the municipality, these citizens collaborated with the municipality to increase chances of a successful process, chances to retrieve consent to start project development, and being perceived as "a clean energy initiative rather than a small group aiming to earn money" (R17).

The agenda was set 1) as an order of the council to the college to investigate renewable energy generation in Rijnenburg, and 2) by the identified willingness of Energie-U and national energy company Eneco. Energie-U had already built a name and useful political and community network. Emerging from informal kitchen table meetings, they used their knowledge and experience to quickly develop into a citizen collective known as 'Rijne Energie'. Since policy directives from the national and regional level ordered municipalities to be supportive to energy initiators, and the municipality had a desire to organise local ownership in new renewable energy projects, this made it relatively easy for the community to bring their interest of developing CRE on the agenda. Now, the first step for Rijne Energie was to set the confines for the plan that the municipality could adopt in a formal launch note.

When they made themselves known as initiator, Rijne Energie, then a small group of likeminded individuals with great ambitions for contributing to climate mitigation, already had a clear goal in mind: to "provide clean energy from, by and for the citizens of Utrecht", providing the surrounding neighbourhoods. This translated into the provision of around 60 000 households at least, and wind turbines were assumed to be necessary to achieve this. The conditions to reach this goal would be set in collaboration with the local community. Although the large area that had been provided by the municipality was set, the different parts of the polder were open for discussion during this stage, consisting of Rijnenburg (the northern part of the polder), Reijerscop (the south part of the polder), the Nedereindse Plas (a pool) and the A12 (a highway). Their potential was discussed by citizens during this stage.

Door-to-door conversations resulted in questions and concerns that lived in the community regarding the organisation of a local energy project, which formed the agenda for the planned city conversation: "the process caused a lot of questions, which gave us an insight to what lives with other citizens and on which there must come an answer. We talked these through with the municipality and discussed which topics they must touch upon in in the process of drawing up a launch note" (HIER Opgewekt, 2017). Instead of following the agenda of the government, "now we as citizens determine the contours of the plan. The municipality listens to our ideas and considers the palet of expressions and findings in the launch note" (HIER Opgewekt, 2017). The purpose of this stage was for Rijne Energie to hear the concerns and interests of the community and collectively set the conditions for reaching their goal of large-scale energy generation in the area of Rijnenburg and Reijerscop.

Concluding, Rijne Energie pursued open agenda setting to an extensive extent: one the one hand, it enabled the community to put their concerns on the political agenda for the development of the energy landscape and for considering different locations. On the other hand, although Rijne Energie as a community initiative managed to set community goals for the area, this group consisted of only a small group of ambitious individuals and provided little opportunity to other residents to change

this goal. Thus, residents could collaborate in condition setting and influencing the exact locations, but the goal and area had already been set.

1.2. Open participation

Rijne Energie values a wide participation of the community and thus organised various participation opportunities for coming to the first confines of an energy landscape. The opportunities included door-to-door conversations with residents in the polder, a living room conversation and two public consultation meetings early in 2017 (Initiatiefvoorstel Rijne Energie c.s., 2021). Citizens could also participate in an 'open surroundings working group'. Rijne Energie did not have the resources to organise large-scale participation, thus the municipality facilitated in this (HIER Opgewekt, 2017). Together, they organised a broadly set-up dialogue to include citizens and stakeholders from the outset: a city conversation ("stadsgesprek") was organised, consisting of an information market, two conversations for retrieving input, and one feedback moment, which all centred around the broad question: "How can we organise forms of large-scale sustainable energy generation in Rijnenburg?" (Startnotitie Rijnenburg & Reijerscop, 2017). Participation was open for everyone to attend online, and 12.000 invitations were sent to all polder residents and randomly selected residents in surrounding areas, in addition to landowners, interest groups and surrounding municipalities to participate physically. To take away any participation barriers, some conversations and meetings took place at multiple times to take down availability issues and central locations were chosen to minimise traveling.

Additionally, citizens from Utrecht and surrounding municipalities were publicly invited to engage in one or more of the working groups from Rijne Energie: communication, community-building, politics or calculating and drawing, who came together in small-scale and informal meetings. Lastly, Rijne Energie broadened participation by attending over ten different public meetings and open events of municipality and stakeholders.

It can be concluded that in this stage, Rijne Energy fully pursued open participation: the community was enabled by Rijne Energie to engage in the public debate via various large-scale and small-scale participation opportunities at different levels of decision-making, while bringing potential participation barriers to a very minimum.

1.3. Responsive representation

Rijne Energie was represented in the first place by a person that was representative of both Energie-U as well as the national wind cooperative De Windvogel, and a 'core team' consisted of volunteers and employees from the cooperatives Uwind, Energie-U and De Windvogel, supported by knowledge of REScoopNL, the cooperative of cooperatives, Energy ambassadeurs Ijsstelstein, Samen Duurzaam Nieuwegein and Milieufederation Utrecht. Subsequently, primarily sustainability interests were represented by Rijne Energie, with a geographical focus of the (surrounding) municipalities of the polder. The group of people united in Rijne Energie consisted predominantly of highly educated people with an existing network in the energy and political spheres, a strong ambition to contribute to the wider sustainability challenge, and importantly: who primarily lived closer to the city centre, outside of a potential sphere of influence on the quality of living. They thus reflected the interests of a small group in the local community, profiling as "local climate activists" (Edelenbos et al., 2018).

However, Rijne Energie aimed to have all the interests of the local community represented widely and accurately during this stage of the process. To ensure the direct representation of all relevant community interests, the cooperative invited a large and a-select group of residents for the city conversations. Also, every local stakeholder group was represented in the conversations. To add to these forms of direct representation, Rijne Energie retrieved insights and a more thorough understanding of the concerns and interests of those who were not represented at the open opportunities by actively seeking in-depth, individual conversations.

It can thus be concluded that responsive representation was moderately present at this stage: while Rijne Energie represented the interests of only a small group of people directly, they did this accurately, and invited the wider community to represent their interests in public meetings as well as aimed to hear other community interests which were not represented at public spaces so these could be considered in later plans.

1.4. Legal compatibility

Rijne Energie complied with the formal step of a launch note, which was formalised by a council decision. However, the process of coming to this note was not required legally and was uncommon. By organising early engagement this broadly set-up, the process as planned by Rijne Energie was compatible with the provincial directives and municipal plans that underscored the importance of including the community from the outset. The set goals and conditions of large-scale energy generation as set by Rijne Energie moreover "are in line with the ambitions and policy of the municipality of Utrecht", as established in the coalition agreement of 2014-2018 and elaborated in the subsequent Energy Plan (Startnotitie Rijnenburg en Rijerscop, 2017, 5). The plans of Rijne Energie were thus extensively compatible: acting according to the existing legal norms and procedures, and supportive of policy directives by organizing early community participation.

1.5. Transparency

Rijne Energie complemented municipal news channels by informing citizens about its plans in personal contact on the information market as part of the city conversation, as well as distributing flyers door-to-door while proposing conversations with the residents and posting news updates and information on its website.

Rijne Energie is deemed transparent in three important ways. First, by involving the community with its plans from the outset, it made citizens aware of its plans regarding their surroundings while in other cases these usually remain out of the scope of the 'normal' citizen until after the confines have been decided upon 'behind closed doors'. For example, it put announcements of the city conversation, the launch note and the council decisions with amendments on the website it established early on, which made them more accessible to citizens. However, despite its contributions to informing the community, the majority of potentially affected people was still unaware of the plans for "their backyard" during this stage.

Secondly, Rijne Energie explained the spatial plans and procedures that would follow in the next steps in public meetings and via informative documents to citizens. This is unusual since this remains often too complex and therefore uninteresting for citizens. Third, it ensured that citizen feedback was included in the launch note that went to the council, thus contributing to fully informed decision-making by the decision-makers (the council).

Rijne Energie also increased its transparency by lining up close to the people by going personally to residents to talk. In these conversations, it was straightforward and consistent in communicating their interests. This added to a higher transparency perception: "We as citizens are more approachable for residents than an official who might also represent other interests they don't know about" (R17). Still, Rijne Energie was perceived by strong opponents as wind energy lobbyists in disguise, rather than as residents aiming to contribute to the public good, because they argued that wind energy is probably necessary when aiming for providing 60.000 households. Rijne Energie was honest to citizens and stakeholders about its own lack of knowledge, as well as identifying this knowledge gap with others, and thus planned for conducting research in the next stages. A research document published by the National Institute Public Health and the Environment (RIVM) about the potential effects and norms was put on their website.

Within Rijne Energie, proximity was high in the small group of participants of whom many already knew each other personally, and they were formed based on overlapping goals and interests, which benefited internal transparency. However, the interests they personally represented were not always transparent externally, primarily regarding the main Rijne Energie representative who was also a representative of De Windvogel: this came as an unwelcome surprise for residents who only later in the process became aware that this representative primarily represented interests of the wind sector, and could thus be assumed to prefer the inclusion of wind energy in the plans of Rijne Energie.

Rijne Energie was thus extensively, but not fully, transparent: it communicated openly about its goals, but the (organisational) interests it represented was not known or understood by everyone; they created community awareness about both content and procedures and encouraged independent research for the next stages.

1.6. Quality of participation and deliberation

During the city conversation, the structure was such that participants had equal opportunities to influence the discussion. Residents, who more commonly hold minor influence, were invited to attend in a majority. Small groups brought in topics, which were explained in a plenary fashion, and everyone indicated individual preferences. However, participants observed a deficit in the quality of deliberation since arguments were based too much on opinions, while knowledge about "the facts" was lacking (Startnotitie Energielandschap Rijnenburg & Reijerscop, 2017).

Rijne Energie contributed to the quality of deliberation 1) by increasing education of participants, 2) by encouraging and including a diversity of perspectives, and 3) by using ways of participation directed at protecting minority or 'weaker' interests. First, they created education by means of expert presentations on the information market and by organising a visit to a wind park, adding knowledge and a stronger mutual understanding of perspectives to the dialogue. Second, they actively searched for and encouraged the expression of diverse opinions and perspectives, to get an understanding of the several sides of the debate. As is explained by a representative from Rijne Energie: "People are concerned with shadow and noise. All these concerns are valid. By respecting everyone's opinion and keep having the dialogue and discussion, perspectives can change." (HIER Opgewekt, 2017). Participants could in small groups write down their concerns and sticker priorities and comments, so every input was expressed. Adding door-to-door conversations in the polder to this, Rijne ensured that they heard the interests held by the minority with little resources but most affected by an energy park. By having these conversations and hosting three walk-in evenings for residents before the city conversations, they got a first acquaintance and understanding of those who had started protest around the same time.

Rijne Energie smartly combined plenary information sessions with small-scale discussions. Critics argued that attendants were not able to speak up and answers from Rijne Energie were limited: "Conversations with 400, 500 angry people who did not get the chance to speak" (R16). However, these criticisms were implicitly directed at the plenary part but ignored the facilitated discussion afterwards. An experience of one random attendant talking about the same meeting was more clarifying: "With seventy people it is difficult to have group discussions. In the discussion tables afterwards there was a lot of room for everyone to say their thing. Hopefully everyone went home with many answers" (Facebook event comment).

Apparently, the strength of Rijne Energie at this stage was primarily in providing additional small-scale participation opportunities to include, and increase understanding of, the diverse perspectives and concerns of affected minorities in the broader dialogue, combined with larger public meetings to obtain input and provide information. Opening the dialogue as such was especially relevant since a group of opposing residents had already started a protest. Their preference for wind turbines since

the beginning, as well as the premature protest of some residents towards wind turbines, has become visible in this early stage and has constrained a fully qualitative deliberation early on.

Within Rijne Energie, quality of participation and deliberation was supported by the expert knowledge brought in from De Windvogel from the beginning, which had been in existence since the 1990s and was experienced in cooperative wind park development throughout the Netherlands. Energie-U brought in knowledge of the community; unfortunately, the knowledge obtained in the project of Lage Weide had left the cooperative along with the people in charge then. Expert and community knowledge were combined in the different deliberation spaces. However, the informal nature of the governance structure and no mechanisms were yet in place that encouraged a diversity of perspectives internally or protected weak interests from majority power.

It can thus be concluded that research was lacking to come to informed arguments, but apart from that, Rijne Energie pursued quality of participation and deliberation by increasing education; encouraging a diversity of perspectives; and by considering the protection of minority interests in the participation structure. Quality of participation and deliberation was thus extensively met.

1.7. Accountability

Rijne Energie can be regarded accountable to the public to the extent that they reported on choices and responded to (critical) questions at the public walk-in meeting after the city conversation. Since the process was determining the confines instead of following these, they did not have a strong responsibility to account for their proceedings at this stage. However, they showed a responsibility to act upon the mentioned concerns of residents and thus planned to investigate the nuisance effects of wind turbines to accommodate for these concerns. Also, the community was invited to participate in the next stage as well, which enabled them to keep an eye on the consideration and implementation of the conclusions of this first stage. The effects of the conclusions were explained during their open walk-in meeting in May (Informatieavond Nieuwegein Inge Verhoef, 2017).

The outcomes of the participation from stakeholders were very similar to the policy directives that were also included in the final launch note, which indirectly made Rijne Energie formally accountable for living up to the conclusions in the next stage: 1) early process participation by citizens; 2) spatial integration and minimal nuisance – encouraging to consider the perspective of residents and go beyond compatibility with legislative norms; 3) energy revenues flow back to the people experiencing nuisance; and 4) a strong role for cooperatives in the implementation of the agreements.

A deficit in accountability at this stage can be derived from the fact that no agreements or mechanisms were established that held the municipality accountable to living op to the conditions and agreements established in the launch note: its function was only advisory and not obligatory. The non-commitment was even stronger since the formulated ambitions, conditions and next steps remained rather abstract. However, Rijne Energie filled part of this gap by installing environmental surroundings working group that could ensure the compliance with the conclusions from the launch note.

Concluding, Rijne Energie pursued accountability extensively: they communicated the impact and implementation of concerns in how they formed the first confines of their plan and in what their next steps would look like soon after the city conversations; they responded to critical questions; and invited the community to continue in a workgroup which could ensure their compliance. However, they continued without receiving broad consent from the community.

1.8. Responsive decisions

Rijne Energie encouraged to conduct independent research as a response to citizens who expressed fear and resistance to wind energy. Also, its community-based approach itself was responsive to the desires of citizens, allowing community control and sharing profits locally, as well as keeping the community engaged and involved in the follow-up process.

However, conclusions on how to proceed were not fully responsive to affected residents' perspectives: if they were, they would have decided to stay with only solar panels, since in an online poll and a survey answered by residents, a majority preferred a scenario with only solar panels and no wind energy. Opposing citizens who organised themselves from the outset as Neighbours of Rijnenburg and Reijerscop ("Buren van Rijnenburg en Rijerscop", also known as "BVRR"), were frustrated that their "survey and the statements of residents in the city conversation were not in the final conclusions" (R16). Since Rijne Energie collaborated with the municipality in drawing up the launch note, it had more influence than other participants in the formulation of the conclusions and next steps and thus in the responsiveness.

Resistance of some residents to the launch note can be explained by the fact that their demands and desires are outcome-based rather than interest-based and therefore these residents could not find themselves in the conclusions; although their interests and concerns were to be accommodated by setting conditions and further research, but conclusions did not reflect the outcome that they initially supported, they still opposed. This observation becomes visible at this early stage, where opponents already have taken a standpoint about the outcome "solar panels yes, wind turbines no". This not only limited a good debate, but also could never led to decisions that were responsive to everyone's demands. Rijne Energie tried to understand their real concerns and included measures to accommodate these, being more responsive than looked like at first glance.

However, this outcome-focused rather than interest-based goal setting is also to some extent observed in argumentation by Rijne Energie, although to a lesser extent: Rijne Energie expressed the goal of providing for 60.000 households and at this early stage expected that this could not be accounted for in a scenario without wind turbines. Consequently, the conclusions resulted for example in investigations regarding how negative aspects of wind turbines can be overcome, but not how negative aspects of solar panels can be overcome. However, it must be noted that no real decisions were yet made, the launch note only provided a baseline for the process to come. By not closing the door on wind energy after retrieving negative input, Rijne Energie weighted the interests of citizens inside and outside of their collective on an equal footing. Resultingly, conclusions were also responsive to sustainability targets from the municipality of Utrecht and the sustainability interests of its supportive residents. Revenue interests were expressed to a lesser extent in input and therefore had less focus in their follow-up, indicating that nuisance-constraining measures that would affect the business case were considered more important than revenues for participants.

Concluding, Rijne Energie was extensively responsive to community input in its decisions: all expressed concerns were accounted for as relevant considerations for further plans, but outcome preferences (no wind, only sun) were left aside; they were highly responsive to the interests of its supporters; and most people could find themselves in the display of the retrieved input and next steps.

1.9. Effectiveness and efficiency

As planned, the broad dialogue resulted in a set of conditions, ambitions and research questions, which provided the input for plans by Rijne Energie. Conclusions presented aims of benefiting the public good (nuisance constraints, landscape improvements, fair revenue distribution) and climate mitigation (supporting the energy ambitions) by considering the sustainability contribution of different forms of energy generation. However, the conditions were still much open for

interpretation due to the lack of an existing municipal policy framework for large-scale energy generation and the observed knowledge gap. The outcomes resulted in a plan for the next stage: coming to different scenarios in a participatory process. Next to effectiveness, Rijne Energie pursued efficiency by making use of the municipal resources to set up participation in a form that would have been unrealistic to organise with their own limited resources. Also, they increased participation and dialogue by making use of open events that were organised by other parties, which was an efficient approach for the same reason. It can thus be concluded that the process was both fully effective and efficient in retrieving a better understanding of the interests and concerns of the local community and stakeholders, with the public good as its goal.

2. The condition-setting stage

2.1. Open agenda setting

By establishing the launch note, the council had ordered the college to organise the formation of various scenarios in a participatory process with initiators and stakeholders, with more control over the organisation than was the case in the prior stage. A participatory design process was organised by the municipality with the purpose of coming to at least four elaborate scenarios that would be weighted and subsequently presented to the council for a decision. The launch note set the agenda of topics for conversation; apart from that, everything was still open at this point.

At the start of this stage, multiple parties reported as initiator besides Rijne Energie and Eneco, who were allowed to join the process since they met the conditions from the launch note. Rijne Energie could easily bring points to the agenda since they as initiators participated in the groups who made the designs to which the wider community could react; further explained in the next section. They actively invited the community in their external communication to attend in the participation process to get their interests on the table.

Before guaranteeing the initiative to Rijne Energie and Eneco, the municipality drew up an invitation framework after the participation process that invited everyone with an interest in the energy landscape, both commercial and community-based but organised with minimally 50 percent local ownership, to apply as initiator by means of an initiative proposal. Halfway through 2020, Energie-U and Uwind quit as co-developers and instead Eneco, Rijne Energie and BHM Solar became the new consortium of initiating parties. They thus applied collectively as initiators under the name Rijne Energie consortium (c.s.). Of the two applicants, Rijne Energie c.s. was the only party who met the conditions from the invitation framework. They were thereby formally selected as initiators to the project (Raadsbrief Selectiebesluit Energielandschap Rijnenburg & Reijerscop, 2021).

In their proposal, Rijne Energie could implement its own goals and conditions, as long as these fitted within the framework. Since this framework provided room for many sources of energy generation and contained conditions that they also agreed to or even provided as input earlier in the process, this gave them a lot of freedom to set out their plans. They could set their own agenda, and instead of organising options for general input from a large audience, they invited specific groups to think along with their agenda, partly so their plan would fit with municipal conditions. If members had the desire to bring an urgent issue on the agenda, they were formally able to initiate a general assembly (Statuten Rijne Energie U.A., 2018, Art 10.2)

In September 2018, Rijne Energie was being established as a cooperative: Rijne Energie U.A. Its agenda was set and established in the statutes, stating its goal as follows (Statuten Rijne Energie U.A., 2018): to provide resources for her members by agreements, together in a company that serves to provide her members, by:

- Contributing to making Rijnenburg & Reijerscop and the wide surroundings more sustainable
- Developing a renewable energy park in the polder of Rijnenburg & Reijerscop
- Encouraging and enabling value-bound activities

- Looking after the societal interests of her members
- Increasing local engagement by realising local ownership and control of energy provision

What appears is that the agenda setting by Rijne Energie for the coming years was quite widely oriented and aimed at substantive contribution to sustainability as well as enabling the ownership and control by, and interests from, its members.

It can thus be stated that open agenda setting has present to a full extent: their agenda remained open for concerns to be responded to in initiative proposal. Additional goals could be set for the plans by landowners and polder residents. Agenda-setting by the board with opportunity to add agenda points.

2.2. Open participation

The municipality set up an elaborate participation process which included large-scale work meetings that alternated with work ateliers and meetings by working groups, design group and initiators group. It organised the following events together with Rijne Energie:

- Work meetings: all interested stakeholders from Utrecht and surrounding municipalities, informative/consultative, 300-500 attendants per meeting.
- Working group meetings: group of 15 residents with a direct stake in the area appointed on a personal title, came together 8 times, to discuss weighting criteria, map the effects of potential scenarios, and ultimately give a rating to every scenario
- Design group meetings: an external design bureau, together with the municipality, designed the scenarios, working from a longlist of scenarios to at least 4 realistic ones
- Initiators group meetings: all parties interested in developing the energy landscape, among them Eneco, De Windvogel and Rijne Energie
- Work ateliers: participants of the working group, design group and initiators group collaborated in the design process to come to the scenarios, using input from the work meetings

Most importantly, Rijne Energie collaborated with other initiators and a diverse group of residents in setting the research criteria, selecting the research company and interpreting the research report. This design process by the municipality took place from late 2017 until late 2018. Afterwards, Rijne Energie, Eneco, BHM Solar, De Windvogel and other initiators negotiated with the municipality before the latter formulated a draft vision and invitation framework.

Because of the intense and diverse process as organised by the municipality, it was not necessary for Rijne Energie to organise many of their own meetings in order to ensure wide participation opportunities for citizens during this period. They did organise one public meeting with members and local residents to draw and calculate options for providing 60.0000 households. Also, they continued to lobby and recruit new members at external public meetings and events.

From early 2018 onwards, Rijne Energie invited two important target groups in their plan making: landowners and polder residents. Rijne Energie c.s. put a lot of effort into convincing landowners to cooperate, inviting them to multiple public and door-to-door meetings with them, sending letters and telephoning. Both project developers and polder residents were included in these conversations. This process became even more important and complicated when the invitation framework from the municipality included landowners, and the proposal thus included the requirement for owning land.

Between the invitation framework from the municipality and the proposal by Rijne Energie, the latter organised as many as six public meetings with residents living in and around the polder for discussing nuisance, participation and design of the landscape, within the confines of the (draft) framework. By doing so, residents were engaged and informed about the design process and subsequent plan- and construction process: "We try to design the process as such that residents can always ‘step in’ to

think along or ‘step out’ if they do not have the desire or opportunity anymore, although we will mourn the latter. In other words: our door is always open” (Initiatiefvoorstel Rijne Energie, 2021).

During this time, the newly established cooperative Energie U.A. hosted its first couple of general assemblies in this stage, of which the first two were open for everyone to attend to keep everyone informed and involved, but later were only open to attend by members (and funders). Everyone could sign up as a member for a very small fee, and consequently participate in decision-making: in principle, even citizens who supported a scenario with only solar panels were able to join. When the plan developed and Rijne Energie had more guidelines to work with, the board invited and encouraged all of its members to participate in working groups to help the cause of the cooperative, and to recruit more members. This increased community participation, with the counter on 250 halfway through 2019 and almost 500 in 2021.

It can be concluded that open participation was fully present. During the first year of this stage, Rijne Energie primarily made use of the open participation opportunities organised by the municipality, while hosting its first general assemblies, first open and later excluding non-members. Also, participation was organised for the community regarding limiting nuisance and creating benefits, and included negotiations with landowners.

2.3. Responsive representation

Representation can be labelled as moderately present. To start with, residents could participate in the small decision-making space provided by the municipality as ‘working group’ only on a personal title and no one could apply as a representative from an interest group. To increase responsiveness of representation, Rijne Energie organised meetings in which also those who were excluded by the working group could attend to represent their concerns and perspective. For example, in the early general assemblies by Rijne Energie U.A., representatives of BVRR and of the municipality were present and respectively posed critical questions and provided explanations (Notulen eerste ALV van Rijne Energie, 2018; Notulen tweede ALV van Rijne Energie, 2019).

Surprisingly, every decision-maker claimed to represent the local community, while ultimately the local community did not feel represented. A municipal respondent states: “You have different interests... We have to take care of the local area, they have to ensure a viable energy park” (R15), whereas conversations with local residents shows they do not at all feel represented by the municipality of Utrecht, but rather neglected and opposed, which has its roots in conflicts built up over the last years, and now they must deal with wind turbines in their backyard for the sake of generating energy and revenues for “the city” (R18). Rijne Energie aimed to represent “the community”, especially towards its partners, however answered in the first place to its members: and since its members are not those living closest to the polder, these interests were also represented to a lesser extent. However, they actively focused on the residents living in and close to the polder in their open participation and external conversations, especially at this stage.

All local residents were hardly represented at the public meetings and working groups from Rijne Energie, since they were still very frustrated and fed up with the whole process after the debacle of the municipal participation process, resulting in their interests not being represented during most of the drafting of this proposal. After the invitation framework came out, opposing residents from BVRR united with project developers and landowners, represented in Kopgroep consortium Rijnenburg and they lobbied in favour of housing and opposing wind turbines. In the meanwhile, Rijne Energie U.A. aimed to include interests from those who did not have the opportunity to invest financially in its plans: for example, they started making plans for people with ‘a small purse’ (Notulen zesde ALV van Rijne Energie, 2020).

In the just established consortium, it is questionable to what extent Rijne Energie was able to resist a dominant commercial and national and agenda coming from its partners in order to ensure the full representation of community interests in collective decision-making. Since the consortium represented two private energy companies (Eneco and BHM Solar) and one national cooperative (De Windvogel), groups outside of Utrecht with other interests were also represented. Eneco and BHM Solar represent both the financial interests of their customers as well as directives of climate mitigation and local support. De Windvogel represents the interest of realising a maximum amount of wind energy in the Netherlands for climate mitigation. However, their interests quite aligned with Rijne Energie, all pursuing the generation of renewable energy and with a strong focus on socially responsible entrepreneurship. For Rijne Energie, there was an equally important goal of doing this by and for the citizens of Utrecht. However, it meant only one-quarter of the represented interests follow from the local community. This limits the inclusive representation of the community in decision-making.

When Rijne Energie was still informally organised but its support base had grown, they were less able to identify and thus represent the specific interests and preferences from its supporters. However, from the moment the cooperative Rijne Energie U.A. was established, it formally represented those who signed up as a member. Members could take up a position in a committee or the board: at the first assembly, various open vacancies were shared (Notulen eerste ALV van Rijne Energie, 2018). Appointment of the first board members was consented to by the members. They were and are responsible for representing the cooperative in implementing decisions from the board and the members, which was perceived possible only when aligning with its personal interest (Statuten Rijne Energie U.A., 2018, Art. 15.1): this assumes the importance of direct representation for having qualitative representation. Decisions by the board could be made only with at least half of the board members present, but no such baseline existed for the general assembly. At this early stage, a majority of the members attended assemblies.

Lastly, in terms of reflecting the characteristics of the community, neither the representatives nor the participants of Rijne Energie reflected the characteristics of the city in terms of gender and socio-economic, ethnic and educational background, with a strong bias towards white, higher-educated and middle-aged individuals, predominantly male, with a primarily centre left political orientation. They however had a desire to become more diverse in their representation: “to complement the board, a fifth, preferable female candidate is being recruited.” (Notulen eerste ALV van Rijne Energie, 2018), and inclusive in terms of its membership base: “young people find the climate important, so why are they not yet a member?” (R14).

2.4. Legal compatibility

Rijne Energie was extensively compatible with legal requirements and policy requirements. Most importantly, the participation process was compatible with policy objectives of bringing together all stakeholders and was also a formal requirement in the Law for Spatial Development (Wet Ruimtelijke Ordening). The scenario development was a new way of substantiating the participation process and the establishment of a vision and invitation framework were new and ‘trending’ at the time (R15).

The allocation of rights and obligations as established in the final invitation framework happened through a procedure similar to formal tendering. The municipality, and subsequently Rijne Energie, learned along the way which steps to take, which protocols to apply. The project managers had zero experience beforehand, and “with the experience they now have, would do it tighter, slicker” (R15). A project manager however explains his desire not to have too many frameworks apart from the existing protocols and procedures, since this could restrict the quality of the plans: “If I am much constrained with frameworks, then I can’t move and also cannot think of smart things […] If I make one framework for all of Utrecht, then I can’t customize the approach in all different projects.” (R15).

Critical questions were raised by residents about the (lack of) protection from legal norms for wind turbines. The municipality based its early search areas in 2014 on the Handboek Risicozonering Windturbines provided by RIVM (2013 updated in 2014), and the norms used for the invitation framework far exceeded this. However, critics stated that these "legal norms for wind turbines provide little protection: they are based on yearly averages, while nuisance comes from the peaks in case of unfavourable wind" (R16). They were proved right years later, because in 2021 these norms were rejected by the European judge. No legally valid norms currently exist for the Netherlands, so the framework that had a strong legal base at the time, currently doesn't.

In the invitation framework, extra-legal requirements were made regarding to nuisance limitation and ecological and community-benefiting requirements. These were legally tenable and could be established in the destination plan later, since it is legally allowed to "publicly establish extra-legal agreements with initiators" and "guaranteeing an acceptable housing- and living environment" (Raadsbrief, 2017). The criteria used in the resulting framework were very new to the energy sector. Thus, in collaboration between municipality, Rijne Energie and other initiators, a very novel policy framework exceeding legal requirements and guidelines was created.

There was a discussion about the selection of Rijne Energie c.s., since they barely fulfilled the requirement of "owning land positions", with a mere declaration of intent from a private owner and the allocation of two pieces of land by the municipality (Initiatiefvoorstel Rijne Energie c.s., 2021; Raadsbrief Selectiebesluit, 2021). However, by drawing this declaration, Rijne Energie was in line with the requirement. Their difficulty was the result of a new approach, uncommon in formal spatial planning: plans were made without yet owning any land. Rijne Energie c.s. followed the course of the invitation framework in creating and sharing benefits for the local community while limiting nuisance. They took measures that exceeded the extra-legal requirements from the framework as a response to concerns of affected homes, for example in constructing a shadow calendar for putting the turbines on hold when touching upon windows and planning for a local fund (Initiatiefvoorstel Rijne Energie c.s., 2021).

Lastly, in the statutes of Rijne Energie U.A. it was established that any additional agreements and regulations from the general assembly may not be contrary to the law (Statuten Rijne Energie U.A., Art 21.1., 2018). No house rules were yet established at this point due to financial considerations.

2.5. Transparency

The various aspects of transparency were met extensively by Rijne Energie. Rijne Energie and municipality stated that the initial goal for Rijnenburg and Reijerscop as established by the alderman was to generate as much energy as possible, within legal borders. However, at the start of the participatory design process, the goals and requirements were not made clear to participating residents as well as the process supervisor (Sociaal Cultureel Planbureau, 2021).

As a result, residents were insecure of their own role and that of Rijne Energie, and sceptic about the consequences of an energy landscape. This can also partly be explained by the relative novelty of wind turbines and thus the little knowledge available on their effects, and the effect of solar fields on the soil- and nature development, due to the lack of experience of solar fields on a similar landscape type. During the process, independent research was conducted by an agency/company appointed by the working group and initiators together, resulting in a report about shadow and sound nuisance both in and outside of the polder. However, this did not bring Rijne Energie and opposing residents more together; rather, different groups used the report by strategically using the facts that supported their own arguments; not uncommon in the science-policy interface (Van Enst, 2014).

Residents united in BVRR disputed the independence of other research that Rijne Energie provided, arguing that sources were too old and based on very different situations, and research bureaus had their roots in the wind sector. Instead, they brought forward results from the above-described report and criticized the fact that they were published late and in part not being used in decision-making by the municipality or Rijne Energie. They also pointed to other research that showed potential health effects of wind turbine sound on local residents. This criticism is part of the larger, national discussion on the health effects of wind turbines on land. The dependency on many environmental factors on location, as well as the uniqueness of personal experience that cannot be fully anticipated, cannot rule out negative effects on the quality of life of polder residents.

However, the transparency of Rijne Energie seems to never have been questioned by other stakeholders. Throughout this stage, Rijne Energie remained transparent about its interests: “our aim, clean energy generation for at least 60 000 households in local hands, we aim to bring forward as good as possible. As such, everyone one has his or her desires or interests.” (Verhoef, 2018). Also to the other initiators with whom Rijne Energie started to collaborate in a consortium, Rijne Energie has been open and transparent about its interests from the start, stating it is the basis to an effective collaboration, and the other initiators were likewise transparent about their interests. Differences in their interests were not made a secret for the municipality and stakeholders. A critical note can be placed by representation from De Windvogel, whose involvement with the other initiators and representation of interests had not always been clear or transparent for non-participating residents, which might be explained by the representation of both Energie-U and De Windvogel by the same person.

The work group meetings assured that every citizen concerned with the progress could be kept informed about developments of the scenario’s, which is also where Rijne Energie had put a strong focus on in their promotion; “We are glad that on May 17th the larger public will be updated on the current versions of the scenarios, so everyone will be informed again.” (Verhoef, 2018). This is illustrative of the emphasis of Rijne Energie on keeping residents and stakeholders informed. This was supported by the public information meetings, newsletters to both members and non-members, flyers and door-to-door conversations, and an extensive number of documents openly available at the website of Rijne Energie. Illustrating: “Rijne Energie will after publication, together with the consortium partners, organise several information sessions so local residents and interested parties are informed about the process and next steps, as is visible in the planning on slide 6” (Notulen negende ALV van Rijne Energie, 2021).

Extensive information provision was also pursued within the cooperative. After the establishment of Rijne Energie U.A., members became informed by the board via a regular newsletter, general assemblies and the public website of Rijne Energie. Statutes, meeting notes and presentations were published on the website. Members were informed of the agenda and useful information providing time for explaining the process and proposing alternatives. Illustrating, “Before the plan is to be submitted, an information session will be organised with the members, so members know what exactly is in the submitted plan.” (Notities negende ALV van Rijne Energie, 2020).

During assemblies, the board provided an overview of the last years, and explained the upcoming steps until the council decision, with explanations often supported by means of explanatory infographics (notulen eerste ALV van Rijne Energie, 2018). During one of the assemblies, the municipal project manager explained the municipality’s progress and procedures, which provided more insights for members; yet an example of how Rijne Energie adds to transparency by bringing formal procedures closer to the ‘normal citizen’ (notulen tweede ALV van Rijne Energie, 2019).

Independent research and input from the established policy documents over the latest years informed decision-making by Rijne Energie for its invitation framework. Although research was not

fully unambiguous about the impact of wind turbines on the nuisance experience and quality of life of local residents, the majority of research supports that the distances chosen by Rijne Energie are safe and will have very limited nuisance.

2.6. Quality of participation and deliberation

The governance structure of the participatory process seems to have been suited for citizens to influence discussions equally: residents and initiators participated in the same decision-making space and held equal influence. This was also protected by the supervision of an independent process facilitator, to protect the quality of participation and deliberation. However, the scenarios changed between the different work ateliers due to input from the work meetings and primarily due to technical and financial calculations from the design group; practicalities. It was tried to be explained that the complexity did not allow for the preferred scenarios from the working group but this did not land or stick with the residents in question. As a result, emotions ran high and conflict escalated, with half of the working group that quit.

According to the facilitator, one reason for the failure of these discussions was that residents worked together with Rijne Energie and the other initiators in the work ateliers, rather than the scenarios being created only by the residents, thereby not creating an open environment and initiators taking too much influence. Whether or not this was (consciously) done by Rijne Energie, it can be argued that they did not succeed in creating an environment where community input and expert knowledge were felt to be operating on an equal footing. Additionally, Rijne Energie provided input in the period between the last work group meeting and draft proposal when participation from residents had stopped, which added to an unequal level playing field.

What is also much observed during the scenario formation in this process is the resistance of residents not to wind turbines, but to wind turbines “in their backyard”. When half of the working group stepped up due to frustrations, the other half designed an extra ‘own’ scenario, by situating all turbines in the lower part of the polder where most of them did not live; but the two people who did live there subsequently also stepped up: “It was NIMBY [red: respondent is referring to Not-In-My-Backyard behaviour] all over the place”. (R15) This complicated qualitative deliberation with other residents for Rijne Energie.

Minority or ‘weaker’ opinions were recognized by Rijne Energie and others, who understood the resistance to the plans when negatively affected: “I would also be against if it had been my backyard” (R17). However, despite this recognition, they did not provide them with the ability to influence discussions significantly. Some residents observed that minority interests were not protected against the more powerful, and although their criticisms are aimed primarily towards the municipality, no efforts by Rijne Energie are identified to put much effort in changing this perception as a means of legitimizing its plans.

However, the divergent opinions that remained while plans became more concrete, never resulted in a complete strike in deliberation: representatives of every group, whether opposing, supporting or neutral to the plans, are always open for conversation and see this as a strong value in themselves as well as in the other: “We find it important to be a good neighbour: even if they do not agree, we stay in deliberation, keep engaging them, informing, explaining. You can call us when you have questions, even though you are angry with us” (R17); “We demonise no one, but are always open for a decent conversation, I always found that important. We have always shared information with each other” (R16).

Rijne Energie had little input in the quality of participation and deliberation of the process organized by the municipality. But in the period between the last work group meeting and draft proposal, discussions between the municipality and Rijne Energie were perceived as constructive and it is

believed that the expertise of Eneco, the community knowledge by Rijne Energie, combined with the conditions from the municipality to represent affected minorities, this was said to have resulted in quite qualitative plans.

The relative professionality of Rijne Energie and its partners is a factor for how serious they are taken by the municipality: “I must say, the proponents know better how to organise themselves than the opponents. You have BVRR, but they don’t amount to much, they say to have many followers, but they are not a member, do not pay money, do not attend general assemblies, are not a legal person. While Rijne Energie is a legal person with member assemblies and membership contributions” (R15). During this time, Rijne Energie actively set up conversations with every political party in Utrecht, to see where they could find each other and to increase qualitative deliberation later in the process. A municipal official stated that Rijne Energie has an important vote and influence on the choices of the government. They thus could assert a significant political influence.

Rijne Energie, as a consortium and as a cooperative, included a broad range of relevant expertise. Members and board members of Rijne Energie U.A brought in their own expertise, from a technical, organisational, political or communication background for the benefit of the cooperative. A diversity of perspectives as well as different expertises from members were encouraged in the working out of three landscape concepts for the proposal, which were consequently combined in the proposal as an integral vision (Notulen zesde ALV van Rijne Energie, 2020; Initiatiefvoorstel, 2021). The indicative polls during the general assemblies were supportive to providing room to the diversity of ideas and perspectives (Notulen zesde ALV van Rijne Energie, 2020; notulen achtste ALV van Rijne Energie, 2020).

The consortium held technical and financial knowledge from Eneco, being experienced in tender procedures, designing land contracts and wind turbine construction, while Rijne Energie for example had a lot of experience with politics in Utrecht and good contact with a community network. They combined this to optimise decision-making, rather than pushing through their own opinion based on the argument of expertise: “I think people understand we have this expertise and can thus give good advice, and I think and expect that this is included in considerations and accepted by others. But that does not mean we have a stronger vote. And it’s also the other way around […]: then who I am I to question that? So, I trust their expertise in that area. And that is how it goes in a cooperation.” (R19).

However, the additional requirements regarding landscape values, ecology, biodiversity, infrastructure and recreation proved an extra challenge for the consortium, who had their expertise primarily in energy. Some of this knowledge they held internally, but they had to hire a landscape architect for the formation of their plans. This might become more challenging in the future, if it proves they do not have all the required knowledge and experience in the consortium; they suggest in their proposal to the municipality not to be able to design the landscape on their own: "What we offer, is an integral vision to give steering to the total. We set the first steps, but we cannot do it alone.” (Initiatiefvoorstel Rijne Energie c.s., 2021, 17).

In the meanwhile, in its general assemblies, members could influence discussions and decision-making according to a one-member-one-vote principle, as lied to the basis of a cooperative. Rijne Energie has put much effort into providing every member with the opportunity to influence discussions, for example in their third assembly they introduced the use of polls. However, the board is formally responsible for the topics that are subject to voting and can reject a proposal from a member, which implies not every member has fully equal opportunities to influence decision-making (Statuten Rijne Energie U.A., 2018, Art. 11.8). The regularity of the general assemblies and consultation moments before large decisions supports the opportunity for every member to influence decision-making equally. Decisions can even be made outside of general assemblies when it regards a unanimous decision from all members (Statuten Rijne Energie U.A., 2018, Art. 9.3)

It can be concluded from this extensive analysis for the principle of quality of participation and deliberation, that this principle was extensive, almost fully present. Apart from a few far-searched deficits, they have used a variety of perspectives and knowledge sources to uphold quality.

2.7. Accountability

Rijne Energie was not formally accountable to other citizens for the outcomes of the final vision and framework, since these were a municipal decision. The outcomes were surprising but positive for Rijne Energie and responsive to the needs and concerns of their members. Since they had lobbied for the elements that were ultimately adopted, the representative of Rijne Energie could easily stand accountable to the members for her input towards the municipality.

A point of concern was held by landowners, since they were included in the invitation framework as initiator, but after deliberation Rijne Energie c.s. came out as the one accountable: “Landowners were concerned: what does that mean if I work along with the energy landscape, am I then an initiator? Then what suddenly are my responsibilities and accountabilities? While, in practice, the accountability is with us as initiators really, not affecting the landowners at all.” (R19). It is noted however by every respondent that, ultimately, the municipality holds the authority and is therefore accountable for the decisions taken.

Before the proposal was submitted to apply as initiator, a public information session was hosted for members and other residents where Rijne Energie responds to questions on their plan. Documentation from this session was published on their website (Verslag informatiesessie, 2020). House depreciation was an important point of concern of nearby residents. Rijne Energie c.s. is accountable to compensate depreciation if this occurs. They also propose to take on the costs for the scan that residents must have conducted to indicate if and how much depreciation there is.

Board members of Rijne Energie had sent in a response to the draft vision and invitation framework, the lack of involvement from members was shortly questioned by members but accepted when explained that the board can act on behalf of the members if it is in line with the cooperative norms and goals and they report afterwards. To have a baseline on the freedom and responsibilities of the board, board members proposed they would be responsible for day-to-day operations and was authorized for expenditures up until 1000 euros, the general assembly was responsible for major decisions with regards to policy, investments and compensation fees. This restricted the board further than the statutes but was decided upon when it received consent from the general assembly (Notulen fourth ALV, 2019; Statuten Rijne Energie U.A., 2018, Ar.t 14.4). As is an element of cooperative governance, members could provide assent and discharge to the board for pursued financial policy and hold them accountable for actions and consequences. This happened through elaborate updates from the board and critical questions during general assemblies (Notulen second ALV Rijne Energie, 2019). Board members can be suspended or fired by the assembly with a 2/3rd majority without reason (Statuten Rijne Energie U.A., 13.5).

For drafting the designs, total costs were shared equally between the consortium partners. They thus also meant an investment from the members of Rijne Energie, set on a few thousand euros. The risks were high, with chances of success still unclear due to land contracts and municipal consent. However, the members were very willing to take this risk even though the cooperative could be held accountable for their losses if the plans would strand, and even showed additional trust in the board: “The ALV encourages the board not to be afraid of ‘thinking big’ for the next phase” (Notulen vijfde ALV van Rijne Energie, 2020).

During this stage, when the collaboration between the consortium parties was formalised, their mutual responsibilities established. Rijne Energie drew a shareholders agreement with De Windvogel, establishing their relationship containing knowledge sharing and a guarantee of financial

resource support. A cooperation agreement with Eneco and BHM was signed, who became responsible for bringing in expertise on materials, procedures and land contracts. Rijne Energie was responsible for local ownership and community investment.

Following from this, Rijne Energie appears to stand accountable fully; at least to the extent that is required from them, by reporting on performance, explaining next steps in coming to their plans and draws agreements with partners and members that establish the division of responsibilities and accountabilities. They account for how they came to certain plans and decisions in their initiative proposal and became accountable to pursuing this after selection.

2.8. Responsive decisions

Although Rijne Energie had no ultimate decision-making power, they on one hand showed a lack of responsiveness to the community that was not a member: they had not changed the core of the plan and continues to pursue the goal of maximum energy generation in the form of both wind turbines and solar panels, despite a strong resistance locally. This was possible due to the fact that, since decision-making has never been part of the deliberations with stakeholders, no formal mechanisms were in place for this, which was at the expense of weaker interests with no direct voting power.

However, Rijne Energie has been responsive to the demands of its members while lobbying for the conditions in the framework. They advocated for implementing mechanisms for limiting nuisance, to increase ecological value, provide some financial compensation and to share revenues. Input from residents to Rijne Energie was adopted in the plans not only to limit resistance, but also because it is believed to result in better decisions, for example in the experience of wind turbine set up (Guido van Loenen, 2022). In their final proposal, Rijne Energie also clearly explains how the conditions set by the invitation framework had been implemented by their decisions for their proposal, most importantly the selection of low-noise windmills, limiting obstructive drop shadow, and citizens profit in various ways from the revenues (Initiatiefvoorstel Rijne Energie c.s., 2021). However, since the conditions in the invitation framework were not fully responsive to input, this is not a guarantee for responsiveness of the plan proposal from Rijne Energie, which is why they exceed these conditions.

Internal decisions by Rijne Energie were made by an absolute majority. This theoretically could easily be at the expense of minority interests. However, although voting takes place for decision-making, decisions are more commonly made by the board and votes are more used as an indication tool. Polls were often used to get and an indication of the different opinions, so also the minority interests were seen and taken in for consideration in later decision-making. Decisions by the board were rarely disputed by the general assembly, but there were multiple examples where the board was asked for clarification, elaboration or a task for further consideration at a next assembly, thus critically keeping the board in check. Between the different parties in the consortium, a governance structure for decision-making was agreed upon, where every party formally has one vote. In practice, most decisions were taken by consensus, where often the advice of the one with expertise in that specific topic is being followed.

Concluding, decisions were fully and directly responsive to input from the cooperative, and only moderately responsive to input from non-members, of which the latter was even unintendedly: only few wind turbines could be implemented in the plan proposal. This results in an ‘extensive’ record overall.

2.9. Effectiveness and efficiency

Establishing an invitation framework had not been part of the plan beforehand, but after the design process, the municipality “thought, hold right there: we cannot just give this to the initiators from Rijne Energie […] So we will set up a selection procedure first” (R15), while Rijne Energie did not see the use of this extra element: “just give it to us, we have been engaged the whole time” (R15) With

input from Rijne Energie, the final framework realised the (unspoken) goals of providing room to high levels of energy generation, subsequently contributing to sustainability goals and promising high levels of revenue for the local surroundings. Also, by including expertise from initiators and research specifically conducted for this case, the framework includes smart conditions for limiting nuisance for the area. Rijne Energie thus contributed to effectiveness of decisions along the process, formalised in the invitation framework.

Subsequently, Rijne Energie c.s. handed in its proposal in time and was selected as initiator for the energy landscape. However, the plan contained only three wind turbines and six hectares of solar panels, less then provided by the initiative framework, which included eight wind turbines and 230 hectares of solar panels. This would provide for 37.000 households, as opposed to the 60.000 households in their initial goal, caused by limited land positions; this limited their success in planning for emission mitigation. Collective value distribution and individual revenues were planned for elaborately but remained insecure in practice with a limited business case.

For more (cost) efficiency Rijne Energie c.s. prefers the landscape to be implemented as an integral plan, currently also looking for synergies with the water board. This is promoted as such in the launch note from the municipality. Housing is an exception, which is tried to be a separate element by Rijne Energie and municipality, to avoid a discussion where it is one or the other. RES schemes and SDE subsidies pressure CRE initiatives like Rijne Energie to be as efficient as possible: cost and energy efficient, since subsidies are limited and thus they must compete with other developers (Visie Energielandschap Rijnenburg en Reijerscop Gemeente Utrecht, 2020); but also, to generate as much energy as possible within the peak power of the energy source, therefore preferring wind turbines over solar panels (Uitnodigingskader Energielandschap Rijnenburg & Reijerscop Gemeente Utrecht, 2020; Visie Energielandschap Rijneburg & Reijerscop Gemeente Utrecht, 2020). Solar and wind energy must be combined: their complementary value lies in practical, ecological and economical benefits (Rijne Energie informatiesessie, 2020). Rijne Energie c.s. is not pursuing cost efficiency with regards to benefitting the local community.

Concluding, while effectiveness and efficiency were much pursued, they were barely met in this stage. Much had been worked out, illustrated by many drawing sessions assuming full energy opportunities, became useless for the outcomes of the process.

3. The plan elaboration stage

When Rijne Energie was selected as initiator, the following phase started: the plan elaboration. They commissioned elaborate and detailed research to the effects of different wind turbine scenarios on sound, shadow and nature, established in an environmental effect report *(milieueffectrapport,* also known as *m.e.r.*). They had formulated a preferred design (*voorkeursalternatief,* also known as *VKA*) and predesign. The m.e.r. currently lies with the municipality for inspection, and the according request for destination plan change and environmental license application are nearly finished to be submitted. Currently, Rijne Energie is further elaborating its plans.

3.1. Open agenda setting

The baseline for the plan elaboration is the earlier established vision and subsequent initiative proposal. Municipality and Rijne Energie c.s. signed an anterior agreement, primarily regarding the ‘plan costs’ required for the destination plan change. The subject of research in the m.e.r. was defined beforehand in a note of scope and level of detail *(notitie reikwijdte en detailniveau*, also known as *NRD*), constituted by Rijne Energie c.s. with support from the municipality. At this point, it is primarily Rijne Energie who sets the agenda, but with earlier retrieved input from the concerns expressed during the earlier three stages. Results from the m.e.r. is used for further plan- and decision-making. It can thus be said that agenda setting was open to an extensive extent.

3.2. Open participation

To elaborate its plans and come to a preferred alternative and constitute the NRD, external participation opportunities were mostly limited to negotiations in the form of small-scale conversations with local residents and landowners, and to public information sessions. Rijne Energie organised six public information sessions for members and non-members in this period, attracting approximately forty participants per session. To continue its earlier course and according to their commitment in the initiative proposal, Rijne Energie held these public meetings primarily centrally located, and additionally provided digital opportunities, to overcome participation barriers (Initiatiefvoorstel Rijne Energie c.s., 2021).

In the meanwhile, members were encouraged to support in member recruitment to widen participation. They thought of approaches collectively in a general assemblies. As before, members were engaged with decision-making via general assemblies and committees, and participated in the investment working group, business case development and communication, and recently the social and inclusive workgroup was started. The latter aimed to lower participation barriers for minorities and citizens with little financial investment opportunity, thereby increasing open participation.

Open participation is thus fully present: public meetings enabled residents with primarily consultative and informative interests and member meetings and working groups are suitable to those who have a desire to be more actively involved.

3.3. Responsive representation

Several developments have increased responsive representation from Rijne Energie, which makes them extensively representative: The audience shifted from the more activist citizens to interested residents from neighbourhoods in de Meern, Ijsselstein, Nieuwegein, who now become engaged and are represented at information sessions. This can be explained by the fact that plans become more concrete and therefore also have a more informative nature, rather than consultation and cocreation, which attracted a different type of people.

As the process became more substantive as well as intense, there came a stronger emphasis on representation and less on direct or wide participation. The process of constituting the NRD was primarily done by a project group consisting of representatives from Rijne Energie c.s. and the municipal project manager. Where direct oversight was missing, board members acted according to the interests and preferences of its members, which for example was one of the reasons they continued to plan for wind energy next to solar energy (Notulen negende ALV Rijne Energie, 2021). This emphasis on representation is also a result of the increased unbalance between active and inactive members, where a larger group of members is indirectly represented by a small group.

A new (female) board member was recently appointed by the supervisory board of Rijne Energie and consented to by the general assembly, improving responsive representation in terms of gender. The recent ‘social & inclusive’ working group had the of aim of becoming more inclusive, in the first place of people with a lower socio-economic background.

3.4. Legal compatibility

All the necessary legal steps were taken in this process: constituting an NRD, conducting a ‘plan-m.e.r.’, and a ‘project m.e.r.’ for the preferred alternative. To make the financial agreements between municipality and Rijne Energie (legally) binding, they drew up an intention agreement for sharing plan costs. It is notable that Rijne Energie c.s. tried to speed up the process: they conducted the plan m.e.r. and project m.e.r. at the same time, instead of selecting a preferred alternative from the plan m.e.r. and then continuing a project m.e.r.; and applied for an environmental permit and destination plan at the same time as well. Also, they chose to go for only a limited amount of energy sources based on the limited land positions now acquired to start building as soon as possible, while

risking to do the process again in the future when more possibilities open up. This was partly because they wanted to be judged on the current "old" regulation (*Wet Ruimtelijke Ordening*) instead of being one of the first that falls under the new regulation (*Omgevingswet*), thus a changing regulation steered their process. Cooperative house rules were established late in 2021, as a prerequisite for the investments needed for the m.e.r., which extended the legal basis of the cooperative's regulatory framework. Rijne Energie is thus fully compatible with legal requirements.

3.5. Transparency

The development of the plan in this stage required high investments, the process became more complex, progressions follow rapidly, and the plans are becoming more definite. Transparency therefore became especially relevant so that members and local residents could follow the process. For external transparency, Rijne Energie provided information via many public sessions and distributing flyers door-to-door. Also, they hosted an excursion to a cooperative wind turbine park nearby for residents to experience the future scenario and have all their questions answered by a resident living next to the turbine as well as by the initiators (field observation). For internal transparency, the conditions for the development loan, crowdfunding information and the retrieved investments were all published on the website of Rijne Energie; and were all well explained during the assemblies. Rijne Energie was obliged to keep the content of the intention plan cost agreement between the municipality and Rijne Energie c.s. secret towards members, decreasing its transparency (Notulen tiende ALV Rijne Energie, 2021).

A few critical opponents blame Rijne Energie and the municipality of not conducting research that is independent. Rijne Energie and the municipality have selected recognized research bureaus for the NRD and the MER. After an investigation of the claims of critical opponents, these seem not to be argued correctly. This is supported by the fact that an independent committee gives advice on both the NRD and MER. Since earlier conducted research from during the participatory design process in 2018 showed that sound nuisance in the polder cannot be ruled out and this is brought forward again by the BVRR, this is added to the draft NRD in the final NRD (Reactienota NRD Energielandschap, 2022), subsequently published on the website of Rijne Energie. It can be stated that transparency is present to a full extent at this stage.

3.6. Quality of participation and deliberation

Quality of participation and representation at this stage is present to a moderate extent. Opponents from BVRR were willing to have serious conversations with Rijne Energie when plans became more concrete and the option of solely sun energy was on the table. Rijne Energie was willing to consider this, also because landowners were not yet willing to cooperate, which resulted in several qualitative conversations with BVRR and landowners. However, the divergent interests between Rijne Energie, landowners and project developers and the municipality has proved a tricky point that staggered the progress. Project developers prefer housing in the area and do not want to cooperate with either wind or solar energy. One reason is that they expect that wind turbines will negatively affect the value of future houses. Although in 2021 there seemed to be the possibility of a breakthrough in the negotiations by agreeing on a scenario of large solar panel fields and no wind energy, this fell through since the municipality did not provide any perspective for landowners of building houses in the area, maintaining the unwillingness from landowners to cooperate. This discussion shows the need for a consensus between Rijne Energie, land owners and the municipality that has not yet been reached.

According to the plan proposal by Rijne Energie, participation is in the first place 'consulting', a form slightly more active than 'informing': citizens can provide input that is considered for the design process, but not influence decision-making. The ball was now by Rijne Energie c.s.: "In the spring of 2020 we really noticed people were still very angry from the unresponsive participation process from the municipality. But now we got to a stage where we can only inform, because everything is quite

set.” (R17) Which is to the frustration of residents who still hope for a scenario with only solar panels and still try to get their say in things.

Opponents remained opponents, except for those who are even more opposed to housing. However, the newly engaged people as mentioned in the section on representation, have a different attitude and change the tone of the public debate: "Now that everything is set, we get a whole different type of residents. Like hey what’s happening, tell me more. Very different questions. They were never engaged with the participation process from the municipality, so do not have that old pain” (R17).

The emphasis in the balance between community input and expert knowledge shifts from the former to the latter. Rijne Energie c.s. constructed its design(s) and the NRD in a collaboration with experts, including an external consultancy bureau, landscape architects and planners, the waterboard and net operators; while still making use of the designs of the design workshops in earlier stages, thus combining expert knowledge with direct and indirect community input.

During this phase, the cooperation with municipality became more intense, including a weekly communication meeting and the project team meeting every two weeks. This was now considered “super important” (R17). because the municipality ultimately must make the destination plan. They use these meetings for providing updates on their progressions and discussing the constitution of the NRD and later the MER and designs of preferred alternative.

Political developments have changed the context for Rijne Energie. Unclarity came from the municipality during the coalition formation and what it wants with the energy landscape is unclear in the coalition agreement, which complicates planning forward by Rijne Energie. The new coalition agreement now states the energy landscape is permanent, which has consequences for the democratic legitimacy by Rijne Energie: they can develop for the coming 25 years, gain more revenues, and subsequently, have more to ‘give back’ to the community. In the meanwhile, in the south of Rijnenburg research is conducted for housing from 2035, which should be considered and complicates their destination plan change (Notulen twaalde ALV Rijne Energie, 2022). It is interesting what this development will do for the dichotomy of houses versus energy generation in the (public) debate.

The quality of participation and deliberation during the assemblies is affected by a combination of factors. First, the increased complexity and stronger focus on representation as stated in the former sections effect internal participation: the relative influence of active and inactive members becomes unknowingly more divergent, because the active members hold much more of the required knowledge than those who are less active. Secondly, partly following from the first point, members who attend general assemblies for the first time are not acquainted with the large process that has taken place and all the considerations and decisions that have been discussed. The board repeatedly has to explain issues that were tackled five, six years ago.

The knowledge gap between active and inactive or new members has several deficits. The nature of internal deliberation at general assemblies becomes primarily informative rather than consulting or co-creating, since members are not able to make useful questions and input which limits a good discussion. Similarly, members do not always feel empowered enough to speak up when they hold a minority opinion or have a critical question in mind, because they believe not to hold the expertise and their opinion is probably unworthy; a feeling that is moreover strengthened by the increased size of the cooperative: “what does my opinion really matter?” (Field observations). It must be noted, however, that this is only relative to earlier stages, and critical questions and expert input from members remain common.

3.7. Accountability

New requirements for accountability came unto the path of Rijne Energie which was well responded to by them, resulting in a fully present accountability. The municipality holds the formal authority over the NRD and m.e.r, even though commissioned by Rijne Energie c.s. The (draft) NRD received many reactions from residents and other stakeholders, which were all responded to in a joined effort by Rijne Energie and the municipality, also explaining if, how and why the input was implemented or not (Reactienota NRD Energielandschap Rijnenburg & Reijerscop, 2022). Residents also posed critical questions in the public meetings on NRD, which were responded to and written down and published in a report on the website (Verslag informatiesessie Rijne Energie, 2020).

The investments from members of Rijne Energie needed for this stage were significantly higher than before, while risk is still high. The assembly and board recognize that are some open endings, not everything is secure yet due to the number of land positions, network congestion and permits, and there are also no guarantees yet for revenue percentages. Still members were not hesitant to put their faith in the ability of the board to secure a successful process and engage in this high-risk investment. This trust from members also appears from the fact that financial discharge and consent is always retrieved without much ado. The responsibility this puts on board and committee members does not also mean they stand accountable to the risks.

Accountability and risk minimalization were pursued in several ways. First, the risk was shared over as many members as possible by cutting the highest deposits, which was possible because there was overinvested by members. Second, the cooperative aimed to deal with its financial risks and responsibilities by becoming more professional (Notulen twaalfde ALV van Rijne Energie, 2022). The financial and investment committee improved several financial mechanisms, for example improving bank depreciations, and clarified accountability and expenditure agreements with its consortium partners. Also, they asked the umbrella organisation for energy cooperatives (*EnergieSamen*) for support which will be provided later in 2022. Third, what limits part of the risks for Rijne Energie is that the loan they receive from EnergieSamen must be paid back only if the project comes from the ground and is otherwise being waived.

3.8. Responsive decisions

The concerns expressed by residents since the beginning of the process in 2017, could in this stage finally be responded to with independent research on shadow, sound and ecological effects in the m.e.r. All the concerns from the community that had to be investigated were included in the NRD, based on the launch note (2017), the participatory design process (2018), the vision and invitation framework (2020) and the plan proposal of Rijne Energie c.s. (2021). Also, input from the reactions to the draft NRD were transparently considered and widely implemented in the final NRD. The NRD and consequently the m.e.r. was made responsive by including more types of measurements on low frequency sound; investigating the maximal sound level in the preferred alternative (in the project m.e.r.); the effect of red obstacle lights; the effects of various alternatives on a possible future rowing water and housing in Rijnenburg; situation sketches and 3D visualisations were made for each alternative (Reactienota NRD Energielandschap, 2022). The NRD was also responsive to the expectations of the council and thus consented to by them. The draft m.e.r. is now at the municipality for inspection and expected consent. Responsiveness of decisions is thus extensive.

3.9. Effectiveness and efficiency

Rijne Energie at this point seems to have many of the tools to contribute to the public good. However, large landowners could not be convinced: energy generation therefore remains very limited, subsequently limiting the climate contribution as well as the business case. A group of members worked on an elaborate plan for financial participation and community benefits over the last years. Financial benefits for the community include social land allowances (for landowners), a local resident scheme (for residents within a scope of 800 meters), a local fund (controlled by residents within 1000 meters) and revenues for members of the cooperative (for citizens in Utrecht

and surrounding municipalities). Apart from this, the cooperative is investigating opportunities to ease financial participation for people with little financial capabilities as well as distributing revenues to deprived neighbourhoods like Kanaleneiland. They also aim to educate residents to energy coaches supportive of isolation measures (paid for from the local fund) in houses in the neighbourhood. It is questionable to what extent these plans can be realised with a limited business case.

Apart from these social benefits, there will be positive landscape effects: increased nature and biodiversity; infrastructure supportive of future neighbourhoods; synergies with the waterboard; and the implementation of several pilots and innovations. However, on the other hand, it is expected that some nuisance will be experienced by local residents, whichever scenario will be developed. This negatively affects their quality of life in terms of horizon nuisance, affected recreational opportunity and potential health effects. Also, during the process of getting at this point, residents have suffered under a lot of stress and participation exhaustion.

Where efficiency was lacking in earlier stages, it is an important feature of this last stage. As mentioned, Rijne Energie is putting some speed behind the process. Not only to be able to start building sooner, but also so their request of destination plan change and permit application will be treated under the current, “old” scheme of the law of spatial planning (*Wet Ruimtelijke Ordening*), instead of the new scheme of the environmental surroundings law planned for late 2023 (*Omgevingswet*), because the latter is expected to take much more time due to its novelty. Also, since this stage was relatively intense in terms of tasks and responsibilities, the most efficient choice was to place a stronger emphasis on representation. What has ultimately contributed to the effectiveness and efficiency in this stage is the assertive and action-oriented approach of the board, not constraining itself by doubts, insecurities and likely future barriers such as net congestion and landownership. Concluding, effectiveness is limited, while efficiency is fully present.

Appendix G: Details supportive of section 6.2. (Oog voor Warmte)

Exploration stage

1. Open agenda setting

The question of whether the Merwedekanaal could provide in their heat had already popped up by residents in their neighbourhood Oog in Al, when the municipality set up a project called Expeditie Warmte. This project was a supportive learning trajectory for initiating citizens in the heat transition, which provided a window of opportunity for the residents from Oog in Al. Many initiators reported as initiator, from which the residents from Oog in Al were selected along with four other community initiatives and ten companies. These residents called themselves 'Oog voor Warmte'.

The goals and conditions were very open at that point. Oog voor Warmte had the goal of realising a collective, sustainable and affordable heat provision for their neighbourhood. They worked in a team with two small companies: Nieuwe Warmte and Windmee advies. Nieuwe Warmte joined Expeditie Warmte as a response to the demand of citizens who were looking for alternatives to their heat provision, also with the goal of learning from the early development of a community-based heat initiative. Although the procedural confines were set by the municipality, they set their own goals and structured their own procedures and conditions. While doing so, they operated on an equal footing with the companies in their team; "the plan really emerged out of open discussions within our project team" (R11). They were thus able to resist a top-down, dominantly commercial agenda.

Since the four citizens per chance heard of the Expeditie and had personally approached each other to apply, the agenda setting process was, although in principle, but not in practice, open for other citizens, unable to put their concerns on the agenda beforehand since they were unaware of the starting initiative. They therefore had no influence on the goal of using aqua thermal energy as heat source, or the condition of affordability, for example. As the initiator states: "We received a question of whether we had considered other alternatives, doubting whether aqua thermal was the best source. Well, we did not. […] We are not expecting to change that goal, except if the business case will prove to be unviable" (R9) Also, the initiators did not facilitate other citizens in bringing their interests on the (political) agenda. However, since they informed the neighbourhood very soon after initiation, it was still possible for residents to put their concerns on the agenda.

It can thus be stated that, although the initiative started from initiators implicitly on behalf of the community and initiators were able to resist a top-down dominant agenda, other residents had less opportunity to bring their concerns on the agenda and engage in goal- and condition setting: agenda setting was thus open to an extensive extent.

2. Open participation

Although Oog voor Warmte started with a small group, they organised open participation opportunities early on. Decision-making spaces include board meetings, project team meetings with the partnering companies and public consultation meetings serving as a sound board group. These public consultation meetings are organised about once a month. They are usually focused on a specific theme that is interested to more residents, and people with an interest or expertise in this area are specifically invited. Everyone can join, association membership is not required: "the more, the better." (R12; R10) Also once a month, a board meeting is organised "to make sure some decisions are being made" (R9), this is also open for other people to join but that never happens.

The group aims to make the neighbourhood widely aware of their presence so people can join if they want to. The board however notices that most people do not have the time or interest to join structurally, but rather wants to help on specific topics when they are needed. As a response to residents that are put off by the assumed structure or commitment of a membership, the board does not create any deliberate barriers to attending a meeting and established 'Friends of' Oog voor

Warmte (*Vrienden van Oog voor Warmte*), which is perceived less committing by residents. This takes away the financial barriers and insecurities, that are most dominant in the community.

Thus, Oog voor Warmte provides open participation to an extensive, almost full extent: they organised different low barrier participation opportunities and decision-making spaces (public consultations, friends of, association, board) to suit the different opportunities and desires of the residents. This is only limited to the extent that it must still suit their goal, illustrated by an example where one of the initiators proposed to engage schools in participation, but it was decided this was too much out of their current scope and they must rather focus on their core activities.

3. Responsive representation

The interests of the initiators in starting with this initiative, were in the first place to contribute to climate mitigation, while some held also a technical curiosity whereas another one became engaged due to her policymaking background in the municipality of Utrecht.

Since participation is low, the project hinges primarily on representation by an active board. Since the geographical scope of the project is limited to just one block of 130 homes in the initial phase and 500 in the second phase, representation is very direct and personal links are easily laid. As a non-participating resident explains: “I know Dymph, how she stands in society. Broader than just climate. There are many overlaps, or similarities. That’s why I think, I do not have to sit on it too tightly. I will be briefed by her and I trust her.” (R12). Representatives are not elected but are the initiators from the start of the project. The board aims to represent both sustainability and affordability interests: the people that are engaged most strongly with decision-making, do so based on an interest for contributing to the climate, while the interests that live most strongly in the neighbourhood at this stage indeed appear to be more financial.

However, next to representing the sustainability interest, they also represent an affordability interest, which is perceived to be more reflective of the community interest and is expected to be an important condition for the community to accept and support the project in a later stadium. When the sustainability and affordability interests are conflictual in some considerations, decision-makers ultimately tend towards representing the community interest of affordability, which they also pursue during negotiations with its partnering companies. However, the investments are expected to be costly, while the price is aimed to be similar to the current gas prices and prospect of cost off-setting revenues is very insecure; concluding, the project will cost residents money for the sake of sustainability and community control, which is not reflective of the choices of the neighbourhood. Oog voor Warmte thus moderately represents community interests.

Board members and active residents are moderately reflective of the characteristics of the neighbourhood: One the one hand, they are all white and highly educated. Board members are also reflective in terms of age, while the supporting group is predominantly of senior age in a neighbourhood characterised by young families. On the other hand, the group is predominantly male: apart from one female initiator, the board comprises of three men, and the supporting group shows that all technical and financial aspects are taken up by men, while the communication is done by women: “All biases are true, unfortunately” (R10).

Lastly, since the number of members of the collective Oog voor Warmte as well as the participants to these meetings is perceived as low, this lowers the representation of the neighbourhood in deliberation and decision-making. Concluding, responsive representation by Oog voor Warmte is thus moderate: their sustainability interests are not reflective for the neighbourhood, but they prioritize the community (affordability) interest in decision-making where necessary and possible; personal characteristics are partly reflective of the neighbourhood, with a bias towards male and senior participants.

4. Legal compatibility
Compliance with technical and financial rules, rights and obligations are currently being investigated, but current compliance is little of an issue for this stage. Community heat initiatives are a very new phenomenon and little to no suitable legal, regulatory or policy framework exists for them. In the policy framework the municipality has recently drawn up for the heat transition in the city, that uses a neighbourhood-scale, recognizes a position for such collectives, but the interpretation of their role is yet unknown. Instead of Oog voor Warmte following existing policies, it is rather the way around: lessons learnt from this stage are interpreted and adopted in plans and policies from the municipality. This is explained by the energy programme director form the municipality as follows: "The new Warmtewet, that is still in development, is about the laws and regulations for heat networks and ownership structure. In the meanwhile, we, together with the community initiatives, keep learning while doing how the control from residents regarding heat can be regulated: in the end, they are the ones who must say 'yes'." (Whitepaper Expeditie Warmte, 2021, 23).

The only rules Oog voor Warmte must currently apply to are the requirements for getting funding. Small municipal subsidy for communication was relatively easily retrieved, whereas the larger funding from the province is more complicated: it requires technical details yet unknown or insecure for the initiative. But also, it requires a thirty percent input from the community, which is fully unrealistic for them. Regulation is thus constraining for them at this point. Very recently, funding has been granted for establishing a cooperative, which will require the establishment of formal (legal) documents and procedures. In a far later stage, there will probably more rules to which to comply, for example in how to divide the differing costs for the heat net, due to differences in isolation and the presence or absence of solar panels.

The initiative is thus legally compatible extensively: they comply with small subsidy schemes, are compatible with recent political directives for inspiring law-making and investigating the potential role in the new heat transition policy plans; and financial rules are investigated and followed in drawing up the business case and coordinating collective finances. Since they are established as an association, they have a legal entity with formal rules to follow, which will increase with their recent plans of professionalising into a cooperative. Technical regulations and provincial subsidy schemes are unsupportive and therefore difficult to comply with.

5. Transparency
Initiators communicate with a broad network in the neighbourhood, by means of a website, survey, flyers and a regular newsletter (which is also available on their website). By doing so, they have reached most people in the neighbourhood at least once. Via these channels, the technical details, prerequisites, organisational choices and prioritisations are explained. However, they cannot yet give many details on the costs and consequences since the project is still in its infancy. Also, initiators approached everyone they knew personally in door-to-door conversations, reaching about half of the neighbourhood in this way. They "communicate openly" with residents, stakeholders and each other, and have set up a "clear project structure" (Whitepaper Expedite Warmte, 2021). A research study had also been done by the initiators, containing field observations, which was subsequently openly published and shared with other interested parties. However, documents about deliberation are not open. Oog voor Warmte has thus been extensively transparent so far.

1.6. Quality of participation and deliberation
The governance structure that was created within the project team was suited for every party to influence discussions equally, where community input and expert knowledge are considered equally important and their combination for decision-making is positively experienced. Both parties come up with innovative ideas, for with the other functions as sparring partner. The companies bring in expertise, while Oog voor Warmte contributed in setting up the community and organisational part,

which value is recognized by the companies: it is necessary to convince at least 70, 80 percent of the residents to participate in the project in order to create a realistic business case. Expertise was also brought in externally: the municipality provided several workshops from expert bureaus early in the process, which were used by project team to provide a qualitative basis to their project; and a research study was conducted that informed deliberation and decision-making.

Deliberation in the project team showed a diversity of perspectives, motivations and interests co-existing. For example, whereas the partnering company had an interest in experimenting with new techniques, the community held on more to the realisability and reliability for the residents. After the Expeditie, however, deliberation became more pragmatic and strategic, and the out-of-the-box thinking flattened out. Conflicts never occur, but discussions are always resolved peacefully. The cooperation is much valued by the different parties and was perceived as “nice”, “enthusiastic” and “energetic” (R10; R11).

Also, between board members, critical reflection takes place to come to the best decisions, which is identified in anecdotes from the initiator and observed by a non-participating citizen. different levels of ambitions exist, debating for example the number of homes to be included in the transition. Also, since resources are limited, there was sometimes discussion on where these should be focused. Decision-making and deliberation are primarily pragmatic. In their interaction with other residents, the governing structure of Oog voor Warmte allows for different types of deliberation and regular checks and balances between them; the steering group (the board), the sound board group (the public consultations) and the project team (the board with its company partners).

In the wider community, the attitude of residents is mainly based on staying informed and providing advice on specific topics when asked for, rather than engaging in active and qualitative deliberation. Residents take a primarily passive attitude and show an overall disinterest: “There are a lot of cats in the trees here that first have to be looked out of there.” (R12). Instead, a diversity of perspectives is encouraged by initiators, who are open to represent the variety of interests present in the community in decision-making. The interests of public seem to be less focused on sustainability concerns or technical curiosities and more on affordability and practicalities: the most active members are primarily motivated by the sustainability challenge, but this does not seem to weigh in as an argument for residents: “I don’t hear anyone here, except for a very few, about the climate aspects of it.” (R12) Unsupportive residents are, for example, resistant when they plan not to stay in the neighbourhood for a long time or are very old, so will have the costs but barely the benefits from the local heat network.

Everyone with a different interest or expertise regarding the project, for example technical, communication, financial, can represent this topic in decision-making. However, with an emphasis placed on the importance of expertise in this very complex topic, this can also put off the people without any expertise of joining in the conversation. “What would be my contribution? I am not technical, not a financial wonder. That know-how brings a club further, and from that my pocket is empty.” (R12). Subsequently, residents without relevant skills more likely opt to be represented over direct participation. Oog voor Warmte can partly counter this by enabling citizens to be informed with educative and content-related information via the website, enabling them to bring in qualitative questions or interests.

The difference in expertise also has its effect in community deliberations. Although respondents claim that power differences due to expertise are not yet a topic in this early stage, expertise can complicate discussions. On the one hand, some residents know a lot about a technical aspect and can “overwhelm the board and the other attendants” during public consultations, to which the board decides to shut it down since “then one person gets it, and it probably all good and true, but no-one else is still following it.” (R10). On the other hand, the board must explain the organisational aspect

repeatedly, since new people are joining the discussions every time, who do not have this knowledge.

Quality of participation and deliberation is thus moderate: high within the project team, and in the neighbourhood, specific expertise is attracted at public meetings; however, the high level of expertise is perceived difficult to regulate into qualitative deliberation, and disinterest from a large part of the neighbourhood limits active debate.

7. Accountability

Residents are actively invited to bring in questions and remarks via the soundboard group, communicate these in a survey send out by the board, or issue them directly by personally contacting the board. In general, citizens informally consent to the plan-making, given that nothing substantive is yet put in action. Representatives appear to feel the responsibility to act according to the community where oversight was missing, partly because this is necessary to make the project succeed: “If you construct a heat net, you have to do that for someone of course. I mean, if we want this with only the five of us, that is of course a bit sad” (R9). Financial accountability was flawed in the very beginning, since finances were done by one of the initiators on his own banking account, but soon improved when a collective was established with a separate banking account.

Internally, board members are perceived to hold a significant degree of natural self-reflection and are open about internal discussions. This is supportive of accounting for how and why certain decisions are being made. However, since significant decisions are not yet being made that would impact residents, account holding is not perceived as very relevant. As one of the initiators strongly states: “We are a long way from the point where that will become an issue”. This results in the absence of formal mechanisms that account for checks and balances, regular reporting and consent are absent.

Currently, no accountability takes place within the project team. Accountability will however become more relevant in the future, depending on how the ownership and governance structure will be divided between the community, the municipality and the private sector. Respondents from the community, the company and the municipality sketch various of such possible scenarios, primarily presenting a situation where accountability is taken up by a (local) government or commercial party who is better able to carry the responsibilities, while decision-making power is shared with those affected most: the residents.

Concluding, accountability is present to a limited extent: representatives respond to (critical) questions, feel responsible to act according to community interests, and report on actions and outcomes, but only informally and to those who are actively engaged; also, consent is provided only informally and with a proviso.

8. Responsive decisions

During the expedition early in the process, a jury provided intermediary and final feedback to the plans of Oog voor Warmte, which were implemented by the decision-makers. However, up until now, no significant decisions have been made by the group, since the initiative is still in its exploration phase. Consequently, little can be said about responsiveness. Part of this explained by the lack of information that all decision-makers have to make well-considered choices at this point: “because it is all still in the research phase, we had discussions but did not make a decision or anything. We did not know [...], so then we also cannot really make a decision on that” (R10). One of the respondents explains: “Together you must come to the right solution. Up until now, we always came to the best concept or solution. It is currently not the question of what is good or wrong, but what is the most strategic and future oriented thinking: what the future vision is [..] If you do an investment now, you must use that for the coming fifty years. You have to take that into account. If your decision is not to:

you can, that is your decision, but I would never do that." (R11) Subsequently, the partnering company claims that up until now, no steps were taken by the residents in which they could not find themselves.

Decision-making within the board happens naturally, with no formal mechanisms in place, illustrated by examples from the initiator: "On a given moment it sort of became clear that the majority thought so, so that's how it was decided. We didn't vote for that or anything." (R10) So far, none of these intermediary decisions or actions have been critiqued by citizens. However, decisions seem not to be fully responsive to input: sometimes residents bring in ideas or arguments that are put on hold by the board since it is not included in the current focus of the group, and the choice for aquathermal heating was made by initiators from the beginning which is now gently being questioned by some residents.

It is thus complicated to judge the responsiveness of decisions, since these are barely being made at this point. However, since no proceedings are identified that were conflictual with input, combined with the limited data that is known, this principle can provisionally be labelled as moderate. Decisions are all made pragmatically and strategically.

9. Effectiveness and efficiency
The process focuses on the goal to realise a sustainable and affordable heat network in the neighbourhood Oog in Al and all discussions are centred towards this. Decisions are proceedings are made pragmatically, which is reflected in multiple examples from respondents: what is possible with the limited time and resources available to come to realising this goal. Discussions and aspects that do not fit this core focus, are touched upon but also easily let go off for the time being. It also means the initiative depends much on expertise, which will support in coming to the most effective decisions. The ultimate goal is to contribute to the larger climate challenge, but decision-makers also consider smaller scale ways of contributing to the public good. One idea is to use revenues that remain after paying off the investors, for the good of the community, for example in paying for isolation measures. However, the decision-making process is hampered by the lack of professionality and available time. Principles of effectiveness and efficiency are thus moderately present.

Appendix H: Details supportive of section 7.2. (Energie-U)

Project development stage

1. Open agenda setting
In 2016, a grass field in Meijewetering was appointed by the municipality as one of the several potential search areas for renewable energy generation were appointed by the municipality. An active member of Energie-U living close to the area saw this as a chance and stepped to the municipality to initiate developing a field of solar panels on this location to provide the surrounding households. A substantive feasibility study had not yet been carried out by the municipality for this location when it was appointed as potential search area.

The initiator had set few goals for the initiative other than realising the solar field with a bit of revenue. Conditions were not set beforehand. The agenda was not opened towards the community and stayed this way during project development. However, the initiator, together with the director of Energie-U, set the agenda for the municipality. With no policy or regulatory frameworks yet present for this type of energy generation, the initiative did a lot of pioneering.

The initiative had little trouble at initiation with resisting a dominant, top-down agenda, since they had no competition from companies, and there was no national political agenda applicable to the project. However, the support scheme was limited, which limited the business case and thus the potential to compete in costs with residents' current energy suppliers.

However, within the project team and within Energie-U, it is easier to get concerns on the agenda. The project team deliberates regularly, and community concerns can be brought in. Within Energie-U, the agenda for general assemblies is sent around and agenda points can be added; however, the topic of Meijewetering is barely discussed here.

It can be concluded that agenda-setting is met to a limited extent: apart from community agenda setting by the initiators, residents and members of Energie-U are barely able to communicate concerns.

2. Open participation

Open participation is limited as well. There have been three public information sessions since initiation, with the purpose of informing residents about the process, with forty to fifty attendants per session. The first two sessions were held online, to take away participation barriers due to health reasons, since they took place during the pandemic. Citizens were invited to think along when it is time for a draft proposal to be made. Next to this, there have been soundboard meetings between the initiator and two residents. Residents do not join in collective decision-making but can ultimately determine themselves whether to participate in the project. The local community has priority when the project opens for application. The financial participation barrier was taken away by offering quarter of panels to those with fewer financial resources, but this was barely used by participants: only five of these were applied for.

Decision-making takes place within a project team of the initiator, two board members of Energie-U, a waterboard representative, a municipal official and a paid expert. They meet at least once a month. Since part of the generated energy will be to provide the waterboard, fewer panels are left for the community, which also limits their inclusive participation in decision-making. Participation was also open to the business park and several meetings took place, but no businesses ultimately decided to participate. Concluding, open participation is limited at this stage of the Meijewetering project.

3. Responsive representation

The local community holds primarily financial interests regarding the project, which appeared from conversations between the sound board members and their neighbours. However, initiators represent primarily sustainability interests. This appears from the sustainability organisation they represent and is illustrated by their continuing efforts to get the project established even though financial returns will be very limited. A feeling of ownership also appears to be a relevant interest: “With a revenue of three percentage, it is just not an investment, so you need to have sympathy for the project if you step in the project. The sympathy for the project can be there just because it is in your neighbourhood, if you walk past it, you see: ‘those panels are mine’. That gives you a nice feeling” (R8).

Those who have shown interest in the project, are also primarily sustainably oriented, which appeared from the type of questions at information sessions, as well as their remaining interest to invest despite the prospect of limited revenues: “People in the neighbourhood were more like, what is the financial profit, while in the meetings, I got the idea they were very interested and knowledgeable about sustainability. Those attending the meetings stood in it very differently: financial interests were not the priority, but also other issues were least as important.” (R7). It is thus the minority of the community who is interested in sustainability that is primarily represented in the project.

Within the project team, neighbourhood interests are represented by the initiator and soundboard group: to provide as households with renewable energy, with the installation in full ownership of the community. Sustainability interests on a city level are represented by Energie-U, representing

members of the cooperative. To the community, the project should be affordable, and therefore at least cost neutral. The waterboard brings in the interest to run its installation on renewable energy, aligning with their goal as an organisation to become energy and climate neutral, and to support local projects; however, they also represent financial interests, to “conduct activities with purpose. So, that they reach a certain level, financially” (R9). Moreover, the municipality brings in the interest of reaching renewable energy goals and the expert has no stake in the project. All the represented interests are thus similar, with nuanced differences.

The project team and soundboard group are representative of the characteristics of the neighbourhood to a limited extent, reflecting a strong gender, ethnic and age bias: all eight representatives are male, white and middle-aged. Most are also of a socio-economically similar background. However, the local area also hosts primarily white, middle-aged and socio-economically high residents. What can be concluded from the inclusivity and quality of representation and the reflection of characteristics, is that responsive representation is present to a moderate extent.

4. Legal compatibility

The project is governed on a legal basis to the extent that the Energie-U representatives operate according to their statutes. This is also the regulatory framework provided to the interested residents. However, no cooperative regulatory framework is established for the project specifically, since the national support scheme is unsupportive of this.

The compatibility with legal procedures was limited. The selection policy for energy projects was not followed: the project was directly granted to Energie-U. The permit application was granted without private law agreement. Neither the initiators nor the municipality was aware of the formal procedures to be followed, and those that were known were not followed. No community participation was conducted beforehand even though formally required. Whereas the initiator was primarily focused on following the planning and put pressure on the slow municipal process, the Energie-U representatives were, according to a respondent, “more about following the rules” (R9). Regulations were not suited to this project. For example, energy was not a category in granting rights of superficies. Also, when the project was initiated, no policy framework existed yet, thus the project was not compatible with one. The fifty percent local ownership directive had not yet been proclaimed and there were no national or regional directives yet to support the initiatives. However, the regulatory framework improved, and policies were formed during the project development. Also, some legal requirements usually complied with earlier in the process were still complied with later in the process. Thus, the project currently shows a stronger legal compatibility than before. Concluding, legal compatibility in the project development of Meijewetering is limited.

5. Transparency

Transparency was present to a higher extent than the earlier discussed principles, to an extensive extent. Residents were informed early in the process by means of a modest brochure spread door-to-door. Two information sessions were held after during the period of research and stakeholder negotiations, where the process and financial details were explained. Recordings were published on the website of Energie-U afterwards. One more session was organised recently when project participation opened to the community, that explained the participation opportunities.
During the process, citizens could stay informed about the process via news articles on the website of Energie-U and its social media channels, as well as via the newsletter. The draft permit was open for inspection, sent to the local community. Explanations of the project were also provided via a ‘question-and-answer' document on the website of Energie-U. Initiators are transparent about their interests and shared interviews with stakeholders on the Energie-U website, thereby communicating stakeholder interests with the project with the community. During the last information session, the initiators were transparent about the (limited) choice opportunities and financial prospects. Risks and opportunities were explained, and relevant documents published by Energie-U.

However, meeting notes of the closed project meetings and general assemblies of Energie-U are not openly accessible, which limits the transparency of deliberation and how and why decisions are being made. Lastly, independent research was conducted to make the impacts transparent to stakeholders and to investigate and subsequently to minimise negative environmental impacts.
It can be concluded that transparency was present extensively: information provision and transparency about interests were fully present, but transparency of deliberation is limited.

6. Quality of participation and deliberation
The governance structure is such that decision-making all takes place within the project team and in negotiations with stakeholders, with little influence from the local community. However, the sound board group is supportive in bringing in technical and organisational expertise as well as community knowledge, and informally function as consultants to the initiator. In sound board group meetings, they discussed problems on an equal footing, where the focus was more problem-solving than reflecting deliberation between a diversity of perspectives or interests.

Public meetings were characterised by an informative character, responding to questions from the community. Some residents also brought in a bit of expertise and advise, but often these options had already been considered by the project team and the practical situation did not allow for alternatives. Technicalities were not a topic for discussion with the community, because they were perceived to be too complicated.

Project team meetings were characterised by problem-solving; when barriers came up, pragmatic decisions were made together, with realising the project as primary goal: “Out together, home together” (R9). Participants brought in different types of knowledge. Most expertise with realising such projects was held by the waterboard and expert, on which Energie-U representatives leaned slightly more than expected beforehand, since the project became very complex. This however did not affect power dynamics; an equal level playing field was in place: “if I know more, does not mean I am right” (R9). Instead, they complement each other in knowledge, resources and capabilities.
There was a conflict of interests in the project team regarding the division of the project: the waterboard could use the full project in providing for its installation, while the initiators aim to provide energy for the community. Ultimately, they agreed that the project was divided fairly between the community and the waterboard, which limited the energy provision for the residents but instead the waterboard brought in financial resources and stand guarantee when participation interest from the community would be limited. Moreover, conflicting interests between the initiator and local stakeholders were negotiated to come to an agreement based on reasonable arguments, in most cases the stakeholder became a partner to the project, showing a peaceful resolution of conflicting interests.

Concluding, quality of participation and deliberation is present to a moderate extent.

7. Accountability
Two residents form a sound board group to provide some support, theoretically functioning as a link between residents and decision-makers to communicate feedback. However, it is not used as such, with no community input being retrieved by these residents. They do however provide own feedback to the initiator, but this has the character of consulting, rather than providing checks-and-balances, required reporting or giving consent.

Decision-makers respond to critical comments at the information sessions. Also, the plan for the project as described in the draft permit was sent to the local community while asking for feedback. Next to this, decision-makers are accountable to the board of Energie-U, who is ultimately responsible for the outcomes. The project needed a financial consent from the board before the process could continue; which was just recently provided. Reporting to the board of Energie-U took

place regularly and accountability was implicitly and continuously provided throughout the process since the director and treasurer of Energie-U took part in the project team, and members of Energie-U could reflect on the project and provide consent at general assemblies.

As is the case with Rijne Energie, participants can choose a participation option with more risk and higher revenue, or less risk and lower revenue. Moreover, collective risks for Energie-U are covered by the waterboard since they agreed to participate with all solar panels that are left when the community interest is lower than the number of panels initially prescribed to the community. Also, when the business case was in the red for Energie-U, decisions were made as such that the waterboard covered financially so the project could continue. Accountability for the quality of energy generation will lie with the installer of the panels and the net connector. Risks and risk coverage for participants are established in an agreement.

Concluding, representatives report on performance and needs consent from Energie-U board and members, feedback was asked for the draft plan and risks are covered, and critical questions are responded to, but no regular reporting to or consent from the local community is asked: thus, the principle is present extensively.

8. Responsive decisions

Decisions are responsive extensively. The expressed concerns of citizens and residents are partly taken up: the project would not take place if it would cost more than it yields, and ecological and landscape concerns were responded to by including greenery between the panels; the latter also due to concerns from a nature working group and the requirement for the environmental permit. A general acceptability of the decisions from residents appeared during the third, very recent information session where the plan and participatory details were presented; this resembles the perception of respondents that decisions from the project team were usually accepted by residents. However, interests to gain financial revenues are not responded to in decisions, since negotiations with stakeholders were unfruitful to the extent that fewer panels can be installed than was planned for beforehand. This resulted in a situation where “residents would probably have wanted the project a bit larger, but that was just not possible practically. The terrain is not that big, and because of constraints from the companies with cables and pipes in the ground, more panels cannot be installed” (R7). However, when this was explained by the initiator, “residents had no problems with this, and it was just clear” (R7). Since the main driver behind decision-making was to contribute to the public good, this was responsive to community input.

The initiative was also responsive to the concerns of stakeholders like the local fishing association, the waterworks and cable company and the local nature working group about the location and design of the project; the business park who rather saw a parking lot but consented if getting the opportunity to participate financially; and the waterboard who desired the opportunity to participate as a financial and governance partner. This responsiveness was necessary for peaceful conflict resolution and for raising acceptance, necessary to get the project installed successfully and legally. In these negotiations, consensus was usually found, but in the case of the cable company, negotiations ran aground, and no consensus could be reached, ending in an unfortunate outcome for the initiative.

In the project team, consensus was pursued when making decisions, and always met. Opinions were weighted on an equal footing in decision-making and strategic decisions were made. To build upon a quote formulated earlier, “if I know more, does not mean I am right, or we should do what I say” (R9). It was perceived supportive of responsiveness that the participants held similar interests. Consensus was thus also not at the expense of minority interests; rather, it ‘protected’ the weaker interests of the community since the waterboard provided administrative expertise and financial backing in complicated situations. Concluding, decisions were responsive extensively.

9. Effectiveness and efficiency

Decision-making process did not go efficiently, neither was it very effective in reaching the pre-set goals. The initiator was driven in time management and pressuring the municipality when this became necessary, although the Energie-U board managers provided some more room to the municipality for going through the process. The formal and unclear procedures from the municipality slowed the process and the inconsistent way of going through it was in the end less efficient than if the process would have been followed as required. Similarly, taking the initiative and starting aspects of project development without a feasibility study beforehand resulted in unpleasant surprises, barriers and limitations later in the process that affected efficiency and effectiveness. Related to this, negotiations with the waterworks that consumed much time, effort and even costs were in the end without results, having affected efficiency and effectiveness of decision-making.

However, the project currently seems likely to be realised in the nearby future. This will result in the public good in terms of climate mitigation but does not contribute to community benefits because of a very narrow business case. However, it does contribute to a feeling of local ownership, which is also considered an important community benefit to the initiator.

It can thus be concluded that this principle was limitedly present: the project was very inefficient, and effective to a limited to moderate extent.

Appendix I: Informed consent form

Informed consent form

Name of investigator: Nenya Willemine Roeline Jochemsen

Research project: Master's Thesis (Evaluating the democratic legitimacy of community renewable energy initiatives in Utrecht)

Name of respondent:

By signing this form, the respondent agrees to the following:

- I understand that my participation is voluntary and that I am to withdraw at any time
- I understand that my personal data, which link me to the research data, will be kept securely in accordance with data protection guidelines, and only available to the immediate research team: the primary investigator, her thesis coordinator and a second reader.
- I understand that the research data, which will be anonymized (not linked to me), may be shared with others.

Signature respondent: **Signature investigator:**

Date: **Date:**