



Utrecht University

Policy Effects of Energy Cooperatives for a Just Transition

Explaining the influence of energy cooperatives on policies for a just energy transition in Groningen, The Netherlands



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Summary

The Netherlands, similar to the rest of the world, is faced with the pressing challenge of transitioning from conventional fossil fuels to renewable energy sources for a more sustainable future. An important aspect of this challenge is to address issues of fairness and justice to enable the equal distribution of the costs and benefits of the energy transition. Energy cooperatives (ECs) have emerged as important players to help drive such a 'just' energy transition, especially with regards to the extent that such initiatives can help to influence policy outputs. That being said, the relationship between ECs and policy outputs for a more 'just' energy transition has been understudied. Therefore, this research aims to identify the specific causal mechanisms at play that can explain the influence of ECs and their inclusion of understandings of justice in regional policy outputs for the energy transition.

To do this, an abductive research approach was employed. First, existing causal mechanisms to explain the influence of ECs on policy were deductively identified. Second, the research inductively examined data from an empirical case study of the province of Groningen to reveal any novel mechanisms. Thirdly, the research abductively synthesized an updated list of mechanisms found to explain EC influence on policies. Data for this approach was primarily gathered by means of 23 semi-structured interviews with various energy cooperatives, local and regional government officials, and other relevant civil society actors. Ultimately, the identified list of causal mechanisms was evaluated to determine a strength of confidence for the presence of each of the causal mechanisms.

Overall, the findings revealed that several causal mechanisms are at play. Brokerage, coordination, learning and collaborative representation were identified as causal mechanisms present in the case of Groningen. In addition, the research also revealed that ECs play a role in advancing three key understandings of justice: distributive, procedural and recognitional justice. There is thus no silver bullet causal mechanism or understanding of justice to explain this complex relationship. Ultimately, this research has demonstrated that it is through a combination of a multiplicity of causal mechanisms and the multiplicity of understandings of justice that ECs can truly exert influence on policies to advance a more 'just' energy transition.

Key words: energy cooperatives, policy change, just energy transition, causal mechanisms.

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This research is the accumulation of a months-long journey that started in November, 2019. Since the beginning of my master's program, I have been fascinated with the role that energy cooperatives can play in advancing the energy transition. While conducting this research I have been able to further develop my fascination with these actors through my extensive review of the theory as well as the unique personal interactions I was able to have about the topic. Ultimately, I hope that my research can contribute to the academic literature about energy cooperatives, the policy effects they may have, and their ability to advance a more 'just' energy transition. I strongly believe that energy cooperatives will continue to play an invaluable role in the energy transition as we move away from fossil fuels and reshape the energy landscape.

This research would not have been possible if it were not for several important people. I would like to take a moment to thank these people that have helped and guided me through this process. To begin, I would like to express my gratitude for my thesis supervisor Dr. James Patterson. His valuable guidance along the way led me to numerous new insights for my research and I wouldn't have come this far without his kind and accurate advice along the way. Thank you, James!

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Chapter 1: Introduction

Society in the Anthropocene is faced with one of the most wicked problems and challenges for the future (Steffen et al., 2018). According to the International Energy Agency (IEA) and the Intergovernmental Panel on Climate Change (IPCC) it is paramount to reduce energy related emissions that contribute to the majority of total emissions worldwide to ideally limit global warming to 1.5 degrees above pre-industrial levels (IEA, 2019; IPCC, 2018). Such an ambition requires the urgent transition from conventional fossil fuels to more renewable energy sources.

In the Netherlands, the national climate agreement stipulates that the country shall achieve a 49% CO₂ reduction by 2030 compared to pre-industrial levels to be in line with the 2015 Paris Climate Agreement (Klimaatakkoord, 2019). Problematic for the Netherlands, however, is its continued dependence on natural gas since its discovery in the province of Groningen in 1959 (Hölsgens, 2019). Nowadays, when one thinks of the Dutch energy transition, one also thinks of the earthquakes in Groningen caused by the rapid depletion of the natural gas reserves that has caused an upsurge in social and political tension around the issue (Bakema et al., 2018). With this in mind, the province of Groningen is striving to be a frontrunner in the Dutch energy transition by shifting from natural gas towards more renewable sources of energy (Provincie Groningen, 2019).

While several initiatives at various levels have been introduced to facilitate such a transition, the Netherlands still struggles in achieving a successful energy transitions due the technical, financial, and above all, social challenges. For example, many scholars have recently argued that regional energy transitions are linked to income inequality and energy poverty (the inability to secure enough energy in a household) due to the unequal distribution of costs and benefits of the energy transition (Schlesewsky & Winter, 2018; Bouzarovski & Herrero, 2017; Li et al., 2016; Grösche & Schröder, 2014; Neuhoff et al., 2013). As such, issues about fairness and justice in the distribution of benefits and costs from energy transitions are central. It is thus important to better understand the justice implications of an energy transition, and how these can be addressed at all levels to ensure a just energy transition for all. One way that such justice implications can be addressed is through local energy cooperatives.

1.1 Energy Cooperatives in the Energy Transition

Energy cooperatives (ECs) are playing an increasingly prominent role in energy transitions in many countries, including the Netherlands, with the potential to help ensure that the distribution of benefits and costs of renewable energy are shared fairly. To begin, it is important to identify and categorize what exactly is meant by an energy cooperative as this is the independent variable of this research. These can best be described as firms where its participants are both users and members of the firm with the goal of delivering renewable energy and ensuring a long-term transition towards renewable energy (D'Souza et al., 2015; Huybrechts & Mertens, 2014; Viardot, 2013). In such an energy cooperative, members can purchase shares of community-scale projects or to buy shares in return for purchasing energy produced at production sites, to help ensure a cash-flow necessary to finance such projects (D'Souza et al., 2015; Elzenga & Schwenke, 2015; Viardot, 2013). With such investments, an energy cooperative can proceed to identify appropriate sites for its projects, the collective pool resources from investors/shareholders to collectively invest in the project, and the energy cooperative will manage the administration and logistics

(D'Souza et al., 2015; Elzenga & Schwenke, 2015). An important distinction to be made here is that the energy cooperative is “legally and economically the owner of the [renewable energy] installation” (Elzenga & Schwenke, 2015).

Energy cooperatives are hailed for their democratic decision-making models that emphasize the democratic governance for their members who enjoy a one member, one vote position regardless of the number of shares that they own (Herbes et al., 2017; Huybrechts & Mertens, 2014; Viardot, 2013). With such a democratic structure, energy cooperatives epitomize the community ownership of renewable energy projects through their “participatory decision-making processes and collective outcomes” (Tarhan, 2015, p. 106). A key role that members play is gathering at annual or semi-annual meetings to discuss what happens with the profits made from the projects and most often these funds are reinvested into new local projects (Elzenga & Schwenke, 2015). Such a high level of community involvement helps to bring together multiple stakeholders that share economic and environmental interests (Tarhan, 2015). Often, energy cooperatives emerge as a reaction to the dissatisfaction of consumers about their role in the energy system and their desire to better control the source and the price of the energy that they consume (Huybrechts & Mertens, 2014). It is here that a connection can be made between the role of energy cooperatives in addressing issues of justice in the energy transition. One way this can be achieved is by influencing the policy-making arena.

Previously, ECs have mainly been studied in terms of their internal dynamics and effects such as providing clean and fair energy for their members (D'Souza et al., 2015; Huybrechts & Mertens, 2014; Viardot, 2013). However, ECs have also recently been observed by several authors to have effects on governmental policies and politics beyond their own scope (Brisbois, 2019; Proka et al., 2018; Oteman et al., 2017; Van Der Schoor et al., 2016; Yildiz et al., 2015; Yildiz et al., 2014; Hisschemöller & Sioziou, 2013; Bloom & Smith, 2010). Brisbois (2019) recently noted that many decentralized individual, community and co-operative renewable energy actors “actively attempt to influence government decisions, with varying degrees of success, on energy policy development and implementation.” (p.152). In fact, Yildiz et al. (2015) point out that the desire to influence local energy policy has become one of the central motivations for individuals to join energy cooperatives. With this in mind, it is also important to better understand policy-making in itself, before continuing to uncover the relationship between these two variables.

1.2 Policy-making for the Energy Transition

For this research, political policy-making, and its corresponding policy outputs, can be understood as the dependent variable of this research on which energy cooperatives (the independent variable) may have an effect. To proceed, this concept needs further introduction and definition. In a broad sense, Policy-making can best be understood as a political decision-making process that exists in the presence of several constraints (e.g. limited time and resources and public opinion) which interact with various intertwining policy processes to create an infinite cycle of policy outputs (Knill & Tosun, 2008). Political decision-making is thus essentially about how and why individuals, groups, and organizations exert power and influence to influence decisions made (Child et al., 2010). A way to uncover this is by examining the effects of such influence on policy processes and the corresponding policy outcomes to address localized societal problems (Xing, 2015; Zittoun, 2014). Almeida and Gomes (2018) add that to understand these roles of

influence, it is useful to examine policy processes that bring together a large number of actors and interests that result in policy outputs such as environmental policies. As such, Policy outputs can best be understood as statements by the government of what it intends to do through a series of actions or inactions that are associated with formal policies (including laws and regulations) to solve certain societal problems (Kraft & Furlong, 2018; Birkland, 2015; Zittoun, 2014; Knill & Tosun, 2008).

In order to better understand the influence of energy cooperatives on political policy-making, it is important to investigate the extent to which energy cooperatives are involved with policy outputs. Specifically, for this research, it is useful to identify instances where energy cooperatives have been able to influence the policy-making process to include more emphasis on justice with the aim of advancing a just transition. For this, we must first gain a better understanding of what exactly justice and a just transition entail.

1.3 Justice and a 'Just' Energy Transition

When one thinks of the concept of justice with regards to decarbonization and transitions in global climate change debates, it is important to recognize that there are several layers that must be uncovered to fully grasp this concept. As some authors point out, transitions to low-carbon futures are no longer limited by technological advancements, but rather limited by social, cultural, and political implications which calls for a need to consider the consequences for affected regions and communities (Reitzenstein et al. 2018). Issues of equity, fairness, and justice are intrinsic to understand how the costs and benefits of a low-carbon transition can be distributed across different members of society (Jenkins et al., 2018; Patterson et al., 2018). By failing to address conceptions of justice, transitions regrettably ignore the burdens that fall on individuals in society and leave the transitions vulnerable to attack from the status quo fossil fuel companies that can exploit such equity concerns (Jenkins et al., 2018; Patterson et al., 2018). For this reason, social justice understandings such as distributional, procedural, and recognitional justice are important to address to facilitate decarbonization and climate action (Patterson et al., 2018). These justice understandings (Table 1) will be operationalized and used later in this research by means of interviews to identify the ways in which energy cooperatives can influence (or have influenced) such understandings of justice that are embedded within political policy-making to advance a more fair, equitable and just transition.

Table 1: Understandings of justice

Understanding of justice	Definition	Sources
Distributional justice	The distribution of benefits and burdens across different societal groups by means of existing infrastructure.	Patterson et al., 2018; Jenkins et al., 2018; Holland, 2014; Klinsky and Dowlatabadi, 2009.
Procedural justice	The design of just institutions, processes, and mechanisms for decision-making.	Patterson et al., 2018; Jenkins et al., 2018; Holland, 2017; Klinsky and Dowlatabadi, 2009; Knight, 1998;
Recognitional justice	Recognition of pre-existing structures that create an uneven playing field through discrimination of who is and who is not included in decision-making.	Patterson et al., 2018; Jenkins et al., 2018; Shi et al., 2016; Bulkeley et al., 2014; Bulkeley et al., 2013; Fraser, 1997.

These understandings of justice are furthermore included in the key theories of climate, energy, and environmental justice when dealing with sustainability issues (Heffron & McCauley, 2018). Climate justice assumes a more human rights approach with regards to the distribution of the benefits and costs of climate change at a global level between genders, ethnicities, across generations and, across the North-South divide (Patterson et al., 2018; Heffron & McCauley, 2017). Energy justice takes a somewhat different approach by focusing more on the strategic reflection about distribution of the costs and benefits across the energy cycle (Heffron & McCauley, 2018; Newell & Mulvaney, 2012). Environmental justice takes yet another approach by encompassing the distribution of the burdens and benefits of environmental policy and to involve citizens in the development, implementation, and enforcement of such policies (Heffron & McCauley, 2018; Evans & Phelan, 2016; Farrell, 2012). While all employing different approaches, these theories also differ in the temporal focus of the ‘event’ under examination. Heffron and McCauley (2018) highlight that too often these theories, especially climate and environmental justice, are back-casting in the sense that they seek to examine changes *after* an event has occurred. With regards to the energy transition, this is a phenomenon that is presently underway and in need of a better understanding of justice during this event as well as for the future. Energy justice may offer some answers here although it has been noted to have a focus more on the short-term future as opposed to a more long-term application (Heffron & McCauley, 2018).

Just transition theory is a developing justice theory that seeks to unite and encapsulate the aforementioned justice theories into one concept for stakeholders to engage with that is more forward looking for the future (Heffron & McCauley, 2018). The just transition concept was first introduced by Canadian unions in the 1990’s to question how a low-carbon transition can be achieved in a way that is both socially fair and economically successful (Reitzenstein et al., 2018). A just transition can best be understood as a societal goal that brings together the three existing theories of justice to address the key

questions of ‘who wins, who loses, how and why’ (Heffron & McCauley, 2018; Newell & Mulvaney, 2012). The key focus here is specifically on distributional, recognitional and procedural justice (Patterson et al., 2018). This is why these three understandings of justice will receive special attention in this research.

Ultimately, a just transition is a useful lens that seeks to bridge justice issues that includes fair access to energy and the procedural justice of decision-making to ensure that social groups are not unfairly affected by policies (Patterson et al., 2018). Indeed, just transition theory is a broad endeavor about what societal change will look like in an energy transition. This helps to set the context for this research which examines the ways in which energy cooperatives can help to achieve such a notion of a just transition by means of influencing energy transition policies.

1.4 Knowledge Gaps and Relevance

On a substantive level, several authors have recognized that energy cooperatives are relatively new entities that are evolving and growing at a tremendous rate with little insight about the precise effects that energy cooperatives have on policy and politics (Debor, 2018; Proka et al., 2018; Hufen & Koppenjan, 2015; Elzenga & Schwenke, 2015; Doci et al., 2015). A second problem area at the substantive level is that the very question of how to achieve an equitable and just transition is a problem in and of itself. There is a current need of urgent action to address climate change and there are some policies in place to do so, but scholars are unsure about the effects that such policies will have on society and the impact they may have on existing patterns of inequality (Markkanen & Anger-Kraavi, 2019; Zachmann et al., 2018; ETUI, 2012). Finally, on a more theoretical level, there is an inherent need to understand the relation between energy cooperatives, policy-making and policies for an energy transition as this is a relationship that has received very little attention in academic literature (Brisbois, 2019; Burke & Stephens, 2018; Wierling et al., 2018). These crucial gaps in the knowledge highlight the central rationale that energy cooperatives are emerging as new players in the energy transition which may have profound political effects, and could play a key role in shaping policy for the energy transition such as the inclusion of equity and justice into policies, but this remains an open question.

This research will investigate the relationship between energy cooperatives and policy-making in an energy transition by explaining *how* and if energy cooperatives influence municipal and provincial government energy policies. It is expected that energy cooperatives are increasingly seeking to be influential in shaping a just energy transition, but how exactly this occurs is not yet well understood. Accordingly, this research will focus especially on the possible mechanisms of causal influence to bring justice into energy policies.

1.5 Research Perspective

This section places this research into perspective by firstly discussing the aim of this research together with the main questions this research will answer, Second, the research framework is presented to demonstrate how the research questions will be answered. Thirdly, the research is placed within the larger societal and scientific relevance.

1.5.1 Research Aim and Research Questions

The central aim of this research was to explore the influence that energy cooperatives have on policy - making by including justice into energy policy outputs to advance a just energy transition by means of a case study in the province of Groningen, the Netherlands. Ultimately, the findings of this research can reveal some useful insights about the specific causal mechanisms and causal pathways to explain how energy cooperatives and government officials can optimize the transition while taking justice into consideration. To address this research aim, this project has as its main question:

To what extent and through which causal mechanisms do energy cooperatives influence policy outputs to advance a just energy transition in the province of Groningen, The Netherlands?

To further help to answer this main question, several sub-questions can be considered that will help to guide the subsequent research:

1. *In which ways can causal mechanisms help to explain energy cooperatives influence policy outputs concerning just energy transitions?*
2. *Which causal mechanisms could explain the influence that energy cooperatives might have on policy outputs for a just energy transition?*
3. *How impactful are these causal mechanisms overall with regards to advancing a just energy transition?*

1.5.2 Research Framework

This section provides an overview of the steps taken in this research to answer the research questions with the research framework depicted below in Figure 1.

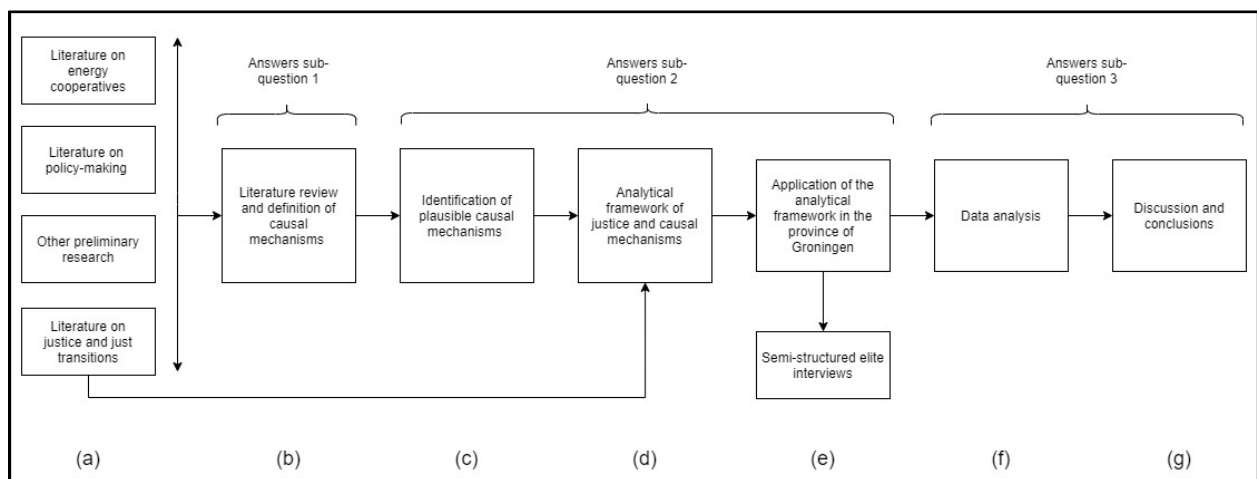


Figure 1: Research Framework

First, a literature review on (a) energy cooperatives, justice and just transitions, discourses and political decision-making, and other relevant topics yields (b) the mechanisms that energy cooperatives can use to influence energy transition policies. Such mechanisms, and understandings of justice, can be used to (c) create an analytical framework for energy cooperatives to advance a just energy transition, (d) to be applied to energy cooperatives, government actors, and other relevant actors in the province of Groningen. An (e) analysis of the results found will yield (f) a discussion and conclusions about the energy cooperative mechanisms that explain the influence on political decision-making to advance a just energy transition.

1.5.3 Scientific and Societal Relevance

The scientific relevance of this research is primarily focused on filling the knowledge gap of identifying the mechanisms necessary to advance a just energy transition through the help of energy cooperatives. Due to the relative novelty of this concept of a just transition, this research helped to provide valuable insights into the mechanisms to explain how a just transition can take place. Scholars in the future may be able to apply such mechanisms to gain a better understanding of a just transition across the globe, and not only in the Netherlands. For this reason, this research can be seen as laying a foundation for several further experiments in the justice field to ultimately gain a better understanding of how to properly implement and manage the conditions for a successful energy transition for a more sustainable future.

Societally, this research is first and foremost relevant, especially to the province of Groningen, which has seen an increase in public dissatisfaction with physical and psychosocial damage as a result of the earthquakes caused by the gas industry (Bakema et al., 2018). As a result of the calls from the public, private, and civil society actors, and the government's decision to reduce natural gas exploitation (European Commission, 2020; Beckman & Van den Beukel, 2019; Rijksoverheid, 2018), it is important to expedite an energy transition away from natural gas towards renewable sources of energy in a fair and equitable manner. Therefore, it is important to be able to identify some of the mechanisms to explain *how* energy cooperatives can help drive such a just transition by influencing policy for the energy transition on a regional level. The relevance of this research is also applicable to government actors to identify the avenues by which energy cooperatives can help to address understandings of justice for the energy transition. This can help to foster further cooperation between these actors in the policy making sphere to advance a just transition.

Chapter 2: Conceptual and Analytical Framework

2.1 Defining Mechanisms

Based on the literature about energy cooperatives, justice and just transitions, and policy-making, specific mechanisms that can be identified to explain how energy cooperatives can or have influenced the policy-making arena with regards to policy outputs for the energy transition.

To begin, it is important to clarify and define what is meant by a mechanism. For this research, a mechanism is understood in an explanatory political science sense as something to “uncover the underlying social processes that connect inputs and outcomes” (Faletti & Lynch, 2009, p.19). Specifically, such a definition of a mechanism points us in the direction of what Beach and Pedersen (2013) describe as a “mechanismic ontology of causation” (p.39). In such a description, the interest lies in understanding the theoretical process of how an independent variable (X) produces a dependent variable (Y) (Beach & Pedersen, 2013). Causality in this sense is recognized as the *causal mechanism* that links X and Y with the aim of gaining deeper explanatory knowledge about this linkage (Beach & Pedersen, 2013; Salmon, 1998). In turn, the components of a causal mechanism can be characterized in terms of entities that engage in activities to transmit the causal forces through a specific mechanism (Beach & Pedersen, 2013; Machamer, 2004; Machamer et al., 2000). This relationship has been depicted more clearly in the conceptual framework in Figure 2 below.

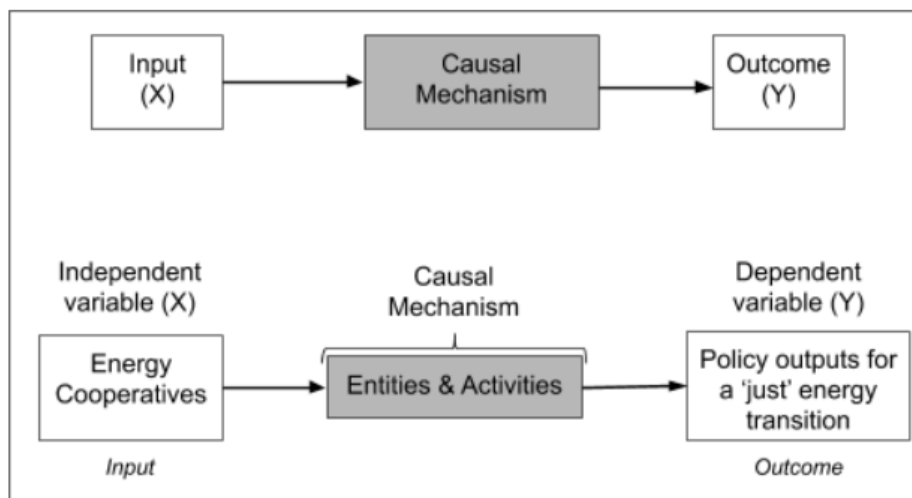


Figure 2: Conceptual framework adapted from Beach and Pedersen (2013) of causal mechanisms linking energy cooperatives to policy outputs for a 'just' energy transition.

By understanding mechanisms in these terms, Beach and Pedersen (2013) argue that this “enables us to capture the actual process whereby causal forces are transmitted through a causal mechanism to produce an outcome.” (p.57). Similarly, it is the “process or pathways through which an outcome is brought into being” (Lewis-Beck et al., 2003, p.100). This emphasis on the *process* guides us towards the idea of process tracing to specifically uncover the causal mechanisms linking X and Y. Process tracing is made most evident by the use of theory-centric approaches that place the causal mechanisms at the center of the research (Beach & Pedersen, 2013). One variant of such approaches is theory-testing process tracing. In this variant

both X and Y are known and certain plausible causal mechanisms can be hypothesized to be present to explain the link between X and Y (Ibid.). The goal of this theory-testing approach is to evaluate whether evidence can be found to support that a hypothesized plausible causal mechanism is present in the case that links the independent and dependent variables (Ibid.). For the purposes of this research, the independent variable (X) are energy cooperatives and the dependent variable (Y) is policy outputs for the energy transition. This theory-testing variant of process tracing was thus used to identify and evaluate some plausible causal mechanisms that may explain how energy cooperatives can or have influenced policy-making for the energy transition.

2.2 Identification of Energy Cooperative Mechanisms

Now that mechanisms have been defined and the conceptual framework has been clarified, attention in this section turns to identifying a list of plausible causal mechanisms. Faletti and Lynch (2009) and Biesbroek et al. (2017) identify various causal mechanisms previously identified in political science that could be used to hypothetically explain the role that energy cooperatives (the independent variable) play in influencing municipal or provincial energy policy outputs (the dependent variable). Of these two lists, several plausible causal mechanisms were identified as a starting point to explore whether energy cooperatives in the province of Groningen specifically also make use of such mechanisms or if other mechanisms can be identified that are unique to the case study. As has been previously mentioned, it appears that energy cooperatives are playing an increasingly important role as mediators between citizens and the governmental sphere while also highlighting the benefits of collective action for renewable energy production and management and to encourage others to join the movement (Brisbois, 2019; D’Souza et al., 2015, Huybrechts & Mertens, 2014). As a result, energy cooperatives can help to introduce new ideas to the policy making arena to advance an energy transition towards more renewable sources of energy while also drawing lessons from previous experiences by evaluating their work (Yildiz et al., 2015; Schreuer & Weismeier-Sammer, 2010; Walker, 2008). From this understanding, the plausible causal mechanisms of brokerage, coordination, learning, and conversion were derived. These are further introduced and defined in Table 2 below.

Table 2: Plausible causal mechanisms

Causal Mechanism	Definition	Sources
Brokerage	The mediation of groups or individuals between two or more social arenas.	Biesbroek et al., 2017; McAdam et al, 2008
Coordination	Using perceived benefits of an activity to encourage others to also engage in that activity.	Faletti & Lynch, 2009; Pierson, 2000
Learning	The ability of actors to draw on lessons from previous experiences to improve for the future in both a social and political sense.	Faletti & Lynch, 2009; Rose, 1990; Hecllo, 1974.
Conversion	The introduction of new goals, functions, and purposes that redirect institutions towards an alternative state in the future.	Biesbroek et al., 2017; Mahoney & Thelen, 2010; Streeck & Thelen, 2005.

For theory-centric process tracing, it is important to select a specific case where it is hypothesized that both X and Y are present together with contextual/scope conditions that allow for the mechanisms to operate (Beach & Pedersen, 2013). As such, these identified plausible causal mechanisms were applied to the province of Groningen as a case where both energy cooperatives and policy outputs for the energy transition are present, as is further described later. By using such a specific case, this research tested whether the empirical records of the plausible causal mechanisms are present in reality and supported by relevant evidence (Beach & Pedersen, 2013). In this sense, this research borrows from Bayesian inferential logic that places emphasis on empirical tests to assess the confidence about a certain hypothesis based on relevant evidence that can be found (Ibid.). To this extent, this study examined whether these mechanisms, or some other causal mechanisms, can explain how energy cooperatives can exert an influence on the policy making process and provincial and municipal government energy policy outputs for the energy transition.

2.3 Analytical Framework for Energy Cooperative Mechanisms and Justice

In this section, the aforementioned understandings of justice and the identified plausible causal mechanisms were used to develop the analytical framework, in Figure 2 below. This framework expands the previously developed conceptual framework by merging the idea of causal mechanisms with the understandings of justice for a more ‘just’ energy transition. Importantly, justice is always present and permeating, but this research specifically attempted to operationalize the understandings of justice in the sense of explaining *how* ECs can help to include understandings of justice in policy outputs. On the one hand, this analytical framework examines the specific ways in which ECs address understandings of justice. On the other hand, by identifying relevant causal mechanisms, this analytical framework explains *how* the ECs are able to translate and include these understandings of justice into policy outputs for the energy transition.

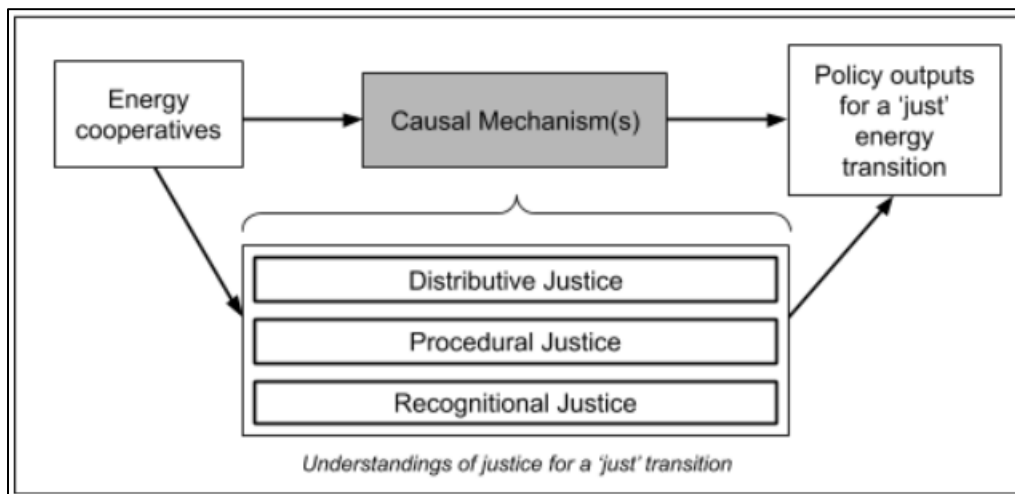


Figure X: Analytical framework

Chapter 3: Research Methodology

3.1 Abductive Approach

Before delving deeper into the research methodology of this paper, it is important to delineate that an abductive approach was used to achieve the results and conclusions below. Three core concepts are at play here to arrive at an abductive approach: deduction, induction, and abduction. To begin, deduction, or a deductive process, is about identifying “probable, applicable, and recognisable experiential consequences (hypotheses), based on theorising or theory” (Åsvoll, 2013, p.4). To this extent, a deductive approach is about developing propositions based on theory to be tested in the real world (Dubois & Gadde, 2002). This deductive step has already taken place above in section 2.2 by identifying four plausible causal mechanisms based on theory. Next, induction is situated between theory and empirical fact with the role of providing a sufficient empirical basis to support or reject the deductive hypotheses (Åsvoll, 2013). Simultaneously, an inductive approach also helps to systematically generate new theories or hypotheses from the data (Dubois & Gadde, 2002). The inductive approach in this research took form by approaching the collected data with an open mind with the possibility of discovering and being surprised by new potential causal mechanisms. Ultimately, the deductive and inductive approaches lead to the final concept of abduction. In an abductive approach, the original framework of proposed hypotheses from the deductive approach are modified based on the empirical findings and new insights from the inductive approach (Dubois & Gadde, 2002). Such an approach helps to create “fruitful cross-fertilization where new combinations are developed through a mixture of established theoretical models and new concepts derived from the confrontation with reality” (Dubois & Gadde, 2002, p. 559). The three steps of the deductive, inductive, and ultimately, the abductive approach for this research is included in Figure 3 below.

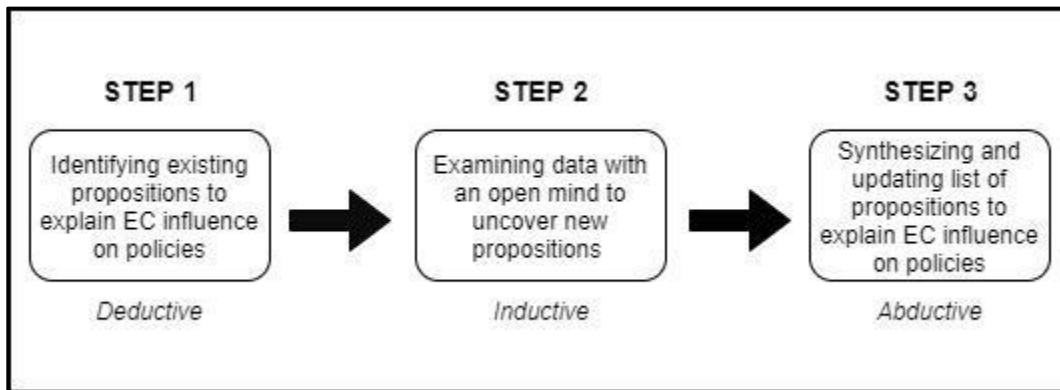


Figure 3: Abductive approach of this research

Considering that step 1, the identification of plausible mechanisms to explain EC influence on policies, has already been completed above, the remainder of this research methodology section was dedicated to outlining the methodology used to achieve step 2 and step 3.

3.2 Research Strategy

Due to the explorative nature of this research, a case study was a useful research strategy and was selected on the basis of several arguments. Firstly, Verschuren et al. (2010) argue that a case study allows a researcher “to gain a profound and full insight into one or several objects or processes” (p.179). Burnham et al. (2008) further argue that if the objective of the research is to gain a more in-depth observation of a known entity, in this case energy cooperatives, then a case study format would be the most relevant research method to use. Secondly, a case study aims to study a small number of cases which emphasizes the comparison of the results of each case as opposed to more large-n studies (Verschuren et al., 2010). Thirdly, case studies combined with theory-centric process tracing can help contribute to understanding about broader social phenomena (Beach & Pedersen, 2013). This was relevant to the question at hand because a case study enabled the specific analysis of the various mechanisms of energy cooperatives leading to the advancement of a just energy transition through policy outputs. The observed, *qualitative*, findings could then be synthesized into a coherent list of such mechanisms to explain this. This is opposed to a quantitative analysis of data which would not be relevant to the central research question at hand.

3.3 Case Selection

For this research, the northeastern province of Groningen in Netherlands was selected as the main case and focus. This selection was based on three key arguments. Firstly, several authors highlight the important role that cities, municipalities, and provinces can play at a regional level in driving a national energy transition (Kern, 2019; Measham et al., 2011; Bulkeley, 2010; Schreurs, 2008). In the context of the Dutch energy transition this is even more apparent. The climate agreement in the Netherlands has divided the country into 30 regions with the task of developing individual Regional Energy Strategies (RES) to address the energy transition (Klimaatakkoord, 2019). The province of Groningen is one of those 30 regions where the regional and local governments, together with civil society actors and network operators, are faced with the challenge of drafting a RES document by March, 2021 (Klimaatakkoord, 2019; Provincie Groningen, 2019b).

Secondly, Groningen has been selected as representative for the rest of the Netherlands as it has been widely cited as a frontrunner in the Dutch energy transition. (Provincie Groningen, 2019a; RTVNOORD, 2018; New Energy Coalition, 2018; Muskee, 2018; European Commission, 2018). Groningen’s status as a frontrunner in the Dutch energy transition has been highlighted by the province’s negative relationship with natural gas exploitation. Since its discovery in Groningen in 1959, natural gas has played a dominant role in the energy consumption in the Netherlands (Hölsgens, 2019). While this rapid introduction throughout the country has helped to reduce the dependency on coal and promoted the diversification of resources and supplier countries, the Dutch dependence on natural gas remains problematic (Hölsgens, 2019). The past decade has seen an increase in public dissatisfaction with the physical and psychosocial damage as a result of the earthquakes caused by the rapid depletion of the natural gas reserves (Bakema et al., 2018). Consequently, in 2018, the Dutch government announced that natural gas extraction in Groningen would be terminated (European Commission, 2020; Beckman & Van den Beukel, 2019; Rijksoverheid, 2018). As a result of this, and the wider debate around fossil-fuel induced

climate change, it is clear that the Netherlands, and Groningen in particular, has to consider expediting an energy transition away from fossil fuels towards more renewable sources of energy.

Finally, according to the local energy monitor *HIER Opgewekt* (2019), the Netherlands is home to 582 ECs of which 46 are found in the province of Groningen. The province of Groningen also saw one of the largest growths of new energy cooperatives in the Netherlands (HIER Opgewekt, 2019). Furthermore, the province of Groningen can be characterized by its exceptional infrastructure in place to support the establishment, development, and cooperation of ECs. The *Groninger Energiekoepel* (GrEK) is an umbrella organization that offers professional support and a platform to exchange knowledge and experiences amongst ECs in the province (GrEK, 2020; HVA, 2020). The *Natuur en Milieufederatie (NMF) Groningen* (nature and environmental federation) is another important organization that supports local ECs. It does this by facilitating the service point for local energy (*Servicepunt lokale energie voorwaarts*) which also offers support and a wide network for emerging ECs (NMF, 2020a; Lokaal Energie Voorwaarts, 2020). Next to this, the NMF also helped to write and carry out a local energy program, together with the provincial government, the GrEK, and Grunneger Power, to stimulate the network of ECs in the province (NMF, 2020b; Provincie Groningen, 2016). Grunneger Power, it should be noted, is the largest EC in Groningen and one of the largest in the Netherlands, which also plays a key role in supporting other emerging ECs (Grunneger Power, 2020). For these reasons, the province of Groningen was an ideal case to gain a more in-depth understanding of ECs in the context of the Dutch energy transition.

3.4 Data Collection

To be able to identify the extent to which energy cooperatives play a role in influencing policy outputs to advance a just energy transition in the Netherlands, data collection for this research was based on a mixed methods approach. The primary means of data collection was 23 semi-structured interviews conducted in March and April of 2020 with energy cooperative representatives, government officials, and civil society actors. The interviews can be broken down as follows: energy cooperative representatives (n = 12), municipal government officials (n = 6), provincial government officials (n = 2), civil society actors (n = 2), and representatives from the official RES table (n = 1). The full list of interviewees has been included in Annex A. The distribution of interviewees throughout the province of Groningen has been displayed in Figure 4. Green indicates the energy cooperative representatives, red indicates the government actors (both municipal and provincial), and black indicates the “other” actors which includes the civil society groups and the RES representative.



Figure 4: Map of interviewees in the province of Groningen.

The respondents for this research were selected based on their involvement in an established EC in the province of Groningen (the HIER Opgewekt report (2019) was used as a starting point), their involvement with the energy transition or the RES in municipal or provincial government, and via “snowballing” during the interview process (Bryman, 2012; Verschuren et al., 2010). On average the interviews lasted 45 minutes. Around half of the interviews ($n = 11$) were conducted face-to-face at locations throughout the province of Groningen. The remaining interviews ($n = 12$) were conducted via telephone and Zoom, when applicable, due to the developments of the COVID-19 virus which restricted personal contact. The interviews were conducted in Dutch, transcribed in Dutch, and translated into English before analysis. In accordance with good ethical practices, interviewees received a project information sheet prior to the interview and were asked to sign an interview consent form. These documents have been included in Annex B and C, respectively.

The questions for these interviews covered topics related to the role of energy cooperatives in the energy transition, understandings of justice for energy cooperatives, the strategies used by energy cooperatives to interact with government, the outreach activities of energy cooperatives, and the perceived influence of energy cooperatives. The interview guide has been included in Annex D. By including such topics, the interviews offered a basis to identify new relevant mechanisms and possibly validate previously identified plausible mechanisms. Respondents were also able to provide information about specific events and their actions and motivations to better understand the sequence of events that unfolded in a process (Beach & Pedersen, 2013). The interviews conducted were semi-structured to allow the respondents to further elaborate on their answers while also providing opportunities for follow-up questions (Verschuren et al., 2010). This was important considering that the respondents came from different backgrounds while representing different organizations.

In addition to the interviews conducted, reviews of academic literature and other grey literature (e.g. government documents, policy documents and legislation) were also gathered to provide additional evidence in support of plausible causal mechanisms. In this sense the approach was mixed-methods in that it combined primary interviews with available academic and grey literature.

3.5 Data Processing

3.5.1 Revising the List of Causal Mechanisms

As mentioned by Dubois and Gadde (2002) an important aspect of an abductive approach is to modify the proposed hypotheses based on the empirical findings from the data collected and theoretical insights. In order to do this, the interviews conducted were categorized on the basis of the definitions of the hypothesized causal mechanisms and the three understandings of justice. Evidence supporting indicators were grouped together to be able to assess how important the interviewees found certain indicators and the extent to which they were discussed. Next, similar points of evidence, not linked to a previously existing mechanism, were grouped together to create support for a new plausible causal mechanism based on the findings. In the results, these new causal mechanisms were screened against existing academic literature and the abundance of evidence. If a theoretical basis and sufficient evidence for such a new causal mechanism existed, it was added to the list of existing plausible causal mechanisms before being evaluated.

3.5.2 Evaluation of the Causal Mechanisms

Once the modified list of causal mechanisms was completed, they could then be evaluated. A key aspect of this evaluation was to assess the extent to which each of these plausible causal mechanisms were “sufficient” to explain the influence of ECs on shaping policy for the energy transition.

To begin, the first step of this evaluation borrows heavily from a similar evaluation conducted by Patterson et al. (2019). Here, the data collected from the semi-structured elite interviews were assessed and weighed based on a series of “strength-of-evidence” tests about each of the plausible causal mechanisms. To do this, each of the plausible causal mechanisms were unpacked into a string of logical intermediary steps of relevant entities and activities, or ‘parts’. The division of the causal mechanisms into logical intermediary steps was up to the authors’ determination to select the most logical steps. Next, evidence from the data for each of these intermediary steps was assessed and received a level of confidence about that part actually being present based on the strength-of-evidence tests introduced in Table 3 below. Once each of the individual ‘parts’ of the causal mechanism were assessed, a conservative judgment was made regarding each mechanism by considering the extent to which all ‘parts’ of the mechanisms were present, “in order to avoid overclaiming evidence” (Patterson et al., 2019, p. 364). In this way, the assessment of confidence in a causal mechanism as a whole was based on the “weakest link” (Patterson et al., 2019). For example, if one part of a mechanism received low confidence, the mechanism as a whole would also have low confidence.

Beach and Pedersen (2013) distinguish four main types of evidence that are used to uncover causal mechanisms in process-tracing analysis. *Pattern evidence* refers to statistical patterns that are

revealed in the evidence. *Sequence evidence* relates to evidence that highlights the temporal and spatial chronology of events. *Trace evidence* concerns “artifacts” to help prove that an event occurred (e.g. news stories, policy documents; Patterson et al., 2019). Finally, *account evidence* regards the contents of empirical material such as oral accounts of something that took place. Such evidence can include primary accounts (e.g. from interviews) or secondary accounts (e.g. from scholarly works). For this research that relies primarily on interview data, the evidence that was gathered in support of the hypothesized parts of a mechanism existing consisted of *primary and secondary account evidence, trace evidence, and sequence evidence*, if applicable.

Table 3: Evidence assessment rubric for the evaluation of the causal mechanisms (Elaborated from Patterson et al., 2019)

Strength-of-evidence test	Description of the strength-of-evidence test ¹	Confidence
“Straw-in-the-wind” Test	This test considers evidence with a low level of uniqueness, ² and a low level of certainty. ³ It offers some evidence in favor or against a hypothesis, but it is not decisive and can neither fully confirm nor eliminate a hypothesis. The test <i>slightly</i> weakens rival hypotheses.	Low
“Hoop” Test	This test considers evidence that is certain, but not unique. Evidence for this test must be present for the hypothesis to be considered further. The hypothesis must “jump through the hoop”. Failing a hoop test can eliminate hypotheses, but cannot confirm them. The test <i>somewhat</i> weakens rival hypotheses.	Moderate
“Smoking Gun” Test	This test considers evidence that is highly unique, but with low to no certainty. This test argues that if a piece of evidence is present, then the hypothesis must be valid. Passing this test supports a hypothesis but cannot eliminate other hypotheses entirely. The test <i>substantially</i> weakens rival hypotheses.	High
“Doubly Decisive” Test	This test considers evidence that is both unique and certain. Evidence for this test confirms the hypothesis and eliminates all other hypotheses.	Very High

¹ Sources: Beach & Pedersen (2013), Mahoney (2012), Collier (2011), and Van Evera (1997)

² “A **unique** prediction is a forecast not made by other known theories. The more unique the prediction, the stronger the test. The most unique predictions forecast outcomes that could have no plausible cause except the theory’s action.” (Van Evera, 1997, p.31)

³ “A **certain** prediction is an unequivocal forecast. The more certain the prediction, the stronger the test. The most certain predictions are deterministic forecasts of outcomes that must inexorably occur if the theory is valid.” (Van Evera, 1997, p.31)

Chapter 4: Results

Before delving deeper into the results, it is important to delineate the structure for this section. This structure has been demonstrated in Figure 5 below to emphasize the process of how the different components of the results are linked together. Section 5.1 unpacks the different understandings of justice on the basis of interview data gathered. Section 5.2 includes the deductively identified causal mechanisms as well as further causal mechanisms that were identified inductively. Specifically, section 5.2.2 is a screening to identify the most plausible mechanisms which were addressed for a deeper evaluation in section 5.2.3. This evaluation helped to bring theory and empirical evidence into dialogue by placing them side by side. Ultimately, the insights from section 5.1 and section 5.2 were combined to identify the relations between causal mechanisms and improvements in dimensions of justice for the energy transition.

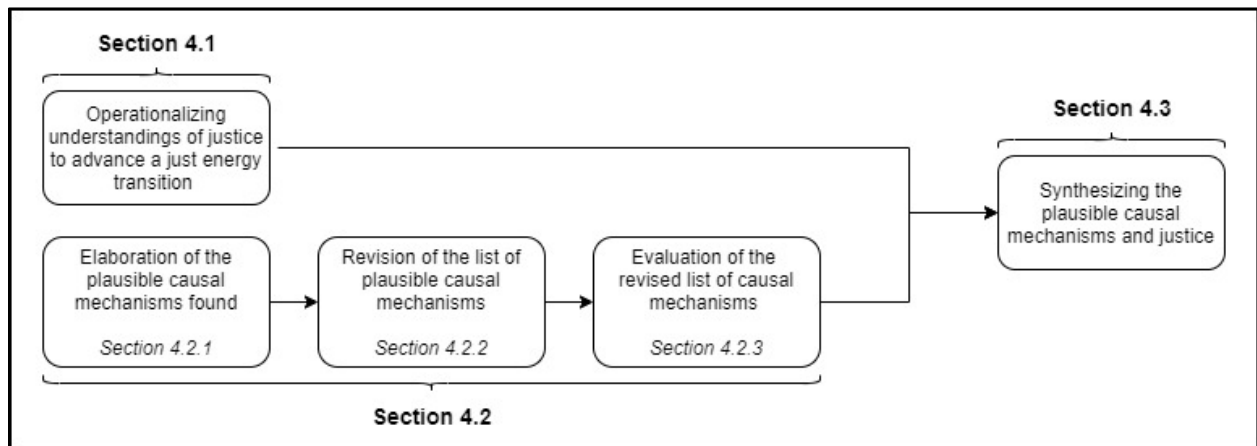


Figure 5: Structure of the results section

4.1 Understandings of justice to advance a just energy transition

To begin, this portion of the results presents findings about the different ways that ECs believe that they help to advance a more ‘just’ energy transition. The interview data from ECs, municipal and provincial government representatives, and other relevant actors were coded and categorized on the basis of the three understandings of justice that can be united for a more ‘just’ energy transition.

Distributive Justice

Distributive justice, for this research, was operationalized as the extent to which ECs ensure that everyone can benefit from the energy transition. According to the interview data, ECs are able to achieve this by focusing on two key aspects: (1) ECs ensure that the capital and benefits of renewable energy initiatives remain in the region for the benefit of the communities in the region; and (2) ECs ensure that the energy transition is accessible so that everyone can participate in the energy transition regardless of their financial situation.

On the first aspect of ensuring that capital remains in the region, several ECs argued and specifically mention that the revenues and profits of renewable energy projects should remain in the

region instead of being siphoned away by large commercial developers (Interviewee 1, 2, 5, 6, 8, 12). Interestingly, ECs emphasize the financial nature of the benefits that should remain in the region: “*capital*” (Interviewee 1); “*profits*” (Interviewee 2 & 8); “*money*” (Interviewee 5 & 12); and “*revenues*” (Interviewee 6). This is interesting because it offers unique insight into the aim of ECs to provide some sort of financial justice to its members and the communities in the region as opposed to specifying access to greener energy from the renewable energy projects, for example. This idea that ECs help to ensure that the capital of renewable energy projects remains in the region has also been supported by several government officials (Interviewee 13, 15, 17, 18). As one respondent put it, “*what an energy cooperative often stands for, is that what they do in terms of initiatives comes back to serve the residents...but also for the people who live in the area*” (Interviewee 13). This perspective is interesting to note because it suggests that the role of energy cooperatives is to ensure that the benefits of the energy transition remain in the region to benefit everyone in the region, regardless of if they are a member of the EC or not.

Another government representative argued that it is only logical for municipalities to include ECs in the process of redistributing the revenues within the region (Interviewee 18). This is especially interesting because not only did the representative acknowledge that revenues should remain in the region as well, but they went further to clarify that ECs should play an important role in ensuring that this happens. Arguably, this is an important revelation that could indicate the extent to which ECs can ensure that policies for the energy transition address the role that ECs can play in including distributive justice in policies for the energy transition. Additionally, a representative from the NMF shares this understanding that by keeping the capital and benefits in the region, all actors can help to achieve more distributive justice in the energy transition (Interviewee 22). They argue that “*if we all could ensure that the benefits really stay in the area and that people can benefit from wind and solar energy, then people will have more acceptance for the energy transition*” (Interviewee 22).

Regarding the second key aspect, several respondents from ECs acknowledged that the energy transition should indeed be accessible so that everyone can participate (Interviewee 2, 3, 7, 11). Interestingly, and similar to the previous aspect, the ECs seemed to be fixated on the financial aspect of ensuring participation in the energy transition. As one respondent put it, “*it is definitely an aim of the EC that even people with a slimmer wallet can join. The EC wants to make the energy transition accessible to all, and also financially accessible*” (Interviewee 11). Another EC argued that the energy transition “*should not only be for the happy few*” (Interviewee 7). They added that only once you ensure that everyone can participate in the energy transition and renewable energy projects, then you can talk about the energy transition being “*just and fair*” (Interviewee 7). These points are relevant because they acknowledged the challenge that ECs are faced with regarding making the energy transition accessible to all insofar that they strive to lower the financial boundary so that even those living with little money on welfare can participate. Interestingly, this aspect of distributive justice was not mentioned by any government official. There could be a number of reasons to explain this, but arguably this does demonstrate a policy gap. Considering the importance that ECs place on this aspect of distributive justice, this may provide an opportunity for ECs to exert influence on government officials and policy makers to acknowledge and include this aspect into policy for the energy transition in the future.

Procedural Justice

The most pervasive understanding of justice in this study was procedural justice. For the purposes of this research this was operationalized into two categories. Namely, (1) the extent to which energy cooperatives help to promote a more inclusive decision-making process for the energy transition, and (2) the extent to which energy cooperatives help to keep the local community informed and engaged about developments in the energy transition.

With regards to a more inclusive decision-making process, interview respondents identified two key aspects that help achieve this in terms of procedural justice. First, several respondents argued that it is important for ECs to ensure that their members decide what happens within the EC (Interviewee 1, 2, 3, 6, 7, 8, 9, 12, 17, 21). Specifically, several ECs noted how this aspect is often codified into the statutes of the EC to ensure that it is really up to the members to decide what happens within the organization (Interviewee 3, 7). Accordingly, the ECs also demonstrated that its members are able to use their power in the decision-making process of the EC during the general member meetings (Interviewee 2, 8). By giving its members such an inclusive role in the decision-making process, the members can really achieve what they want in the energy transition (1, 2, 8). As a representative of the GrEK argued, the *“goal is to maximize the participation of the residents and to help shape the energy transition, so that the people not only have the burden of the energy transition, but also the benefits. The residents should decide how the energy transition takes shape in their backyard”* (Interviewee 21). With this in mind, it is in the core of an EC to help promote a more inclusive decision-making process for the energy transition by giving its members a direct say and vote regarding the direction of the organization and the redistribution of the profit. It is clear that ECs play an important role in advancing this aspect to achieve procedural justice for the energy transition.

A second key aspect for a more inclusive decision-making process was the argument from several respondents that ECs help to regain some sort of control over the energy transition (Interviewee 8, 10, 12, 15, 20). Interestingly, the sentiment here is that communities have lost control over their own energy decisions and that ECs can play an important role in regaining this control back from larger commercial parties to allow citizens to directly participate in the energy transition. In this sense, one respondent noted that ECs can be seen as the *“resource”* to regain control over energy (Interviewee 8). Another respondent noted that ECs help to facilitate local organization to allow community members to regain control over their energy decisions (Interviewee 12). This idea that ECs play an important role as the type of organization to allow people to regain control over their energy was also acknowledged by a government official (Interviewee 15). Additionally, even a provincial government representative recognized ECs as *“a bottom-up movement of the energy transition... that is actually taking matters into their own hands who do not want the whole transition to be top-down driven”* (Interviewee 20). In this sense, it is clear that even government officials in the province recognize that ECs do in fact play an important role in advancing this aspect of procedural justice for the energy transition. ECs have thus been able demonstrate their capabilities and the extent to which they can help to achieve more inclusion in the energy transition.

Next, it was also important to address the extent to which ECs help keep the community informed. Here, the interview data revealed that ECs use their newsletters as well as information meetings to keep the community up-to-date about the developments regarding the energy transition as a way to enhance procedural justice. To begin, several ECs together with the GrEK identified that they were actively sending

out newsletters as a means to keep the community informed (Interviewee 2, 6, 9, 11, 21). Here, it is important to note that most of the ECs admit that the newsletters they distribute are mainly concerning the developments within the EC itself (Interviewee 6, 9, 11, 21). That being said, the respondents did acknowledge that on occasion developments in the area at the municipal and provincial level were also shared (Interviewee 9, 11, 21). Either way, by actively sharing and distributing information to its members, ECs play an important role in ensuring this aspect of procedural justice for the energy transition.

In addition to the distribution of information and knowledge through newsletters to their members, instances were also identified of meetings and gatherings to share knowledge and information about the on-going developments (Interviewee 3, 10, 13, 15, 21, 23). At the EC level, one respondent recounted meetings held that are open to anyone in the community to address questions and concerns, share knowledge, and provide information about developments within the EC and the energy transition as a whole (Interviewee 3). Specifically, this EC argued that *“in this way the EC really tries to include people with information and conversations so that they get good information”* (Interviewee 3). Another important example identified regarded the role that the GrEK plays in organizing meetings to share knowledge and information about developments (Interviewee 15, 21). Importantly, such meetings helped inform the community of ECs in the region who, in turn, take the information back to inform their respective communities at more local informational meetings or through their newsletters and websites. Ultimately, an interviewee emphasizes just how important communication is to help advance the energy transition: *“everyone in the province should know what is happening and should be informed about the developments. Not just once, but always...If more people know what is happening, you can also reassure the opinions of the skeptics. It helps if people know what is being worked on, what boundaries were encountered, and how they were dealt with”* (interviewee 4). Ultimately, such meetings to share information and knowledge are important platforms where procedural justice is also further advanced. ECs thus play an important role in their capacity to organize, facilitate and attend such meetings to create more awareness and generate more knowledge regarding the energy transition.

Recognitional Justice

This understanding of recognitional justice was included to examine the extent to which energy cooperatives help to include different opinions and the voices of vulnerable citizens (youth, elderly, poor, uneducated, etc.). Interestingly, and as was already mentioned above regarding distributive justice, ECs seem to be primarily concerned with addressing those individuals who cannot afford to participate in the energy transition. While this is positive in and of itself, it should be noted that less attention was paid to recognitional justice than distributive and procedural justice. That being said, several useful examples were presented regarding the innovative ways the ECs ensure that especially people with lower incomes can also participate in the cooperatives to help advance the energy transition for all.

To begin, it is important to make the distinction between some ECs that already have plans in place to ensure that people with lower incomes can participate, and other ECs who have ideas about how they wish to achieve this in the future. One example already in place comes from an EC that was able to secure a deal with a renewable energy company (*Energie van Ons*) to cover the upfront costs so as to make the membership for the cooperative as low and accessible as possible (Interviewee 3). Another established example comes from an EC in the city of Groningen that trains energy coaches, together with

the municipal government, who are implemented to advise and assist groups with low income about energy choices and the ways in which they can make their homes more sustainable (Interviewee 10, 13). Similarly, another EC is also cooperating with its local municipality to inform people with slimmer wallets about energy savings possibilities and green energy alternatives (Interviewee 12). In doing so, the EC hoped that these groups can help reduce their energy costs and save money which in the long run can help them participate more in the energy transition.

Next to these established examples of the ways in which ECs advance recognitional justice, the majority of the respondents revealed that this is an aspect still under development but that several different ideas exist to be able to include the opinions of vulnerable groups (Interviewee 6, 7, 8, 11, 14, 21). These ideas included providing lower cost green energy to people with slimmer wallets (Interviewee 6), securing subsidies from the government reduce membership fees for vulnerable groups (Interviewee 7), offering low interest loans to vulnerable groups (Interviewee 8, 11), or creating funds for homeowners who can't afford to participate (Interviewee 14). Importantly, these ideas acknowledged that such vulnerable groups exist and that they should be given the opportunity to participate in the energy transition. As one EC argues: *"it is explicitly one of the objectives of the EC to include that very group in the energy transition, in the whole process, because they often have the least influence and the least resources"* (Interviewee 11). Additionally, even the provincial government argues in favor of the benefit of ensuring that even participants without money should be able to take part in the energy transition as this would make the energy transition more accessible to all (Interviewee 20)

To this extent, it is apparent that ECs and governmental actors are aware of the need to include such vulnerable groups to advance recognitional justice of the energy transition. Several ideas are already in circulation, but these have yet to take form and be crystallized to achieve their desired effect. These are areas where ECs could exert influence to promote their ideas. Furthermore, while ECs are currently focused on ensuring those with less financial security can also participate, ECs in the future should also consider ways in which they can ensure other groups of vulnerable citizens can participate in the energy transition, or at least benefit from it.

4.2 Energy Cooperative Mechanisms

Next, attention shifts to further unpacking the causal mechanisms that can explain EC influence on policies that operationalize the aforementioned understandings of justice for a more 'just' energy transition. First, the existing, and newly uncovered, plausible causal mechanisms were elaborated and supported with academic literature. This was important to screen the list of plausible causal mechanisms to only include mechanisms with ample support from both the theory and practice to explain the policy effects of ECs. The revised list was then evaluated and tested on the basis of evidence to demonstrate confidence regarding the extent to which each plausible mechanism is present.

4.2.1 Elaboration of the causal mechanisms

Brokerage

As previously defined, brokerage refers to the mediation of groups or individuals between two or more social arenas (Biesbroek et al., 2017; McAdam et al., 2008). This can be taken even deeper to understand that this concept refers to the “forging of connections” between groups or individuals to allow “collective action to spread along the newly created pathway” (McAdam et al., 2008, p.322). To add to this, Stovel and Shaw (2012) argue that the key characteristics of brokers are (a) to bridge the gap between the social arenas and (b) to facilitate the flow of “information, knowledge and opportunities across that gap” (p.141). In this sense, brokers have a relatively powerful position as both representatives and gatekeepers to identify the needs and resources of one group and facilitate their transfer to another group, and vice versa (Stovel & Shaw, 2012; Gould, 1989). Importantly, brokers are argued to be so successful based on their skills, their orientations, and the contacts that they have (McAdam et al., 2008).

Stovel and Shaw (2012) note that brokerage “rests on informal, personal relationships” (p. 140). Such informal connections may often be formed for entirely different purposes, but that they ultimately help to facilitate the transmission of information across the social arenas to further enhance their connection (Stovel & Shaw, 2012). As such, brokers can emerge as highly influential actors especially when considering their direction towards the government arena and their ability to channel the flow of information that can help shape the agenda or influence political outcomes (Stovel & Shaw, 2012; Denzau & Mackay, 1983; Bacharach & Baratz, 1962).

Several interviewees noted that it is in the nature of an EC to act and be representative of its community and members towards governmental bodies (Interviewee 3, 5, 8, 10, 13-16, 20-22). In this sense it is argued that ECs act as brokers and help to mediate between their members from the community and the governmental bodies. To do this, several interviewees identified that they had very close, beneficial, and sometimes very informal relationships with governmental officials (Interviewee 3-6, 11, 12, 22). Indeed, it is suggested that ECs act as brokers between the community-level social arena and the government arena which can subsequently help to shape the agenda or influence political outcomes of the energy transition. As such, brokerage was considered to be present as a causal mechanism to explain the influence of ECs on policies to advance a just energy transition. For that reason, “brokerage” was included in the revised list of causal mechanisms for further evaluation.

Coordination

Coordination is a plausible causal mechanism that refers to actors using their perceived benefits of an activity to encourage others to also engage in that activity (Faletti & Lynch, 2009; Pierson, 2000). This is further elaborated to highlight that coordination effects occur when the benefits from a particular activity increase as others adopt the same option which, in turn, encourages further adoption of that activity (Faletti & Lynch, 2009; Pierson, 2000). In the case of ECs, it can be argued that the benefits from their activities increase as more ECs emerge, and this can help to encourage governments and policy makers, for example, to adopt ECs as tools to help advance a more ‘just’ energy transition.

As Pierson (2000) notes, the benefits of organizations (like ECs) are “often enhanced if they are coordinated or “fit” with the activities of other actors, organizations, or institutions” (p.77). Additionally,

Pierson (2000) argues that contexts of complex social interdependence and collective action can be characterized by coordination effects. In this sense, the influence of ECs on policies could be explained by the extent to which the beneficial activities of ECs are coordinated and promoted as a “fit” with the activities of policy makers to advance a more just energy transition.

This plausible causal mechanism received a significant amount of attention during the data collection from the interviews. Numerous ECs noted that they play an important role in ensuring inclusiveness, awareness and participation for the energy transition (Interviewee 1, 4, 6, 9, 11, 12, 21). At the same time, several respondents (mainly government actors) identified that ECs do indeed help to play an important role in ensuring inclusiveness, awareness and participation for the energy transition (Interviewee 15, 20, 22). Considering this, it can be argued that ECs, by demonstrating their capabilities, have helped to encourage government actors to acknowledge the beneficial role of ECs in the energy transition. Ultimately, there was a decent amount of support from the data that is in line with the theoretical underpinnings of coordination as a causal mechanism. For that reason, coordination was included in the revised list of causal mechanisms.

Learning

Learning, following its previous definition, refers to the ability of actors to draw on lessons from previous experiences to improve for the future (Faletti & Lynch, 2009; Rose, 1990; Hecló, 1974). Rose (1990) demonstrates this in the analogy that policy can be imagined to be a cathedral that has been built up and strengthened over time with additions and renovations. In this sense, knowledge, expectations, beliefs, attitudes, and previous decisions can help to shape policies (Juwel & Ahsan, 2019). Conversely, previous experiences can also help to shape the knowledge, expectations, beliefs and attitudes of the actors involved (Juwel & Ahsan, 2019). Hecló (1974) argues that such a mechanism of learning helps to ensure the durability of policies for the future.

To be able for learning to effectively take place, actors need to “engage with one another and share their diverse perspectives and experiences” (Juwel & Ahsan, 2019, p.7). Indeed, this mechanism depends on the involvement, collaboration, and interaction between the various actors involved in a policy area (Juwel & Ahsan, 2019). According to Pierson (2000), the knowledge gained from such complex interaction and collaboration can help lead to higher, and arguably better, policy returns.

Learning also received some attention during the interviews. While it did not receive as much importance as brokerage or coordination, many respondents indicated that ECs have a lot of knowledge and experiences that can be shared with government actors to improve policy in the future (Interviewee 1, 2, 4, 10, 11, 13, 20). In particular, several respondents highlighted that especially lessons from previous experiences were shared (Interviewee 2, 7, 8, 10, 12, 14, 22, 23). In this sense, learning was considered to be present as a causal mechanism that can explain the influence of ECs in Groningen on policies for a just energy transition through their interactions and sharing of knowledge and previous experiences. For that reason, learning was included in the revised list of causal mechanisms for further evaluation.

Conversion

As the last of the four previously identified plausible causal mechanisms, conversion refers to the introduction of *new* goals, functions, and purposes that redirect institutions towards an alternative state

in the future (Biesbroek et al., 2017; Mahoney & Thelen, 2010; Streeck & Thelen, 2005). This mechanism can be considered in the terms of the redirection and reinterpretation of existing institutions to yield new purposes and policies as a result of collective decision-making (Streeck & Thelen, 2005). Mahoney and Thelen (2010) further argue that “conversion results from the incorporation of new supporters or the assumption of power by a new political coalition” who can help to shape institutions in new ways (p.18). Arguably, ECs can be seen as such new supporters or a new political coalition that interacts with the government to introduce new goals, functions, and purposes.

In this sense, Streeck and Thelen (2005) note that as a result of this interaction, existing institutions can be adapted to fit the needs or serve the goals of these new actors. An important caveat here, though, is that such changes do not occur instantaneously and they often occur over a longer period of time and interaction. “Conversion” can thus be seen as “the result of ongoing political contestation and periodic incremental adjustment” and time “opens gaps that entail possibilities for institutional conversion” (Streeck & Thelen, 2005, p.28).

Following the interviews, “conversion” received the least amount of attention. From the data it is clear that some respondents agree that ECs do indeed help to introduce *new* ideas to government officials to help shape policies for the future (Interviewee 1, 8, 9, 10, 13). Examples of this include EC *Grunneger Power* proposing a major district heating initiative (Buurtwarmte 050) to the municipality (Interviewee 13) or EC *Pekela Duurzaam* providing new insights and ideas about a policy for solar in its municipality (Interviewee 11). However, the responses from the interviews stop short from explaining any instances where ECs were able to redirect or reinterpret existing government institutions for the energy transition. While some of the evidence gathered can indicate that there may be some influence, this topic was not extensively discussed in the interviews which suggests a lack of evidence. With this in mind, further research may be needed here to fully uncover the extent to which conversion may or may not be present to explain the EC influence on policy. Ultimately, it was decided to remove conversion from the list of plausible causal mechanisms for this research due to the lack of evidence which would make proper evaluation difficult.

Collaborative Representation

In addition to the four existing plausible mechanisms, data from the interviews revealed that another plausible causal mechanism could be characterized. Many respondents (Interviewees 1 - 11, 15, 18 - 23) identified several instances where ECs would come together to meet with each other as a collective to discuss a variety of topics including policy developments. The ECs, as a unified and collective front, would then share their opinions and the outcomes of their meetings with representatives from government bodies (Interviewees 1, 2, 3, 6, 7, 21). This idea of collaboration and joint representation to influence policy is also supported by academic literature.

Several authors refer to this idea of representation in collaborative governance as the extent to which ideas, expertise, resources, and support from constituents are bundled and collectively reflected in the outputs, processes and structures of governance (Koski et al., 2018; Gazley et al., 2010). Importantly, this idea of representation considers a collaborative governance setting where diverse stakeholders from the public and private sectors who convene to encourage inclusion and participation in the implementation and coordination of public policy (Koski et al., 2018; Emerson et al., 2011). Arguably, the

policy arena for the energy transition can be conceptualized as an example of collaborative governance as it involves several diverse stakeholders in the policy making process as has been outlined in the RES, for example.

Leach (2006) specifies that collaborative representation “ensures that the interests of all effectively advocated, either in person or through proxies” (p.101). In this sense, and similar to brokerage, ECs can be seen as the proxies or representatives of the members of their communities. A key difference from brokerage is that this idea of collaborative representation focuses on the attendance and participation in a collaborative process with the aim of reflecting the issues of the collective in the formal agendas of the policy-making arena (Koski et al., 2018). The logic behind this form of representation is to ensure that the representatives of the collective have a seat at the table because their members have a vested stake in the outcome of the policy-making process (Leach, 2006).

Based on its establishment in academic literature and the presence of support from the data gathered from the interviews, “collective representation” can be argued to be an important causal mechanism that could help to explain how ECs join together as a collective to exert more influence on policies for a just energy transition. For that reason, collective representation was included in the revised list of causal mechanisms.

Professionalism

Finally, a plausible causal mechanism that was identified and categorized from the data was “professionalism”. Many respondents (Interviewees 1, 5, 6, 8 - 15, 18, 20, and 22) suggested that ECs would be able to have more influence on policy for the energy transition if they were more professionalized in the sense of being more capable, professional, organizations to implement the energy transition instead of small, volunteer-run cooperatives. This notion is also supported by some academic literature that argues that professionalism can indeed contribute to the capacity to shape and implement policies (Stillman, 2017; Noordegraaf, 2015). Stillman (2017), for example, suggests that for effective policy making to succeed, you need to integrate several professional fields. This might suggest that ECs do indeed need to professionalize to be able to help influence and implement policy in the future. Noordegraaf (2015) speaks more of a ‘hybrid professionalism’ that bridges professionalism with the managerialism of organizations to be able to better link their expertise to policy makers to influence policies, for example.

While there seems to be support for such a plausible mechanism from the interview respondents and some academic literature, this causal mechanism was eventually dropped from consideration. The main reason for this is that many of the respondents talked about such professionalism as an ideal to facilitate the energy transition and ensure more EC influence *in the future* (Interviewee 5, 8, 9, 18, 20, 22). To this extent, many respondents were basing their opinions on the apparent success of Grunneger Power as a more professional organization that is able to have more influence (Interviewee 6, 8, 10, 13). That being said, as many of the responses for this plausible causal mechanism were largely hypothetical, no hard evidence could be collected to help support it as a valid causal mechanism to currently explain EC influence on policies for a just energy transition. Thus, ‘professionalism’ was not included in the revised list of causal mechanisms. However, it does raise several interesting questions about ECs and whether

professionalism in the future could actually help explain or achieve more influence in the political sphere. Therefore, this could be considered for future research.

4.2.2 Revised list of causal mechanisms

Based on the preliminary support from the data and the elaborations of the existing, and the newly discovered, plausible causal mechanisms, the final revised list of plausible causal mechanisms was compiled. Table 4 below demonstrates this process. The existing four plausible causal mechanisms (step 1) were expanded to include the newly discovered plausible causal mechanisms following categorizations of the interview data (step 2). Next, their elaboration and preliminary support were screened to indicate whether the plausible causal mechanism should be included for further evaluation or not (step 3). This then led to the final revised list of plausible causal mechanisms (step 4).

Table 4: Process of revising the list of plausible causal mechanisms

STEP 1 Original List of Plausible Causal Mechanisms	STEP 2 New List of Plausible Causal Mechanisms	STEP 3 ✓ or X	STEP 4 Revised List of Plausible Causal Mechanisms
Brokerage	Brokerage	✓	Brokerage
Coordination	Coordination	✓	Coordination
Learning	Learning	✓	Learning
Conversion	Conversion	X	
	Collaborative Representation	✓	Collaborative Representation
	Professionalism	X	

Notably, ‘conversion’ and ‘professionalism’ were removed due to a lack of relevant evidence and ‘collaborative representation’ was added. In summary, the final revised list of plausible causal mechanisms includes:

- ***Brokerage***: The mediation of groups or individuals between two or more social arenas.
- ***Coordination***: Using perceived benefits of an activity to encourage others to also engage in that activity.
- ***Learning***: The ability of actors to draw lessons from previous experiences to improve for the future in both a political and social sense.
- ***Collaborative representation***: The extent to which ideas, expertise, resources, and support from constituents are bundled and collectively reflected in the outputs, processes, and structures of governance

4.2.3 Evaluation of the revised causal mechanisms

In this next step, the plausible causal mechanisms from the revised list have been unpacked into a series of intermediary steps labeled A, B, and C that are assessed in the evaluation section below. These intermediary steps can be understood as a string of entities and activities to help explain the link between an input (ECs) and an outcome (influence on policies for a ‘just’ energy transition). Each intermediary step was loosely based on the contents of the interviews together with an interpretation of the logical steps relevant for each causal mechanism to sufficiently explain the EC influence on policies for the energy transition. As a reminder, the purpose of this section was to evaluate the strength of confidence for the presence of each of these causal mechanisms. Each of the individual parts of each causal mechanism were systematically tested by evaluating empirical evidence for each part based on the tests introduced in section 3.5.2. Each of the causal mechanisms as whole then received an overall score of confidence based on the weakest link.

Brokerage

As it is displayed in Table 5 below, brokerage was divided into three logical intermediary steps: (A) ECs are a representative of their community and they can act on their behalf in a formal capacity; (B) ECs make use of their informal connections to government officials to share opinions and ideas; (C) the government officials can then take these opinions and ideas from the ECs and share them during policy meetings or other instances during the policy making process. Theoretically, these three steps can lead to ECs having an influence on policy making for the energy transition.

Table 5: Evaluation of brokerage

Causal Mechanism	Intermediary Steps of the Causal Mechanism			Assessment
	Assessment of the Intermediary Steps of the Causal Mechanism			
Brokerage	<pre> graph LR A[ECs represent and act on behalf of their members] --> B[ECs informally contact government officials via mutual connections] B --> C[Government officials share EC opinions at policy meetings] </pre>			Moderate confidence
	<p>Primary and secondary account evidence, and some trace evidence present</p> <p><i>Passes the ‘Hoop’ test because evidence suggests high certainty, but not uniqueness.</i></p> <p>MODERATE</p>	<p>Primary and secondary account evidence, as well as some trace evidence present</p> <p><i>Passes the ‘Doubly Decisive’ test because evidence suggests high certainty and high uniqueness</i></p> <p>VERY HIGH</p>	<p>Primary and secondary account evidence, and trace evidence present</p> <p><i>Passes the ‘Hoop’ test because evidence suggests high certainty, but not uniqueness.</i></p> <p>MODERATE</p>	

Part A was supported by primary and secondary account evidence as well as an example of trace evidence. Many interview respondents noted that ECs can and should be seen as a “*representation*” of the locals and residents of a village or community (Interviewee 3, 5, 8, 10, 13, 21, 22). This is in line with secondary account evidence from Stovel and Shaw (2012) that refers to brokers as representatives. Interestingly, respondents from government positions did not go so far as to describe ECs as “*representatives*” directly, but they did note that ECs act as the “*eyes and the ears*” and that they know what is happening on behalf of the community (Interviewee 13, 14, 15). One interviewee added that it is for this reason that ECs have an important role in the energy transition (Interviewee 13). Additionally, a respondent argues that “*citizens have decided, out of dissatisfaction, passion, interest, or organizational capacity, to work together to be a third player alongside the government and market*” and that “*an EC is a new democratic form of what brings people together to bring about change in their environment*” (interviewee 10). This is further supported by secondary account evidence from Huybrechts and Mertens (2014) who also argue that ECs are often formed out of dissatisfaction with the aim of regaining control. A representative from the provincial government corroborates this by noting that ECs are indeed “*a group of organized individuals who have organized themselves to pursue a specific goal*” (Interviewee 20). This definition of an EC is also formally adopted by and shared by the province on its website as an additional piece of trace evidence.⁴ Therefore, Part A passes the “hoop” test because the evidence presented suggests certainty, but not uniqueness. The evidence is certain because it can be supported by clear examples of trace evidence. The evidence is not unique because this emphasis on the connection of groups and individuals is something also shared in the contexts of other theories of learning and collaborative representation.

Support for part B also consists of primary and secondary account evidence together with some examples of trace evidence (e.g. news articles). Several respondents argued that it is very important to maintain good relationships with government officials (Interviewee 4, Interviewee 5, Interviewee 11). Notably, such relationships have emerged for several different reasons. In two examples, government officials were actually members of the EC which facilitated cooperation (Interviewee 3 & 12). Another example is of an EC in Delfzijl who has close connections to a councilman in that municipality. As a result of their personal connection, the EC was invited to discussions with the government (interviewee 5). Interestingly, this councilman is also the chairman of RES in Groningen which gives the EC a unique connection to an important regional policy for the energy transition. Trace evidence confirms that this councilman is indeed the chairman of the RES in Groningen.⁵ A final example is of an EC whose president is a former councilman who still has and uses a lot of his personal connections with the municipality and province (Interviewee 4). This example also made headlines in local media which can be used as trace evidence.⁷ It seems clear that several ECs have and maintain mutual connections as a means to share information which confirms secondary account evidence from Stovel and Shaw (2012) that brokerage

⁴ Provincie Groningen. (2020a). Start Subsidy Local Energy Transition. Retrieved from: <https://www.provinciegroningen.nl/subsidies/klimaat-en-energie/startsubsidie-lokale-energiestrategie/>

⁵ Geijp, J. (2019). Groningen wants a firm plan for windmills and solar parks. Retrieved from: <https://www.dvhn.nl/economie/Speurtocht-naar-groene-energie-en-warmte-24765361.html>

⁶ RES Groningen. (2019). Newsletter 1- December 2019. Retrieved from: <https://www.regionale-energiestrategie.nl/>

⁷ Harener Weekblad. (2019). New President Duurzaam Haren. Retrieved from: <https://harenerweekblad.nl/artikel/1002482/michiel-verbeek-nieuwe-voorzitter-duurzaam-haren.html>

rests on mutual relationships. One respondent does note cautiously that the extent to which ECs can use mutual connections to share information “*is very dependent on whether you find someone in the municipality who is enthusiastic about the energy transition*” (Interviewee 11). However, a representative from the NMF does clarify that “*it happens very often that ECs have a direct path to politics through their network*” (Interviewee 22). Therefore, the evidence gathered and presented here suggests that Part B passes the “doubly decisive” test because the evidence is both certain and unique. The evidence is certain to the extent that it received ample attention from account evidence which, in turn, were further supported by examples of trace evidence. Furthermore, the evidence is considered to be unique because this part confirms what was found in the theory regarding brokerage and was not explained by any other theory consulted.

For part C, primary and secondary account evidence, and examples of trace evidence (e.g. news articles and policy documents), were identified. From the respondents, three concrete examples could be identified of cases where ECs were able to use their mutual connections to exert influence on behalf of its members (Interviewee 5, 11, 18). A first example, although not directly about influencing policy per se, explains that the EC was able to use its “*us knows us*” contacts to enter into conversations with the municipality which ultimately resulted in the EC securing an option on a 30 hectare piece of land for a solar park (Interviewee 5). Another example is of an EC who, on behalf of its supporters, issued an official statement in reaction to government officials in response to proposals for the municipality’s new residential policy and solar policy (Interviewee 11). Although it is not clear whether this was a result of mutual connections, it does provide account evidence that the EC was able to act as a broker to exert influence on policy outcomes. The official reaction correspondence concerning the residential policy⁸ (primarily requesting that the sustainability of housing gains more prominence in the policy) has been sourced as trace evidence together with the residential policy⁹ that indeed reflects that the request has been processed in the policy. The solar policy can also be included as trace evidence.¹⁰ A final example is of a policy document in *Het Hogeland* municipality concerning small-scale solar and wind where ECs were actively involved in the policy process (Interviewee 18). While it is unclear whether this involvement was the result of mutual connections, it again offers evidence that the EC was able to act as a broker to be able to exert influence on a policy output. This is also supported by trace evidence. A sustainability manifesto from ECs in the municipality that was shared with government officials highlights ECs petitioning for more inclusion in policy.¹¹ The subsequent council proposal for the policy acknowledges ECs and their importance in the energy transition.¹² Presently, ECs have received a formal role within the policy with

⁸ Coöperatie Pekela Duurzaam. (2019). Reaction to the draft residential vision 2019-2023. Retrieved from: <https://www.pekeladuurzaam.nl/>

⁹ Gemeente Pekela. (2019a). Residential Vision 2019-2023. Retrieved from: <https://www.pekela.nl/Inwoners/Wonen/Woonvisie>

¹⁰ Gemeente Pekela. (2019b). Solar vision Pekela. Retrieved from: https://www.pekela.nl/Inwoners/Energie_verduurzaming/Visie_op_zonneparken_in_Pekela

¹¹ Hink, J. (2018). Het Hogeland Sustainability Manifesto. Retrieved from: https://www.hogelandstroom.nl/wp-content/uploads/2018/10/Manifest-Duurzaam-Hogeland_.pdf

¹² Gemeente Het Hogeland. (2019a). Council proposal - Small-scale energy production policy Het Hogeland. Retrieved from: <https://raadhethogeland.nl/vergaderingen/liijst>

regards to decentralized, small-scale, and local energy production.¹³ Ultimately, the actions of such brokers to channel the flow of information towards the government arena to shape the agenda or influence policy outcomes is further supported by secondary account evidence from Stovel and Shaw (2012), Denzau and Mackay (1983), and Bacharach and Baratz (1962). Therefore, it can be argued that Part C passes the “hoop” test because the evidence is certain, but not unique. The evidence here is certain because it is strongly supported by examples of trace evidence. The uniqueness of this evidence is low, however, because the idea of channeling information and knowledge to shape or influence policy has been promoted by numerous other theories. For that reason, other factors may be at play here and brokerage may not be the only theory to forecast this specific part.

Coordination

As it is displayed in Table 6 below, coordination was divided into three logical intermediary steps: (A) ECs are organizations that play a role in ensuring inclusiveness, awareness, and participation for the energy transition; (B) ECs demonstrate or share their capabilities in the energy transition with government bodies and officials; (C) the government officials can recognize these EC capabilities to help advance the energy transition and share them during policy meetings or other instances during the policy making process to encourage others to adopt similar capabilities. Theoretically, these three steps can lead to ECs having an influence on policy making for the energy transition.

Table 6: Evaluation of coordination

Causal Mechanism	Intermediary Steps of the Causal Mechanism			Assessment
	Assessment of the Intermediary Steps of the Causal Mechanism			
Coordination	<pre> graph LR A[ECs ensure inclusiveness, awareness and participation for the energy transition] --> B[ECs demonstrate their capabilities to government bodies and officials] B --> C[Government officials promote EC capabilities at policy meetings] </pre>			Moderate confidence
	<p>Primary account and trace evidence present</p> <p><i>Passes the “Doubly Decisive” test because the evidence suggests high certainty and high uniqueness.</i></p> <p>VERY HIGH</p>	<p>Primary and secondary account evidence, and trace evidence present</p> <p><i>Passes the “Hoop” test because the evidence suggests certainty but not uniqueness</i></p> <p>MODERATE</p>	<p>Primary account evidence</p> <p><i>Passes the “Smoking Gun” test because the evidence suggests low certainty and high uniqueness.</i></p> <p>HIGH</p>	

¹³ Gemeente Het Hogeland. (2019b). Small-scale energy production policy Het Hogeland. Retrieved from: https://hethogeland.nl/fileadmin/Hogeland_bestanden/Documents/subsidies_leningen/beleid-kleinschalige-duurzame-energie-opwekking-het-hogeland.pdf

Part A of this causal mechanism was supported by primary account evidence as well as some examples of trace evidence (e.g. news articles and policy documents). Primary accounts from several ECs demonstrated that they help to ensure inclusiveness, awareness, and most importantly participation for the energy transition (Interviewee 1, 6, 9, 11, 12). Arguably, ECs see participation as the most important role that they fulfil to help advance the energy transition (Interviewee 1, 6, 11). This idea of participation is also something that is specifically included in the Dutch climate agreement,¹⁴ and further trace evidence suggests that participation is also a key focus to be included in RES.¹⁵ One respondent noted that this inclusion of 50% participation for renewable energy projects in the climate agreement and RES demonstrates that *“there is a lot of interest in energy cooperatives”* (Interviewee 4). Several other primary accounts support that ECs are the necessary tool to help governments achieve 50% participation for future renewable energy projects (Interviewee 1, 4, 9, 11, 21). Therefore, it can be argued that Part A passes the “doubly decisive” test because the evidence is unique with high certainty. The evidence for this part is certain because it received support from several primary accounts which were further corroborated by concrete examples of trace evidence. Furthermore, the evidence is unique to the extent that it is an example of a forecast that has not been made by any other theory considered for this study.

Next, part B was supported by primary and secondary account evidence together with some examples of trace evidence (e.g. policy documents). From the respondents, there were two clear examples of how ECs could explicitly demonstrate their capabilities to government officials (Interviewee 4 & 11). In the first example, an EC argued that *“ECs are a good vehicle for participation and inclusiveness”* in the energy transition and that the concerned EC communicated this with government officials (Interviewee 4). While no trace evidence of this exchange could be found, the primary account evidence does strongly suggest that the EC was able to officially communicate and demonstrate its capabilities. Such an exchange is also supported by secondary account evidence from Pierson (2000) that recalls that the benefits of organizations are coordinated to fit the activities of other actors. In this case an EC using its perceived benefit to coordinate with government activities to achieve more participation and inclusiveness for the energy transition. Another example was of an EC in *Pekela* that is executing a project to get residents off of natural gas in their homes (Interviewee 11). Account evidence suggests that *“because the EC was active with an active workgroup, the municipality also had sufficient confidence to tackle that project”* (Interviewee 11). This development has been included in two news articles as trace evidence to demonstrate that the municipality was impressed with the progress of the EC and its working group, and is pleased to cooperate together to allow more people in the municipality to benefit from this aspect of the energy transition.^{16 17} In addition these examples, the NMF noted that it often urges ECs to send in letters or to speak on policy to demonstrate to government officials that they have the necessary

¹⁴ Klimaatakkoord. (2019). Dutch Climate Agreement. Retrieved from:

<https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/klimaatakkoord>

¹⁵ Provincie Groningen. (2020b). Climate Agenda Provincie Groningen 2030. Retrieved from:

https://www.provinciegroningen.nl/fileadmin/user_upload/Documenten/Beleid_en_documenten/Documentenzoeker/Klimaat_en_energie/Klimaat/Klimaatagenda_provincie_Groningen_2030_1.pdf

¹⁶ Hier Verwarmt. (2018). Natural gas free Boven Pekela and Doorsnee neighborhood. Retrieved from:

<https://www.hierverwarmt.nl/project/wijken-boven-pekela-en-doorsnee-pekela>

¹⁷ Gemeente Pekela. (2018). News: Gemeente Pekela receives subsidy for natural gas free Boven Pekela and Doorsnee neighborhood. Retrieved from:

https://www.pekela.nl/Bestuur/Nieuws/Nieuwsarchief/2018/Gemeente_Pekela_ontvangt_subsidie_voor_Aardgasvrij_Boven_Pekela_en_Doorsnee-pekela

capabilities to assist in advancing the energy transition (Interviewee 22). Arguably, this official communication and demonstration of EC capabilities does not happen enough, yet primary account evidence seems to show that both ECs and government officials consider EC's to be the "vehicle" to organize and execute local initiatives (Interviewee 4 & 15). Therefore, the evidence gathered and presented here suggests that Part B passes the "hoop" test because the evidence is certain, but not unique. The evidence for this part is certain to the extent to which it is supported by primary account and trace evidence examples. Unfortunately, the evidence lacks uniqueness due to the fact that it shares similarities with theories for brokerage, learning, and collaborative representation that can all explain why groups come together to share ideas and experiences. In this case, the meetings between ECs and government officials to demonstrate capabilities are difficult to differentiate from other kinds of meetings relevant to other theories.

Support for part C consists of primary account evidence. A key example here was from a government official discussing how to ensure that the revenues from large scale renewable energy projects can remain in the region to benefit the local communities. *"Revenues should remain in the region, but how you distribute these and what conditions must be included in policy is not known yet and still needs to be decided by the council. Discussions will be held with ECs to determine the role that they can play before proposing ideas to the council. It seems logical to the municipality that ECs are included in that process"* (Interviewee 18). While this exchange is presented as a hypothetical situation and no trace evidence exists of ECs actually being included in that process yet, it does emphasize that government officials acknowledge the capabilities of ECs and would be willing to include them in the policy process. Another example that reaffirmed this is an *"Example of a councilman who approached the EC regarding a vision document on renewable energy where ECs were not mentioned. After talking with the EC, the councilman submitted a motion that was also accepted to name ECs more explicitly in the vision document"* (Interviewee 6). Unfortunately, no trace evidence of this exchange could be sourced, but the example demonstrates that the councilman was clearly aware of the capabilities of the ECs and was able to promote these during policy meetings to have them successfully included in a policy output. In doing so, the perceived benefits of an energy cooperative have been formally included in policy to help encourage others to engage in that same activity. Therefore, Part C passes the "smoking gun" test because the evidence presented suggests low certainty and high uniqueness. The low certainty of the evidence for this part can be attributed to the fact that it is purely supported by primary account evidence. This is not to say that the responses in the interviews are not valid, but rather that the support would be stronger if there were more concrete examples of trace evidence, for example, to validate the claims made. That being said, this part is a forecast not addressed by other theories studied and is thus high in uniqueness.

Learning

As it is displayed in Table 7 below, learning was divided into three logical intermediary steps: (A) ECs have a lot of knowledge, expertise and previous experiences with regards to the energy transition; (B) ECs meet together with government officials to share their knowledge and previous experiences; (C) the government officials can accumulate such knowledge and previous experiences to be able to better inform policy makers about the challenges and possible solutions for policy for the energy transition.

Theoretically, these three steps can lead to ECs having an influence on policy making for the energy transition.

Table 7: Evaluation of learning

Causal Mechanism	Intermediary Steps of the Causal Mechanism			Assessment
	Assessment of the Intermediary Steps of the Causal Mechanism			
Learning	<pre> graph LR A[ECs have a lot of knowledge, expertise and experiences with the energy transition] --> B[ECs share their knowledge and previous experiences with government officials] B --> C[Government officials accumulate such signals to inform policy makers] </pre>			Low confidence
	<p>Primary account evidence present</p> <p><i>Passes the "Straw-In-The-Wind" test because the evidence suggests low uniqueness and low certainty</i></p> <p>LOW</p>	<p>Primary and secondary account evidence, and trace evidence present</p> <p><i>Passes the "Hoop" test because the evidence suggests certainty but not uniqueness</i></p> <p>MODERATE</p>	<p>Primary and secondary account evidence present</p> <p><i>Passes the "Straw-In-The-Wind" test because the evidence suggests low uniqueness and low certainty</i></p> <p>LOW</p>	

Part A was supported by primary account evidence. Surprisingly, only two examples from the interview data were identified that support the claim that ECs have a lot of knowledge, expertise and previous experiences with regards to the energy transition. First, an EC spoke from its own experiences that it has gained a lot of experience and in its view, *"other cooperatives should be able to benefit from this"* (Interviewee 4). Additionally, a government official notes that a prominent EC has a lot of knowledge and expertise which can help to ensure the success of renewable energy projects (Interviewee 13). Interestingly, it would almost seem as if it is implicitly known that ECs are knowledgeable and have learnt from previous experiences, but that ECs do not actively promote themselves as sources of knowledge and experiences. For that reason, Part A only passes the "Straw-In-The-Wind" test because the evidence suggests that there is low certainty and low uniqueness. The low certainty for this part is attributed to the fact that it received very little attention from the interview responses and could not directly be further supported by other forms of evidence. This part also demonstrates low uniqueness because this idea that knowledge and expertise can help to influence policy is not unique to learning and is shared by theories of brokerage and collaborative representation as well.

Support for part B consists of primary and secondary account evidence, and examples of trace evidence (e.g. news articles and policy documents). Several respondents provided primary account evidence to support the notion that ECs share their knowledge and experiences with government officials (Interviewee 1, 2, 10, 11). One example was from an EC that recounts instances where several ECs gather

together to share information, knowledge and experiences with each other. Secondary account evidence from Juwel and Ahsan (2019) acknowledge that learning takes place most effectively in such situations where multiple actors come together to share knowledge and their experiences. In this example, following the meeting, a delegation goes and presents the insights and experiences to government officials (Interviewee 1). Another example was of an EC who helped to write a handbook on how to set up a so-called *Postcoderoos*¹⁸ project in the province of Groningen. This handbook was compiled together with the provincial government who gathered lessons and personal experiences, like those of the EC, to be shared with other ECs and government bodies in the province (Interviewee 2). Indeed, the handbook was sourced and can be used as trace evidence as it contains practical experiences and tips from the EC.¹⁹ A third example was of an EC in the city of Groningen that is leading the charge on the heat transition and renewable heating networks that also form an important aspect of the energy transition. In this example, because the EC is at the forefront, it has gathered a lot of knowledge and experiences in this sector which it regularly shares with the municipality as well as with its community (Interviewee 10). This instance of the EC and its role in sharing knowledge and experiences regarding its developments with heat networks was also supported by trace evidence.²⁰ Lastly, a respondent importantly noted that when it comes to sharing lessons and previous experiences, *“it is important that you approach the municipality when it comes to things like this and not wait for the council to involve the EC there to share experiences”* (Interviewee 11). In this sense, this primary account supported the argument that it is up to ECs to take the initiative to share their lessons and previous experiences with government officials with the aim of exerting influence. Therefore, this suggests that Part B passes the “hoop” test because the evidence is low in uniqueness, but fairly certain. This part is low in uniqueness due to the fact that other theories for brokerage and collaborative representation also address instances of groups meeting with the aim of sharing information and experiences. It can be said with certainty that part B exists due to the fact that it is widely supported by account evidence, both primary and secondary, as well as several instances of trace evidence.

For Part C, primary and secondary evidence was identified. From the interview data, two primary accounts were used to argue that government officials accumulate the knowledge and experiences of ECs to inform policy makers. First, the municipality of Groningen elaborated that when a project that involves an EC is successfully completed, it tries to evaluate what went well, what went wrong, and what kind of questions came up (Interviewee 13). The municipality then compiles lists of these types of evaluations and questions to be shared with policy makers for future policies (Interviewee 13). Secondly, a representative from the provincial government explained that any time ECs cooperate with the province, signals are accumulated with regards to certain bottlenecks and challenges impeding better results (Interviewee 20). Accordingly, *“those signals are seriously considered and are then picked up by policy*

¹⁸ The *postcoderoos* (in english: zip-code rose) regulation is a financing opportunity for renewable energy projects whereby the participants of such projects are exempt from energy taxes for the energy produced by the project. Participants must be organized as a cooperative which has ownership of the project. Participation in such a project is only open to citizens from the surrounding zip-codes of where the project is located, hence the zip-code rose name. This has stimulated community action for renewable energy production (Postcoderoosregeling, 2020).

¹⁹ Greenspread. (2017). Postcoderoos projects in practice in Groningen - Handbook. Retrieved from: <https://www.greenspread.nl/wp-content/uploads/2019/12/Handboek-postcoderoos-gecomprimeerd.pdf>

²⁰ Grunneger Power. (2019). Support following presentation of draft district heating Paddepoel. Retrieved from: <https://grunnegerpower.nl/veel-steunverklaringen-na-presentatie-concept-buurtwarmte-paddepoel/>

makers to think about how the province and government can best handle them” (Interviewee 20). In hindsight, the respondent also notes that this kind of cooperation and accumulation of signals was very much appreciated by ECs to ensure that such problems don’t occur again later in the process (Interviewee 20). Secondary account evidence supports this by arguing that the accumulation of such signals of knowledge can help lead to higher and better policy outputs (Pierson, 2000). Ultimately, Part C also only passes the “Straw-In-The-Wind” test because the evidence presented suggests both low certainty and low uniqueness. The certainty of this part is lacking due to a very limited amount of support from account evidence and a complete lack of any further trace evidence to corroborate the findings. Furthermore, this part is low in uniqueness because, again, the notion that information and knowledge can help to influence policy is not unique to learning and is also supported by brokerage and collaborative representation.

Collaborative Representation

As it is displayed in Table 8 below, collaborative representation was divided into three logical intermediary steps: (A) several ECs meet and gather together to share knowledge and experiences and to discuss policy developments; (B) as a unified collective, a representative from the ECs will share their opinions and ideas with government officials or directly with policy makers, if applicable; (C) the government officials can then take these opinions and ideas from the ECs and share them during policy meetings or other instances during the policy making process. Theoretically, these three steps can lead to ECs having an influence on policy making for the energy transition.

Table 8: Evaluation of collaborative representation

Causal Mechanism	Intermediary Steps of the Causal Mechanism			Assessment
	Assessment of the Intermediary Steps of the Causal Mechanism			
Collaborative Representation	<pre> graph LR A[Multiple ECs meet together to discuss policy developments] --> B[As a collective, ECs share their opinions with government officials or directly with policy makers] B --> C[Government officials share the collective EC opinions at policy meetings] </pre>			
	Primary and secondary account evidence, and trace evidence present <i>Passes the “Hoop” test because the evidence suggests certainty but not uniqueness</i> MODERATE	Primary and secondary account evidence, and trace evidence present <i>Passes the “Hoop” test because the evidence suggests certainty but not uniqueness</i> MODERATE	Primary and secondary account evidence, and trace evidence present <i>Passes the “Hoop” test because the evidence suggests certainty but not uniqueness</i> MODERATE	Moderate confidence

For part A, primary and secondary account evidence was identified together with some limited trace evidence. From the interview data, there were three key instances where ECs would come together with the purpose of aggregating their opinions for collective action. Firstly, the *Lombok Overleg* (the Lombok Discussions), named after the location of the meeting, is a monthly meeting of ECs in the municipality *Het Hogeland* to discuss a variety of topics (Interviewees 1, 3, 18). Secondly, ECs come together as part of the *GrEK* umbrella organization which facilitates meetings amongst ECs to exchange ideas and to discuss topics including policy (Interviewees 1, 3, 6, 7, 8, 10, 11, 15, 19 - 23). As a representative from the *GrEK* put it, “*the GrEK therefore ensures there is a network of knowledge, sharing of experiences, interests and representation*” (Interviewee 21). This is supported by trace evidence from the *GrEK* itself.²¹ Additionally, an article by the Hogeschool van Amsterdam provides secondary account evidence to also support the role that the *GrEK* fills in facilitating meetings that bring ECs together to be able to share knowledge and to discuss topics including policy.²² Thirdly, ECs can meet together as well as with government officials from a particular municipality at so-called *regiotafels* (regional tables) to share knowledge and experiences as well as to discuss policy (Interviewee 7 and 21). “*The aim is that the energy cooperatives get to know each other, exchange knowledge and experiences, but also bundle themselves towards the municipality*” (Interviewee 21). This is largely in line with what has been argued by Koski et al. (2018) and Gazley et al. (2010) when referring to representation in collaborative governance. Therefore, Part A passes the “hoop” test because this part has evidence that is fairly certain, but low in uniqueness. This part is highly certain to the extent that it is supported by solid primary and secondary account evidence and limited trace evidence. This part lacks in uniqueness due to the fact that the idea of connecting with several actors to share information and knowledge is not unique to theories about collaborative representation.

Part B was supported by primary and secondary account evidence, and examples of trace evidence (e.g. news articles, official correspondence, and policy documents). Building off of the three aforementioned instances where ECs come together to share knowledge and discuss policy, respondents also identify the different ways in which the three instances share their findings with government officials or directly with policy makers. First off, regarding the *Lombok Overleg*, several interviewees noted that following the meetings, a delegation on behalf of the group is sent to share the collective ideas and opinions with government officials (Interviewee 1, 3, 18). Secondly, next to bringing ECs together and offering a platform for discussion and the exchange of knowledge and ideas, the *GrEK* helps to exert a lot of influence on policies for the energy transition as it acts as an official representative of all of the collective ECs at the RES table (Interviewee 6, 7, 9, 10, 15, 19, 21, 23). In this sense, the *GrEK* is able to share these ideas and opinions directly with actors involved with the policy-making for the RES. This role of the *GrEK* is further supported by trace evidence that confirms that the *GrEK* holds a position in a

²¹ *GrEK*. (2020). About us. Retrieved from: <http://greksite.wixsite.com/grek/overons>

²² HVA. (2020). Groninger Energiekoepel (*GrEK*). Retrieved from: <https://www.hva.nl/kc-techniek/gedeelde-content/contentgroep/r-link/praktijkvoorbeelden/groninger-energiekoepel/groninger-energiekoepel.html>

steering committee for the RES on behalf of energy cooperatives in the province.^{23 24 25} Secondary account evidence also supports this role of the GrEK as direct representatives at the RES table.²⁶ Third, in the context of the regional tables organized, an interviewee commented that such an arrangement offers a unique way for the ECs to collectively bundle themselves and directly have a seat at the table with government officials (Interviewee 21). In turn, the government officials can take such ideas to be discussed further with policy makers. Therefore, Part B also passes the “hoop” test because it has evidence that is low in uniqueness, but high in certainty. This part is high in certainty, even higher than the previous part, due to the fact that it is widely supported by primary and secondary account evidence as well as by several instances of trace evidence. This part lacks uniqueness because, similar to the previous part, the notion of meeting to share ideas and knowledge is not unique to theories of collaborative representation.

Support for Part C consists of primary and secondary account evidence as well as trace evidence. Here, a representative from the provincial government noted that when the GrEK doesn’t go directly to share ideas and opinions with policy makers, it can also meet with government officials to have influence on other policy areas (Interviewee 20). In this example, the respondent noted that the GrEK can discuss issues on behalf of the interests of all ECs, and *“if you get such a signal that is often something that you address and discuss faster because it is more representative of the movement”* (Interviewee 20). In this sense, it can be argued that due to their collaborative representation via the GrEK, ECs are able to exert more influence as a collective. This is supported by Leach (2006) and Koski et al. (2018) who argue that this type of representation allows groups to be able to exert influence on the policy-making process. Another example is with regards to the regional table. *“In the municipality of Het Hogeland, the city council came up with a new program about small-scale wind energy, and energy cooperatives have submitted their proposals via the regional table, which the municipality has also included in the new policy”* (Interviewee 21). This example previously also used as evidence to support brokerage as a causal mechanism. While no trace evidence could be sourced in support of the specific role that the regional table played, there is trace evidence of the proposal that the ECs submitted (the sustainability manifesto) as well as the municipal policy for small-scale energy production that includes the formal role of ECs. In sum, Part C also passes the “hoop” test because the evidence for this part is certain, but not unique. Similar to the previous parts, Part C is certain to the extent that it is supported by primary and secondary accounts together with concrete examples of trace evidence. This part lacks uniqueness because the idea that knowledge and ideas can shape or influence agendas and policy is not unique to theories for this mechanism.

²³ RES Groningen. (2020). Draft Regional Energy Strategy Groningen. Retrieved from: <https://www.regionale-energiestrategie.nl/res+regio+ groningen/Default.aspx>

²⁴ EC Noorddijk. (2019). Feedback supporters meeting RES Groningen. Retrieved from: <https://ecnoorddijk.nl/wp-content/uploads/2020/01/20191212-Terugkoppeling-achterbanbijeenkomst-RES-Groningen.pdf>

²⁵ Provincie Groningen. (2019b). Startdocument RES Groningen. Retrieved from: https://www.provinciegroningen.nl/fileadmin/user_upload/Documenten/Beleid_en_documenten/Documentenzoeker/Kl_imaat_en_energie/Energie_transitie/Startdocument-Regionale-Energietransitie-Groningen.pdf

²⁶ HVA. (2020). Groninger Energiekoepel (GrEK). Retrieved from: <https://www.hva.nl/kc-techniek/gedeelde-content/contentgroep/r-link/praktijkvoorbeelden/groninger-energiekoepel/groninger-energiekoepel.html>

4.3 Synthesis

The essence of this research and the corresponding research question has been to understand and to explain the causal relation between ECs and policy outputs for a ‘just’ energy transition. This causal relation was previously introduced in section 2.1. Following the evaluation of the revised list of causal mechanisms, and their intermediary steps, it is important to revisit this original relationship. Figure 6, below, expands on this original relationship (depicted in the top of the figure) by elaborating on multiple causal mechanisms uncovered in the findings together with their corresponding entities and activities (the intermediary steps). This figure offers a useful visualization that places the identified causal mechanisms side-by-side which offers a unique way of examining the mechanisms together with their individual causal pathways. Indeed, what this figure highlights is the fact that the identified causal mechanisms can be seen to coexist with each other with unique causal pathways to explain the influence of ECs on policy outputs for a ‘just’ energy transition. Furthermore, by dividing each causal mechanism into a string of individual parts concerning the relevant entities and activities, this research, and the figure below, help to reinforce the precise ways by which ECs can exert influence.

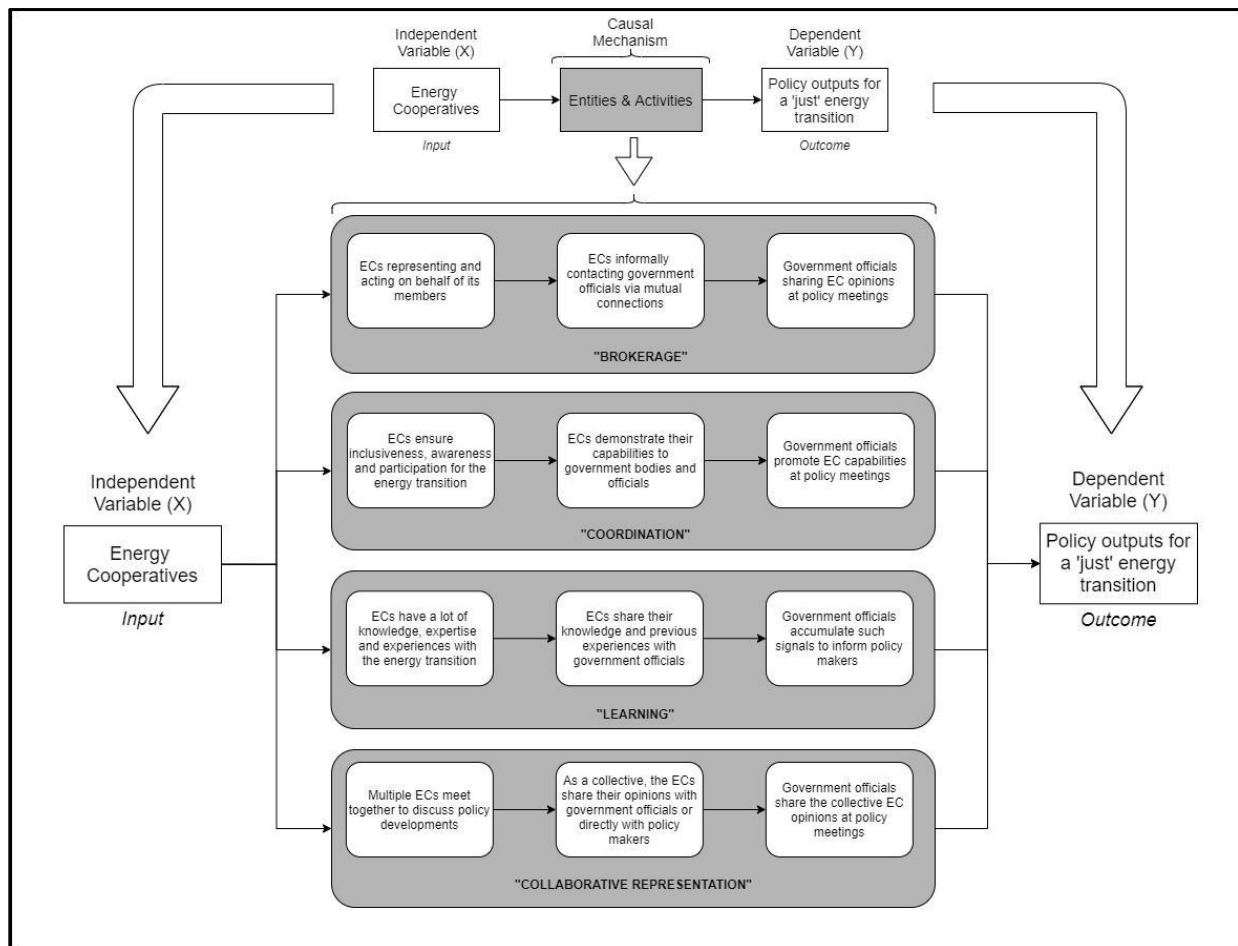


Figure 6: Visualization of the plausible causal mechanisms and their respective intermediary steps.

What is missing from this figure, however, is the precise interlinkages between justice and the causal mechanisms as was included in the analytical framework of this study. To accommodate for this, the findings of section 5.1 and 5.2 were combined to suggest the potential relations between the four identified plausible mechanisms and improvements in the dimensions of justice. To do this, each causal mechanism was briefly addressed below to stitch everything together:

- *Brokerage.* From indications in the findings, brokerage helps to advance procedural and recognitional justice. Recognitional justice is about bringing awareness to groups that were previously not recognized to be distinct in some sort of way and offering them a voice. Brokerage is about the mediation of groups and individuals from different social arenas who may not have previously been connected. Therefore, brokerage might be a key way in which recognitional justice is being advanced, especially if vulnerable groups are also included as members in the ECs. Procedural justice is highlighted by more inclusive decision-making processes as well as instances to inform and engage the local community. Brokers are understood as both representatives of a group, which enables their participation in decision-making processes, and gatekeepers, which allows for the transfer of information back and forth between groups. Therefore, brokerage helps to advance procedural justice.
- *Coordination.* The evidence reveals that this mechanism helps to advance distributive justice specifically. Distributive justice is about the extent to which the benefits and burdens are distributed across different groups to ensure everyone can benefit. Coordination is linked to distributive justice due to its focus on coordinating interests, especially of ECs using their perceived benefits of organizing localized energy to encourage others to follow suit. In this way, the benefits and burdens of the energy transition can be distributed amongst even more localized ECs so that everyone can benefit from the energy transition. Therefore, coordination helps to advance distributive justice for a 'just' transition.
- *Learning.* By providing opportunities for actors to share information and draw on lessons from previous experiences, learning helps to advance procedural and recognitional understandings of justice. Learning advances recognition because it implies some sort of learning about other actors and interests during information meetings that would have otherwise been ignored or neglected. In this sense, the voices and opinions of various groups may also be included in the decision-making process. Further, by sharing knowledge, expertise and previous experiences, learning can help to advance procedural justice to the extent that such information is also shared to inform the local community.
- *Collaborative representation.* This final causal mechanism is linked to distributive and procedural understandings of justice. Collaborative representation is linked to procedure because this mechanism is about a collective group of actors being able to force their way into decision-making procedures that they wouldn't have otherwise had. To this extent, instances of collective representation help to promote a more inclusive decision-making process by ensuring that all interests are represented. Additionally, by means of meetings to share opinions, knowledge, and experiences, collective representation helps to keep the local community informed and engaged

about any developments. Collaborative representation facilitates the design of more ‘just’ institutions and processes for decision-making. Therefore, collaborative representation helps to advance procedural justice. Further, collaborative representation is linked to distributive justice by ensuring that the different groups connected as a collective can all benefit from the developments of the energy transition. The collective can also help to facilitate ways in which the burdens and benefits are distributed. Therefore, collaborative representation also helps to advance distributive justice.

By examining each of the causal mechanisms in this way, it was possible to also recognize a multiplicity of justice in the sense that one single mechanism does not target every dimension of justice at once. In fact, the multiplicity of mechanisms can be seen as complementary to the extent that they all address different understandings of justice, and only as a whole are they able to address *all* understandings of justice for a ‘just’ transition. To achieve a more holistic improvement in justice for the energy transition it must thus be recognized that multiple mechanisms will be needed to get there.

Another useful tool to help demonstrate this idea of a multiplicity of mechanisms at play is included in Figure 7 below. Specifically, this is a visualization that displays the extent to which each of the causal mechanisms can explain the EC influence on policies for a just transition. In the figure, the size of each causal mechanism within this space correlates to the confidence they received as well as their prevalence in the data. For example, we can be moderately confident that “coordination” is present and it received the most attention from the interview data whereas “collaborative representation” also received a vote of moderate confidence, but was mentioned significantly less in the data resulting in a smaller area in the solution space. Ultimately, the more space a causal mechanism fills, the more certain we can be that it explains the influence of ECs. That being said, it should be noted that there are also gaps in the solution space. Such empty spaces suggest that there may be other mechanisms or other factors at play that may explain the influence of ECs on policies for a just energy transition. For example, the two plausible causal mechanisms that were abandoned during the screening process in section 5.2.2 (conversion and professionalism) could be candidates to fill these gaps. It should be recalled that those two mechanisms were not included due to a lack of relevant evidence which suggests that, if more evidence could be compiled, those two mechanisms could possibly still help to explain the influence of ECs. In sum, an important takeaway from this figure is that a multiplicity of mechanisms can be identified to explain the influence the ECs have, and that other mechanisms and factors may also be at play to fill the solution space.

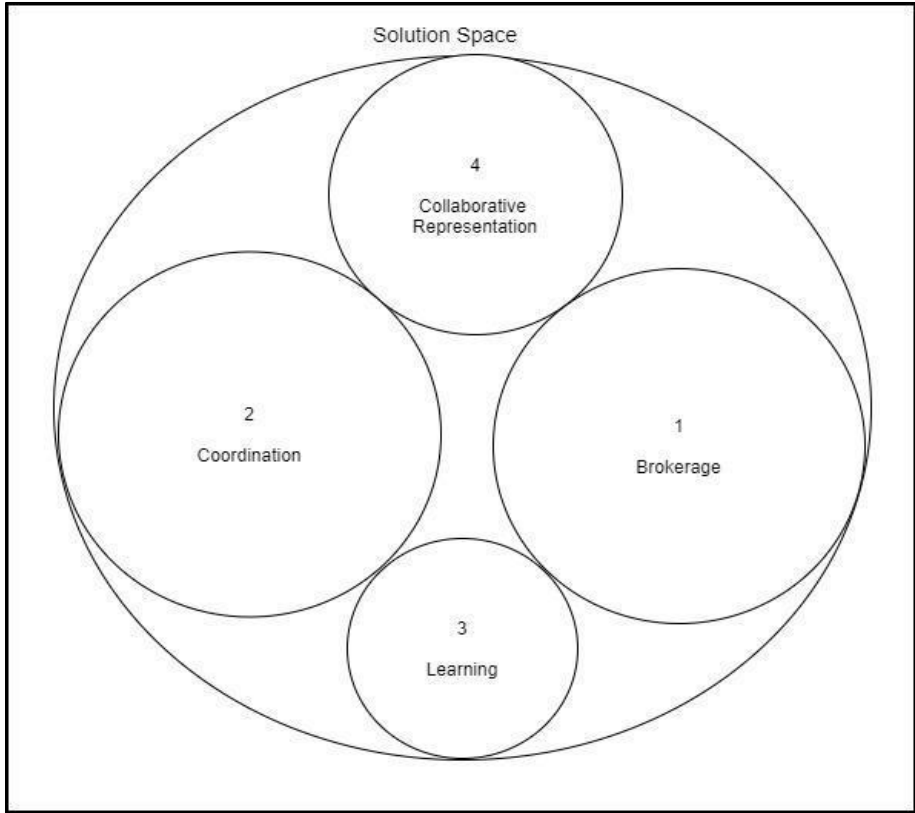


Figure 7: Causal mechanisms filling the solution space

Chapter 5: Discussion

In this section, the significance of the results of this research was discussed to explain how the findings enrich our understanding of energy cooperatives, understandings of justice, causal mechanisms, and policy change for the energy transition as a whole. Section 5.1, below, discusses the notion of a multiplicity of causal mechanisms in this research. Next, section 5.2 goes deeper to address the relationship between ECs and relevant approaches for policy change. In section 5.3, the idea of a multiplicity of causal mechanisms and policy change are brought together to discuss how justice can be enhanced in energy transitions. These sections illuminate how the findings can contribute to on-going debates in existing literature. Finally, section 5.4 offers a reflection on the research methodology that identifies some possible weaknesses and limitations of this research.

5.1 Multiplicity

To begin, one of the most important findings of this research has been the identification that there is just not one causal mechanism at play, but rather a multiplicity of mechanisms. Previous literature has often focused on the role of singular mechanisms as opposed to a multiplicity. For example, several authors focus on the role that ‘learning’ plays as a crucial mechanism in the context of community-based initiatives and collaborative governance for transitions (de Boer et al., 2018; Newig et al., 2018; Seyfang & Haxeltine, 2012). This current research goes further than this acknowledgement of only single mechanisms to argue that a multiplicity of mechanisms is at play. To that extent, the findings of this research help to contribute to the call of several authors that emphasize that research should focus on a multiplicity of mechanisms rather than singular mechanisms (Rogge et al., 2017; Kay & Baker, 2015; Agrawal, 2002).

The results have demonstrated that brokerage, coordination, learning and collaborative representation can all, to a certain extent, explain the influence of ECs on policies for a ‘just’ energy transition in their own ways. As such, the findings suggest that this multiplicity of causal mechanisms appear to coexist. One of the best examples from the findings to support this notion of a coexisting multiplicity are the instances where ECs come together via the GrEK, for example. In such instances, ECs that act as brokers between their respective communities and other actors coordinate to come together to exchange lessons, information, knowledge and previous experiences. Such brokerage, coordination and learning is then pooled and collectively directed towards government officials by means of collaborative representation (such as the via the GrEK) to be taken seriously and to exert a degree of influence to shape policy for the energy transition. Ultimately, this precise interlinkage between causal mechanisms did not receive attention in the scope of this research, but the findings have been able to identify that several mechanisms are at play. The importance here is that the understanding can shift away from focusing on individual mechanisms such as learning, and more towards understanding a multiplicity of mechanisms.

To return to the focus of de Boer et al. (2018), Newig et al. (2018), and Seyfang and Haxeltine (2012) on learning as an especially relevant mechanism in particular, it is interesting to note that learning in this research received the lowest vote of confidence amongst the mechanisms identified. Of course, this finding could be the result of several different explanations such as differences in context between cases. It can also be argued that learning is a mechanism that is particularly difficult to capture or measure due to the subjective nature of such a progress together with the difficulty of gathering physical evidence

in support of such a mechanism. Regardless, this research has still been able to contribute here by identifying the multiplicity of ways besides learning, which in this case received even more confidence, to understand community-based initiatives and collaborative governance for transitions.

Besides this multiplicity of mechanisms, the research has also encountered a multiplicity of understandings of justice. Importantly, the synthesis of the results above demonstrates the precise interlinkages between justice and each identified mechanism. This reinforces the notion of the importance of addressing multiplicity to explain the relationship between ECs and policy change. Section 5.3 below elaborates more on the role of a multiplicity of mechanisms and understandings of justice to advance a 'just' transition.

5.2 Energy cooperatives and policy change

Next, it is important to address the perspective of ECs and policy change for the energy transition. The topic of energy cooperatives has been a vibrant area of research in the last 5-10 years. Scholars have in particular looked at the role of ECs in terms of citizen empowerment and community-based initiatives (Lennon et al., 2019; Wagemans et al., 2019, Seyfang & Haxeltine, 2012), energy democracy (Szulecki, 2018; Benander et al., 2017, Fairchild & Weinrub, 2017), and challenging the structural power of incumbents (Brisbois, 2019). But what has been underdeveloped so far is exactly *how* policies are impacted or influenced by this recent groundswell of ECs in particular. In this research, ECs and policy change were examined at an empirical level to reveal multiple explanations of how such influence can come to be.

First off, ECs have acted as brokers between their supporters and government officials. In this sense, ECs act as representatives on behalf of members of a community and make use of mutual relationships with government officials to get a seat at the table to exchange ideas, beliefs, and knowledge. Second, ECs have emphasized the role that they can fulfil in the energy transition by ensuring inclusiveness, awareness and participation. In doing so, they have demonstrated to government officials that they are capable of coordinating energy production and encouraging that such recognition be included in policies to facilitate the further adoption of such practices. Third, ECs have been able to pool knowledge, expertise, and previous experiences which have been shared with government officials to ensure the improvement of policies for the future through learning. Finally, the findings reveal that ECs can meet together with other ECs to pool resources and knowledge and to act towards government officials as a more unified front to be able to influence policy as a strong coalition of actors. Ultimately, several aspects of these findings build off of the ideas of citizen empowerment in ECs and ideas of energy democracy, but the focus of this research has gone a step further to identify the specific causal paths that ECs can follow to influence policy. In doing so, this research highlights and contributes specific entities and activities that can be pursued to facilitate influence. Such insights are incredibly useful for ECs and policy-makers alike to identify the relevant individual steps of a causal mechanism to advance a more just energy transition. In this sense, parties may identify that certain steps are lacking in attention, and steps can be taken to properly address those to ensure more citizen empowerment, energy democracy, and challenging the power of incumbents to advance a more bottom-up energy transition.

Furthermore, on a purely theoretical level, several different theories have addressed various approaches to policy change in general. One in particular, the advocacy coalition framework (ACF),

appears to be especially relevant to this research. This framework was originally developed in the 1980's to theorize about the policy process of dealing with "wicked" problems, such as environmental policy issues (Sabatier et al., 2014). A key emphasis of the ACF is on the notion that subsystems of actors are simplified by aggregating into stronger coalitions which ultimately transfer beliefs and other forms of knowledge to influence the policy process (Sabatier et al., 2014). This framework largely overlaps with the findings of this current research to the extent that collaborative representation can be understood as the creation of stronger coalitions and the mechanism of learning is present to explain the transfer of knowledge. Indeed, Sabatier et al. (2014) specifically emphasize this relationship between learning and policy change. This research goes beyond that to identify that there are several more mechanisms at play which can bolster the ACF and help to explain the ways in which a coalition of actors can exert influence for policy change. A key example of this from the findings would be the GrEK which has arguably created a strong coalition of ECs through collaborative representation and is able to exert influence on policy change. This example of the GrEK can also further be explained by the mechanisms of brokerage, coordination, and learning. That being said, before jumping to any conclusions, Sabatier et al. (2014) do warn that studying policy processes is a long-term endeavor. Therefore, further long-term studies would be needed to better understand the ways in which collaborative representation amongst ECs, and other relevant mechanisms, can help to further support the ACF in the context of influencing policy change for the energy transition. The findings of this research have thus contributed a useful starting point for such research as well as offering evidence that there may be more mechanisms at play when understanding such relationships.

5.3 Enhancing justice

Building off of the ideas of a multiplicity of causal mechanisms and policy change, something more can still be said about how justice can be enhanced in energy transitions, as this topic has also played a central role in this research. Specifically, several scholars in the past years have addressed the concept of justice, especially within the context of energy cooperatives and energy democracy (Benander et al., 2017; Fairchild & Weinrub, 2017). In this sense, energy democracy is seen as a cornerstone to achieve a more "just, equitable, and sustainable future" (Benander et al., 2017, p.195). Moreover, academic literature has also addressed justice in the context of the energy transition as a whole with calls for a more 'just' transition (Heffron & McCauley, 2018; Reitzenstein et al., 2018; Newell & Mulvaney, 2012). Specifically, the argument here stands that a just transition can be seen as a social endeavor to combine the existing theories of justice. What this reveals, however, is that there has been attention for the various understandings of justice to ensure that transitions are 'just', but *how* these understandings can be brought together is not fully clear and currently understudied. This research has examined this aspect by examining the different ways in which ECs address understandings of justice in addition to the causal mechanisms of how to advance the different understandings of justice towards a more 'just' energy transition.

As such, the findings of this research first identified several instances of the ways in which ECs address the different understandings of justice. In terms of distributive justice, ECs place a lot of emphasis in their activities and practices to ensure that the benefits from renewable energy projects remain in the region so that everyone can benefit from the energy transition. This idea resonates with what Dotson and

Wilcox (2016) call generative justice. Further, the ECs in this study also acknowledged that their organizations strive to achieve distributive justice by ensuring that the energy transition is accessible so that everyone can participate, especially financially. In the realm of advancing procedural justice, ECs in this case emphasized the importance of an inclusive decision-making process. Many ECs have codified this understanding in their statutes to ensure that participants are granted equal say and voting rights over decisions taken by the organization. Another way that procedural justice is addressed is the extent to which ECs organize regular meetings and exchange information with their participants to inform the community about developments in the energy transition. Ultimately, the findings of this research also revealed, to a lesser extent, that ECs have also addressed the understanding of recognitional justice. While some ECs did already have plans in place to ensure that vulnerable groups could be included, a majority admit that this is an aspect of justice still under development.

In addition to the different ways in which understandings of justice were addressed, this research went a step further to identify causal mechanisms that could explain *how* ECs could include these understandings into policies for the energy transition. To return to previous sections, the findings reveal that a multiplicity of mechanisms can explain this. Even more importantly, each causal mechanism could help to advance different understandings of justice. Brokerage helped to advance procedural and recognitional justice, coordination helped to advance distributive justice, learning helped to advance procedural and recognitional justice, and collaborative representation helped to advance distributive and procedural justice. This helps to greatly enhance our understanding about the causal mechanisms that can help to advance a more 'just' energy transition. With such a multiplicity of mechanisms at play to explain this relationship, all understandings of justice are accounted for and advanced in their own complementary way for a just transition. This confirms that the three understandings of justice do indeed come together to advance a more 'just' energy transition as argued by Heffron and McCauley (2018) and Newel and Mulvaney (2012). This research contributes further to this literature by linking the understandings of justice to specific causal mechanisms to reinforce *how* exactly the understandings of justice can come together for a more 'just' energy transition.

5.4 Reflections on the research methodology

This research offers a novel contribution to explain the influence of ECs on policy-making and policies for the energy transition which has been previously understudied in literature. To achieve this, this research also followed a unique abductive methodology to be able to extrapolate significant findings. At its core, this research relied on a case study of the province of Groningen where a mixed methods approach of primary interviews and supporting document reviews was applied. These interviews, through categorization and coding, revealed a list of plausible mechanisms which could be brought into dialogue with theoretical findings to evaluate the strength of confidence in each mechanism. Ultimately, this methodology was able to produce some interesting findings. For that reason, it is important to reflect on some of the strengths, as well as the limitations, of this approach.

To begin, a core component of this research was an in-depth case study of the province of Groningen. Such a case study was highly useful to be able to gain a more in-depth understanding regarding the processes of ECs. Nonetheless, this province is just one case in one country involved in the energy transition. Different provinces or different countries may lead to different insights about the mechanisms

to explain the influence of ECs. Different contextual factors, as argued by (Faletti & Lynch, 2009), may also yield different mechanisms. This area of research could be enriched with more (comparative) case studies to gain a broader perspective on mechanisms in play across different contexts.

Another important aspect of this study was its reliance on interviews as the basis for the empirical data. This research used a total of 23 semi-structured interviews, and reached saturation based on the interview guide. A variety of stakeholders were represented from the case including ECs, local and regional governments, and civil society actors. Such representativeness gives confidence in the empirical findings. Nonetheless, the topics of justice and specific causal mechanisms are challenging because they require very careful questioning and interpretation. While the semi-structured style of interviewing allowed the respondents to elaborate on their answers, important findings may have been overlooked due to this approach. Specifically, follow-up questions specifically regarding understandings of justice or plausible causal mechanisms during the interviews were only asked if the respondent specifically mentioned an aspect that could be linked back to an understanding of justice or a plausible mechanism. As such, probing using justice-related or causal mechanism-related concepts was possible, but not always successful. In some cases, this may have led to certain questions not being asked which may ultimately have led to important insights being overlooked as they were simply not addressed during the interviews. Thus, this requires careful analysis to ensure accurate interpretations.

Next, the interview notes were categorized and coded to gather instances of support for understandings of justice, the existing plausible mechanisms, and any emerging trends. The coding and categorization of the interviews was conducted systematically. However, the identification of the various codes in the categories was purely subjective and based on the interpretation of the researcher. As such, some pieces of evidence and support may have been overlooked or misinterpreted leading to a possible effect on the findings and the evaluation. Arguably, this was minimal as the interpretation of the interviews was done very systematically so as not to overlook anything, but the subjectivity of the interpretation remains a concern.

Finally, this research systematically evaluated the evidence by means of a mixed-methods approach. The primary source of evidence was from interview responses. If a respondent referred to a specific policy, or specific occurrences, further evidence could be sourced from grey literature and academic literature. By using such an approach, account evidence was easy to identify from the interview responses, but other sources of evidence (e.g. trace evidence) were more difficult to identify. Due to the limited time and resources of this research it was not possible to conduct an extensive document review of relevant policies and other grey literature which may have revealed additional evidence in support of certain causal mechanisms. Gathering sufficient evidence for the individual causal mechanisms was indeed possible, but not always successful. Thus, future research in this field requires a more in-depth analysis of relevant policy documents and grey literature to ensure accurate interpretations.

Chapter 6: Conclusion

This research was conducted to compile theoretical and empirical insights to identify causal mechanisms that could explain the influence that ECs have towards advancing more ‘just’ policies for the energy transition. To this extent, this research attempted to answer the following research question:

To what extent and through which causal mechanisms do energy cooperatives influence policy outputs to advance a just energy transition in the province of Groningen, The Netherlands?

This relationship between ECs and policy outputs to advance a more ‘just’ energy transition has been understudied and underdeveloped, especially in the context of identifying the causal mechanisms to explain this relationship. This idea of causal mechanisms was introduced in chapter 2 where four plausible mechanisms could be identified which, it was hypothesized, could preliminarily explain this relationship. In chapter 3, the methodology of this research was explained about how the plausible mechanisms would be revised and tested by means of an empirical case study. The screening and evaluation of the plausible mechanisms in light of theoretical and empirical findings were presented in chapter 4. It was also in this chapter that the research elaborated on the specific ways in which the causal mechanisms could help to advance difference understandings of justice to advance a more ‘just’ transition. In the penultimate chapter 5, the findings of the research were discussed in the context of substantive literature to discuss how this research and its findings has contributed to this field. Additionally, a reflection on the methodology of this research was conducted to identify any limitations. In this final chapter of the research, some conclusions can be drawn to answer the central research question and to offer some insights about areas of future research that could be pursued.

6.1 Answering the research question

This research began with very little knowledge concerning the relationship between energy cooperatives and policy outputs for the energy transition, let alone the mechanisms to explain this relationship nor the ways in which understandings of justice could be operationalized to advance a more ‘just’ transition. With that as a starting point, the literature was able to suggest four plausible causal mechanisms which could be hypothesized to explain this relationship. These were: *brokerage, coordination, learning, and conversion*. From there, these original causal mechanisms could be tested in the case study of the province of Groningen. In total, six plausible causal mechanisms were identified from the data that could explain the influence of energy cooperatives. These were: *brokerage, coordination, learning, conversion, professionalism, and collaborative representation*. In this sense, the research was able to confirm some of the original hypothesized causal mechanisms while also surprisingly revealing additional mechanisms. Ultimately, four of these six plausible causal mechanisms were included in the evaluation of this research period. These were: *brokerage, coordination, learning, and collaborative representation*. Following the evaluation, this research is able to say with varying degrees of confidence that these four plausible causal mechanisms were present in the case study of energy cooperatives in the province of Groningen. It is with moderate confidence that we can conclude that *brokerage, coordination, and collaborative representation* are present and can explain the extent to which energy cooperatives in Groningen have

been able to influence policies to advance a just energy transition. It is with low confidence that we can conclude that mean is also present and can, to a lesser extent, help to explain the influence of energy cooperatives.

The importance of these findings suggests a multiplicity of mechanisms at play. This enriches our understanding by emphasizing that there is no silver bullet mechanism to explain the influence of ECs. Rather, there could be at least four mechanisms at play with the possibility of identifying several more causal mechanisms and factors to fill the 'solution space' of explaining EC influence. The identified causal mechanisms can be seen to coexist within the case studied to further reinforce this idea of the multiplicity. Additionally, as has been argued, this multiplicity is also further represented by the multiplicity in the understandings of justice addressed by energy cooperatives to advance a more just energy transition. This explains that there is also no silver bullet to fully address the multiple understandings of justice. Ultimately, this research has demonstrated that it is through the combination of the multiplicity of causal mechanisms and the multiplicity of the understandings of justice that ECs can exert influence on policies to advance a more 'just energy transition.

Such a discovery greatly helps to highlight the complexity of the arena in which ECs operate by acknowledging that ECs need to engage in several different activities with various entities at different levels in order to be able to exert influence for the energy transition. While this may be demotivating to some to realize how complex such a process can be, it should also be understood that by highlighting the complexity of this process, research can begin to make sense of how to navigate this complexity in the future.

6.2 Areas for future research

To finish, several areas of future research can be identified to further contribute to the scientific literature concerning ECs and their influence within the energy transition. First off, while this research does already address the concept of 'multiplicity', it may be advised to conduct further research in this direction to further solidify this understanding as well as its specific implications for the energy transition. Additionally, it may also be useful to examine the extent to which a multiplicity of causal mechanisms interact with each other as this is something that fell outside of the scope of this research. In doing so, a more holistic understanding of the factors to shape the energy transition could be brought to the foreground.

Another important area of research for this research would be to conduct a more forward-looking investigation into the future role of energy cooperatives. As was mentioned in this research, it seems that the professionalism of ECs in the future may have a significant impact on the extent to which ECs can influence the policy-making arena as well as solidifying their position as important and serious actors within the energy transition. For that reason, it could be useful to investigate the extent to which something like professionalism, or other factors in the future, may have on ECs. As this field is rapidly developing in both a technological, social and political sense, it can be argued that there are several arenas that can be considered for future research in how energy cooperatives continue to adapt to the changes around them and how the ECs can continue to exert influence.

Finally, this research has laid the ground for a preliminary set of causal mechanisms to explain the influence of ECs. In light of both the multiplicity, and evidence that other mechanisms and factors may be at play, further research is needed to highlight a more wholesome list of mechanisms and factors which

could sufficiently be applied to ECs in varying contexts. For this, future research would have to be scaled up to include various case studies in various contexts in order to generate a comprehensive roadmap to highlight the different mechanisms to explain the influence of ECs. In doing so, ECs could gain important insights into the intermediary steps and mechanisms that are available and beneficial to be addressed by their practices in order to help advance an energy transition towards more renewable, and inclusive, forms of energy production across the globe.

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Annexes

Annex A - List of interviewees

Actor	Name and Function
Energy Cooperatives	Interviewee 1: Two board members from Energie Initiatief Kantens (EIK)
	Interviewee 2: Board member of Zonnedorpen
	Interviewee 3: Board member of Duurzaam Bedum
	Interviewee 4: Board member of Duurzaam Haren
	Interviewee 5: Two board members of Green Power Delfzijl
	Interviewee 6: Board member of Energie Cooperatie Ten Boer (ECTB)
	Interviewee 7: Board member of Broukster Energie Cooperatie (BRENECO)
	Interviewee 8: Board member of Energie Cooperatie Midwolde
	Interviewee 9: Board member of Meerkracht
	Interviewee 10: Board member of Grunneger Power
	Interviewee 11: Board member of Pekela Duurzaam
	Interviewee 12: Board member of Lopster Energie Cooperatie (LOPEC)
Municipal Government	Interviewee 13: Policy advisor from the municipality of Groningen
	Interviewee 14: Councilor/Alderman for the municipality of Oldambt
	Interviewee 15: Councilor/Alderman for the municipality of Westerkwartier
	Interviewee 16: Councilor/Alderman for the municipality of Veendam
	Interviewee 17: Councilor/Alderman for the municipality of Midden-Groningen
	Interviewee 18: Councilor/Alderman for the municipality of Het Hogeland
Provincial Government	Interviewee 19: Policy advisor for energy with a role in the RES
	Interviewee 20: Policy advisor for the local energy transition
Groninger Energie Koepel (GrEK) (<i>Umbrella organization for ECs</i>)	Interviewee 21: Coordinator of initiative guidance and external cooperation
Natuur en Milieufederatie (NMF) (<i>Nature and Environmental Organization</i>)	Interviewee 22: Project manager for energy and the climate
Official Regional Energy Strategy (RES) Table Groningen	Interviewee 23: Representative from the policy advice group for the RES
Total	23 Interviews

Annex B - Interview Information Sheet



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Master Thesis Project Information Sheet

Policy Effects of Energy Cooperatives

The influence of energy cooperatives on policies for a just energy transition in Groningen, The Netherlands

Overview

This research aims to understand the mechanisms that explain the influence of energy cooperatives on existing and future policies for a just energy transition, by exploring the role of energy cooperatives in the policy making process. In particular, it focuses on energy cooperatives in the province of Groningen and how they include understandings of justice into the policy making process for the ongoing energy transition. This is important for our understanding of how local energy cooperatives can influence regional governance to advance a just energy transition that is fair and equitable for all. Since the energy transition is important to shift our dependence away from fossil fuels, this research is also expected to enrich our knowledge on ways to expedite such a transition.

Approach

This master thesis aims to answer the following research question:

To what extent and through which causal mechanisms do energy cooperatives influence policy outputs to advance a just energy transition in the province of Groningen, The Netherlands?

To answer this question, **I will be conducting interviews with key actors in the province of Groningen**, such as representatives from local energy cooperatives and policy makers at the municipal and provincial levels. Particularly, the interviews will focus on the mechanisms that may explain the extent to which energy cooperatives can influence existing and future policies for the energy transition that include understandings of justice to advance a *just* energy transition. **The interviews will be conducted in person during fieldwork in the Province of Groningen**

Your participation in this research

Your participation in this research will involve **an interview of around 45 minutes**, which can be shortened or extended according to your preference. The interview will be recorded to facilitate analysis, if you consent to this. Participation in this interview is entirely voluntary and you may withdraw from the interview and the research at any time without any consequences. The information you provide will be handled securely and will remain confidential. All data from interviews for this research will be fully

anonymized and no data will be attributed to any participant's name. The data will solely be used to gain insights for this current research and will be destroyed at the end of the research. **Benefits of participating in this research include contributing to research into the mechanisms that explain the influence of energy cooperatives on policies, which could help advance a more just energy transition.** A copy of the final thesis can be provided upon request.

For further information please contact:

Master thesis researcher:

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Copernicus Institute of Sustainable Development
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This research is conducted as an MSc thesis project under the requirements of the Master Sustainable Development of Utrecht University. This research shall adhere to the ethical procedures related to interviewee participation as well as storage and use of provided data. You are free to discuss your participation with the Master researcher (Thomas Haitsma) and his Supervisor (Dr. James Patterson), contactable as above. In case of further questions, you are welcome to discuss with Dr. Frank van Laerhoven, member of the Ethics Review Committee – Faculty of Geosciences of the University of Utrecht. You may contact him at [+31 30 253 1036](tel:+31302531036) or via email: F.S.J.vanLaerhoven@uu.nl.

Annex C - Interview Participation Consent Form



Utrecht University

Interview Participation Consent Form

Policy Effects of Energy Cooperatives

The influence of energy cooperatives on policies for a just energy transition in Groningen, The Netherlands

Researcher: Thomas Haitzma
Master Sustainable Development, Earth System Governance
Utrecht University

Supervisor: James Patterson
Faculty of Geosciences
Utrecht University

I agree to take part in this interview.

An audio recording may be made of this interview:

YES

NO

- I have fully read the Master Thesis Project Information Sheet
- I understand that my participation is entirely voluntary and that I am free to withdraw from the study at any moment without any consequences, and
- I understand the privacy, confidentiality, and security of the information that I will provide

Name: _____

Date: _____

Annex D - Interview Guide

Introduction

1. Could you briefly introduce your position and your role regarding the energy transition in Groningen, the Netherlands?

Questions

2. In your opinion, what is an energy cooperative and in what ways do you think that they play an important role in the energy transition?
3. In what ways would you argue that your energy cooperative/ energy cooperatives help to advance a more 'just' energy transition?

Follow-up questions:

- To what extent does your energy cooperative/do energy cooperatives ensure that measures are included in policy to ensure that everyone can benefit from the energy transition?
 - To what extent does your energy cooperative/do energy cooperatives help to promote a more inclusive decision-making process for the energy transition?
 - To what extent does your energy cooperative/do energy cooperatives help to keep the local community informed and engaged about the policymaking process?
 - How is your energy cooperative/ are energy cooperatives able to include different opinions and the voices of vulnerable citizens (youth, elderly, poor, uneducated, etc.) in the policy making process?
4. To what extent has your energy cooperative/have energy cooperatives been given the opportunity to help design, influence and/or shape regional energy policy in Groningen?
 5. To your knowledge, in what ways does your energy cooperative/ do energy cooperatives actively seek to influence regional energy policies?

Follow-up questions:

- To what extent could you argue that your energy cooperative/ energy cooperatives help to mediate on behalf of groups and individuals at the government level (municipal or provincial)?
 - To what extent does your energy cooperative/ do energy cooperatives use their perceived benefits of organizing localized energy to influence policy to promote energy cooperatives?
 - To what extent does your energy cooperative/ do energy cooperatives draw on lessons from previous experiences or use forms of evaluation to improve policies for the future?
 - To what extent does your energy cooperative/do energy cooperatives help to introduce *new* goals, functions, and purposes that redirect institutions and policies towards a new state in the future?
6. To what extent does your energy cooperative/ do energy cooperatives collaborate with other energy cooperatives to influence regional energy policy?
 7. In your view, to what extent should regional energy policies include the role of energy cooperatives to advance a just energy transition that is inclusive, equitable, and fair for all?

Closing Questions

8. Would you like to discuss anything further that has not been addressed in this interview or that may be of importance to my research?
9. Is there anyone else you could recommend I speak with for my research?