

Master's Thesis – Master Sustainable Business and Innovation

THE LEARNING COOPERATIVE

A case study on organisational learning within Dutch Renewable Energy Cooperatives.



Universiteit Utrecht



Student : Bryan de Rond

Student number : 6620701

Contact details : B.derond@students.uu.nl

University supervisor : Dr. Jesse Hoffman

Second reader : Dr. Marjanneke Vijge

Course : Sustainable Business & Innovation master's thesis (45 ECTS)

Word count : 17.239

Date : 01/09/2021



Acknowledgements

Throughout the process of writing this master's thesis, I have received a great deal of support and assistance from a variety of people. I would like to express my sincere gratitude to my supervisor, Jesse Hoffman. He has provided me with guidance, support, useful insights and feedback throughout each stage of this study which enabled me to strengthen my research.

I would also like to acknowledge and thank my second reader, Marjanneke Vijge, for providing me with feedback on my research proposal. Due to this feedback, I was able to raise the standards of my research.

I would additionally like to thank all interview participants for their time and the valuable information provided during the interviews.

Finally, I would like to thank all those in my direct environment, who were there for me when it sometimes got a little rough. Their feedback and support kept me going, especially during this somewhat awkward academic year.



Abstract

Renewable Energy Cooperatives are perceived as key players in the global energy transition. These cooperatives are governed with the use of policy instruments, the specific techniques, and tools used to reach desired outcomes, for example the percentage of renewable energy generated through civilian initiatives. Theory on the dynamics around these instruments emphasises their adoption through two main dynamics, supply and demand. Policy adoption from a supply perspective is well understood, however, a research gap remains on the demand side of policy adoption. This study, therefore, aims to identify these mechanisms in order to contribute to a better understanding of policy adoption from a demand perspective. In order to fulfil this aim, a qualitative research approach was used where both semi-structured interviews and grey literature have been analysed. The Dutch Postcoderoosregeling and the respective cooperatives that use this instrument have been selected to serve as the case for this study.

In this study, theory on organisational learning has been used. This theory focuses on the process through which organisations change or modify their mental models, rules, processes or knowledge, maintaining and improving their performance, which has been used to guide the analysis and to identify the mechanisms and approaches used by energy cooperatives related to policy adoption. The analysis showed that renewable energy communities employ several approaches to learn to work with and adopt the policy instruments governing them. These mechanisms can be ordered into four main categories: experimentation, learning from past experience, learning from others and transferring knowledge. Within these categories, several approaches are used to learn and develop the skills necessary to adopt and work with new policy instruments.

This study contributes to the understanding of policy adoption from a policy demand perspective, and may therefore contribute to better policy design in the future. Additionally, this study has used an originally prescriptive theory as guidance for the analytical framework. However, further research is necessary to determine whether or not this approach is viable for other studies.

Keywords: Energy Transition, Organisational Learning, Policy Adoption, Policy Instruments, Renewable Energy Cooperatives.



Table of Contents

Acknowledgements	2
Abstract	3
1. Introduction.....	6
2. Theoretical Background.....	8
2.1. Policy Instruments in relation to RECs	8
2.2. Policy adoption.....	8
2.3. Organisational Learning.....	10
2.3.1. Experimentation.....	14
2.3.2. Learning from past experiences	14
2.3.3. Learning from Others	15
2.3.4. Transferring Knowledge	16
3. Background Information	18
3.1. Renewable Energy Cooperatives.....	18
3.2. De Postcoderoosregeling	19
4. Methodology	21
4.1. Research Design	21
4.2. Operationalization.....	22
4.3. Data Collection	22
4.4. Data Analysis	24
4.5. Research Quality Criteria.....	25
4.6. Ethical issues.....	26
5. Results	27
5.1. The Adoption of the Postcoderoosregeling	27
5.1.1. Projects.....	27
5.1.2. Actor Involvement.....	28
5.1.3. Perceived Obstacles	31
5.2. Observed Organisational Learning Approaches	34
5.2.1. Experimentation.....	35
5.2.2. Learning from Past Experience.....	36
5.2.3. Learning from Others	37
5.2.4. Transferring Knowledge	38
6. Conclusion	42



7. Discussion	44
7.1. Discussion	44
7.2. Limitations	44
References.....	46
Appendices	53
Appendix A: Informed Consent Form.....	53
Appendix B: Interview Guide.....	54
Appendix C: Timeline PCR	56



1. Introduction

The entire world is, at this very moment, in a transition from an energy system reliant on conventional fossil fuel towards a system based on renewable energy. This is critical to minimalise the detrimental effects that fossil fuels have on the climate, which are highlighted by the scientific community (Hoffman, 2005; IPCC, 2001, 2021), and to no longer be dependent on finite sources of energy. At the moment, the majority of economies around the world are heavily reliant on fossil fuels. These fuels provide the global population with the energy to light and warm their houses, they ensure that commercial goods can be transported, and they even serve as raw resources for everyday products such as the cell phone present in everyone's pocket. However, The burning and use of fossil fuels releases Greenhouse Gases (GHG) and multiple other air pollutants, which in turn result in global warming and its connected side effects (IPCC, 2007, 2013). Additionally, fossil fuels are often imported from politically unstable nations, risking the possibility of problems related to fuel supply (U.S. Energy Information Administration, 2016; Valentine, 2011). The urgency for a transition towards a new decarbonized energy system is additionally reflected by the Paris Agreement (European Commission, n.d.), a legal treaty signed by 196 countries in order to limit global warming by reducing greenhouse gas emissions, and the 2030 Agenda for Sustainable Development (United Nations, 2020), a 15-year plan based on 17 goals to end poverty, protect the planet and improves the lives of everyone.

Although the creation of a low-carbon economy is marked as a global priority, the overall share of renewables used in the energy mix shows substantial differences between nations. Additionally, while knowledge on the technological side of our energy systems and the knowledge on the required behavioural changes to be made in society have been available for years, the speed at which substantial changes and improvements are realised in order to secure a renewable energy system, are lacking (van der Heijden, 2014). The need for the right governance frameworks used to initiate and maintain a sustainable level of renewable energy (RE) deployment to realise this system has therefore been stressed by many scholars (Bechberger & Reiche, 2004; Goldthau, 2014; Hess & Mai, 2014; Jacobsson & Lauber, 2006; Lauber & Mez, 2004; Mitchell & Connor, 2004; Walker et al., 2007), and according to van der Heijden (2014), 'getting the governance right' is the missing link in the puzzle. The overall influence of renewable energy cooperatives (hereafter RECs or cooperatives) within governance systems is increasing and their involvement in the global energy transition is widely advocated (Goldthau, 2014; Hager et al., 2015; Pinker et al., 2020; Seyfang et al., 2013), since a top-down approach by state actors alone is not sufficient (Dóci & Gotchev, 2016). Additionally, the importance of RECs is reflected by the fact that they do not only provide a direct contribution to RE deployment, but they also serve as a test bed for social and technological innovations, while simultaneously increasing acceptance towards RE (Mulugetta et al., 2010). RECs are therefore regarded among the most interesting contributors to renewable energy (Dóci & Gotchev, 2016). Problematic, however, is that RECs are subjected to an abundance of factors, which are not always properly understood, that determine their success and growth (Oteman et al., 2014; Seyfang et al., 2013).

One of these factors is the policy instruments used to regulate their initiatives. These are the specific techniques and tools used to reach desired outcomes, such as the percentage of renewable energy generated through civilian initiatives. The governance of today's societies alternates between intended



and unintended outcomes as a result of the application of these instruments. Understanding the success of governance thus suggests a closer look at them. There is extensive literature on the social dynamics between policy instruments and RECs (Dinica, 2006; Dóci & Gotchev, 2016; Makse & Volden, 2011), however, this literature is mainly focused on the influence that policy has on cooperatives, while an understanding of how these cooperatives deal with governance and learn to work with it is relatively limited. So far, an understanding of how policy instruments are adopted within cooperatives is understudied.

This study, therefore, aims to address policy adoption from a cooperative's perspective and to contribute to the debate on the social dynamics related to policy and RECs. Besides this, a theoretical contribution is made by combining theories on policy adoption and organisational learning (OL). The understanding of policy adoption from a cooperative's perspective is important since it will help to better understand user requirements in the implementation and adoption trajectory of future instruments (Kujala, 2003). Cooperatives are sometimes reliant on their own endeavours to find out how to use an instrument since policy instruments do not always provide the required initial information or guidance necessary to use them. In other words, RECs have to learn how to use the instrument. Cooperatives learn regardless of the use of systemic learning approaches. However, this does not automatically imply that this leads to high levels of effectiveness and efficiency, moreover it may even lead to misinformed conclusions. Cooperatives are therefore reliant on systemic approaches within their learning environment to enlarge their knowledge and capability repositories. In order to understand the demand side of policy adoption, it is therefore important to understand the mechanisms through which policy users learn to use and adopt the instruments governing them. As such, the research question of this study is:

How do different factors in the learning environment of RECs contribute to the adoption of a new policy instrument by these same RECs?

This question will be answered through an empirical case study on the adoption dynamics around the Dutch postcoderoosregeling (PCR), a policy instrument that is used in the Netherlands to support sustainable energy generation through civilian initiatives. In order to conceptualise the learning environment of RECs, theory on OL is used. This theory is useful to this study since it is focused on the processes through which organisations learn to change or modify their mental models, rules, processes or knowledge, maintaining and improving their performance. It is therefore helpful in providing a framework in which to assess the learning mechanisms of RECs. The overall case of this study is interesting since although the Netherlands is perceived to be an innovative nation, the deployment of RE is lacking (CBS, 2020). With RECs being regarded as potential key actors in the energy transition within Europe (Hentschel et al., 2018; Seyfang et al., 2013), and the Dutch lag in RE deployment, it is interesting to review RECS in the Netherlands.

The structure of this study is as follows. In Section 2, relevant theory for this study will be discussed, focussing on policy support and OL. Section 3 will provide additional background information on the specific policy instrument analysed, followed by an elaboration of the research methods in Section 4. Section 5 features the analysis of results after which Section 6 and 7 will provide the conclusion and discussion.



2. Theoretical Background

This chapter discusses the theoretical background used in this study. This chapter will discuss theory on policy adoption and OL. The theory on policy adoption is used to conceptualise the adoption of new policy instruments, while the theory on OL is used to conceptualise the learning environment of RECs. Within each chapter, an in-depth analysis of literature surrounding these topics is given.

2.1. Policy Instruments in relation to RECs

RECs have been gaining more and more recognition for their role in supporting and driving the energy transition process (Seyfang et al., 2013; Pinker et al., 2020). However, until recently, the literature on this transition has neglected the role of politics and governance within these transition initiatives (Blanchet, 2015).

In general, governance can be understood as existing patterns and modes of regulation within specific domains of social interaction. For the most part, these patterns are nested in institutions that emerge from interactions in economic and social life (Voß, 2007). Public policy and governing are concerned with the (re)configuration of the aforementioned institutions in order to reach desired outcomes. The specific tools and techniques used to reach these outcomes are referred to as ‘policy instruments’ (Howlett, 2019; Howlett & Mukherjee, 2017; Salamon, 2002; Voß, 2007). The governance of today’s societies alternates between intended and unintended outcomes as a result of policy instrument application. Understanding governance success thus suggests a closer look at these instruments. The development and adoption of policy instruments can be understood as innovation processes, the realisation of new designs in interaction with existing governmental configurations and their dynamics.

There is extensive literature on the social dynamics around policy instruments (Dóci & Gotchev, 2016; Grashof, 2021; Pinker et al., 2020; Simons & Voß, 2017; Voß & Simons, 2014). The abundance of this literature on policy instruments and their innovation trajectories tends to illustrate policy instruments as stable blueprints for action that are passively present in a governmental toolbox (Voß & Simons, 2014). Typically, when dealing with the diffusion and adoption patterns of new instruments, the literature on policy innovations tends to discuss instruments as fixed and given once they have been invented (Jordan & Huitema, 2014; Voß & Simons, 2014). This concept conveys the image of a stable and passive black box, as something which has exactly the same outcome every time it is used (Peck & Theodore, 2010). Much of the literature on policy instruments use this functionalist orientation, asking which instruments work best under a given circumstance for example, while little to nothing is being said or questioned about the making of the instruments and the dynamics of their development and adoption (Voß & Simons, 2014). This study intends to contribute to this research gap.

2.2. Policy adoption

In addition to the literature on the social dynamics of policy instruments discussed in Section 2.1, there are other perspectives on instruments that review them as institutions with their own developmental trajectory (Lascombes & le Gales, 2007; Simons & Voß, 2017; Voß & Simons, 2014) which focus on how instruments work and take on a life of their own in specific contexts, but these neglect the processes by which instruments are applied in the first place. The functionalist perspective has been criticised for



illustrating an image of policymakers choosing freely between instruments, mainly guided by their considerations on instrument performance to achieve specific objectives (Grashof, 2021; Lascoumes & le Gales, 2007; Voß & Simons, 2014). In reality, policy instruments are not simple tools ready for adoption and are therefore not picked at random (Fitch-Roy et al., 2019). Lascoumes and Le Gales (2007, p. 2) state that choices on policy instruments are often part of “rationality of methods”, which assumes that rationality is the basis of instrument choice. However, instrument choice is not a straightforward process of simply pick one. On the contrary, this process is influenced and guided by several contextual, historical and sociological factors (Lascoumes & Le Gales, 2007; Simons & Voß, 2017). A process that, according to this study, deserves a deeper review. Instruments represent a specific type of knowledge on how social processes should be governed, and additionally, they may even cause effects beyond their original objectives or goals (Lascoumes & Le Gales, 2007; Simons & Voß, 2017). Literature addressing the choice for, and adoption of, specific policy instruments reflects two main dynamics, supply and demand.

The supply dynamics of policy instruments, the dynamics which have the main focus in current policy instrument literature, and are understood through instrument constituencies (Grashof, 2021; Simons & Voß, 2017). Recent analysis on policy shows the importance of these specialist constituencies in creating and maintaining a supply push of instrumental forms of governance and knowledge (Simons & Voß, 2017) since they help to understand how instruments “take on a life of their own” (Fitch-Roy et al., 2019, p. 84). It is presumed that policy instruments develop a social life within instrument constituencies, based on practices such as: “scientific theory building, data production and publishing, political issue framing, agenda-setting, coalition building, business development, marketing and lobbying and management of innovation networks” (Voß & Simons, 2014, p. 737). Instrument constituencies are central to the cycle of mutual reinforcement between implementation and the process of continuously refining the conceptual understanding of instruments used to support additional implementations (Simons & Voß, 2017; Voß & Simons, 2014). As a social arrangement that often acts as a collective actor, constituencies have been found to often comprise a variety of experts such as academia, consultants, public administrators or civil actors. They “articulate, develop, disseminate and implement” their instruments, thereby acting as a catalyst to the innovation process (Grashof, 2021, p. 2). They are the ones who develop and put policy instruments into effect and possess the knowledge to help others adopt these instruments. The concept of instrument constituencies has closed a gap in policy studies literature. It has shed a light on the supply side of policymaking and adds to the overall understanding of policy formulation and other stages of the policy process (Voß & Simons, 2014).

The demand dynamics of policy instruments, a less studied item in literature, are understood through its users, the actors who are governed by and have to work with the instrument. According to Howlett (2009), the multi-level nature, in combination with practical and administrative constraints, heavily determines the types of instruments suitable for implementation. The choices regarding goals and the instruments used to reach them do not only represent the aims of the policy area, but also their wider political contexts. New instrument adoption is not “simply putting a new nib on an old pen” (Fitch-Roy et al., 2019, p. 84). As tools of governance, instruments have to match with the current modes of governance and the favoured ideas and instruments that already exist. This means current actors must be able to work with these instruments, they must be able to adopt them based on their current



practices and knowledge base. These actors are not always in a position in which they have worked with previous policy instruments and can therefore easily adopt new instruments. They require additional knowledge, support and time to adopt new instruments. These tasks, however, are not always met by the policy instruments that are in place or that are being supplied, weakening their market position and overall development. This means actors will have to put in additional effort in order to learn to work with the policy instrument, taking up valuable time and resources. Additionally, previous studies have shown that policy instruments do not necessarily have the desired effect or lead to increased growth and productivity of renewable energy projects, and even when they do, this does not mean they pay off in the end, making the support of renewable energy in general expensive and not always cost-effective (Doci & Gotchev, 2016).

This indicates that there is room for improvement when it comes to the functioning of policy instruments and the adaptation of RECs to these policy instruments. This raises questions about how specific policy instruments become what they are? What is their origin? What is their course? Which factors and dynamics shaped its dynamics? How did it become established? The need for the right policy instruments and frameworks used to initiate and maintain a sustainable level of renewable energy (RE) deployment has been stressed by many scholars (Goldthau, 2014; Hess & Mai, Walker et al., 2007) However, an understanding of working with and adopting instruments is missing within these studies (Blanchet, 2015; Meadowcroft, 2009; Pinker et al., 2020; Seyfang et al., 2013). Therefore, this study focuses on answering these questions through the lens of organizational learning.

2.3. Organisational Learning

When a new policy instrument is introduced, users will have to learn how to work with it, even if it might match with current modes of governance and the favoured ideas and instruments that already exist. However, an understanding of what this process looks like is currently missing in the literature. Therefore, in order to assess the factors in the learning environment of RECs that contributed to the adoption of new policy instruments, theory on OL is used to conceptualise these efforts.

Organisations, and therefore cooperatives, learn regardless of the use of systemic learning approaches. However, this does not automatically imply that this leads to high levels of effectiveness and efficiency, on the contrary, it may even lead to bigger mistakes being made. Organisations are therefore reliant on systemic approaches to increase their knowledge and capabilities (Basten & Haamann, 2018). These approaches are found within the OL discipline (Bontis et al., 2002; Chiva et al., 2013; Crossan et al., 1999; Schneider et al., 2002). The OL approaches help to understand the demand side of policy instruments, their users, learn and enable themselves to work with these instruments, in situations in which support and guidance are limited. Compared to other conceptualisations of learning such as social learning, the OL theory is especially relevant for this study due to its focus on more than just social actors. Social learning is defined as “a process of social change in which people learn from each other in ways that can benefit wider social-ecological systems” (Reed et al., 2010). People can learn from each other through observation, imitation or modelling (Tadayon Nabavi, 2012). Social learning in that sense would thus suggest that actors learn to work with new policy instruments through the observation and imitation of others and that it is only possible for observable business processes. In addition, social learning is focused on learning of the individual actor. OL theory takes a



wider perspective by looking at the entire learning system, which in the case of this study is the system between Dutch RECs. The OL literature suggests learning is both dependent on the learning of individual actors and learning between cooperatives, the development and improvement of processes and knowledge management. In addition, OL enables organisations to transform knowledge from individual members into organisational knowledge (Basten & Haaman, 2018), thereby contributing to the adoption of a new policy instrument.

OL can be defined as “the process through which organisations change or modify their mental models, rules, processes or knowledge, maintaining and improving their performance” (Chiva et al., 2013, p. 689). OL is vital to organisations operating in unpredictable and changing environments, which is especially relevant to RECs. The renewable energy market is growing and changing constantly. This also means new policy instruments are created or adapted regularly in order to reach the goals set in the Paris Agreement. Users of these instruments need to be capable to adapt to these new instruments quickly in order to ensure their future operations. One can imagine that if a cooperative needs an extensive period to adapt each time a new policy instrument is introduced, it hinders the continuity of operations. Being able to adapt and respond to unforeseen circumstances more quickly is therefore key for these organisations. OL is a process in which new perspectives and therefore new knowledge is being developed (Cheng et al., 2014; Chiva et al., 2013). This is an ability that is increasingly getting more important due to the complex and ever-changing dynamics of overall business environments (Loermans, 2002).

OL is commonly perceived as a task of management that involves controlling and planning, with focus areas on creating, capturing and internalizing knowledge. OL is dependent on the management of information and knowledge that might benefit operational performance (Cheng et al., 2014). A different yet closely related research stream is Knowledge Management (KM), referring to the systemic processes intended to improve the overall productivity and effectiveness of organisational members through the use of systematic capture, organisation and dissemination of Knowledge (Alavi & Leider, 1999). Within KM, OL is depicted as a key element in the continuous improvement of both knowledge creation and utilization (Wu & Chen, 2014). Processes related to the creation, retention and transfer of knowledge are found at the intersections of both research fields (Loermans, 2002; Wu & Chen, 2014).

To understand OL processes, it is vital to understand OL is complex and not just based on the combined practices of individual learning. OL is based on interactions between individuals within the organisation, interactions between different organisations and interactions with the organisation's environment (Wang & Ahmed, 2003). Early research used to consider OL as a simple process, however more recent studies depict OL as a more rich and heterogeneous phenomenon (Rerup & Levinthal, 2013). Although the concept of OL seems to be ill-defined or theoretically confused and disordered, there is a general agreement that it refers to internal adaptation triggered by organisational members, external challenges and competitive pressures in the environment (Wu & Chen, 2014). This confusion related to OL may arise from the highly conceptual nature of OL in combination with the absence of practical and simple guidance (Garvin et al., 2008; Taylor et al., 2010). Research to this day is struggling to provide clear guidance and examples for successful OL implementation (Basten & Haaman, 2018; Vera & Crossan, 2004). This confusion is also reflected by a study by Bontis et al. (2002) which mentions



22 different definitions of OL. Despite this abundance of definitions, OL theory is typically considered through either one of three theories (Basten & Haaman, 2018), due to their seminal character and high impact on research in the OL domain. These theories are, Garvin's (1993) five building blocks, the organisational knowledge creation theory (Nonaka, 1991), and Single- and double-loop learning (Argyris, 1976, Argyris, 1999).

This study uses the five building blocks by Garvin (1993), from his article 'Building a Learning Organisation', in order to conceptualise the learning environment of REC's and to determine how the approaches employed by the REC's enable them to adopt a new policy instrument. The concept of OL actively supports and encourages learning among organisational members in order to generate competitive advantages over other organisations and to create greater organisational effectiveness. Additionally, the concept of building a learning organisation is especially relevant to relatively new 'organisations' such as REC's. The studies by Garvin (1993) were one of the first to highlight this concept, intending to contribute to, and overcome previous literature, which he thought to be too abstract and unpractical (Easterby-Smith, 1997). The five building blocks, the key activities associated with learning, (figure 1) are: systematic problem-solving, experimentation, learning from past experiences, learning from others and transferring knowledge. It is to be noted that, according to the theory being used within this study, systematic problem-solving is heavily reliant on scientific methods and data to diagnose problems. This study deems this reliance on scientific methods and data as irrelevant and mismatched with the practices of REC's. Therefore, this building block is disregarded within this study.

Building block	Description
Systematic problem solving	Decisions are based on scientific methods to diagnose problems. Accuracy and precision are critical.
Experimentation	Experimentation with new approaches includes the systematic search for and systematic testing of new knowledge. This activity comprises both one time (e.g., demonstration projects) and continuous (e.g., research and development) experiments.
Learning from past experience	Learning from individual experience and history requires constant reflection upon successes and failures to provide implications applicable to all individuals. Learning should result from careful planning (e.g., postmortem evaluations) rather than chance.
Learning from others	Learning from the experiences and best practices of others comprises benchmarking with clients or other external organizations to develop new ideas. Managers need to be open to criticism and new ideas.
Transferring knowledge	Transferring knowledge quickly and efficiently throughout the organization through written or oral reports, personnel rotations, or training.

Figure 1 - Five Building Blocks (Basten & Haaman, 2018)

A learning organisation is skilled in the creation, acquisition and transfer of knowledge, and the process of modifying behaviour to reflect their newly gained knowledge and insights. Organisations such as Honda and General Electric have become proficient at translating this new knowledge into new ways of behaving. These organisations are actively involved in the management of their learning processes to ensure that instead of occurring by chance, they occur by choice (Garvin, 1993). These processes rely on specific policies and practices as these form the building blocks of a learning organisation. As mentioned before, learning organisations are skilled at five core activities (Figure 1). These activities are individually paired with a particular mindset and behavioural pattern. While many companies practice these activities to a limited degree, only a few have consistently mastered all activities due to a reliance on happenstance



and isolated examples (Garvin, 1993). By using systems and processes that support these activities and enable them to become part of daily operations, organisations can learn more effectively.

The theory described above is of a prescriptive nature, meaning that it states how organisations should function, as opposed to how they do. However, the building blocks within this theory are deemed equally important, by the researcher, to be used as guidance for an analytic review of the current practices of policy instrument users. These building blocks do not just exist, they have to be founded on certain practices or mechanisms, the emergence of communities of practices for example. This study will therefore use this theory as a guideline in order to analyse the mechanisms that are used within each building block if present. For example, which mechanisms or approaches are undertaken by policy instrument users that enable them to learn from others or to learn from past experiences? The five building blocks by Garvin (1993) will thus serve as guidance to identify how instrument users learn to use these instruments. Instead of only focussing on ‘what should be’, the researcher believes this theory can serve as a framework to analyse ‘what is’. While doing this analysis the five building blocks will ensure a framework within which the different mechanisms can be ordered instead of looking for random activities.

The five building blocks are individually discussed in the sections below. Within these sections, a description of the building block is given as well as several approaches which are used within these building blocks. This study will analyse to what extent these approaches are used by RECs and how these contribute to the adoption of new policy instruments. Figure 2 provides an overview of this analytical framework.

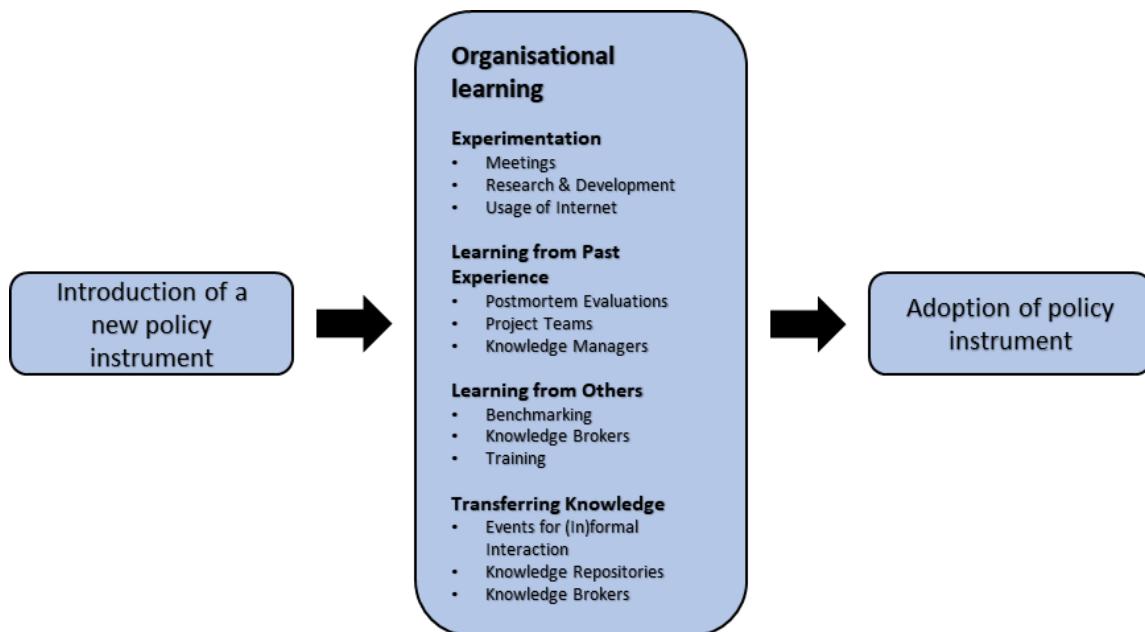


Figure 2 - Analytical framework



2.3.1. Experimentation

Experimentation involves the systematic testing of, and search for, new types of knowledge (Garvin, 1993). Real-life experiences require the support of new learning tools since the external environments and internal dynamics of organisations are increasing in complexity (Bakken et al., 1992). Within experimentation, a distinction can be made between two general approaches: ongoing programs and demonstration projects (Garvin, 1993; Basten & Haaman, 2018). Within ongoing programs, the acquisition of knowledge through incremental processes is reliant on continuous series of small experiments which can be observed. These programs require the constant input of new ideas and incentives in order to be effective. Demonstration projects on the contrary have a larger and more complex nature. These projects are usually designed from scratch and focus on systemwide changes used to develop organizational capabilities (Basten & Haaman, 2018).

When reviewing experimentation, several approaches can be observed or are highlighted as important by existing literature. First, learning by doing, which in literature is referred to as action learning (Basten & Haaman, 2018). This approach involves voluntary meetings used to solve problems and learn from each other proactively. This approach is especially useful when problems are addressed that are deemed to be too complex to solve using traditional methods. Stepping out of a comfort zone and experimenting with new approaches can help in these situations (Basten & Haaman, 2018). The main goal of this approach is to put knowledge into action instantaneously, with a focus on learning how to ask questions instead of answering questions posed by others.

Literature additionally highlights the importance of Research and development (R&D). R&D is used to demonstrate the effects of new knowledge on ongoing projects (Basten & Haaman, 2018). Activities related to R&D are the development of new technologies, quality standards or procedures. Experimentation occurs as new ideas and knowledge are tested with the organizational settings (West & Iansiti, 2003).

Finally, the importance of the internet within experimentation is mentioned within existing literature (Martin & Matlay, 2003). The internet allows access to numerous content pages with useful new information which can be used during the experimentation process. In addition, the internet facilitates sharing experiences of these efforts between cooperatives.

Based on the highlighted features within the literature, this study will assess whether these approaches are used by RECs, and how these have contributed to the adoption of a new policy instrument. Experimentation is expected to play an important role in the adoption of new policy instruments since it might enable RECs to think beyond their ordinary operations and find solutions that might otherwise not have been found.

2.3.2. Learning from past experiences

Taking a retrospective approach in order to prevent mistakes in the future involves the systematic and constant assessment, evaluation and learning of previous experiences. It is often observed that lessons learned are stored and are openly accessible to the members of an organisation. Considering the fact that failure is an ultimate teacher and enabler of success, both failures and success are important



within this process of learning. The mechanisms and approaches used to learn from past experiences as highlighted in literature are described below

Post-mortem evaluations are events that take place after the completion of a project. During these evaluations, project members have meetings in which they reflect on positive and negative experiences, based on which they compose a report of their lessons learned (Basten & Haaman, 2018). These evaluations contribute to learning as they capture experiences from completed projects and enable individuals to use these experiences in future projects in order to improve effectiveness and efficiency (Birk et al., 2002).

The importance of project teams is additionally highlighted in the literature. Within these project teams, reports on relevant experiences and documents are being delivered during the course of a project. These experiences are then distributed during the planning and execution phases of ongoing and future projects (Schneider et al., 2002). The project teams account for a central repository of tailored experience used to support future projects (Basten & Haaman, 2018).

Finally, individuals who take the responsibility to act as knowledge managers are important within learning from past experiences. These individuals are responsible for identifying specific information needs, in addition to understanding appropriate ways of taking information and converting it into stored knowledge that can be used within the organisation. Additionally, they are responsible for ensuring that this knowledge is reliable and up-to-date. These knowledge managers have a contribution in learning from past experiences as they have the “Ability to collect, organise, store and utilise information and knowledge” (Karim & Hussein, 2008, p. 124) and can help “an organisation to gain insight and understanding from its own experience” (Pantry & Griffiths, 2003, p. 105).

Learning from past experiences could be beneficial to the adoption of new policy instruments since it is expected to prevent RECs to make mistakes they have made before. By taking the time to reflect on past successes and failures, RECs will eventually construct an experience database that can guide them during future projects.

2.3.3. Learning from Others

Unquestionably, not all learning takes place within the organisation based on self-analysis and reflection. The most powerful and useful insights are sometimes obtained outside an organisation’s immediate environment. Other organisations, sometimes even located in different sectors, can act as fertile sources of new practices and ideas. The broad term for this method is benchmarking (Garvin, 1993).

Benchmarking is “the search for industry best practices that lead to superior performance” (Camp, 2006, p. 12). The greatest benefits in benchmarking come from studying processes and procedures, rather than focussing on results. The locus of knowing and learning lies in a heterogeneous network of social and material relationships that transcend and bypass organizational boundaries, instead of attempting to locate knowledge and learning bases within the own cooperative (Mariotti, 2012).



Learning from others presumes the new perspectives from external entities are able to provide powerful insights on organisational processes.

So-called knowledge brokers are additionally important to learn from others. These brokers contribute to learning from others as they provide “a link between knowledge holder and knowledge recipient and promote their knowledge sharing activities” (Cheng, 2009, p. 196). These individuals are responsible to promote learning between different organisations. They help organisations to understand each other’s language. When necessary, they may manipulate the required knowledge before transferring it from one context to another to facilitate a better absorption (Cillo, 2005; Basten & Haaman, 2018).

Finally, training. Training by using internal experts or external trainers and consultants facilitates learning from others. Training for example facilitates the dissemination of, process and technical knowledge and support the transfer of both tacit and explicit knowledge (Chau et al., 2003).

Learning from others could play an important role in the adoption of new policy instruments since it is expected to enable newer RECs to adopt the best practices of RECs who have run PCR-projects before. Not having to invent the wheel over and over again and being able to profit from knowledge and experience that has been gathered by others will prevent mistakes and will therefore ease the adoption trajectory.

2.3.4. Transferring Knowledge

In order to ensure that learning is more than just an isolated, departmental affair, organisations use processes and approaches to spread knowledge quickly and efficiently through, and between organisations. Ideas deliver a wider impact when shared than when they are held in just a couple of hands (Garvin, 1993). A variety of mechanisms contribute to this process, such as written or oral reports, personnel rotations, standardization programs and training. However, transferring knowledge may sometimes be problematic due to the fact that some messages can be difficult to comprehend in the absence of direct communication. Once again, the transfer of knowledge is not limited to organisational boundaries (Basten & Haaman, 2018). The mechanisms and approaches that are frequently used to transfer knowledge are described below.

Events for (in)formal interaction are used to facilitate and encourage the transfer of knowledge among individuals through (in)formal discussion and events (Akbar & Mandurah, 2014). Additionally, the interactions during these events foster socialization by encouraging conversation and open communication (Basten & Haaman, 2018). A wide variety of events is possible. Events such as teambuilding trips or barbecues are considered to be events for informal interaction, however, seminars or annual events are also possible. These events connect to learning from others since they bring individuals together.

Another frequently used approach to facilitate the transfer of knowledge are knowledge repositories. These repositories are often designed as digital storage for the long-term storage of knowledge in the form of experiences, documents and codes. These repositories are easily accessible for members of



the organisation and offer reusable content. The type of knowledge repository may differ between organisations. Some repositories serve only as storage systems, while others may use a portal that integrates several repositories allowing for knowledge sharing between organisations.

Knowledge brokers are once again a recognised approached to transfer knowledge, similar to learning from others. Due to the fact that knowledge brokers cultivate and build a sense of trust between their stakeholders, they facilitate the transfer of knowledge among different organisations or communities.

3. Background Information

This chapter will discuss additional background information in order to better understand the case study. The general phenomenon within this study is the adoption of policy instruments by RECs. The case study is focused on the specific dynamics surrounding the Dutch PCR. This chapter will therefore provide background information on Dutch RECs and the PCR.

3.1. Renewable Energy Cooperatives

In order to boost the production of sustainable energy in the Netherlands, citizens have the option to join a local sustainable energy initiative. More and more of these local sustainable energy initiatives have started to pop up, with the goal of generating sustainable energy together. These groups wish to determine for themselves where their energy comes from and choose to be independent of commercial suppliers. Figure 3 shows the growth of these initiatives over the past years. What can be seen is that the number of RECs has grown steadily over the past years.

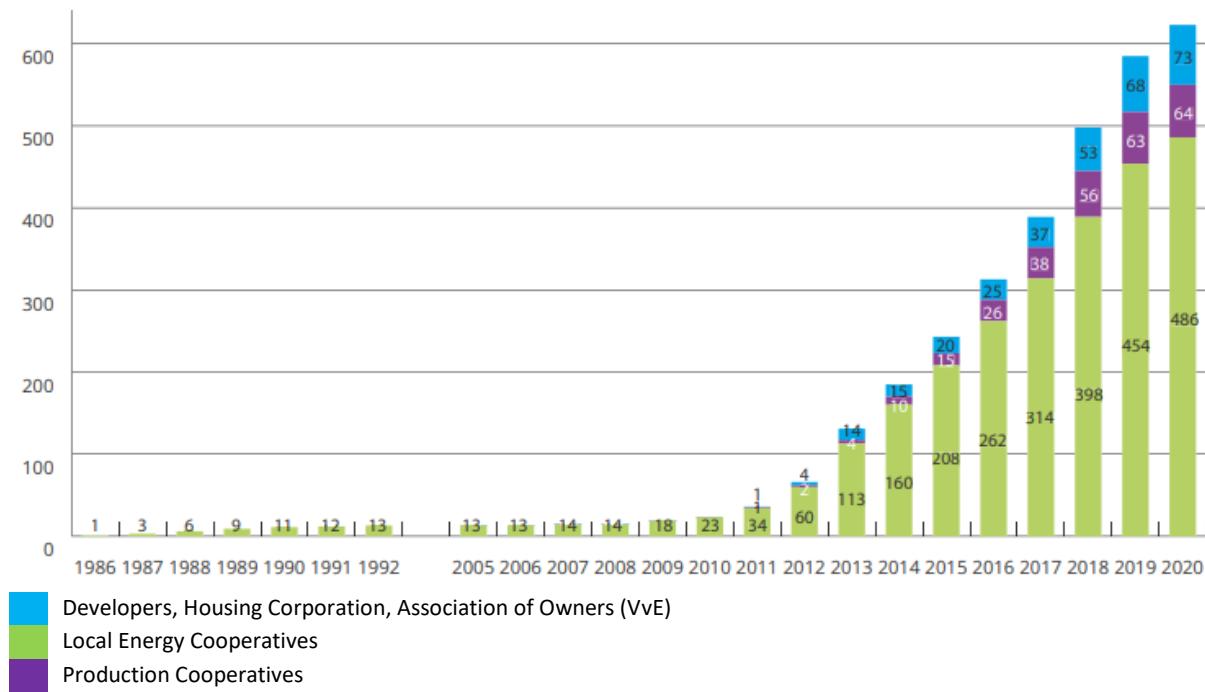


Figure 3 – Renewable energy cooperatives, growth over the years (Klimaatstichting Hier & RVO, 2021)

A legal form is required in order to be allowed to generate energy together as a group of citizens. A cooperative is the most common form. Just like an association, a cooperative has a board and members (Huybrechts & Mertens, 2014; Walker, 2008) and they are owned by their members instead of external investors. Not everyone has a suitable roof, or even a roof of their own, for example in rental flats, that can be used for the installation of solar panels. Additionally, not everyone wants to or is able to invest in a solar installation. By financially participating in a collective energy project of a local energy cooperative, it becomes possible to invest in renewable energy. RECs generate this sustainable electricity, usually with the use of solar panels. These solar panels are often installed on roofs of a nearby farm, for example. Many RECs also work on saving energy with the neighbourhood and joint purchasing of, for example, solar panels or insulation. The RECs in the Netherlands are seen as



frontrunners (HierOpgeweekt, 2019) and provide an important link in the energy transition. The enthusiastic people, most of the time volunteers, behind these initiatives are taking matters into their own hands to make the Netherlands more sustainable.

The ownership of RECs is based on two main characteristics:

- Profits are divided among the members;
- Members have a ‘one vote per member’ vote in the decision-making process within the cooperative.

Even though this is a very democratic form of governance, it also has some pitfalls. Due to the involvement of every member, it may lead to slow decision-making and inefficient processes (Huybrechts & Mertens, 2014). To minimise these democratic risks, it is favourable that members share similar interests or have common ideologies. This study focuses on local RECs. These local RECs represent a decentralized energy system, which is thought to be more innovative due to its need for procedures and operators to specialise, the necessity to find solutions designed to match with local contexts and the opportunity for mutual learning (Goldthau, 2014; Wolsink, 2012). Additionally, the amount of local RECs has grown from over 113 in 2013 to over 486 in 2020 with almost 70,000 active members (HierOpgeweekt, 2019). RECs are regarded as potential key actors in the energy transition within Europe (Hentschel et al., 2018; Seyfang et al., 2013). This position makes it interesting to review local RECs in the Netherlands as well.

3.2. De Postcoderoosregeling

As mentioned, there is a need for more sustainably generated energy and not everyone has the opportunity to install solar panels on their roof or to generate wind energy in their backyard. That is why the central government has created the Reduced Tariff Scheme, also popularly known as the ‘Postcoderoosregeling’ (Postal Code Rose). This allows private individuals and small and medium-sized enterprises (SMEs) to invest in sustainable and locally generated energy through initiatives such as an energy cooperative, and thus receive a financial advantage when this energy is set off against the energy tax. This scheme is known as the ‘Postcoderoosregeling’ because participants in such a cooperative or project have to live in adjacent postcodes (Greenchoice, n.d.). The PCR is not the only instrument that is used. Cooperatives can make use of 3 different instruments in order to make the production of renewable energy profitable: de salderingsregeling, the PCR or the Subsidie Duurzame Energie (SDE).

The salderingsregeling allows citizens to offset (salderen) the energy they provide back to the main net against the energy they use from an energy provider, against the same rate: 22 cents per kWh, including all taxes (Milieu Centraal, 2021). The SDE is a subsidy from the Ministry of Economic Affairs, Agriculture and Innovation that supports the production of sustainable electricity or gas. From 2020 forward, the SDE++ scheme applies. This subsidy also encourages other emission-reducing technologies. By means of a PCR project, members of a project can jointly participate financially in an installation for sustainable energy production, such as solar or wind. The sustainable installation is purchased through the collective. This collective can be, for example, an energy cooperative or an owner’s association (Vereniging van Eigenaren, VvE). The participants have to live in the 4-digit postcode area in which the installation is located or in one of the directly adjacent 4-digit postal code

areas: the same postcoderoos. For every kilowatt-hour (kWh) they generate, they can settle the energy tax and VAT against their consumption. The energy tax changes annually and in 2019 was €0.09863 and including 21% VAT €0.1193 (Greenchoice, n.d.). Figure 4 shows the increase in projects (cumulative) for each of the instruments mentioned above over the past years. SDE/PCR refers to a combination of both instruments being used to execute a project.

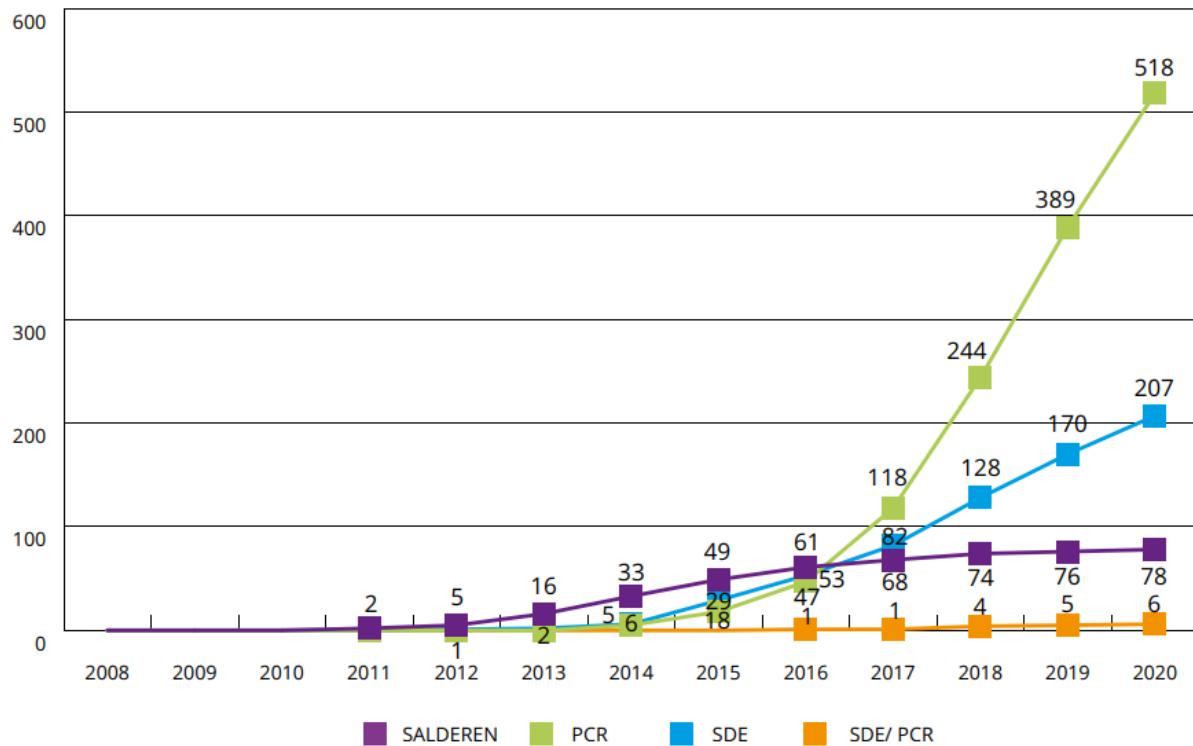


Figure 4 - Total number of project per type of instrument per year (Klimaatstichting Hier & RVO, 2021)



4. Methodology

Within this section of the report, an outline of followed research methods has been given. It provides information on Research Design and why this specific design has been chosen. Additionally, the instrument used for data collection and operationalization is discussed. The methods of case selection and data analysis are also topics that are discussed in this section. Finally, the ethical issues within the research process will be elaborated on.

4.1. Research Design

In order to answer the research question of this study, a qualitative research approach has been applied. A case study approach was applied for conducting this qualitative study. This is a case study of the adoption dynamics around the Dutch PCR. In order to increase the representativeness of the results, 6 different cooperatives, an advocacy organisation and a professor on the regulation of energy markets are included to ensure a variety of actors. The organising principle of this study is the temporal analysis based on process tracing, which has been conducted in order to analyse the development and adoption trajectory of a new policy instrument between its period of introduction and replacement. In order to get the best answer as to how the instrument has been adopted, it is important to assess this trajectory over the entire period in which the instrument was in effect instead of focusing on a specific moment in time. The primary purpose of process tracing is to establish whether, and how, a potential cause influenced a specific set of changes. In other words, it can be used to establish whether, and how, OL influenced the adoption of a new policy instrument.

In order to answer the main research question of this study, two sub-questions have been answered based on this temporal analysis.

- What does the adoption trajectory of the PCR look like?
- How can we understand the dynamics of this adoption from an OL perspective?

The temporal analysis has been used to structure the answers of the 2 sub-questions in this study. First, the temporal analysis has been used to identify the complexities of the instrument over the years, and how these complexities have affected the adoption dynamics of the instrument. Additionally, the results regarding OL mechanisms have been structured in order to match the developments related to the adoption of the instrument.



4.2. Operationalization

Table 1 - Operationalisation of concepts

Research Question: <i>How do different factors in the learning environment of RECs contribute to the adoption of a new policy instrument by these same RECs?</i>		
Conceptual Lens	Description	Look for evidence of
Policy Adoption	"the process of moving from an initial policy proposal to its final form in an approved piece of legislation, regulation or other vehicle" (Levin, 2001, p. 115)	<ul style="list-style-type: none"> - Growth or decline in # projects; - Actor Involvement; - Perceived complexities/obstacles.
Experimentation	Experimentation with new approaches through the systematic search for and systematic testing of new knowledge (Garvin, 1993).	<p>Practices such as:</p> <ul style="list-style-type: none"> - Meetings; - Research & Development; - Use of internet
Learning from Past Experiences	Learning from individual experience and history through constant reflection upon successes and failures to provide implications applicable to others (Garvin, 1993).	<p>Practices such as:</p> <ul style="list-style-type: none"> - Post-mortem evaluations; - Project teams; - Knowledge Managers.
Learning from Others	Learning from the experiences and best practices of others (Garvin, 1993).	<p>Practices such as:</p> <ul style="list-style-type: none"> - Benchmarking; - Knowledge Brokers; - Training.
Transferring Knowledge	Transfer of knowledge throughout the organisation through practices such as written or oral reports, personnel rotations or training (Garvin, 1993).	<p>Practices such as:</p> <ul style="list-style-type: none"> - Events for (in)formal Interaction - Knowledge Repositories - Knowledge Brokers

Table 1 above provides an overview of the framework used for the operationalization of the concepts used to answer the research questions, which have been introduced in Section 4.1.

4.3. Data Collection

Data for this study was collected through two main methods (table 4). The main source of data are the in-depth semi-structured interviews which have been conducted in order to provide insight into the learning environment of RECs and the adoption of policy instruments. During these interviews, the focus has been on factors that have positively influenced or contributed to the adoption of the PCR, and therefore the interviews serve as the primary source of data in answering the sub-question related to OL. Prior to the interviews, an interview guide was drafted, which has been adjusted during the data collection period based on reviews of previous interviews. Additionally, before each interview, the interview guide has been specifically adjusted in order to match a participant's position. The interview guide is found in appendix B. In order to be able to properly answer the research question of this study, the interview guide follows the theoretical concepts as discussed in the theory section (Bryman, 2016). In choosing the first participants for this study, the key informant approach has been used. This approach involves interviewing individuals who are likely to provide needed information, ideas, and



insights on a particular subject as a result of their personal skill or position within a community and are therefore able to provide deeper insight into what is going on within these communities (Kumar, 1989; Elmusharaf, 2018). This study additionally used snowball sampling in order to ensure different perspectives from a variety of actors within the selected case. Snowball sampling is defined as “a non-probability sample in which the researcher makes initial contact with a small group of people who are relevant to the research topic and then uses these to establish contact with others” (Bryman, 2016, p. 696).

A total of nine interviews were held, which were all held via Microsoft Teams. The list of interview participants is found in table 2. The interviews have been recorded and transcribed in order to enable data analysis. The average duration of the nine interviews was 44 minutes, with the shortest interviews measuring 15 minutes and the longest 64 minutes.

Table 2 - Overview of interview participants

Respondent	Name	Position
1	Annelies Huygen	Professor Regulation of Energy Markets
2	Siward Zomer	Cooperative Director Business Office EnergieSamen
3	Anne Marieke Schwencke	Independent Research ASISEARCH – Treasurer cooperative Zon op Leiden – Executor Local Energy Monitor
4	Ernst van der Leij	Founder cooperative Morgen Groene Energie
5	Wim Raaijmakers	Former chairman Cooperative Morgen Groene Energie
6	Dick van Zadelhoff	Founder cooperative Zon op Heemstede - Advisor EnergieSamen
7	Paul Stolte	Founder and former chairman cooperative LochemEnergie
8	René Windhouwer	Secretary cooperative Zon op Nijkerk – Former CDA Alderman
9	Willem de Vries	Founder cooperative Zon op Waterland

Existing scientific- and grey literature was used in addition to the interviews for multiple reasons. In the first place, existing scientific literature on policy instruments, policy adoption and OL theory has been used to provide the theoretical background needed for this study. Secondly, LexisNexis, an online platform providing a database of publications (LexisNexis, 2021; LexisNexis, 2021), has been used to filter publications on the PCR in order to provide a general overview of the instrument from its introduction in 2013 till its disengagement in 2021 (Appendix C). The existing grey literature, regarding the developments of the PCR, used within this study is collected through desk research and originates from a pre-set period. The policy instrument examined in this study, the PCR, was installed in late 2013 and was disengaged on March 31, 2021. Therefore, all documents regarding the PCR published from January 1, 2013, till March 31, 2021, are deemed relevant to this study due to their previewing, reviewing and analysing nature. Existing literature and the LexisNexis database serve as the primary sources of data in answering the sub-question related to policy adoption, however, the answers to this question are additionally supported by interviews.

Table 3 provides an overview of the parameters entered in the database. Prior to the interviews, this general overview and the data used in the theory section, have been extensively studied to have knowledge on what should be asked during the interviews and to prevent asking questions on which information was already available.



Table 3 - LexisNexis input

Specific search Term	Publication Type	Period	Number of hits
Postcoderoos	Newspapers; Magazines & Journals; Newswires & Press releases; Major world publications.	01-01-2013 - 31-03-2021	418

Table 4 - Used data sources

Type of source	Sources (times used)		
Literature	Journals : 63	Webpages : 12	
	Newspaper Articles : 7	Books : 8	
	Reports : 7	Magazine Articles : 3	
	Slide Shows : 1	Book Chapters : 1	
Empirical Data	Interviews, see table 1.		
Databases	LexisNexis		

4.4. Data Analysis

The semi-structured interviews within this study were transcribed and analysed based on a thematic analysis. The thematic analysis is an approach in which transcripts are categorised within themes and subthemes in order to identify relevant patterns of data to answer a specific research question (Braun & Clarke, 2006). The themes and subthemes have been developed based on a concept- and data-driven approach, also referred to as deductive and indicative coding (Nowell et al., 2017). Within concept-driven coding, themes and subthemes are related to theory and literature on OL and policy adoption. Within Data-driven coding, additional themes or subthemes are added during the open-coding process of the analysis based on findings in the data.

Although the method is widely used, there is no definite agreement about what a thematic analysis specifically is and how it should be executed. Within this study, this is done in the following way. The first step of the coding process focussed on an inductive approach, where concepts and themes were created based on the findings and answers within the interviews. These concepts and themes summarise the interview data. These concepts and themes were later connected to the OL theory, a deductive coding process. Table 5 shows a comprehensive example of the coding process.

Table 5 - Example of coding

Step	Description	Example
Step 1.	Find a relevant phrase in the interview transcript	<i>"You have the annual event of HierOpgeweekt, which hosts several knowledge sessions. This is usually attended by around 1000 people, who then join sessions in which they discuss how to set up these projects. So yes, joining forces is a very important element".</i>
Step 2.	Inductive/data driven-coding. Give this specific phrase a summarizing name/code. This is done for every relevant phrase in the transcript	Name/code = Annual Event



Step 3.	Deductive/concept-driven coding. Joining the codes drafted in the previous step under themes related to the theory.	Theme/code related to theory = Events for (in)formal interaction. Which is part of the theme = Learning from Others.
---------	--	---

The themes found through this process were used to identify the perceived complexities of the PCR and the different methods of organisational learning employed by the RECs.

The process of coding and theme development has been done with the use of Qualitative Data Analysis Software (CAQDAS). The CAQDAS used in this study is NVivo, which is a widely-used CAQDAS package

4.5. Research Quality Criteria

Where quantitative studies often refer to the quality criteria of reliability and validity, this study is builds upon the alternative primary criteria for qualitative studies addressed in Bryman (2016). First of all, trustworthiness which consists of four criteria (table 6): credibility, transferability, dependability and confirmability (Bryman, 2016).

Table 6 - Trustworthiness criteria used within this study

Criteria	Within this study
Credibility	Assured through the use of two triangulation methods: <ul style="list-style-type: none"> - Method triangulation: using both literature review and secondary research as well as interviews as sources of data. - Triangulation of sources: checking the consistency of the interview data received from the different participants
Transferability	Achieved by interviewing multiple RECs from different provinces <ul style="list-style-type: none"> - Prevents the research from being relevant to a single cooperative or region. - Due to variation in the exact provision of regulation in countries, it is hard to identify if the conclusion in this report applies to other nations.
Dependability	Achieved by keeping records of all the progress and steps made over time <ul style="list-style-type: none"> - Ensure these steps can be repeated at another moment in time. - Regulations are likely to change over time and therefore outcomes of this research in the future may differ from outcomes in this research.
Conformability	Achieved by supporting claims made within the analysis section by quotes from the interview transcripts. <ul style="list-style-type: none"> - Allows readers to interpret the data without the intrusion of the researchers.

The second quality criterion for qualitative studies is authenticity. This was assured through the use of snowball sampling, which provided a wide representation of participants with a relevant relation to the research topic. Additionally, as many interviews as possible have been conducted within the given amount of time. However, it is arguable if nine interviews are enough to reach theoretical saturation, which will be discussed in more depth in the discussion section of this study.



4.6. Ethical issues

According to Bryman & Bell (2011), there are four main areas regarding ethical principles that should be considered by research in social research. First of all, harm to participants, which in this study was managed by informing participants about their rights during the interviews. They were informed about their ability to stop the interview at any given time, and they were allowed to skip questions they did not want to answer. Secondly, lack of informed consent was prevented by informing participants about the aim of this study and sharing additional information prior to the interview. Participants have been asked to sign an informed consent form in order to verify their consent. Thirdly, invasion of privacy was addressed by asking participants whether or not they would like to be kept anonymous. If so, they have been referred to as 'Respondent #', if not they have been referred to by their name. Additionally, the transcribed interviews have been shared with the participants, when asked for, in order for them to remove any answers they feel uncomfortable with. Finally, deception was prevented similarly to lack of informed consent. Participants have been informed about their role in this study. As mentioned, they were sent an informed consent form which they have been asked to sign to confirm they are fully aware of their participation in this study. Additionally, participants have been allowed to read their interview transcripts and quotes used in the actual report have been submitted to them to prevent misinterpretation.

Data collection within this study has been done according to the standards of the GDPR (or Dutch AVG). According to the GDPR, six principles allow for data processing, one of which is personal permission, which will be discussed at the beginning of each interview. A form has been signed by each respondent indicating their permission for the collection and processing of their data. Additionally, participants have rights such as the right of access, oblivion and rectification and addition (Autoriteit Persoonsgegevens, n.d.). These rights have been addressed above. Besides the names of participants, no further personal information will be collected or stored.



5. Results

Within this section, the findings of both the interviews as well as the grey literature analysis are discussed. Section 5.1 elaborates on the dynamics around the adoption of the PCR. This section will therefore discuss the three indicators mentioned in Section 4.2. Section 5.2 focuses on an additional qualitative in-depth analysis of the nine semi-structured interviews conducted for this study. The analysis reviews the extent to which local RECs use the Five Building Blocks by Garvin (1993) to overcome the barriers and complexities of the PCR and these have contributed to the adoption of a new policy instrument.

5.1. The Adoption of the Postcoderoosregeling

This section elaborates on the important factors within policy adoption as addressed in Section 4.2, in order to better understand if, and how the PCR has been adopted. The factors that are discussed within this section are: projects, actor Involvement & perceived obstacles. As will become clear later in this section, the perceived obstacles of the instrument are surprisingly factors that aided in the adoption of the instrument. Appendix C provides a timeline based on newspaper publications, which covers the adoption trajectory of the PCR. Several events from this timeline will be discussed in the following sections.

5.1.1. Projects

First of all, the number of projects that make use of the instrument. An increase in the number of projects that use the instrument indicates that the instrument is being adopted. The number of projects that use the PCR, has been growing steadily since its introduction in 2013. In 2020, a total of 129 new PCR-projects were started. With the addition of 129 projects in 2020, a total of 518 projects have now been realised with 56.6 MWp allocated collectively generated solar power. In total, 208 MW was generated through solar power in 2020 (Energieopwek, 2021), indicating the PCR-projects are responsible for over 25% of solar-generated energy in the Netherlands. In comparison to 2019, slightly fewer projects have been started (145 projects in 2019), however in terms of numbers, there is not too much of a difference (Klimaatstichting Hier & RVO, 2021). Some projects use a combination of the PCR and another instrument, bringing the total number of projects using the PCR to 524. The majority of projects are found in Noord-Holland (92), Gelderland (90) and South-Holland (76) (Klimaatstichting Hier & RVO, 2021).

According to the Local Energy Monitor (Klimaatstichting Hier & RVO, 2021), 200 projects were waiting to be started up till February of this year. However, many cooperatives indicated a hold on new initiatives due to the uncertainty regarding the new regulation which was implemented on April 1st of 2021, replacing the old instrument. According to cooperatives, this new regulation proved difficult to explain to potential participants reducing the rate at which new members were recruited. Many cooperatives have therefore waited for the new regulation to start in order to get clarity. This hold, on new initiatives, indicates complexities within the instrument that require further explanation or initial support in order to help the cooperatives start new projects. It is found that these complexities were also present within the 'old' instrument that was active until March 31 of this year, as will be discussed later. At the same time some cooperatives, have put in extra effort to make use of the old instrument.

It is striking to see that the number of new PCR-projects is approximately similar to last year. Despite the uncertainties, the number of projects nationally, eventually increased evenly (figure 5). It can even be concluded that between 2015 and 2018 the rate at which the number of projects increases also increases, indicating a faster adoption of the instrument. 64% of all solar projects based in the Netherlands now make use of the PCR (Klimaatstichting Hier & RVO, 2021).

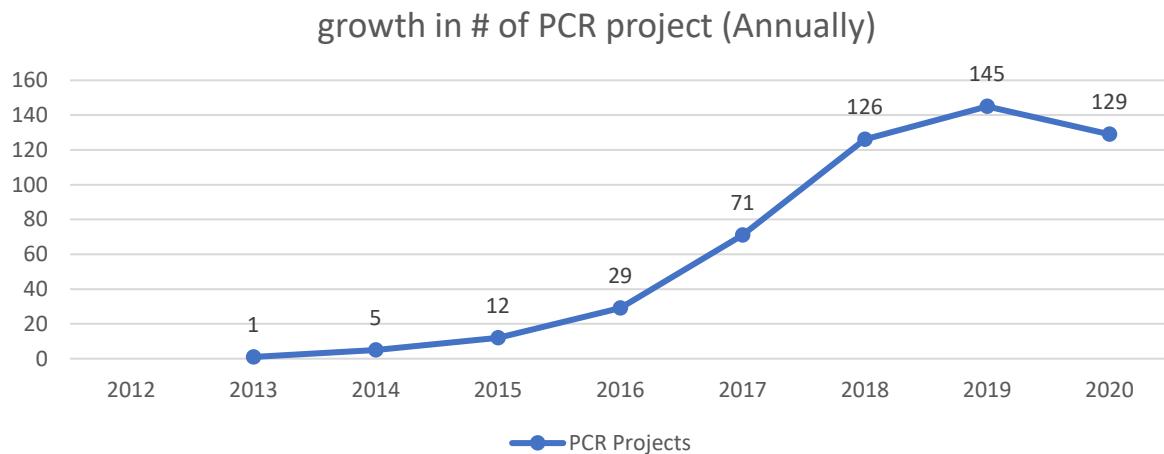


Figure 5 - New PCR-projects per year (Klimaatstichting Hier & RVO, 2021)

However, despite these positive numbers, the adoption of the instrument has not been straightforward. Policy adoption is understood through policy supply and demand, the ones who provide a policy instrument and the ones who use it. For the ones who design and provide an instrument, it may seem like a legitimate and useful instrument, however, this may not be the case from the perspective of a user. After the introduction in 2013, the instrument proved to lack initial information and support for its users. Additionally, it was packed with complexities that inhibited easy adoption of the instrument and demanded cooperatives to come up with their own solutions. Other important factors in policy adoption which have been researched in this study are therefore actor involvement and perceived obstacles.

5.1.2. Actor Involvement

Several actors were involved in the adoption trajectory of the PCR. The actors that have been identified as key actors are: tax Authorities, energy Providers and RECs. These actors and their involvement in the adoption trajectory will be discussed in this section.

First of all the Tax Authorities. Although this organisation was supposed to act as a supporting actor for RECs in the adoption trajectory of the PCR, they sometimes acted as an extra barrier. The tax authorities made the decisions on whether or not RECs were allowed to start a PCR project and were also required to settle the eventual tax discount resulting from the project. However, especially during the first few years, the tax authorisations were not yet adapted to handle these requests efficiently. Similar to RECs, this organisation had to learn how to work with the instrument and handle the applications effectively. According to several participants in this study, the tax authorities are not known as being the most flexible and creative organisation in dealing with problems that arose during



this initial phase of the PCR, as mentioned by Siward Zomer, the cooperative director business office of EnergieSamen “*The financial department isn't known for being the most flexible creative club to tackle and adjust should problems arise*” (pers. com., Zomer, 04-05-2021). In addition, Anne Marieke Schwencke, an independent researcher and treasurer of the cooperative ‘Zon op Leiden’ mentioned “*One complexity was dealing with the tax authorities. They had to settle the discount on your energy, which was also a new thing for them. You were dealing with an organisation which needed to learn and invent itself basically*” (pers. com., Schwencke, 11-05-2021). Based on these quotes, it can be concluded that cooperatives, who were inexperienced in working with the PCR, had to deal with a key stakeholder who itself was not yet fully optimised to work this instrument. When it comes to policy supply and the knowledge required to work with certain policy instruments, cooperatives could not fully rely on these key stakeholders to provide them with the needed support.

In addition to working with tax authorities who were not yet fully adapted to the new instrument of the PCR, cooperatives had to deal with energy providers. These energy providers had to take back the energy generated by the project on which the discount of the participants' tax would be calculated. Additionally, they had to provide the administration necessary to calculate the eventual discount. However, not every energy provider was willing to provide this information or cooperate and support cooperatives with their PCR-projects, as stated by Paul Stolte, founder and former chairman of the cooperative ‘Lochem Energie’ stated “*It begins with the question: which energy provider is in and which is not? That has been kept as a free choice instead of an obligation. Each participant within a project, therefore, has to check if they are with a provider that supported the system. That is where the trouble begins*” (pers. com., Stolte, 28-05-2021). So first of all cooperatives had to figure out whether or not they were connected to an energy supplier which was willing to support PCR-projects. If this was not the case, participants had to swap between energy providers in order to partake in the projects and benefit from their yields. However, problems were also present when energy providers were willing to support PCR-projects. Similar to the tax authorities, the energy providers were not yet adapted to working with the instrument, as mentioned by Ernst van der Leij, founder of cooperative ‘Morgen Groene Energie’:

Energy providers had not yet fully tuned their repayment process. So even though we and Greenchoice had been working together intensively over the past years, they were not yet able to support us during this project, although they wanted to. They just weren't able to administratively manage it (pers. com., van der Leij, 19-05-2021)

The third actor within the adoption trajectory of the PCR were the RECs themselves. The design of the instrument and the lack of experience at key support organisations such as the tax authorities and energy providers seemed to be inhibiting a smooth adoption of the instrument. However, surprising as it may seem, this also acted as a trigger for cooperatives to pay more attention to professionalisation and cooperation to overcome the complexities of the instrument. Over a third of the respondents on a survey held by the Local Energy Monitor (Klimaatstichting HIER & RVO, 2021) has indicated a need to improve this aspect of cooperatives. Financial independence, access to expertise and reinforcement of the organisation were necessary due to the dependence on volunteers that made cooperatives especially vulnerable as indicated by several respondents in this study.



Anne Marieke Schwencke stated:

So that is also an important issue, within your organisation you'll have to start incorporating a good structure in order to build continuity, we are still in the transitions phase. What I want to say is: if you take a look at the internal organisation, we've got our hands full on the managing of current projects and trying to find new ones. This takes such an amount of time that the actual development of your own organisations lacks behind. That is kind of risky (pers. com., Schwencke, 11-05-2021).

René Windhouwer, the secretary of the cooperative 'Zon op Nijkerk' and former CDA alderman, added to this statement:

That is quite a lot of work indeed, that's also a vulnerability. I think, if energy cooperatives want to play a bigger role in the energy transition, then we absolutely have to improve the organisational side of the story. It is possible with a voluntary management, however this management will then only have to focus on managing. We have to make sure we acquire the knowledge and capacity to handle all other activities (pers. com., Windhouwer, 08-06-2021).

These quotes exemplify that cooperatives recognise their vulnerability when it comes to organisational capability and capacity related to PCR-projects. They recognise that additional measures have to be taken if they want to prepare their organisations for future projects and to improve their contribution to the energy transition.

During the interviews, it was found that due to this vulnerability, cooperatives joined forces in order to ensure their future operations. They actively engaged in a network, in which they used several approaches in order to acquire the knowledge and capacity to overcome the complexities of the PCR and to build continuity within their operations. Experienced cooperatives started to share knowledge to support new cooperatives in the early stages of their projects. Events were held through which cooperatives could all benefit from the knowledge of others. Cooperatives even started to influence the design of the instrument through a lobbying process in the Dutch Parliament the Hague. During the interviews, it was found that cooperatives were actively engaged in a process of learning to work with the instrument and to overcome its complexities. In addition, several innovations were made in order to ease the adoption of the instrument. This is an important factor in the adoption of the PCR. Instead of abandoning the instrument, users now actively engage in supporting the adoption of the instrument. Adoption is now not only being promoted from a supply perspective but from a demand perspective as well. They could have moved to other instruments or policies but they actively choose to support this particular instrument and make it work. In 2016, both housing corporation Cascade as well as Henk Rosink from EnergieSamen, came up with a model to allow citizens with limited funds to take part in PCR projects (Kers, 2016). An explanation was provided by Anne Marieke Schwencke who mentioned:

One innovation was the way of financing. You had the 'Op Rozen Model' of Henk Rosink. Within this model they have really searched for ways of financing with external funding. In these ways people did not have to pay the entire fee upfront but could enter projects for small amount of financing at a time. During the 15-year project, they would pay off their participation and received their tax benefits on the go. So, they have the same advantage, only in a slightly different way. That is really important, that not only well-funded people are able to receive these benefits (pers. com., Schwencke, 11-05-2021).

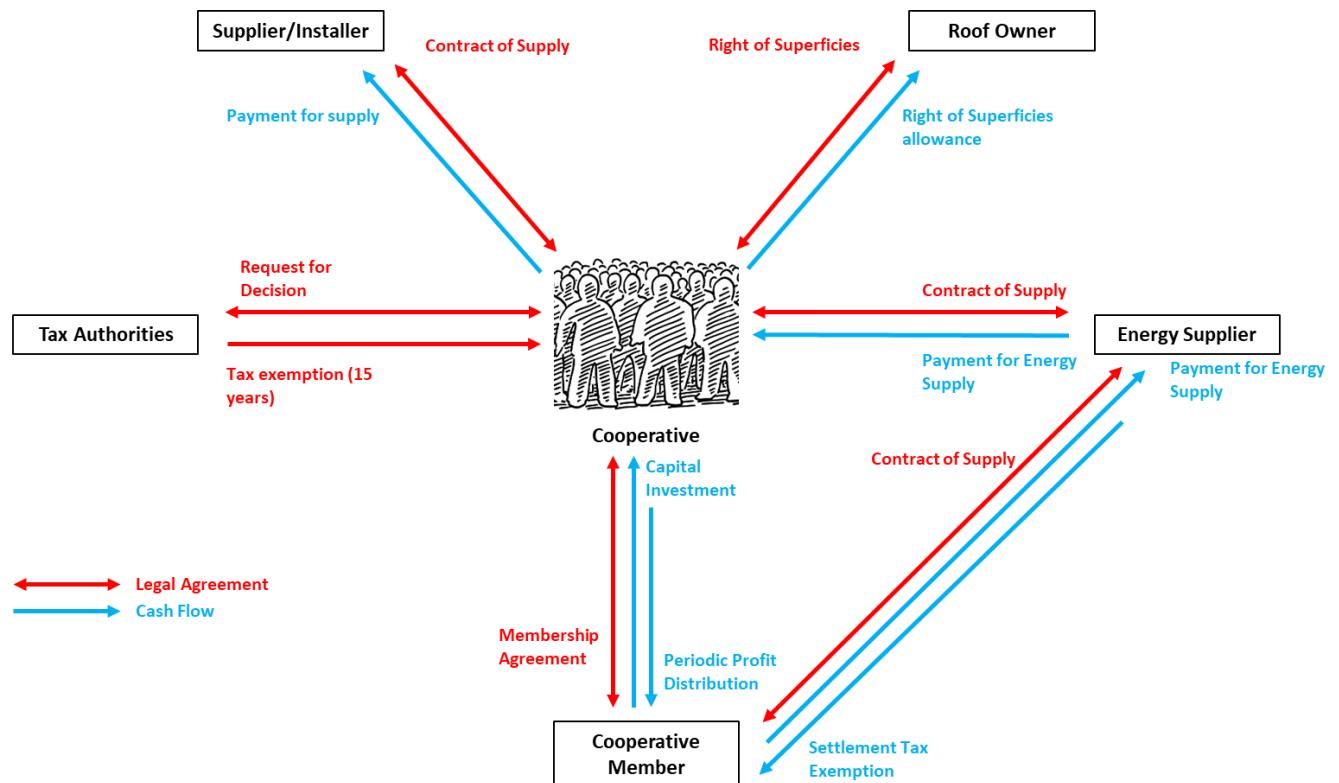


Figure 6 - Agreements & cash flows of PCR (EnergieSamen, n.d.; Zon op Oirshot, n.d.)

5.1.3. Perceived Obstacles

During the adoption trajectory of the PCR, several obstacles and complexities arose. These obstacles inhibit the easy adoption of the instrument and require an additional effort of users during the adoption trajectory. The number of perceived obstacles is therefore an important factor in the adoption since a lower number of obstacles may indicate a smoother adoption and vice versa. Within this study, the obstacles identified related to: design, administration, information and support.

Design

Directly after its introduction in 2013, the design of the PCR was already being questioned. In the beginning, the instrument was seen as a welcome tax measure. Energy cooperatives that started PCR-projects received a 7.5 cent per kWh discount on their locally generated electricity. However, the area which was considered to be local was confined to their own postal code, plus the directly adjacent postal codes, forming the postcoderoos (figure 7). In order to run a PCR-project, all participants had to live within the postcoderoos and the installation generating the energy had to be located in the central postal code. In the case of figure 7, this would have meant the

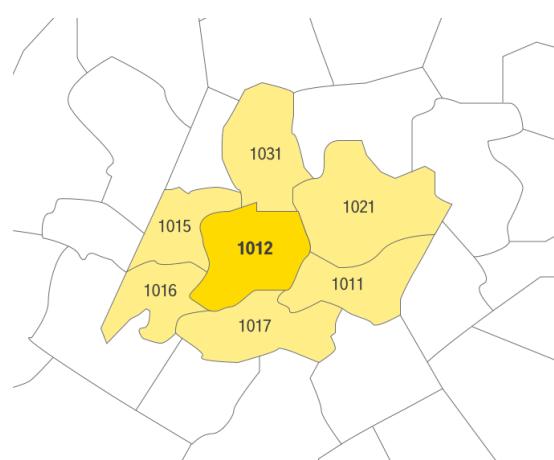


Figure 7 - A postcoderoos



installation had to be located in postal code 1012. This resulted in problems for both urban and rural areas. Within densely populated areas, such as cities there would have been an abundance of possible participants, however, the spaces for solar installations were limited, especially when they needed to be located in specific areas. In contrast to the urban areas, the space required for installations was no problem in rural areas. On the other hand, these areas are less densely populated, limiting the number of people that would have been able to partake in a project (de Gelderlander, 2013; Persson, 2013). This is a problem due to the fact that a minimum number of participants is often required. Additionally, the initial capital investment needed to purchase the solar installation is divided between participants. Therefore, a limited number of participants means high initial investment costs. Dick van Zadelhoff, Advisor for the Dutch energy cooperative advocacy organisation 'EnergieSamen' and founder of the cooperative 'Zon op Heemstede', confirmed this issue during his interview, stating "*If you were lucky, you had a lot of people living within your postcoderoos area, if you were unlucky and were situated in a rural area then you had few people you could contact*" (pers com., van Zadelhoff, 25-05-2021). This problem is also recognised by the CEO of Eneco, one of the larger energy providers in the Netherlands, who called for the extension of the area included in the postcoderoos to enable as many people to partake in these projects (Geijp, 2013).

Administration

According to the Dutch Political Party CDA, the PCR was far too complicated and was therefore limiting instead of enabling citizens in their abilities to invest in renewable energy (het Financieele Dagblad, 2014). Following the remarks of 2013, they, therefore, pleaded for the abolishment of the instrument in 2014. Through the interviews, it was found that these complexities are often related to the amount of paperwork and required coordination between different stakeholders (figure 6). Cooperatives, which are predominantly run by relatively inexperienced volunteers, had to deal with an abundance of different stakeholders, legal agreements and cash flows. All these requirements took up valuable time and resources before projects were even started. As René Windhouwer, put it "*It is something you need to consider. It is not like on an afternoon, you say: come on let's do this and just live the fun. You really take on something substantial, you have to realise that well in advance*" (pers. com., Windhouwer, 08-06-2021). Additionally, complaints were made about the overall design of the instrument. Siward Zomer mentioned the following "*During the draft of the energy agreement, some people who were not themselves involved in energy cooperatives, have been at the table not knowing what it takes to design such an instrument as the Postcoderoosregeling*" (pers. com., Zomer, 04-05-2021). Ernst van der Leij stated "*We started to actively engage in some sort of advisory role, together with others but we were also involved. It turned out that the officials in The Hague had come up with an impossible arrangement*" (pers. com., van der Leij, 19-05-2021).

These quotes clarify that the design of the instrument was thought to be flawed from the start. According to the interviewees, it had been designed by officials who were in no position to critically review if this instrument was favourable for cooperatives and their operations. Problems continued in 2015. The Amsterdam fraction of the political party of D66 wanted to completely abolish unnecessary and hindering regulations and instruments that limited sustainable investments, one of which they considered to be the PCR. Similar to the CDA, they thought the instrument was far too complex and was hindering citizens in their sustainable endeavours. Therefore, they drafted www.viezeregels.nl, a website where citizens could report regulations or problems that prevented them from turning their



sustainable ideas into actions (van Zoelen, 2015). Through the interviews, it was found that one of the problems of the PCR was related to extensive and difficult administration. Cooperatives, often started with only three or four volunteers, were suddenly confronted with an abundance of paperwork, lengthy procedures and difficult alignment between stakeholders. As can be noted from figure 9 cooperatives had to deal with five different stakeholders and multiple legal agreements. These cooperatives, often started by several volunteers, had to learn to work with these stakeholders taking away valuable time, resources and focus of projects. Siward Zomer captured this feeling perfectly by stating:

You are talking about volunteers, who know very little about the energy market, and you're going to let them deal directly with three main stakeholders within this market. Energy providers as buyers of the energy, but at the same as a supplier of energy to the cooperative members. In addition, you had to deal with tax authorities, it was just too much (pers. com., Zomer, 04-05-2021).

Additionally, Paul Stolte mentioned:

That is a huge threshold. If you add up all the paper you have in terms of implementation regulations, forms, agreements and the like, it is quite complex. The scheme in itself is not complex, you can explain it within 10 minutes, but if you seriously want to work as a group of citizens, you do not want those citizens to run a risk. That means that there must be someone who makes sure that you comply with the rules and that means going through all the documents. If you have a big club with different projects and thus build up experience, well then it will work out at some point, but that's only a few of the 500 (pers. com., Stolte, 28-05-2021)

So, although the overall number of PCR projects had been growing over the years, this has not always gone smoothly. Even though cooperatives might have been willing to start projects and participate in the energy transition, they were being hindered in several ways by the way the PCR had been designed and implemented preventing the cooperatives from really supporting and adopting the instrument. However, the number of projects has been growing annually so although the process has not entirely gone smoothly, the instrument was eventually adopted.

Information

Despite the efforts taken to realise several innovations, years after the introduction of the PCR, unclarity remained about the exact design of the instrument, as Dick van Zadelhoff mentioned “*Only around 2017 or 2018 it became entirely clear what was required. The unclarities regarding law and design of the instrument resulted in a lot of questions being asked*” (pers. com., van Zadelhoff, 25-05-2021). This quote illustrates the gap the instrument left on the policy supply side. Instead of providing the support, knowledge and clarity needed for cooperatives to properly use the instrument, the instrument lacked these characteristics and forced cooperatives to generate this knowledge themselves. This shows the importance of instrument design. Because of the design of this instrument, cooperatives needed each other to be able to adopt the instrument.

Support

In addition to the lasting unclarities, the energy grid was yet to be adapted to the peak voltage produced by solar panels, 7 years after the instrument had been introduced. This resulted in projects not being able to feed electricity back into the net which in turn resulted in financial issues for these projects. Members joined projects so that they could settle the tax on the electricity bill of their own



home with the yield of the solar panels, however, this had become impossible. In Addition, income was also lost from the electricity that could no longer be fed back into the main net (van Reenen, 2020). An instrument that was supposed to enable citizens to generate their own sustainable energy with a cooperative, turned out to be packed with unclarities and difficulties. Additionally, even when a cooperative knew how to use the instrument, they sometimes were not able to because of an inadequate energy grid. A bad business case in combination with difficult procedures is not the ideal situation for the adoption of a policy instrument. However, due to this situation, cooperatives joined forces to learn how to use the instrument.

The overall adoption trajectory of the PCR can be characterised as one of trial and error. As mentioned the instrument was packed with unclarities and complexities which forced cooperatives to adapt to and learn how to work with the instrument. From the entire analysis stated above it is to be concluded that the design of the instruments acted as a catalyst for cooperative professionalisation and cooperation. It drove cooperatives together in search of knowledge, support and best practices enabling the adoption of the instrument as shown in the first paragraphs of this section. It can be concluded that the creation of this user network proved to be the major factor in the instrument's adoption. The number of RECs grew from 131 in 2013, to 623 in 2020 and the number of PCR projects has been growing annually (Klimaatstichting HIER & RVO, 2021). Adoption of the instrument went hand in hand with the creation of a very active network of cooperatives that actively engaged in the adoption of the instrument. It shows that in addition to the supply side of policy instruments, which ensure a supply of policy instruments and the required knowledge to adopt them, the demand side of politics is just as important when it comes to adoption. It can be concluded that the actions of non-state actors play a crucial role in this process, through the network that engaged in the adoption of the instrument. In addition, the previous analysis shows the importance of time in the policy adoption processes. As described, the unclarities remained up till the moment the instrument was replaced. Instrument users need time in order to get acquainted with the instrument, understand its processes and to get themselves adapted to these processes. In the case of the PCR, which was effective for over 7 years, the cooperatives were given this time. However, cooperatives have indicated that the whole cycle starts again now that the new instrument has been put into effect on April 1st of this year. These conclusions show the importance of instrument users and time in the adoption process. This may ensure greater attention being given to these factors in future instrument adoption trajectories.

5.2. Observed Organisational Learning Approaches

As described in the previous section, the PCR had proven to be packed with complexities and unclarities, that surprisingly acted as a catalyser for cooperative professionalisation and cooperation, enabling them to adopt the instrument. But how exactly did cooperatives shape this professionalisation and cooperation? This section seeks to describe the methods used by cooperatives in order to overcome the complexities of the PCR and to understand how the instrument was adopted. These methods will be analysed by addressing the mechanisms of learning within each of the four building blocks discussed in Section 2.2 (Table 7). The interviews will be used to assess which of, and to what extend the Five Building Blocks by Garvin (1993) are used by cooperatives and how these contribute to the adoption of the PCR.



Table 7 - Overview of learning approaches practised by RECs

Experimentation	Learning from Past Experience	Learning from Others	Transferring Knowledge
<ul style="list-style-type: none"> • Action Learning <ul style="list-style-type: none"> ◦ Expert Groups ◦ Communities of Practice 	<ul style="list-style-type: none"> • Project Evaluations • Project Teams 	<ul style="list-style-type: none"> • Knowledge Brokers <ul style="list-style-type: none"> ◦ Expert Groups ◦ Document & Procedure Sharing • Benchmarking 	<ul style="list-style-type: none"> • Knowledge Repositories • Knowledge Brokers • Events for (in)formal Interaction

5.2.1. Experimentation

This section elaborates on the mechanisms through which RECs engage in experimentation, and how these have contributed to the adoption of the PCR instrument. It was found that learning by doing, or so-called action learning performed within communities of practice and experts groups, was used to experiment with the instrument and to find best practices for their related projects.

As Siward Zomer points out, experts groups were used to discuss problems related to PCR projects. Additionally, specific communities of practice were raised in which entire business cases and PCR projects were practised as mentioned by Siward Zomer and Anne Marieke Schwencke:

Due to the complexity, expert groups started to pop up. They produced knowledge documents that were published on a public website. This knowledge is now being applied in many different ways. Also, this approach, sitting together with experts, producing new knowledge is something we still apply today (pers. com., Zomer, 04-05-2021).

This also happens between provinces and within regional alliances, that communities of practice are started in which business cases are being discussed, how new members should be recruited, all sorts of topics. Between 2014 and 2017 a lot of effort has been put into this (pers. com., Schwencke, 11-05-2021).

Through the interviews, it was found these methods were applied by multiple cooperatives as an approach to experiment. For cooperatives, this approach focused on learning by doing through meetings in which problems were solved. These meetings were additionally used to learn from each other proactively. The primary goal of this method was to put new knowledge into action instantaneously and these meetings were often held between different cooperatives. The quotes exemplify the endeavours of cooperatives in order to adopt the instrument. Due to the complexities of the instrument, cooperatives started to work together and started experimenting with these projects. Using different angles of approach, discussing specific issues, evaluating what works and what doesn't in protected spaces such as a community of practices, enabled cooperatives and members to slowly learn to work with the instrument and to work around its complexities.

The use of expert groups and communities of practice contributed to the adoption of the instrument since cooperatives themselves actively engaged in finding solutions to the complexities of the PCR. Instead of waiting and relying on improvements or additional information from the supply side, cooperatives set to work themselves to uncover or create this information or improvements in order to be able to use the instrument. Cooperatives used the opportunity to experiment and try to find out



what works and what does not concerning PCR projects. By stepping out of their comfort zone and using new documents or processes, for example, cooperatives build up their own knowledge- and experience database. This database not only benefits their own operations but can also help others in adopting the policy instrument.

5.2.2. Learning from Past Experience

This section elaborates on the mechanisms through which RECs learn from past experiences, and how these have contributed to the adoption of the PCR instrument. It was found that learning from past experiences was mainly done through the relatively similar approaches of post-mortem evaluations and so-called experience factories.

During his interview, Dick van Zadelhoff illustrated the importance of using past experiences to improve future projects in addition to sharing these experiences between cooperatives. During the entire course of a project, actors report on relevant experiences and documents. These experiences are then used during the planning and execution phase of other projects and are shared between cooperatives to lift the performance of the entire sector. He mentioned:

Within new projects you could take advantage of adjustments that had been made based on previous projects. For example, we tried over and over to raise our legal documents to a higher standard. When you do the administration for 60, similar cooperatives and you discover something in one of their projects, you can quickly check whether this might also be relevant for other projects. In this way, the general administration and performance were also raised to a higher level, in terms of design and content (pers. com., van Zadelhoff, 25-05-2021).

This quote exemplifies the use of post-mortem evaluations to learn from past experiences. During the interviews, five out of six cooperatives indicated they evaluated projects both while they were still active or after it had ended. During these evaluations, both the positive and negative experiences of the project are being discussed after which a report is composed in which these evaluations are stored. These evaluations contribute to the adoption of the PCR instrument as they capture experiences from completed projects and enable individuals to use these experiences in future projects. This prevents the possibility of repeated mistakes that might inhibit the adoption of the instrument.

Project evaluations have contributed to the adoption of the PCR instrument since it allowed RECs to reflect on past experiences and draw lessons from these experiences, thereby improving their experience towards future projects, as mentioned by Paul Stolte for example. As indicated in section 5.1, time is an important factor in the adoption trajectory of new policy instruments. One of the reasons for this is that projects with a limited time scope do not allow for reflection or evaluation since there is simply not enough time to finish the project. This may allow inefficient processes to continue undisrupted, thereby limiting the smooth operation and usage of the instrument. Time is necessary to reflect and evaluate previous projects in order to improve performances in the future and to ease the adoption of the instrument.



5.2.3. Learning from Others

This section elaborates on the mechanisms through which RECs learn from others, and how these have contributed to the adoption of the PCR instrument. It was found that knowledge brokers and benchmarking were used by cooperatives to learn from others.

Over the years the number of cooperatives has grown, as well as the number of projects executed per cooperative. For new entrants, this meant they had the opportunity to seek help and guidance at cooperatives who had experiences with PCR projects. An organisation that could bring these two together is EnergieSamen, a Dutch advocacy organisation for over 200 cooperatives. Through their network and efforts, every local energy initiative has sufficient knowledge and capital to make projects succeed. EnergieSamen has played a vital role as a knowledge broker by providing a link between cooperatives through which they could exchange their knowledge and experience. By bringing cooperatives together, a network was started that actively engaged in adopting the instrument through several mechanisms, as described below.

As several cooperatives had learned how to navigate through the vast amount of administrative tasks and had learned how to deal with the different stakeholders involved in these projects such as the tax authorities and energy providers, they became knowledge providers to others. It was found that cooperatives acknowledge the importance of cooperation when it came to learning in regard to the PCR instrument. René Windhouwer even suggested these projects are impossible for new cooperatives without the help of others (pers. com., Windhouwer, 08-06-2021).

From the analysis, it became clear that cooperation between cooperatives took many forms, one of which was through the formation of expert groups. These were gatherings of individuals who had experience with the PCR and in which specific issues were discussed and knowledge documents were created to support other cooperatives. As Siward Zomer mentioned "*That specific way of working, sitting together in an expert group, producing and processing knowledge, that is something we still apply today*" (pers. com., Zomer, 04-05-2021) and "*Because they were all working at postcoderos level, they were not competing each other. So, they had the opportunity to learn from each other and see how things could be done most efficiently*" (pers. com., Zomer, 04-05-2021).

These quotes exemplify that cooperatives do not see each other as competitors, on the contrary, they acknowledged the fact that they could support each other and actively chose to engage in this support in order to improve the overall efficiency.

During her interview, Anne Marieke Schwencke additionally highlighted, another primary example of cooperation, the importance of EnergieSamen as a knowledge broker. EnergieSamen was in a position in which it came in contact with an abundance of administrative and legal paperwork. This meant they were in a position to review numerous projects and to find improvements that could be shared with all cooperatives.

When you have look at organizational learning, you see a joining of forces within cooperatives, of initiators who have already done such a project once and then use it to support others. The network of EnergieSamen has proven to be very important in this regard (pers. com., Schwencke, 11-05-2021).

This quote shows that cooperatives do not regard themselves as loose entities but as a connected group that is supposed to help and support each other. Instead of keeping new insights to themselves,



cooperatives and advocacy groups ensured that multiple cooperatives could profit from these new insights thereby lifting the performance of the entire industry.

Occasionally, the most powerful and useful insights are obtained outside an organisation's immediate environment. Other organisations, sometimes even in different sectors, can be fertile sources of ideas and new methods. This is clearly captured by René Windhouwer, who stated:

Assuming you have recognised the need to professionalise, I would definitely use cooperation with other cooperatives. Sharing knowledge, I think that is the conclusion I have drawn for myself, look for it in other cooperatives, learn from each other, use each other's documents, share each other's experiences. In the end, that is way more effective than relying on all kinds of market parties or trying to come up with it yourself (pers. com., Windhouwer, 08-06-2021).

This quote exemplifies the use of benchmarking by cooperatives in order to improve their performance. Using the best practices of others allows cooperatives with less experience to run projects efficiently. They do not have to go through a process of trial and error but can run a project in the most efficient way right from the start. This enables a faster adoption of the instrument.

In general, it can be concluded that the network of cooperatives that actively engaged in the adoption of the instrument, enabled sector-wide learning from others. This has contributed to the adoption of the PCR since it allowed cooperatives to use best practices which proved to be successful in previous projects. It was found that cooperatives learned from each other through benchmarking and the use of knowledge brokers which facilitated expert groups and document sharing. The design of the instrument drove cooperatives together in their search for support. Cooperatives that had done a PCR project could act as mentors to other cooperatives. Using the knowledge of experienced cooperatives, as well as using best practices and standard documents enabled the entire sector to adopt the instrument. Learning from others thus contributed to the adoption of the PCR instrument since it enables cooperatives to use the knowledge and experience of others to overcome the complexities of the PCR.

5.2.4. Transferring Knowledge

This section elaborates on the mechanisms through which RECs transfer knowledge, and how these have contributed to the adoption of the PCR instrument. It was found that knowledge Repositories, Knowledge Brokers and Events for (in)formal Interaction were used by cooperatives.

Cooperatives were in the middle of the process of learning how to use the PCR. However, since single cooperatives often executed multiple projects, they were often in the possession of documents or templates that could be beneficial to future projects or that could aid new cooperatives during their start-up phase. These knowledge repositories were often used to support cooperatives during PCR-projects. Knowledge repositories are storages of experiences and documents, that are easily accessible to cooperative members. The documents and experiences within these repositories were often shared between cooperatives in order to support each other. These repositories, therefore, support collaboration and conversation and enable learning from others. Cooperatives were constantly developing new standards and improving their current processes. The documents that were created during this process were stored and shared between cooperatives thereby improving the efficiency of



the entire sector. This has contributed to the adoption of the postcode instrument since it enabled cooperatives to benefit from and use the experience of others without having to go through the entire process themselves.

In addition to using and sharing documents from previous projects, it was found that working procedures and templates were standardised in order to help simplify future projects, as indicated by several participants such as Anne Marieke Schwencke:

When you have look at organizational learning, you see a joining of forces within cooperatives, of initiators who have already done such a project once and then use it to support others. The network of EnergieSamen has proven to be very important in this regard. Around 100 cooperatives are member, they started to develop their own CRM system, they started developing standard procedures and documents, for example, to deal with the tax settlement with energy providers (pers. com., Schwencke, 11-05-2021).

Another statement was made by René Windhouwer:

What happens from time to time is that someone passes away or they move. This means their certificates have to be sold. I have made a manual for this situation which helps members to deal with these situations. Not too long ago I have also made a manual for the official projects and the way we deal with them (pers. com., Windhouwer, 08-06-2021)

And Dick van Zadelhoff:

We started with templates for statutes and other documents, all that legal nonsense. You come into contact with all kinds of lawyers and those templates were further developed along the way. As soon as that was ready, everything was forwarded to each cooperative (pers. com., van Zadelhoff, 25-05-2021)

These quotes illustrate that cooperatives are purposely aiming to improve future performances, by sharing useful information and practices and making projects easier in terms of documentation. This process contributed to the adoption of the instrument since it, once again, helps to overcome the complexities of the instruments related to administration and documentation. Most of the time these documents were shared between cooperatives when needed. However, EnergieSamen, once again acting as a knowledge broker, produced knowledge documents and templates which were published on their website as mentioned by Siward Zomer (pers. com., Zomer, 04-05-2021)

Besides general documents and templates, function-specific documents were also being developed as indicated by Anne Marieke Schwencke:

What we are currently doing, is documenting recurring processes. In my role as treasurer, I am writing a manual for treasurers. Each time I have to do something I document the process so next time I won't have to think about it because the process is documented (pers. com., Schwencke, 11-05-2021).

In addition, to function-specific documents, function meetings played an important role in terms of knowledge transfer. These functions meetings meant coming together with, for example, the treasurers of several cooperatives allowing for discussions on function-specific issues. During these meetings working methods could be discussed in addition to the exchange of standardised document templates. “*We do a lot in terms of knowledge transferring, having several treasures sit together for example, how do you solve these problems, how do you solve these problems and so on*” (pers. com., Zomer, 04-05-2021). These quotes illustrate a type of expert debriefing and personnel rotation. Instead of having single treasurers visit several cooperatives and share their expertise, these function meetings



allowed multiple members of a cooperative to benefit from the knowledge that is being shared. Since organisations such as the tax authorities and energy providers were not yet fully adapted to working with PCR-projects, manuals and standard procedures which had proven to have worked in the past were of great importance for cooperatives. These documents allowed cooperatives to run their project more smoothly, instead of every cooperative having to invent the wheel themselves over and over again, thereby contributing to the adoption of the instrument.

To facilitate an optimised environment in which cooperatives could transfer their knowledge, events for (in)formal interaction were organised. These events had the purpose to encourage conversation, open communication and knowledge sharing. By providing this extended field of interaction among cooperative members for sharing new ideas and perspectives, socialization among cooperatives was being initiated and encouraged.

It was found that climate foundation HIER, which serves as a knowledge platform for cooperatives on renewable energy generation, hosted an annual event in which developments of the market and new technologies were being discussed. Additionally, these events allowed for cooperatives to come in contact with each other. These events allowed cooperatives to learn from each other and to transfer knowledge through several project sessions in which the process of starting a PCR project was discussed as indicated by Anne Marieke Schwencke “*You’ve got the annual event of HierOpgeweekt which is based on knowledge sessions. Around 1000 members come together, and in different sessions, we discuss the execution of these projects. So yeah, the bundling of strength is a very important element*” (pers. com., Schwencke, 11-05-2021) and Dick van Zadelhoff “*Indeed that is organised in dialogue with both EnergieSamen and Greenchoice. All kinds of presentations are given at those events, which also serve as network gatherings*” (pers. com., van Zadelhoff, 25-05-2021). These quotes exemplify the urge of organisations such as EnergieSamen and Hier to aid cooperatives in the adoption of the instrument when it comes to sharing knowledge and experiences with each other. Instead of individual contact between cooperatives, entire events were organised in order to make sure that as many cooperatives as possible were able to profit from new insights.

In addition to the events hosted by organisations such as HIER and EnergieSamen, the cooperatives themselves also organised sessions in which knowledge was being shared and projects were being discussed. The General Assembly of Members has an important role since this is a moment in which all members of the cooperatives are allowed to speak and discuss matters within the cooperative. Additional knowledge sessions were often organised in which issues encountered in specific projects were being discussed in order to prevent others from making the same mistake as indicated by Wim Raaijmakers, former chairman of cooperative ‘Morgen Groene Energie’ “*At a certain point, once or twice a year, we called all the clubs together and presented great examples for everyone to take note of*” (pers. com., Raaijmakers, 25-05-2021) and Anne Marieke Schwencke “*That is kind of an important element indeed, organizing knowledge sessions to teach each other the tricks*” (pers. com., Schwencke, 11-05-2021). These quotes highlight the fact that cooperatives were not reliant on advocacy organisations to aid them in their learning processes. They recognised the need for cooperation and actively engaged in activities to adopt the instrument.



The transfer of knowledge through knowledge repositories, knowledge brokers and events for (in)formal interaction is an important link in the adoption process of a policy instrument. It contributes to the adoption of a policy instrument in the same way that learning from others does. It enables others to use best practices and avoid mistakes previously made by others. It allows cooperatives to learn and use the instrument with limited risk since practices, documents and procedures can be used that have proven to have worked in the past. Once again, time is an important element when it comes to the transfer of knowledge. Cooperatives need to be able to assess and analyse the knowledge that they gained through others in order to fully absorb and implement it into their own practices. The events described above, allowed cooperatives to not only check if others had similar issues but also find solutions to these problems collectively, aiding in the process of instrument adoption within the entire sector. Instead of attempting to locate knowledge within their own cooperative and trying to invent the wheel by themselves, cooperatives were able to use a heterogenous network of social and material relationships that transcended and bypassed cooperative boundaries. They were able to benchmark their own practices with those of already successful cooperatives and thereby learning from their successes. The complexities of the PCR drove cooperatives to each other and supported their cooperation, thereby aiding in the overall adoption of the instrument.



6. Conclusion

This research aimed to identify how different factors in the learning environment of RECs contribute to the adoption of new policy instruments. In order to do so, a qualitative research approach has been used to analyse Dutch RECs and the adoption dynamics of the PCR. Data on the aforementioned case has been collected through both semi-structured interviews and the analysis of literature. This study builds upon the Five Building Block theory by Garvin (1993) as a framework used to analyse the aforementioned case. For four out of the five building blocks, this study has identified approaches used by RECs that are used to learn to work with and adopt new policy instruments.

The overall adoption trajectory of the PCR can be characterised as one of trial and error. It can be concluded that the complexities and unclarities related to the instrument acted as a catalyst for professionalisation and cooperation between cooperatives in order to enable adoption. It can be concluded that the instrument has been adopted successfully. The number of RECs grew from 131 in 2013, to 623 in 2020 and the overall number of PCR projects has been growing annually to a total of 524 projects in 2020 (Klimaatstichting HIER & RVO, 2021). This case study shows that the design of a policy instrument has a major role in the adoption trajectory of the respective instrument. It shows that not only instruments that are easy to use can be adopted, but also instruments that seem to be complex, as long as the users are actively involved in the adoption trajectory.

Additionally, This case study shows the importance of learning mechanisms in the adoption trajectory of new policy instruments. Overall, It can be concluded that the studied cooperatives use a variety of learning activities, whether or not these are intentionally focused on the adoption of new policy instruments. The approaches used within experimentation and learning from past experience have proven to be quite generic, meaning that the used approaches are likely to be used within other organisations as well. Learning by doing, action learning or project evaluations for example are methods that are applied in multiple other organisations as well. Although important for the adoption of the PCR, these methods of learning did not act as a main component in the adoption of the PCR. Learning from others and transferring knowledge on the contrary did play a vital and critical role in the adoption process of this instrument.

In terms of learning from others, it was found that cooperatives learned from each other through benchmarking and knowledge brokers, which facilitated expert groups and document sharing. These activities allowed cooperatives to use best practices which had proved to be successful in previous projects. Using the knowledge of experienced cooperatives, as well as using best practices and standard documents, enabled broad adoption of the instrument. These findings show the general importance of cooperation and external support in the adoption process of new policy instruments. Without these mechanisms, new users will have to find their own solutions to complexities while these have already been found by others, slowing down the rate of adoption. In terms of Transferring Knowledge, it was found that cooperatives transfer knowledge through events for (in)formal interaction, knowledge brokers and knowledge repositories. These approaches contributed to the adoption of the PCR since it enabled cooperatives to use best practices of others and avoid previously made mistakes. Instead of attempting to locate knowledge within their own cooperative and trying to invent the wheel by themselves, cooperatives were able to use a heterogeneous network of social and



material relationships that transcended and bypassed cooperative boundaries. This case study highlights the general importance of knowledge transfer within the adoption trajectory of new policy instruments. Similar to learning from others, it enables a higher rate of adoption since new users can benefit from the experience of others. It prevents each new user from having to figure out the proper way to use the instrument over and over again. Within the adoption trajectories of future policy instruments, extra attention and support should be given to the processes related to learning from others and the transfer of knowledge to enable a higher rate of adoption and to ease the overall usage of the instrument.

Based on this study, a few important lessons can be drawn for future research. First of all, this study has highlighted the importance of reviewing the architecture of horizontal networks in relation to policy and governance implementation. These networks prove to be vital in the adoption of non-optimal policy instruments and therefore deserve more attention in future policy implementation trajectories and deserve additional research on how to further improve their role in these processes. In addition, these networks play important roles both nationally and internationally. On a national level, these networks provide support for new cooperatives and provide a learning environment for the entire sector, but on an international level, these networks play an important role in the lobbying and negotiation process for improved regulations concerning renewable energy. They are therefore not only important to the Netherlands, but to the rest of Europe and the world as well. These networks, therefore, deserve additional attention to study whether and how they use their full lobbying potential to assist the overall energy transition.

In conclusion, this case study has shown that the design of a policy instrument plays a major role in the adoption trajectory of the respective instrument. The interesting dynamic of this case is the active network of cooperatives that is started due to the complex design of the PCR, a network that has proven to be vital in the adoption of the instrument. It was found that RECs employ a variety of approaches in the adoption of new policy instruments. Especially learning from others and the transfer of knowledge allowed cooperatives to build this network in which knowledge was being shared and transferred and in which cooperatives supported and learned from each other. The network of actors, that actively engaged with the PCR, has proven to be a critical component in its adoption. These user networks, therefore, deserve additional attention in future policy instrument implementation trajectories. Even when a policy instrument has not been designed in an optimal way to fit with the needs of its users, the network of actors and the overall experience within this network can still make it work.



7. Discussion

7.1. Discussion

This study contributes to the existing literature on policy adoption, by using Garvin's (1993) framework for OL to study how cooperatives learn to adopt new policy instruments that do not supply the required knowledge or support for its adoption. Previous research that focused on policy adoption tended to bypass the everyday politics of change and the experiences of working with these instruments as perceived by their targets and was additionally mainly focused on the supply dynamics of policy adoption (Blanchet, 2015; Meadowcroft, 2009; Pinker et al., 2020; Seyfang et al., 2013). Therefore, to the best of my knowledge, no previous studies have aimed to identify the specific mechanisms in the learning environment of RECs that contribute to the adoption of a new policy instrument. By studying the REC's, it was found that cooperatives do employ methods for organizational learning, however, improvements could be made. Cooperatives are aware of the need to professionalise in order to secure future operations, however, due to their structure of volunteers the time and resources are not always available to combine projects and professionalization processes. It was found that the major focus of cooperatives is put towards learning from others cooperation, which is beneficial to the efficiency and effectiveness of RECs in general.

This study has used the Five Building Blocks framework by Garvin (1993) to study the learning environment of local RECs. It was found that this framework is useful for studying the learning environment of RECs since it provides clear guidance on the important factors of building a learning organisation. Furthermore, this study has shown that this framework is not only suitable for larger organisations with well-defined business processes but can also be applied to study volunteer organisations that are less well structured.

Finally, this study has shown that RECs actively engage in the adoption of a new policy instrument that didn't directly supply the knowledge and support required by these same RECs. It was found that this mainly relates to the cooperation between cooperatives. Sharing of knowledge, documents, procedures and technical guidance have proven to be key factors in the adoption of a new policy instrument. Additionally, the struggles of LRECs highlight possible improvements for future policy instruments and shed a light on the experiences of working with new policy instruments from a users perspective. Even though cooperatives are only a single actor in the energy transition, their contribution to and knowledge regarding the transition is regarded as especially valuable. It is therefore recommended that RECs and governments consult each other more often to specifically identify the needs of RECs when it comes to policy instruments in order to improve their future adoption trajectories.

7.2. Limitations

For this study, several participants have been interviewed amongst a variety of cooperatives. However, some possibly interesting other actors have not been interviewed. Examples of these actors are a large energy provider such as Eneco or Greenchoice, which have played a major role in the overall development of the instrument, or the Dutch Tax Authorities which has been a key stakeholder in PCR-



projects. These actors could have provided additional information on the efforts of local cooperatives. The absence of these actors within the sample is regarded as a limitation to reach theoretical saturation. The main issue related to the absence of these actors is a primary focus on RECs and a limited period in which data could be collected. Additionally, one of the problems qualitative research faces is that it is difficult to establish how many samples need to be interviewed. It is near impossible to determine the exact number of participants necessary to reach theoretical saturation. Furthermore, the criteria used to recognise or established when or whether saturation has been achieved have rarely been articulated in detail. Specific guidelines used to determine non-probabilistic sample sizes are virtually non-existent. A total of nine interviews has been conducted and since there are 623 different cooperatives in the Netherlands alone, the representativeness of this study for the entire community of RECs is therefore questionable. It is debatable whether the findings of this study will hold for all RECs in the Netherlands, or even in other countries. The cooperatives within this study either knew each other or were connected through their adoption endeavours, which is often the case with cooperatives around the country, so one could argue that the learning practices of the cooperatives within this study will hold for others. In order to get a better understanding of this statement, additional future research could focus on the learning practices of other cooperatives in comparison to the cooperatives included in this study. In addition, the role of key participants such as energy providers and tax authorisations deserves extra attention and is recommended to be studied in future research projects.

Finally, this study focused on analysing the current practices related to OL, with the use of an originally prescriptive theory, which has not been created to be used as an analytical tool. It is thought that the theory has proven to be useful as a guiding principle within this study, however, to the best of my knowledge, this is the first time this theory has been used in such a manner. It might therefore be questionable if this analysis has been properly or not since the right theoretical guidance during this process has been missing. It is advised that future research should therefore focus on analysing and identifying whether the theory by Garvin (1993) is truly suitable to be used as a guiding framework in analytical studies.



References

- Akbar, H., & Mandurah, S. (2014). Project-conceptualisation in technological innovations: A knowledge-based perspective. *International Journal of Project Management*, 32(5), 759–772. <https://doi.org/10.1016/j.ijproman.2013.10.002>
- Alavi, M., & Leider, D. (1999). Knowledge management systems: emerging views and practices from the field. *Proceedings of the 32nd Annual Hawaii International Conference on Systems Sciences*. 1999. HICSS-32. Abstracts and CD-ROM of Full Papers, 7. <https://doi.org/10.1109/hicss.1999.772754>
- Argyris, C. (1976). Single-Loop and Double-Loop Models in Research on Decision Making. *Administrative Science Quarterly*, 21(3), 363. <https://doi.org/10.2307/2391848>
- Argyris, C. (1999). *On Organizational Learning* (2nd ed.). Wiley-Blackwell. <https://archive.org/details/onorganizational0000argy>
- Autoriteit Persoonsgegevens. (n.d.). *Mag u persoonsgegevens verwerken?* Retrieved 6 July 2021, from <https://autoriteitpersoonsgegevens.nl/nl/onderwerpen/algemene-informatie-avg/mag-u-persoonsgegevens-verwerken>
- Bakken, B., Gould, J., & Kim, D. (1992). Experimentation in learning organizations: A management flight simulator approach. *European Journal of Operational Research*, 59(1), 167–182. [https://doi.org/10.1016/0377-2217\(92\)90013-y](https://doi.org/10.1016/0377-2217(92)90013-y)
- Basten, D., & Haamann, T. (2018). Approaches for Organizational Learning: A Literature Review. *SAGE Open*, 8(3), 215824401879422. <https://doi.org/10.1177/2158244018794224>
- Bechberger, M., & Reiche, D. (2004). Renewable energy policy in Germany: pioneering and exemplary regulations. *Energy for Sustainable Development*, 8(1), 47–57. [https://doi.org/10.1016/s0973-0826\(08\)60390-7](https://doi.org/10.1016/s0973-0826(08)60390-7)
- Birk, A., Dingsoyr, T., & Stalhane, T. (2002). Postmortem: never leave a project without it. *IEEE Software*, 19(3), 43–45. <https://doi.org/10.1109/ms.2002.1003452>
- Blanchet, T. (2015). Struggle over energy transition in Berlin: How do grassroots initiatives affect local energy policy-making? *Energy Policy*, 78, 246–254. <https://doi.org/10.1016/j.enpol.2014.11.001>
- Bontis, N., Crossan, M. M., & Hulland, J. (2002). Managing An Organizational Learning System By Aligning Stocks and Flows. *Journal of Management Studies*, 39(4), 437–469. <https://doi.org/10.1111/1467-6486.t01-1-00299>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Bryman, A. (2016). *Social Research Methods* (5th ed.). Oxford University Press.
- Bryman, A., & Bell, E. (2011). *Business Research Methods by Bryman, Alan, Bell, Emma [Oxford University Press, USA,2011] [Paperback] 3RD EDITION* (3rd ed.). OUP, USA,2011 3RD EDITION. https://www.uwcentre.ac.cn/haut/wp-content/uploads/2018/11/Alan_Bryman_Emma_Bell_Business_Research_Methodsbook.cc.pdf
- Camp, R. C. (2006). *Benchmarking: The Search for Industry Best Practices that Lead to Superior Performance* (1st ed.). Productivity Press. <https://archive.org/details/benchmarkingsear00camp>



-
- CBS. (2020, September 30). *Hernieuwbare energie in Nederland 2019*. Hernieuwbare energie in Nederland 2019 | CBS. <https://longreads.cbs.nl/hernieuwbare-energie-in-nederland-2019/>
- Chau, T., Maurer, F., & Melnik, G. (2003). Knowledge sharing: agile methods vs. Tayloristic methods. *WET ICE 2003. Proceedings. Twelfth IEEE International Workshops on Enabling Technologies: Infrastructure for Collaborative Enterprises, 2003*. Published. <https://doi.org/10.1109/enabl.2003.1231427>
- Cheng, H., Niu, M. S., & Niu, K. H. (2014). Industrial cluster involvement, organizational learning, and organizational adaptation: an exploratory study in high technology industrial districts. *Journal of Knowledge Management, 18*(5), 971–990. <https://doi.org/10.1108/jkm-06-2014-0244>
- Cheng, N. (2009). Knowledge Sharing and Knowledge Broker of Organizations. *2009 Second International Conference on Future Information Technology and Management Engineering*. Published. <https://doi.org/10.1109/fitme.2009.54>
- Chiva, R., Ghauri, P., & Alegre, J. (2013). Organizational Learning, Innovation and Internationalization: A Complex System Model. *British Journal of Management, 25*(4), 687–705. <https://doi.org/10.1111/1467-8551.12026>
- Cillo, P. (2005). Fostering Market Knowledge Use in Innovation: *European Management Journal, 23*(4), 404–412. <https://doi.org/10.1016/j.emj.2005.06.008>
- Crossan, M. M., Lane, H. W., & White, R. E. (1999). An Organizational Learning Framework: From Intuition to Institution. *Academy of Management Review, 24*(3), 522–537. <https://doi.org/10.5465/amr.1999.2202135>
- de Gelderlander. (2013, September 14). Geen subsidie, wél andere regels. *De Gelderlander*. <https://advance-lexis-com.proxy.library.uu.nl/api/document?collection=news&id=urn:contentItem:59BS-S211-JC8W-Y1X4-00000-00&context=1516831>.
- Dinica, V. (2006). Support systems for the diffusion of renewable energy technologies—an investor perspective. *Energy Policy, 34*(4), 461–480. <https://doi.org/10.1016/j.enpol.2004.06.014>
- Dóci, G., & Gotchev, B. (2016). When energy policy meets community: Rethinking risk perceptions of renewable energy in Germany and the Netherlands. *Energy Research & Social Science, 22*, 26–35. <https://doi.org/10.1016/j.erss.2016.08.019>
- Easterby-Smith, M. (1997). Disciplines of Organizational Learning: Contributions and Critiques. *Human Relations, 50*(9), 1085–1113. <https://doi.org/10.1023/a:1016957817718>
- Elmusharaf, K. (2018). *QUALITATIVE SAMPLING TECHNIQUES* [Slides]. Graduate Entry Medical School. University of Limerick, Ireland. <https://www.gfmer.ch/SRH-Course-2018/research-methodology/pdf/Qualitative-sampling-techniques-Elmusharaf-2018.pdf>
- Energieopwek. (2021). *Energieopwek.nl - Inzicht in de actuele (near-realtime) opwekking van duurzame energie in Nederland*. <https://energieopwek.nl/>
- EnergieSamen. (n.d.). Postcoderoossubsidie SCE. Retrieved 10 July 2021, from <https://energiesamen.nu/pagina/39/postcoderoossubsidie-sce>
- European Commission. (n.d.). *Paris Agreement*. Climate Action - European Commission. Retrieved 3 June 2021, from https://ec.europa.eu/clima/policies/international/negotiations/paris_en
- Fitch-Roy, O. W., Benson, D., & Woodman, B. (2019). Policy Instrument Supply and Demand: How the Renewable Electricity Auction Took over the World. *Politics and Governance, 7*(1), 81–91. <https://doi.org/10.17645/pag.v7i1.1581>



- Garvin, D. A. (1993). Building a Learning Organization. *Harvard Business Review*.
<https://hbr.org/1993/07/building-a-learning-organization>
- Garvin, D. A. (2008). Is Yours a Learning Organization? *Harvard Business Review*.
<https://hbr.org/2008/03/is-yours-a-learning-organization>
- Geijp, J. (2013, November 16). Eneco lonkt naar het Noorden. *Dagblad van Het Noorden*.
<https://advance-lexis-com.proxy.library.uu.nl/api/document?collection=news&id=urn:contentItem:59V7-5D81-JC8W-Y0R4-00000-00&context=1516831>
- Goldthau, A. (2014). Rethinking the governance of energy infrastructure: Scale, decentralization and polycentrism. *Energy Research & Social Science*, 1, 134–140.
<https://doi.org/10.1016/j.erss.2014.02.009>
- Grashof, K. (2021). Who put the hammer in the toolbox? Explaining the emergence of renewable energy auctions as a globally dominant policy instrument. *Energy Research & Social Science*, 73, 101917. <https://doi.org/10.1016/j.erss.2021.101917>
- Greenchoice. (n.d.). *Wat is de Postcoderoosregeling?* Retrieved 6 July 2021, from
<https://www.greenchoice.nl/zelf-opwekken/postcoderoosregeling/>
- Hajer, M., Nilsson, M., Raworth, K., Bakker, P., Berkhout, F., de Boer, Y., Rockström, J., Ludwig, K., & Kok, M. (2015). Beyond Cockpit-ism: Four Insights to Enhance the Transformative Potential of the Sustainable Development Goals. *Sustainability*, 7(2), 1651–1660.
<https://doi.org/10.3390/su7021651>
- Hentschel, M., Ketter, W., & Collins, J. (2018). Renewable energy cooperatives: Facilitating the energy transition at the Port of Rotterdam. *Energy Policy*, 121, 61–69.
<https://doi.org/10.1016/j.enpol.2018.06.014>
- Hess, D. J., & Mai, Q. D. (2014). Renewable electricity policy in Asia: A qualitative comparative analysis of factors affecting sustainability transitions. *Environmental Innovation and Societal Transitions*, 12, 31–46. <https://doi.org/10.1016/j.eist.2014.04.001>
- het Financiële Dagblad. (2014, July 2). CDA pleit voor afschaffen omstreden ‘postcoderoos’ in Energieakkoord. *Het Financiële Dagblad*. <https://fd.nl/frontpage/economie-politiek/91462/cda-pleit-voor-wijziging-energieakkoord>
- HierOpgewekt. (2019). *Wat is een energiecoöperatie?* HIER. <https://www.hier.nu/themas/stroom-en-gas/wat-is-een-energiecooperatie>
- Hoffman, A. J. (2005). Climate Change Strategy: The Business Logic behind Voluntary Greenhouse Gas Reductions. *California Management Review*, 47(3), 21–46.
<https://doi.org/10.2307/41166305>
- Howlett, M. (2009). Governance modes, policy regimes and operational plans: A multi-level nested model of policy instrument choice and policy design. *Policy Sciences*, 42(1), 73–89.
<https://doi.org/10.1007/s11077-009-9079-1>
- Howlett, M. (2019). *Designing Public Policies: Principles and Instruments (Routledge Textbooks in Policy Studies)* (2nd ed.). Routledge. <https://www-taylorfrancis-com.proxy.library.uu.nl/books/mono/10.4324/9781315232003/designing-public-policies-michael-howlett>
- Howlett, M., & Mukherjee, I. (2017). Policy instrument constituencies. In *Handbook of Policy Formulation* (pp. 355–372). Edward Elgar Publishing. <https://www-elgaronline-com.proxy.library.uu.nl/view/edcoll/9781784719319/9781784719319.00031.xml>



-
- Huybrechts, B., & Mertens, S. (2014). The Relevance of the Cooperative Model in the Field of Renewable Energy. *Annals of Public and Cooperative Economics*, 85(2), 193–212.
<https://doi.org/10.1111/apce.12038>
- IPCC. (2001). *Climate Change 2001: The Scientific Basis*. Cambridge University Press.
https://www.ipcc.ch/site/assets/uploads/2018/03/WGI_TAR_full_report.pdf
- IPCC. (2007). *AR4 Climate Change 2007: Impacts, Adaptation, and Vulnerability*. Cambridge University Press. <https://www.ipcc.ch/report/ar4/wg2/>
- IPCC. (2013). *Climate Change 2013: The Physical Science Basis*. Cambridge University Press.
<https://www.ipcc.ch/report/ar5/wg1/>
- IPCC. (2021, August). *Climate Change 2021 The Physical Science Basis IPCC AR6 WGI*. Cambridge University Press.
https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf
- Jacobsson, S., & Lauber, V. (2006). The politics and policy of energy system transformation—explaining the German diffusion of renewable energy technology. *Energy Policy*, 34(3), 256–276. <https://doi.org/10.1016/j.enpol.2004.08.029>
- Jordan, A., & Huitema, D. (2014). Innovations in climate policy: the politics of invention, diffusion, and evaluation. *Environmental Politics*, 23(5), 715–734.
<https://doi.org/10.1080/09644016.2014.923614>
- Karim, N. S. A., & Hussein, R. (2008). Managers' perception of information management and the role of information and knowledge managers: The Malaysian perspectives. *International Journal of Information Management*, 28(2), 114–127.
<https://doi.org/10.1016/j.ijinfomgt.2007.08.003>
- Kers, B. (2016, December 9). Zonnepanelen ook voor huurders met laag inkomen. *Brabants Dagblad*.
<https://advance-lexis-com.proxy.library.uu.nl/api/document?collection=news&id=urn:contentItem:5MBV-FMY1-JC8X-60TK-00000-00&context=1516831>.
- Klimaatstichting Hier & RVO. (2021, February). *Lokale Energie Monitor 2020*.
https://www.hieropgewekt.nl/uploads/inline/Lokale%20Energie%20Monitor%202020_DEF_1_r_16-02.pdf
- Kujala, S. (2003). User involvement: A review of the benefits and challenges. *Behaviour & Information Technology*, 22(1), 1–16. <https://doi.org/10.1080/01449290301782>
- Kumar, K. (1989). *Conducting Key informant interviews in developing countries*.
https://www.participatorymethods.org/sites/participatorymethods.org/files/conducting%20key%20informant%20interviews_kumar.pdf
- Lascoumes, P., & le Gales, P. (2007). Introduction: Understanding Public Policy through Its Instruments? From the Nature of Instruments to the Sociology of Public Policy Instrumentation. *Governance*, 20(1), 1–21. <https://doi.org/10.1111/j.1468-0491.2007.00342.x>
- Lauber, V., & Mez, L. (2004). Three Decades of Renewable Electricity Policies in Germany. *Energy & Environment*, 15(4), 599–623. <https://doi.org/10.1260/0958305042259792>
- Levin, B. (2001). *Reforming Education*. Taylor & Francis.
[http://library.smaratungga.web.id/repository/\[Benjamin_Levin\]_Reforming_Education_From_Origins\(BookFi.org\).pdf](http://library.smaratungga.web.id/repository/[Benjamin_Levin]_Reforming_Education_From_Origins(BookFi.org).pdf)



- LexisNexis. (2021). *Nexis Uni*.
<https://login.proxy.library.uu.nl/login?url=https://advance.lexis.com%2fbisacademicresearchhome%3fcrid%3ddaa6cd5c8-ffc8-46ce-9736-4eb1a311d422%26pdmfid%3d1516831%26pdisurlapi%3dtrue>
- Loermans, J. (2002). Synergizing the learning organization and knowledge management. *Journal of Knowledge Management*, 6(3), 285–294. <https://doi.org/10.1108/13673270210434386>
- Makse, T., & Volden, C. (2011). The Role of Policy Attributes in the Diffusion of Innovations. *The Journal of Politics*, 73(1), 108–124. <https://doi.org/10.1017/s0022381610000903>
- Mariotti, F. (2012). Exploring Interorganizational Learning: a Review of the Literature and Future Directions. *Knowledge and Process Management*, 19(4), 215–221.
<https://doi.org/10.1002/kpm.1395>
- Martin, L. M., & Matlay, H. (2003). Innovative use of the Internet in established small firms: the impact of knowledge management and organisational learning in accessing new opportunities. *Qualitative Market Research: An International Journal*, 6(1), 18–26.
<https://doi.org/10.1108/13522750310457348>
- Meadowcroft, J. (2009). What about the politics? Sustainable development, transition management, and long term energy transitions. *Link Springer*, 323–340. <https://link-springer-com.proxy.library.uu.nl/article/10.1007/s11077-009-9097-z>
- Milieu Centraal. (2021). *Zonnepanelen: minder salderen, toch aantrekkelijk*.
https://www.milieucentraal.nl/energie-besparen/zonnepanelen/salderingsregeling-voorzonnepanelen/?gclid=EA1aIQobChMlk5zJ6d7p8QIVE5ayCh3CwQJuEAAYaAAEgKhX_D_BwE
- Mitchell, C., & Connor, P. (2004). Renewable energy policy in the UK 1990–2003. *Energy Policy*, 32(17), 1935–1947. <https://doi.org/10.1016/j.enpol.2004.03.016>
- Mulugetta, Y., Jackson, T., & van der Horst, D. (2010). Carbon reduction at community scale. *Energy Policy*, 38(12), 7541–7545. <https://doi.org/10.1016/j.enpol.2010.05.050>
- Nexis Uni*. (2021). Universiteit Utrecht. <https://www.uu.nl/en/university-library/help-in-searching/search-engines-explained/nexis-un>
- Nonaka, I. (1991). The Knowledge-Creating Company. *Harvard Business Review*.
<https://hbr.org/2007/07/the-knowledge-creating-company>
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic Analysis. *International Journal of Qualitative Methods*, 16(1), 160940691773384.
<https://doi.org/10.1177/1609406917733847>
- Oteman, M., Wiering, M., & Helderman, J. K. (2014). The institutional space of community initiatives for renewable energy: a comparative case study of the Netherlands, Germany and Denmark. *Energy, Sustainability and Society*, 4(1). <https://doi.org/10.1186/2192-0567-4-11>
- Pantry, S., & Griffiths, P. (2003). Librarians or Knowledge Managers? What's in a Name, or is there a Real Difference? *Business Information Review*, 20(2), 102–109.
<https://doi.org/10.1177/0266382103202011>
- Peck, J., & Theodore, N. (2010). Mobilizing policy: Models, methods, and mutations. *Geoforum*, 41(2), 169–174. <https://doi.org/10.1016/j.geoforum.2010.01.002>
- Persson, M. (2013, August 30). Harde afspraken die misschien toch net iets anders kunnen. *De Volkskrant*. <https://advance-lexis-com.proxy.library.uu.nl/api/document?collection=news&id=urn:contentItem:597J-K991-JC8W-Y063-00000-00&context=1516831>



-
- Pinker, A., Argüelles, L., Fischer, A., & Becker, S. (2020). Between straitjacket and possibility: Energy initiatives and the politics of regulation. *Geoforum*, 113, 14–25.
<https://doi.org/10.1016/j.geoforum.2020.04.016>
- Reed, M. S., Evely, A. C., Cundill, G., Fazey, I., Glass, J., Laing, A., Newig, J., Parrish, B., Prell, C., Raymond, C., & Stringer, L. C. (2010). What is Social Learning? *Ecology and Society*, 15(4).
<https://doi.org/10.5751/es-03564-1504r01>
- Rerup, C., & Levinthal, D. A. (2013). Situating the Concept of Organizational Mindfulness: The Multiple Dimensions of Organizational Learning. *CSR, Sustainability, Ethics & Governance*, 33–48. https://doi.org/10.1007/978-3-642-38694-7_3
- Salamon, L. M. (2002). *The Tools of Government: A Guide to the New Governance* (Illustrated ed.). Oxford University Press.
<https://ebookcentral.proquest.com/lib/uunl/detail.action?docID=729030>
- Schneider, K., von Hunnius, J. P., & Basili, V. (2002). Experience in implementing a learning software organization. *IEEE Software*, 19(3), 46–49. <https://doi.org/10.1109/ms.2002.1003453>
- Seyfang, G., Park, J. J., & Smith, A. (2013). A thousand flowers blooming? An examination of community energy in the UK. *Energy Policy*, 61, 977–989.
<https://doi.org/10.1016/j.enpol.2013.06.030>
- Simons, A., & Voß, J. P. (2017). The concept of instrument constituencies: accounting for dynamics and practices of knowing governance. *Policy and Society*, 37(1), 14–35.
<https://doi.org/10.1080/14494035.2017.1375248>
- Tadayon Nabavi, R. (2012). Bandura's Social Learning Theory & Social Cognitive Learning Theory. *ResearchGate*. Published.
https://www.researchgate.net/publication/267750204_Bandura%27s_Social_Learning_Theory_Social_Cognitive_Learning_Theory
- Taylor, G. S., Templeton, G. F., & Baker, L. T. (2010). Factors Influencing the Success of Organizational Learning Implementation: A Policy Facet Perspective. *International Journal of Management Reviews*, 12(4), 353–364. <https://doi.org/10.1111/j.1468-2370.2009.00268.x>
- United Nations. (2020). *THE 17 GOALS / Sustainable Development*. <https://sdgs.un.org/goals>
- U.S. Energy. Information Administration. (2016). *International Energy Outlook 2016*.
[https://www.eia.gov/outlooks/ieo/pdf/0484\(2016\).pdf](https://www.eia.gov/outlooks/ieo/pdf/0484(2016).pdf)
- Valentine, S. V. (2011). Emerging symbiosis: Renewable energy and energy security. *Renewable and Sustainable Energy Reviews*, 15(9), 4572–4578. <https://doi.org/10.1016/j.rser.2011.07.095>
- van der Heijden, J. (2014). *Governance for Urban Sustainability and Resilience: Responding to Climate Change and the Relevance of the Built Environment*. Edward Elgar Publishing.
<https://doi.org/10.4337/9781782548133>
- van Reenen, H. (2020, July 28). Zonnepanelen in Ermelo krijgen stroom niet teruggeleverd, Liander voorspelt landelijk probleem. *De Stentor*. <https://www.destentor.nl/ermelo/zonnepanelen-in-ermelo-krijgen-stroom-niet-teruggeleverd-liander-voorspelt-landelijk-probleem~a8c3bc22/?referrer=https%3A%2F%2Fwww.google.com%2F>
- van Zoelen, B. (2015, May 11). Regels voor zonnepaneel in binnenstad versoepeld. *Het Parool*.
<https://advance-lexis-com.proxy.library.uu.nl/api/document?collection=news&id=urn:contentItem:5FYM-G0Y1-JC8W-Y52Y-00000-00&context=1516831>.



-
- Vera, D., & Crossan, M. (2004). Strategic Leadership and Organizational Learning. *The Academy of Management Review*, 29(2), 222. <https://doi.org/10.2307/20159030>
- Voß, J. P. (2007). Innovation processes in governance: the development of 'emissions trading' as a new policy instrument. *Science and Public Policy*, 34(5), 329–343.
<https://doi.org/10.3152/030234207x228584>
- Voß, J. P., & Simons, A. (2014). Instrument constituencies and the supply side of policy innovation: the social life of emissions trading. *Environmental Politics*, 23(5), 735–754.
<https://doi.org/10.1080/09644016.2014.923625>
- Walker, G. (2008). What are the barriers and incentives for community-owned means of energy production and use? *Energy Policy*, 36(12), 4401–4405.
<https://doi.org/10.1016/j.enpol.2008.09.032>
- Walker, G., Hunter, S., Devine-Wright, P., Evans, B., & Fay, H. (2007). Harnessing Community Energies: Explaining and Evaluating Community-Based Localism in Renewable Energy Policy in the UK. *Global Environmental Politics*, 7(2), 64–82.
<https://doi.org/10.1162/glep.2007.7.2.64>
- Wang, C. L., & Ahmed, P. K. (2003). Organisational learning: a critical review. *The Learning Organization*, 10(1), 8–17. <https://doi.org/10.1108/09696470310457469>
- West, J., & Iansiti, M. (2003). Experience, experimentation, and the accumulation of knowledge: the evolution of R&D in the semiconductor industry. *Research Policy*, 32(5), 809–825.
[https://doi.org/10.1016/s0048-7333\(02\)00090-2](https://doi.org/10.1016/s0048-7333(02)00090-2)
- Wolsink, M. (2012). The research agenda on social acceptance of distributed generation in smart grids: Renewable as common pool resources. *Renewable and Sustainable Energy Reviews*, 16(1), 822–835. <https://doi.org/10.1016/j.rser.2011.09.006>
- Wu, I. L., & Chen, J. L. (2014). Knowledge management driven firm performance: the roles of business process capabilities and organizational learning. *Journal of Knowledge Management*, 18(6), 1141–1164. <https://doi.org/10.1108/jkm-05-2014-0192>
- Zon op Oirshot. (n.d.). *Uitleg postcoderoosregeling*. Retrieved 10 July 2021, from
https://www.zonopoorschot.nl/?page_id=164



Appendices

Appendix A: Informed Consent Form



Utrecht University

INFORMED CONSENT FORM for participation in:

Title

To be completed by the participant:

I confirm that:

- I am satisfied with the received information about the research;
- I have been given opportunity to ask questions about the research and that any questions that have been risen have been answered satisfactorily;
- I had the opportunity to think carefully about participating in the study;
- I will give an honest answer to the questions asked.

I agree that:

- the data to be collected will be obtained and stored for scientific purposes; the collected, completely anonymous, research data can be shared and re-used by scientists to answer other research questions;
- video and/or audio recordings may also be used for scientific purposes.

I understand that:

- I have the right to withdraw my consent to use the data;
- I have the right to see the research report afterwards.

Name of participant : _____

Signature: _____ Date, place: ____ / ____ / ____, _____

To be completed by the investigator:

I declare that I have explained the above mentioned participant what participation means and the reasons for data collection.

I guarantee the privacy of the data.

Name: _____

Date: ____ / ____ / ____ (dd/mm/yyyy)

Signature: _____



Appendix B: Interview Guide

This interview guide has been drafted as a supportive tool for the semi-structured interviews. Stated below are a variety of questions related to the topic of organisational learning within energy cooperatives. It is to be noted that these questions are not definitive and that it is likely that during the interviews other questions may arise.

Introduction

- Ask participant whether he or she is comfortable with the setting of the interview
- Provide an introduction of myself and the purpose of this interview
 - o Name
 - o Study
 - o Research = *The learning mechanisms within energy cooperatives*
 - o Purpose = *Gain general insights into the learning mechanisms used within energy cooperatives to grow and become more adapted to the policy instruments governing them. A better understanding of the learning mechanisms may help identify how desired outcomes can be better reached in the future.*
- Ask whether you may record this interview to properly process it afterwards.
- Indicate how in the end this interview will be transcribed and the participant may see this transcript
- Indicate that the participant will remain anonymous unless he or she prefers to be named
- Indicate that after the interview the participant will receive an *Informed Consent Form*
- Ask whether you may use quotes from the transcript for in the report itself
- Start recording
- Ask the participant to give a short introduction about him- or herself (Name, Age, function in the organisation and what this function entails)

The Cooperative director of EnergieSamen posted a tweet on March 31 in which he speaks about the period between the introduction and the withdrawal of the postcoderoos. He talks about complexity, improved collaboration and innovative solutions. He closes with a positive balance. These are exactly the 4 points I want to talk to you about. Which complexities were there, how has collaboration improved as a result of these complexities and what ultimately lead to the positive balance?

Questions

- What is the postcoderoos instrument and why was it started?
- Could you tell me about the development of the instrument? Has the instrument changed over the years?
- What could you tell me about the complexity of the PCR?
- Would you say the complexity of the instrument promoted/or aided cooperation between cooperatives?
- What could you tell me about innovative solutions regarding the instrument?
- According to you, what are the biggest strengths of the instrument?
- According to you, what have been the biggest problems regarding the instrument?
- What do you think is the explanation for the success of the instrument?
- What have been key moments when it comes to the success of the postcode rose?
- Are there examples of how cooperatives professionalize?

When we take a look at organizational learning within the cooperative:

- What could you tell me about cooperation between cooperatives?
- What do you consider as vulnerabilities to cooperatives?



- Does the cooperative host or organize informal events?
 - What is the main purpose of these meetings?
 - What kind of situations or things are discussed in these meetings?
- Could you elaborate on the different functions or “jobs” within the cooperative?
 - Do people rotate functions or do they stay in the same function for a longer period?
- Do you have members within the cooperative, who have a specific skill that could be useful to the cooperative?
 - Do others also know about this person?
 - Are his or her skills recorded in some way so this is also available to others?
- What could you tell me about knowledge transfer within the cooperative or between cooperatives?
- Do you share information or documents with other cooperatives?
- To what extent do you execute project evaluations?
- To what extend is standardization important for the cooperative?
- To extend do you employ other methods of learning of knowledge transfer?
 - General assembly of members
 - Newsletter
 - Take part in webinars
 - Expert groups
 - Expert debriefing
- To what extent do you test or experiment with new processes?
 - Through communities of practice for example?
 - Or in project groups?
- How do you, as a cooperative, acquire the information you needed regarding the PCR?
- Do you have special teams or groups within the cooperative, who handle specific situations?
- Does the cooperative store documents concerning previous projects?
 - For example memo's, final results etc?
 - In what way are these documents stored?
- Does the cooperative have meetings in which projects which have ended are discussed or in which the progress of current projects is being discussed?
 - Could you elaborate?

The questions stated above serve as reference questions and are not to be considered the only questions for this interview. Based on the given answers, we will continue talking about the subject regarding learning from and in cooperation with others, learning from past experiences, experimentation and the transfer of knowledge

Closing questions:

- Are there still some things you believe are worth mentioning?
- Do you have any other questions or comments?
- If I still have some questions afterwards, can I then contact you?
- Do you know someone that would be interesting for me to speak to?
 - Are you willing to share the contact information of these people?
- Remind them to fill in the informed consent form.
- Remind them you will be in touch for the transcript.
- Ask the participant to sign the informed consent form.
- Do you know other individuals who might be interesting to interview?
- Thank participant



Appendix C: Timeline PCR

Newspapers

2013	Search range:	01-01-2013	31-12-2013
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	14	Sources:	de Volkskrant 4 Trouw 2 Boerderij Vandaag 1 Dagblad van het Noorden 1 De Gelderlander 1 De Stentor 1 Leeuwarder Courant 1 Nederlands Dagblad 1 NRC Handelsblad 1 Reformatorisch Dagblad 1
Nr items	topic		
1	New projects		
3	Project terminated due to postcoderoos		
3	Criticism on postcoderoos		
	Major event/change		
1	What is the postcoderoos?		
5	Others		
Newspaper	Date	Message	
De Volkskrant, de Gelderlander,	30-08-2013 / 04-09-2013 / 24-09-2013	Even before, or shortly after the introduction of the postcoderoos, questions arise about the workability and fairness of the arrangement.	
Dagblad van het Noorden	16-11-2013	Eneco CEO calls for extending the range of the Postcoderoos to allow as many people as possible to profit from the arrangement	
De Volkskrant,	28-11-2013 / 29-11-2013	Energiepark De Brem in Gennep was supposed to become the largest solar park in the Netherlands, but due to the administrative rules of the postcoderoos, it is no longer viable.	

2014	Search range:	01-01-2014	31-12-2014
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	26	Sources:	Dagblad van het Noorden 4 Het Financieele Dagblad 3 Noordhollands Dagblad3 Trouw 3 Cobouw2 de Volkskrant 2 AD/Rivierenland 1 Dagblad De Limburger 1 De Stentor 1 De Twentsche Courant Tubantia 1 Huis-aan-huiskranten de Persgroep 1 Leeuwarder Courant 1 Leidsch Dagblad 1



			Provinciale Zeeuwse Courant 1 Reformatorisch Dagblad 1
Nr items	topic		
7	New projects		
3	Project terminated due to postcoderoos		
3	Criticism on postcoderoos		
4	Major event/change		
3	What is the postcoderoos?		
6	Others		
Newspaper	Date	Message	
Dagblad van het Noorden Noordhollands dagblad	21-02-2014 / 19-03-2014	Limited scope of the Postcoderoos prevents the realisation of the collective zonneweide Meerstad Noord and the solarcampus in de Baanste-Noord	
De Volkskrant, Cobouw	26-04-2014 / 30-04-2014	<p>Despite being one of the showpieces of the latest energy accord, the postcoderoos regeling faces a lot of disaffection. The instrument is way too bureaucratic and requires a lot of administrative and financial effort</p> <p>The actions of the government to support local initiatives for collective solar energy are so complicated that they only hinder those initiatives. This was said during the conference 'the Solar Future NL'. (Cobouw)</p>	
Het financieel dagblad	02-07-2014	<p>The Dutch political party CDA argues for the abolition of the postcoderoos-regeling due to its complex nature.</p> <p>VVD, PvdA and D66 the rules around the instrument to be less strict</p>	
Het financieel dagblad Trouw	03-07-2014 / 04-09-2014	Minister Henk Kamp of Economic Affairs will review and improve the rules for stimulating solar energy.	
Het financieel dagblad Leeuwarder courant	27-10-2014 / 30-10-2014	<p>The Tax and Customs Administration does not give a VAT benefit to local residents who want to generate solar energy jointly. This makes these joint initiatives less attractive, which may lead to the objectives of the Energy Agreement not being achieved. The TV program EenVandaag reported this last Saturday.</p> <p>People who themselves do not have suitable roofs for solar panels can make use of the so-called 'postcode rose scheme' together with local residents.</p> <p>In order to make the projects profitable, a VAT benefit is necessary in addition to a discount on energy tax. That advantage now appears not to be given by the tax authorities.</p>	

2015	Search range:	01-01-2015	31-12-2015
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	29	Sources:	Huis-aan-huiskranten de Persgroep 6 Dagblad van het Noorden 4 Noordhollands Dagblad 4 Eindhovens Dagblad 3



			Cobouw 2 De Twentsche Courant Tubantia 2 de Volkskrant 2 Het Financieele Dagblad 2 Het Parool 2 AD/Amersfoortse Courant 1 Dagblad De Limburger 1
Nr items	topic		
17	New projects		
	Project terminated due to postcoderoos		
3	Criticism on postcoderoos		
2	Major event/change		
1	What is the postcoderoos?		
5	Others		
Newspaper	Date	Message	
Dagblad de Limburger	17-03-2015	Sustainability expert Anne Marieke Schwencke criticizes the postcoderoos arrangement. According to her all the fuss around the instrument fits within a pattern. There is huge enthusiasm to start solar projects however, initiators are limited from all sides.	
Het Parool Cobouw	11-05-2015 / 21-05-2015	Amsterdam starts a hotline (meldpunt) to report rules that prevent Amsterdammers from making sustainable investments, so-called 'vieze regels' such as the postcoderoos. (het parool)	

2016	Search range:	01-01-2016	31-12-2016
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	58	Sources:	De Twentsche Courant Tubantia 11 Huis-aan-huiskranten de Persgroep 10 Dagblad van het Noorden 9 De Gelderlander 5 De Stentor 5 BN/DeStem 4 Noordhollands Dagblad 3 Brabants Dagblad 2 Dagblad De Limburger 2 AD/Utrechts Nieuwsblad 1 Cobouw 1 Eindhovens Dagblad 1 Het Parool 1 Leeuwarder Courant 1 NRC 1 Provinciale Zeeuwse Courant 1
Nr items	topic		
36	New projects		
	Project terminated due to postcoderoos		
1	Criticism on postcoderoos		
1	Major event/change		



	What is the postcoderoos?	
20	Others	
Newspaper	Date	Message
De Gelderlander Huis-aan-huiskranten de Persgroep	04-01-2016/ 07-01-2016/ 06-10-2016	Several cities have started information gathering regarding the postcoderoos and its related projects.
Brabants Dagblad	09-12-2016	Housing corporation Cascade will make it possible for people with a limited budget to also participate in the solar panel project 'Green is easy to do'. With a payment scheme of a few euros per month, tenants from the municipalities of Waalwijk, Dongen and Loon op Zand with limited funds can still partly benefit from tax benefits and the yield of the solar park.

2017	Search range:	01-01-2017	31-12-2017
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	68	Sources:	Huis-aan-huiskranten de Persgroep 17 Provinciale Zeeuwse Courant 8 BN/DeStem 7 Brabants Dagblad 6 De Gelderlander 6 De Twentsche Courant Tubantia 5 De Stentor 4 Boerderij Vandaag 3 Dagblad van het Noorden 3 AD/Utrechts Nieuwsblad 2 Noordhollands Dagblad 2 Dagblad De Limburger 1 Eindhovens Dagblad 1 Leeuwarder Courant 1 Leidsch Dagblad 1 Metro (NL) 1
Nr items	topic		
39	New projects		
1	Project terminated due to postcoderoos		
3	Criticism on postcoderoos		
6	Major event/change		
4	What is the postcoderoos?		
15	Others		
Newspaper	Date	Message	
BN/destem Provinciale zeeuwse courant	25-04-2017	Dutch Political party D66 has criticized on its coalition partners. According to them they refusing to any agreement and are delaying every proposal regarding project support in West-Zeeuws-Vlaanderen (BN/destem, Provinciale zeeuwse courant)	
Noordhollands dagblad Provinciale zeeuwse courant	20-01-2017/ 13-06-2017/ 04-07-2017	Several cities have started information gathering regarding the postcoderoos and its related projects.	



BN/destem		
Boederij Vandaag	15-07-2017 / 19-07-2017/ 22-07-2017	In addition to the government subsidy, some provinces have started their own regulations to encourage postcoderoos projects in combination with the remediation of for example asbestos. The approach differs per province. New (subsidy) schemes have been introduced in some provinces, while no additional incentive measures exist elsewhere.
De Stentor Provinciale zeeuwse courant Huis-Aan-huis	26-06-2017 / 09-10-2017 / 21-11-2017	instead of focussing postcoderoos project solely on solar energy, several cooperations and cities are investigating the possibilities for using the postcoderoos in hydro powerplant projects

2018	Search range:	01-01-2018	31-12-2018
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	81	Sources:	Huis-aan-huiskranten de Persgroep 22 BN/DeStem 7 Brabants Dagblad 7 Leeuwarder Courant 7 De Stentor 5 De Twentsche Courant Tubantia 5 De Gelderlander 4 Provinciale Zeeuwse Courant 4 AD/Rotterdams Dagblad 3 Dagblad De Limburger 3 Dagblad van het Noorden 3 De Gooi- en Eemlander 2 de Volkskrant 2 AD/Groene Hart 1 AD/Rivierenland 1 AD/Utrechts Nieuwsblad 1 Eindhovens Dagblad 1 Haarlems Dagblad 1 Het Parool 1 Metro (NL) 1
Nr items	topic		
54	New projects		
1	Project terminated due to postcoderoos		
3	Criticism on postcoderoos		
	Major event/change		
4	What is the postcoderoos?		
19	Others		

2019	Search range:	01-01-2019	31-12-2019
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	64	Sources:	Huis-aan-huiskranten de Persgroep 21



			De Stentor 7 AD/Rotterdams Dagblad 5 Noordhollands Dagblad 5 Brabants Dagblad 3 Dagblad van het Noorden 3 De Twentsche Courant Tubantia 3 Eindhovens Dagblad 3 Leeuwarder Courant 3 Provinciale Zeeuwse Courant 3 Dagblad De Limburger 2 AD/Amersfoortse Courant 1 de Volkskrant 1 Haarlems Dagblad 1 Leidsch Dagblad 1 NRC Handelsblad 1 Reformatorisch Dagblad 1
Nr items	topic		
42	New projects		
	Project terminated due to postcoderoos		
	Criticism on postcoderoos		
	Major event/change		
8	What is the postcoderoos?		
13	Others		

2020	Search range:	01-01-2020	31-12-2020
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	47	Sources:	De Twentsche Courant Tubantia 10 De Stentor 6 Huis-aan-huiskranten de Persgroep 5 BN/DeStem 4 Dagblad van het Noorden 4 Provinciale Zeeuwse Courant 4 Eindhovens Dagblad 3 Dagblad De Limburger 2 Nieuwe Oogst 2 AD/Groene Hart 1 AD/Utrechts Nieuwsblad 1 Boerderij Vandaag 1 De Gelderlander 1 Leeuwarder Courant 1 Noordhollands Dagblad 1 NRC 1
Nr items	topic		
35	New projects		
3	Project terminated due to postcoderoos		
	Criticism on postcoderoos		
1	Major event/change		



	What is the postcoderoos?	
7	Others	
Newspaper	Date	Message
De stentor	28-07-2020	Almost 7 years after the introduction of the postcoderoos, the Dutch energy grid is still not adapted to the peak voltage of solar panels. This results in panels not being able to feed electricity back into the net.

2021	Search range:	01-01-2021	31-03-2021
Search term:	Postcoderoos (in newspapers)		
Nr. Mentions:	11	Sources:	De Twentsche Courant Tubantia 3 Huis-aan-huiskranten de Persgroep 3 AD/Amersfoortse Courant 1 Brabants Dagblad 1 Eindhovens Dagblad 1 Nieuwe Oogst 1 Noordhollands Dagblad 1
Nr items	topic		
7	New projects		
	Project terminated due to postcoderoos		
	Criticism on postcoderoos		
	Major event/change		
	What is the postcoderoos?		
4	Others		

Magazines, Journals & Press releases

2013-2021	Search range:	01-01-2013	31-03-2021
Search term:	Postcoderoos (in magazines & journals & press releases)		
Nr. Mentions:	15	Sources:	Impact News Service 9 Boerderij 3 Energieia 1 Global English (the Middle East and North Africa Financial Network) 1 Groenten en Fruit 1
Nr items	topic		
	New projects		
1	Project terminated due to postcoderoos		
	Criticism on postcoderoos		
3	Major event/change		
	What is the postcoderoos?		
11	Others		
Magazine	Date	Message	
Boerderij	24-06-2014	Research has been done into the possibilities of Boerburgercoöperaties, in which farmers provide space for solar panels, and in return, they receive a green image and compensation.	



Groenten en fruit	25-07-2014	As of January 1 st 2015, small entrepreneurs are allowed to join the energy cooperations
Energeia	11-10-2017	Nuon is now fully cooperating with customers who wish to generate electricity themselves via the postcode rose scheme and who wish to settle the energy tax refund via the energy supplier. Large energy suppliers, in particular, have so far been reluctant to facilitate this scheme. In addition to Nuon, Essent has also announced that it will review its position and make use of the scheme possible in the future.

Major World Publications

2013-2021	Search range:	01-01-2013	31-03-2021
Search term:	Postcoderoos (in Major World Publications)		
Nr. Mentions:	5	Sources:	Het Financieel Dagblad 5
Nr items	topic		
	New projects		
	Project terminated due to postcoderoos		
	Criticism on postcoderoos		
	Major event/change		
	What is the postcoderoos?		
	Others		
Publication	Date	Message	
Het financieel dagblad	02-07-2014	The Dutch political party CDA argues for the abolition of the postcoderoos-regeling due to its complex nature. VVD, PvdA and D66 the rules around the instrument to be less strict	
Het financieel dagblad	03-07-2014	Minister Henk Kamp of Economic Affairs will review and improve the rules for stimulating solar energy.	
Het financieel dagblad	22-10-2015	According to Eurostat data, the Netherlands is at the bottom of the list with only 4.5% renewable energy. Only Malta and Luxembourg are doing worse, while leader Sweden already generates 52.1% of total energy consumption sustainably. To make matters worse, we have to adjust our expectations: we are not going to achieve the already very modest 14% in 2020, as laid down in the unambitious 2013 National Energy Agreement. No wonder. The Netherlands leaves innovation bogged down in a capricious forest of incomprehensible rules. For example, you have the 'postcode rose', a curious fabrication that ensures that local energy supplies only yield tax rebates within the four-digit postcode and surrounding areas. How do you get it made up?	
Het financieel dagblad	27-10-2014	The Tax and Customs Administration does not give a VAT benefit to local residents who want to generate solar energy jointly. This makes these joint initiatives less attractive, which may lead to the objectives of the Energy Agreement not being achieved. The TV program EenVandaag reported this last Saturday.	



		<p>People who themselves do not have suitable roofs for solar panels can make use of the so-called 'postcode rose scheme' together with local residents.</p> <p>In order to make the projects profitable, a VAT benefit is necessary in addition to a discount on energy tax. That advantage now appears not to be given by the tax authorities.</p>
--	--	--