



Universiteit Utrecht

Copernicus Institute of Sustainable Development

MSc. Sustainable Development

Earth System Governance

The Effect of Community Renewable Energy on Political Power

A case study of discursive power in the
net-metering policy arena in the Netherlands

POWERSHIFTS

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Abstract

In many countries, the energy transition is partly driven by distributed renewable energy (DRE) of which a growing component is community renewable energy (CRE). Often the efforts of new entrants in a policy arena are opposed by large, resource-rich incumbent actors. This can hinder the energy transition. As the amount of CRE grows, their potential to influence the political power dynamics in the energy policy arena also grows. This also occurs in terms of discursive power, which is increasingly recognized as a key dimension of power in transitions. Previous work has not investigated the potential effects of increasing CRE. This study combined power theory, discourse theory and the Advocacy Coalition Framework in an empirical discourse analysis case study of the Dutch net-metering policy arena between January 2000 and April 2018. In total 406 textual data sources were derived from Scopus (6), LexisNexis (398) and a hand search (11), using a structured data collection approach. This set of data sources was used to identify discourses and mainly consisted of newspaper articles, magazine articles, scientific articles and government reports. For each discourse the core argument, underlying policy core beliefs, actors and collective efforts were identified. These findings were then used to determine the ability of the discourses to affect the policy making process, i.e. the level of discursive power. The most prevalent discourses were “keep policies consistent” and “make solar PV financially viable”. The most common policy core beliefs were “long-term policy planning”, “active government support” and “energy security”. CRE Actors were associated with 7 of the 11 discourses and were found to have 9 of the 13 policy core beliefs. CRE actors thus actively participated in the policy arena by supporting discourses and participating in collective efforts. However, they cannot be related to any specific policy changes nor did they substantially influence the net-metering policy arena. If CRE further grows, they might be able to sustain their increase in discursive power and transfer it to other dimensions of power, such as structural or instrumental power. If this occurs they are likely to become more influential. This study also revealed unexploited common ground between CRE actors and other actors by revealing shared discourses and policy core beliefs.

Acknowledgements

There are a number of persons that deserve to be acknowledged for enabling me to write this Master Thesis. In the first place, I would like to sincerely thank Dr. M.C. Brisbois, Principal Investigator of the POWERSHIFTS project. She has provided me with incredibly valuable written and face-to-face feedback that has allowed me to remain critical on myself and my work. Without her time dedication, enriching insights and support, this thesis would not have reached its current form. Furthermore, I would like to thank my girlfriend, parents and friends for reviewing my Master thesis.

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List of abbreviations

ACF	Advocacy Coalition Framework
CRE	Community renewable energy
DRE	Distributed renewable energy
EC	European Commission
EU	European Union
GDP	Gross Domestic Product
NVDE	Nederlandse Vereniging Duurzame Energie
PV	Photo voltaic
RE	Renewable energy
SDE	Stimulerend Duurzame Energieproductie

1. Introduction

Pressure on the environment and energy insecurity are some of the key factors driving a shift from fossil fuel energy (e.g., oil, coal) to renewable energy (e.g., wind, solar). The shift is known as the energy transition and encompasses a change in both technological and social practices (Mallett, 2017; Rosenbloom, Berton, & Meadowcroft, 2016). The transition is partly driven by Distributed Renewable Energy (DRE) which, in a number of European Union (EU) countries, is driven by a growing component of Community Renewable Energy (CRE). CRE can be defined as: “*formal or informal citizen-led initiatives which propose collaborative solutions on a local basis to facilitate the development of sustainable energy technologies*” (Bauwens, Gotchev, & Holstenkamp, 2016, p. 136). CRE possesses unique characteristics that distinguish it from other types of energy provision (Hicks & Ison, 2018). One of these distinguishing characteristics is that they are initiated, operated and owned by local people rather than corporate companies. Furthermore, even though the ownership model varies per project, they almost always provide benefits (e.g. money, jobs, knowledge) to local community members (Angel, 2016; Berka & Creamer, 2018; Rogers, Simmons, Convery, & Weatherhall, 2008; Walker & Devine-Wright, 2008). In recent years, CRE has seen an increase and is starting to take an important role in the energy transition (Bauwens et al., 2016).

CRE has already been the topic of a significant amount of literature including from perspectives such as transition theory (e.g. Verbong & Geels, 2007) and political science (e.g. Goldthau, 2014; Jacobsson & Lauber, 2006). It has also been examined which factors drive and inhibit the development of these CRE initiatives (e.g. Bauwens, Gotchev, & Holstenkamp, 2016; Boon & Dieperink, 2014). One relevant inhibiting factor is the presence of a democratic deficit in the formal policy making process (Steffek, 2003; Wüstenhagen, Wolsink, & Bürer, 2007). This refers to a situation in which not all stakeholders are equally represented. In this situation, resource rich actors tend to have a disproportionately large influence over the policy making process (Angel, 2016). Similarly, the incumbent actors (i.e. actors that have a central role in the system, often for a longer period of time) are often more influential because they are privileged by their dominant position in the system (Avelino & Rotmans, 2009; Heiskanen, Apajalahti, Matschoss, & Lovio, 2018). This democratic deficit is also encountered in studies taking a political science perspective. Large economic actors are argued to have privileged access to decision makers due to their regulated position. In addition, their economic importance facilitates easier access to decision makers (Fuchs,

2007). Their access to financial resources facilitates campaigning, lobbying or research funding, which all allows the interests of dominant economic actors to become more institutionalized in the system (Clapp & Meckling, 2013).

These privileges often limit the extent to which resource-poor or new actors can have their voices heard during the policy making process, as they might be excluded or their interests might not be on the agenda. The democratic deficit is thus also encountered in the studies that focus on the interaction between CRE actors and the broader institutional system (e.g. Kooij et al., 2018). In the energy policy arena, centralized corporate companies are usually resource rich and tend to have more power over the decision making process (Heiskanen et al., 2018). In contrast, CRE actors are often new to the system and not resource rich, which makes it hard for them to compete with the incumbent actors (Bell, Gray, Haggett, & Swaffield, 2013).

The recent growth of CRE has the potential to alter this democratic deficit in the energy policy arena by affecting the political power distribution. The increasing share of CRE in the energy system will provide CRE actors with a larger responsibility, which makes them more important to be considered in the decision making process (Szulecki, 2018). Furthermore, as the amount of CRE grows, the potential for CRE actors to collaborate and bundle financial and non-financial resources, such as knowledge, increases. By doing so, they can become more politically effective (Kooij et al., 2018; Young & Brans, 2017). Moreover, collaborating provides resources to conduct research that generates new empirical knowledge which could induce policy change (Jenkins-Smith, Nohrstedt, Weible, & Sabatier, 2015; Kooij et al., 2018).

These collective efforts of CRE actors can take place by creating coalitions. While each CRE actor focuses on their own renewable energy project, they often also agree on a broader set of principles, or a “discourse” (Hess, 2018). In this study, a discourse can be defined as: *“an ensemble of ideas, concepts, and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices”* (M. A. Hajer, 2005, p. 303). A discourse can provide common ground between actors that is needed to form a coalition. Such a discourse coalition can be defined as: *“a group of actors that, in the context of an identifiable set of practices, shares the usage of a particular set of story lines over a particular period of time.”* (M. A. Hajer, 2005, p. 302). For example, when considering a wind project in a rural area and a solar project in an urban area,

there are two different end goals. A uniting principle could be that both CRE actors would like to become independent from large energy companies. There is thus an important role for discourses and discourse coalitions in determining the political power of CRE actors in the energy arena (Bosman, Loorbach, Frantzeskaki, & Pistorius, 2014).

Only recently, literature has started to discuss the role of discourses, coalitions and political power of CRE actors in the energy policy arena. For example, Burke and Stephens (2017) studied political power and renewable energy futures, and focused specifically on how political power is affected by DRE. One identified knowledge gap is the effect of the increasing amount of CRE on the political power distribution in the energy policy arena (Brisbois, 2018). Specifically, little is known about how CRE discourses and coalitions are affecting political power in the current energy system (Munoz, Huijben, Verhees, & Verbong, 2014; Smith & Kern, 2009). Moreover, if changes in political power are taking place, there is insufficient knowledge on what causes these shifts, what impacts they have on the future energy policy arena and what role discourses play in this (Brisbois, 2018). This research aims to fill this knowledge gap by conducting empirical research through a discourse analysis case study in order to build understanding of the effect of CRE on political power dynamics in the energy policy arena. Doing so will enable critical reflection on previous work, as well as contribute to new findings.

In the in-depth case study that this study uses the focus is the net-metering policy arena in the Netherlands between 2000 and April 2018. The Netherlands has been chosen for two reasons. First, according to the 2017 progress report by the European Commission (EC), the Netherlands is the only country not on track to reach their 2020 renewable energy targets (European Commission, 2017). Second, the amount of CRE in the Netherlands has increased in recent years (Oteman, Wiering, & Helderman, 2014). These facts make the Netherlands interesting to look at. The focus on net-metering has three underlying justifications. First, net-metering concerns the ability of DRE producers to supply energy back to the grid for a financial compensation. The net-metering policy is thus closely related to the financial viability of CRE. This financial viability is an important explanatory factor of the increase of the increased amount of CRE. Second, the grid can be seen as a politically relevant topic. Burke and Stephens (2018, p.83) argue that *“Renewable systems open the grid to political contest in ways not seen since the grid’s early development”*. If CRE actors are gaining political power, it can be expected to be observable in a grid related policy debate such as the net-metering policy arena. Thirdly, net-metering has increasingly become a topic of scientific

research which has revealed controversies such as that explored in this study (see Figure 1). In line with this, it has been the topic of quite some debate in media and politics in the Netherlands. The first regulation on net-metering dates back to 2004 and is laid out in the “Elektriciteitswet 1998”, but there is still debate regarding its set-up. A more in-depth description of net-metering policy arena in the Netherlands will be given as a case description in the methods section. The time span has been chosen because the discussion on net-metering began around 2000 and is still ongoing (Commandeur, Junne, & Abbing, 1996; G. Reijn, 2018) (Figure 1).

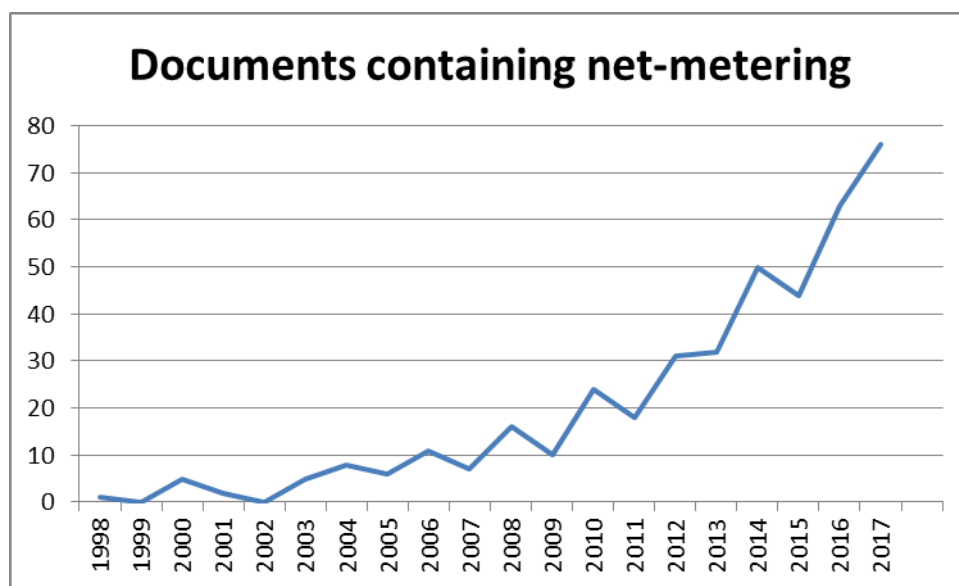


Figure 1: Documents containing the term "net-metering" in Scopus.

1.1 Research objective

The objective of this research is to build understanding of the effect of CRE on political power dynamics in the energy policy arena. This is done by performing a discourse analysis of the net-metering policy arena in the Netherlands between 2000 and April 2018. In this study, political power is operationalized by looking at discursive power. This entails the influence over the policy making process and its outcome by the expression of a set of norms and values. The importance of this power dimension in transitions has been studied and shown in other literature (e.g. Bosman, Loorbach, Frantzeskaki, & Pistorius, 2014). The discursive power dimension and the reason it is being used, are further elaborated in the theory section.

As part of the discourse analysis, discourses in the net-metering policy arena in the Netherlands will be identified. The focus lies on how these discourses, and the associated discourse coalitions, have changed over the past 17 years. The Advocacy Coalition

Framework (ACF) will be used to aid the identification and formulation of the discourses and coalitions, and to interpret any policy changes that took place. In addition, the ACF will be used to identify potential future coalitions by identifying policy core beliefs. This study aims to contribute to understanding the effect that CRE development has on political power distribution in the energy policy arena in the Netherlands.

Achieving this research objective is scientifically relevant because it contributes to theory building in the general field of energy transition theory, and specifically CRE. Furthermore, it improves knowledge on discourses in transitions and aids in better understanding how they are relevant for policy change. Additionally, this study contributes to the operationalization of political power in the energy sector.

This research is socially relevant because better understanding the political dynamics of the energy transition can enable a better understanding of how to accelerate the energy transition. Additionally, this study will provide a number of future expectations with regard to the net-metering policy arena. This can be helpful for actors seeking to bring about policy change.

1.2 Research questions

From the research objective, the following research question (RQ) can be defined:

RQ: How have CRE actors shaped political discourses in the net-metering policy arena in the Netherlands, and what does this mean for future energy policy?

This will be answered through the following sub questions (SQs):

1. What general changes in discourse took place in the Dutch net-metering policy arena between 2000 and 2017?
2. In what ways did CRE actors contribute to changes in discourse in the Dutch net-metering policy arena?
3. In what ways do these changes in discourse in the Dutch net-metering policy arena affect the discursive power of CRE actors?
4. What political changes are expected to take place in the future Dutch net-metering policy arena based on recent changes in discourse and changes in the discursive power of CRE actors?

1.3 Research framework

Figure 2 shows the research framework. It visualizes how the theoretical aspects come together to answer the SQs and RQ. It shows how the research steps are interconnected and which theories will be used. First, an evaluation of the Dutch net-metering policy arena will be done in [A], by means of a discourse analysis. This step uses the ACF to identify and describe the discourses and coalitions, and will answer SQ1. This will then result in [B], an evaluation of the discursive power shifts in which ACF will be used to interpret policy changes. The last step will result in an answer to SQ2, SQ3 and SQ4. Collectively the answers to the sub questions will provide an answer to the research question.



Figure 2: Research framework

2. Theory

To obtain an answer to the research question, three strands of literature are used. First, power theory is used to understand and operationalize political power in the Dutch net-metering policy arena. Second, as the focus lies on discursive power, discourse theory (e.g. M. A. Hajer, 2005) is integrated with power theory (e.g. Lukes, 2005), to obtain a comprehensive

understanding of discourses, discourse coalitions and discursive power. These two theories are integrated and described together in section 2.1 Third, the Advocacy Coalition Framework (ACF) is used to obtain more in-depth understanding of the role of discourses, coalitions and discursive power in relation to the policy making process. The ACF has previously been used in combination with discourse theory to successfully explain policy changes (Duygan, Stauffacher, & Meylan, 2018; Leipprand, Flachsland, & Pahle, 2017; van Herten & Runhaar, 2013). This theory is elaborated in section 2.2 and relevant aspects of power theory and discourse theory are integrated in this section. Additionally, it will be elaborated why the ACF and discourse theory are used together by providing a short summary of their interrelatedness. Finally, section 2.3 integrates all three theoretical strands in one framework that can be used to distinguish different levels of discursive power. This framework will aid in understanding discursive power dynamics in the policy arena.

2.1 Power theory and discourse theory

Over time, power has been conceptualized in many different ways (Haugaard, 2002). Currently, there is still debate on how to conceptualize power (e.g. Burke & Stephens, 2017; Katzenstein & Seybert, 2018; Lukes, 2005). This study conceptualizes power based on the work of Lukes (2005) and defines it as: “*the ability of one entity to make another do something they would otherwise not do*” (Brisbois, 2018). This definition is used because it allows power to be operationalized in terms of *domination* (power over) and *empowerment* (power to) (Haugaard, 2003). *Domination* can be described as the ability to constrain other actors through formalized principles and procedures (Morriss, 2006; Steffek, 2003). This operationalization is relevant because the dominant energy regime often exerts “power over” actors such as CRE actors (Partzsch, 2017). The *empowerment* operationalization can be understood as the ability to use and mobilize resources to affect the outcomes of a process (Morriss, 2006). This is relevant for this study because CRE actors are increasingly collaborating and gaining “power to” influence the decision making by, for example, campaigning (Parsons, 1963; Partzsch, 2017). The definition laid out above thus provides a relevant operationalization of power.

To better understand how power is exercised, a multi-dimensional approach such as that of Lukes (2005) can be used. The multi-dimensional approach to power has proven relevant in studies similar to this one. For example, Galvin (2018) used a multi-dimensional approach to study how, in the context of the energy transitions, local actors perceive the political power distribution between local and governmental actors. The framework of Lukes

distinguishes three dimensions of power: instrumental, structural and discursive power (Morris, 2006). Instrumental power is the tangible exercise of power used to pursue an actor's interests. Examples of this are coercion, violence or use of resources such as money (Brisbois, 2018). Structural power is concerned with the limits and opportunities that the structural system provides to actors (Lukes, 2005). Examples are actors' opportunities to influence the policy making process because of their importance for national employment or the national economy, number of jobs or share of Gross Domestic Product (GDP). This study focuses on the last dimension, the discursive power dimension. This dimension is the focus of this study because previous work on transitions, including the energy transition, has revealed the importance of discursive power in the policy making process (e.g. Bosman et al., 2014; Duygan et al., 2018; Vivero-Pol, 2017).

Discursive power concerns the ability to affect the policy making process and its outcome by expressing a set of norms and values (Lukes, 2005). One way in which discursive power can be exercised is through expression of norms and values in dominant institutional logics (Brisbois, 2018). This provides power because the policy making process is affected by the dominant institutional logics that "regulate behaviour and provide opportunity for agency" (Thornton & Ocasio, 2008, p. 102). The set of norms and values that is exercised can be referred to as a "discourse". This concept is derived from discourse theory, which relies on the idea that people do not just see reality, but add a normative layer to it which gives them a certain perception of reality. Discourses can be studied using argumentative discourse analysis, which is: "*the examination of argumentative structure in documents and other written or spoken statements, as well as the practices through which these utterances were made*" (M. A. Hajer, 2005, p. 299). The argumentative structure refers to the interactive use of arguments between actors in a debate. The importance of the practices through which discourses are used lies in their ability to influence the context in which a discussion takes place (M. A. Hajer, 2005). The context is important to consider because discursive power should never be interpreted as a static, absolute concept. One's "level" of discursive power is a dynamic, relative concept, determined by, for example, other discourses and actors and the ability of these actors to express alternative discourses (Avelino, 2011; Lukes, 2005).

The important role of discursive power and discourses for the political side of sustainability transitions is increasingly recognized (e.g. Geels, 2014; Lockwood et al., 2017; Meadowcroft, 2005; Pesch, 2015; Raven, Kern, Smith, Jacobsson, & Verhees, 2016). For example, whether the dominant discourse relies on the values of economic market principles

or environmental principles has a major effect on the decision making. Such trade-offs determine which end goals are pursued and can therefore facilitate or hinder sustainability transitions. It is important to study the role of discursive power because it is not just used by politicians, but also by other actors such as organised groups of citizens (such as CRE actors) or businesses (Fuchs, 2007). Of particular importance for this study are businesses, because their role as political actors in the energy policy arena increased after the privatization of the Dutch energy sector. Research has shown that large businesses in the Dutch energy system use discursive power as institutional and political strategy, to resist change and strengthen their dominant position (Bosman et al., 2014; Smink, Hekkert, & Negro, 2015). This example underlines the reason why this study focuses on discursive power; it can play an important role in the policy making process, specifically that of transitions.

The important role of discursive power in the policy making process can be understood by its ability to facilitate both “*domination*” and “*empowerment*”. There are various ways in which discursive power can create domination (i.e. the ability to constrain other actors). First, other actors can be constrained by the expression of an actors’ discourse in the dominant institutional logics or the rules (Brisbois, 2018; Clegg & Haugaard, 2009). In a discourse it can be prescribed what the policy process should look like and who is allowed to participate. Important actors in the policy making process often have the ability to set the rules in which decision making takes place. When doing so, they often embody their discourse in these rules (Hayward & Lukes, 2008; Levy & Newell, 1997). Rules can be interpreted as the practices and constraints that guide the policy making process. Because their discourse is then expressed in the rules it becomes more decisive in the system (Brisbois, 2018; Clegg & Haugaard, 2009). This provides them with the ability to constrain other actors by, for example, agenda setting, determining which issues are considered relevant, and determining which interests are considered legitimate (Bosman et al., 2014; Carstensen & Schmidt, 2016; Geels, 2014; Raven et al., 2016). Furthermore, it can limit ‘the room to manoeuvre’ for actors by determining which actors are allowed to participate and in which ways (Hayward & Lukes, 2008; Kern, 2011). In addition, the rules can be used to distribute resources such that it best suits the interests of the actors setting the rules (Borup, Brown, Konrad, & Van Lente, 2006). There are thus many ways in which discursive power can provide domination.

At the same time, there are various ways in which discursive power can be related to empowerment (i.e. the ability to use and mobilize resources to affect outcomes) (Avelino, 2011; Borup et al., 2006). One way in which discursive power can lead to empowerment is

by creating socio-political legitimacy. If a discourse has socio-political legitimacy, the discourse is accepted and supported by the affected social and political actors (Steffek, 2003). When an actor expresses their discourse through formal or informal rules it can create socio-political legitimacy because the rules are often seen as common practice (Lukes, 2005). The acceptance and support within society (i.e. the socio-political legitimacy), can lead to access to more resources and allows for influencing the discourses within society (Bohnsack, Pinkse, & Waelpoel, 2016). Furthermore, socio-political legitimacy can facilitate empowerment through the process of coalition shaping because it increases the likelihood of more actors embracing it. According to discourse theory and the ACF, coalitions play an important role in the policy making process. They enable resource-poor actors to cooperate and to collectively pursue interests by bundling actions and resources. They facilitate aggregation and mobilization of human, financial and capital resources (M. Hajer & Versteeg, 2005; Jenkins-Smith et al., 2015). The process of coalition shaping is especially relevant for this study because CRE actors in themselves often have little ability to affect the policy making process. Common discourses amongst CRE actors provide opportunities to shape coalitions and increase empowerment (Angel, 2016). There is thus also an important role for discursive power in an actor's level of empowerment.

A last concept of discourse theory that needs to be highlighted is the concept of storylines. A storyline is: “*a condensed form of a narrative in which metaphors are used*” (M. A. Hajer, 2005, p. 302). It can be understood as a simplified set of statements used to refer to a complex problem. A storyline discusses the general goals rather than the detailed underlying issues or measures needed to achieve the goals. Often it is assumed that people have a mutual understanding of the underlying problem or measures when using storylines, but that is not always the case (M. Hajer & Versteeg, 2005). For example when using a storyline about climate change, one could perceive fossil fuels as the underlying problem, whereas another perceives the cattle industry as the underlying problem. When an actor has much discursive power they can use storylines to pursue domination. They can use a storyline such that the discussion is brought to an abstract level which causes actors to forget about the underlying problem. This prevents them from acknowledging their interests and in turn from pursuing their original interests (Avelino, 2017). In this way, discursive power can provide power over other actors by suppressing their interests. At the same time, storylines can be used for empowerment as they can be instrumental for shaping coalitions. When storylines are used to discuss an issue on an abstract level, the underlying problems are often neglected.

However, those underlying problems are often the cause of conflict between actors, storylines can thus prevent conflict. By doing so, they provide common ground for coalition shaping which can lead to empowerment (M. Hajer & Versteeg, 2005). Storylines can thus be an important tool for actors to increase the level of discursive power. Understanding how storylines are used can be instrumental to understand the discursive power dynamics in the policy arena.

2.2 The Advocacy Coalition Framework

Many theories and frameworks are available for studying the dynamics of policy making, each taking their own perspective and emphasizing different elements of the policy making process (Cairney & Heikkila, 2014). The Advocacy Coalition Framework focuses on how coalition shaping and learning takes place in the policy making process, and how it might induce policy change (Jenkins-Smith et al., 2015). This study uses ACF for three key reasons. First, it has a solid theoretical basis consisting of explicit concepts, assumptions and relations. Second, it has been used for many different applications including studies similar to this one (e.g. Hughes & Meckling, 2017; Kukkonen et al., 2018; Markard, Suter, & Ingold, 2016). Finally, ACF uses a number of key concepts that are similar to those of discourse theory, which was integrated with power theory in the chapter above. As such, discourse theory takes a connecting role in the theoretical foundation of this research. The congruencies between discourse theory and the ACF will be further elaborated in this section.

The ACF is a framework that understands public policy making as a dynamic and interactive process (Figure 3). It builds on three fundamental levels of the policy making process. The first level is the macro-level and consists of a policy subsystem. A policy subsystem is characterized by a specific issue such as net-metering. The understanding of a policy subsystem is similar to that of the policy arena used in discourse theory, and it is the primary unit of analysis in the ACF. The second fundamental level that the ACF distinguishes is the meso-level. It consists of the coalitions in the policy subsystem. According to the ACF, coalitions are groups of actors that share beliefs and are coordinated by informal rules (Matti & Sandström, 2013). The understanding of these coalitions is similar to that of discourse coalitions as defined in discourse theory (Duygan et al., 2018). The shared set of beliefs are often conceptually similar to the norms and values that make up a discourse. In both theories, coalitions take a central role as they are perceived to have an important effect on the policy making process. The third level distinguished by the ACF is the micro-level and considers the individual. The ACF assumes that individuals act with

bounded rationality. This implies that individuals make decisions under constraints of limited information, limited processing capacity and limited time (Simon, 1997). Individuals use normative reasoning which implies that they make decisions using heuristics and evaluative frameworks based on norms and values. This assumption is in line with the assumption from discourse theory that each individual has their own perception of reality. According to the ACF, the normative reasoning of individuals is based on a three-tiered set of beliefs: deep core beliefs, policy core beliefs and secondary beliefs (Jenkins-Smith et al., 2015). These beliefs are similar to the norms and values underlying a discourse and represent the concepts and ideas that individuals use to perceive certain issues. The three tiered set of beliefs therefore provides a structured way of describing discourses. When studying discourses in this research, the three tiers of beliefs are therefore used to structure the description and interpretation of a discourse. Below each of the tiers is further elaborated.

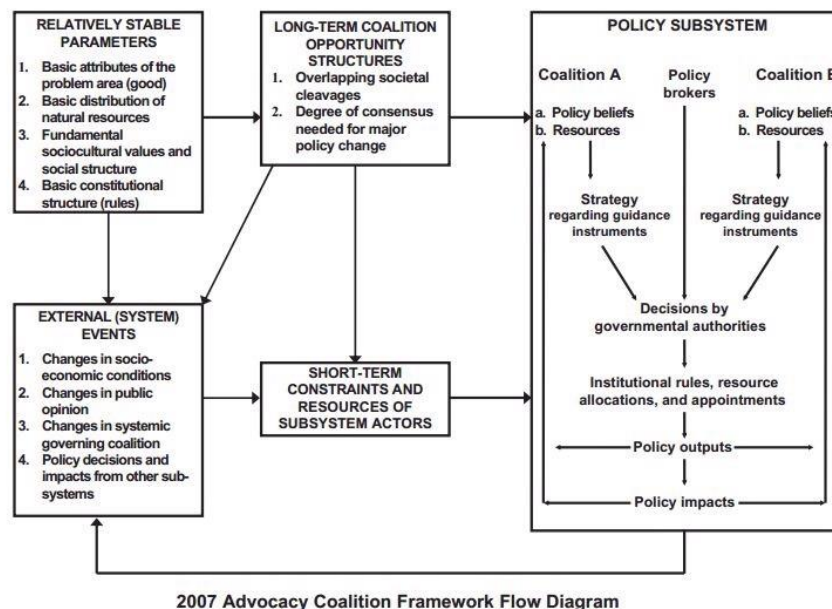


Figure 3: Flow diagram of the Advocacy Coalition Framework (Jenkins-Smith et al., 2015)

Deep core beliefs refer to fundamental values, such as the role of the government in society. These beliefs are difficult to change and are not subsystem specific, but applicable to all subsystems. In contrast, the second type of beliefs, policy core beliefs, are specific to a policy subsystem. For example, a policy core belief can be who should participate in decision making for net-metering. A policy core belief is a structural belief about the policy arena and does not contain many specific details (Scherhauer, Höltinger, Salak, Schauppenlehner, & Schmidt, 2017). This nature makes policy core beliefs very instrumental for coalition shaping, as they provide important general agreements while allowing for disagreements on

small details. Their instrumental role for coalition shaping, and their abstract nature, makes them similar to the concept of storylines used in discourse theory. The third type of beliefs are secondary beliefs. They concern specific instrumental strategies and measures needed to achieve goals that align with the policy core beliefs. For example, a secondary belief could be a specific budget. Disagreement between actors often arise in terms of these secondary beliefs. However, because these beliefs are often based on empirical knowledge, they are more susceptible to change by new knowledge development or by learning from previous experiences (Jenkins-Smith et al., 2015; Luxon, 2017). Despite the definitions of the tiers of beliefs, it is found that sometimes beliefs act different. For example, although policy core beliefs are said to be hard to change, they might be more mouldable in occasional situations. The definitions of the three types of beliefs are not exclusive, but rather ambiguous. However, the three tiers of beliefs provide a sufficient distinction to describe differences in discourses (Sotirov & Memmler, 2012).

A key aspect of the ACF, that is much less prevalent in discourse theory, is understanding how policy change occurs. According to the ACF, there are four pathways for policy change. In the first pathway, policy change is caused by an external event. Such an event takes place outside the policy subsystem and cannot be influenced by the actors. For example, a change in the overarching dominant socio-political system or a disaster. The second pathway for policy change is an internal event. These often alter the policy core beliefs of actors. For example, this can occur when a current policy fails. Similar to the first pathway of change, this pathway can create substantial policy change (Markard et al., 2016). The third pathway for policy change is policy-oriented learning. This mainly occurs through secondary beliefs and is often caused by new empirical evidence. These changes are small and incremental because they only affect the secondary beliefs. The final pathway is negotiated agreements between coalitions. This is caused by cross-coalition learning which can occur based on secondary and policy core beliefs. This cross-coalition learning is instrumental in finding shared beliefs and shaping coalitions. This pathway can also bring about substantial policy change if coalition shaping takes place (Weible, Sabatier, & McQueen, 2009). This important role for coalitions in the policy making process is a common assumption between discourse theory and ACF.

The concepts from the ACF will be used in three ways in this research. First, they are used to construct a framework that defines different levels of discursive power. Second, the concept of policy core beliefs and secondary beliefs will be used in combination with

discourse theory to identify and describe the discourses and discourse coalitions in the Dutch net-metering policy arena. Third, the ACF is used to understand how policy change has occurred and how it might occur in the near future.

Concluding, there are a number of key concepts from power theory, discourse theory and the ACF that are relevant for this study. In the first place, the conceptualization of power as discursive power has an important role in this study. It has been shown to be a relevant explanatory concept in the energy transition. Discursive power is described as the ability to affect the policy making process by expressing a certain discourse. A discourse is understood as a set of norms and values used to perceive phenomena. These norms and values represent a normative framework. In the ACF, the normative framework is conceptualized by a three tiered set of beliefs: deep core, policy core and secondary beliefs. These beliefs can be understood as closely related to the values and norms of a discourse. Specifically the policy core beliefs can be related to the storyline concept from discourse theory, as it leaves out details but focuses on the main line of reasoning. On way in which a discourse can provide discursive power is if it is integrated in formal or informal rules. Another way in which it can provide power is if it provides common ground for coalition shaping. This cross-coalition learning is one of the important pathways to policy change as it can lead to increased empowerment of actors. There are thus various ways in which discourses can provide discursive power that could lead to policy change.

From the above elaborations of discourse theory and the ACF, it has become clear that they are closely related. There are three reasons why discourse theory was integrated with the ACF in this study. First, discourse theory does not clearly prescribe how policy change occurs. Since the research question is focused on policy change, it is important to integrate ACF because it is focused on policy change. Second, discourses can be closely related to the concept of discursive power, which is part of the focus of this study. Hence, only using ACF would have made it hard to relate policy change to power dynamics. Third, discourse theory provides a clear methodological approach, the discourse analysis. Using discourse analysis made it easier to develop an appropriate methodological approach for this research. Integrating discourse theory and the ACF thus provided a more comprehensive and complete theoretical and methodological basis for this research.

2.3 Levels of discursive power

Previous sections elaborated the core elements of the theories that are relevant for this study. To understand how changes in (discursive) power are related to policy change it is necessary to map how discursive power has changed over time. One way to map how discursive power has changed is by distinguishing different levels of discursive power. The level of discursive power refers to the effectiveness in terms of the ability to affect the policy making process and its outcome. Due to the abstract, dynamic and context dependent nature of discursive power, quantification is a complex exercise (Bosman et al., 2014; Clegg & Haugaard, 2009; Geels, 2014). For this reason, a qualitative categorization of levels of effectiveness of discursive power is proposed. By setting up such a qualitative categorization, a general distinction can be made between levels of discursive power, while still accounting for the important context dependent nature of discursive power. Literature provides a number of factors that affect the level of discursive power of a discourse (Figure 4) (e.g. Fairclough, 2013; M. Hajer & Versteeg, 2005; Lukes, 2005). Below, these factors taken from power theory, discourse theory and the ACF are aggregated into categories which are presented in Table 1.

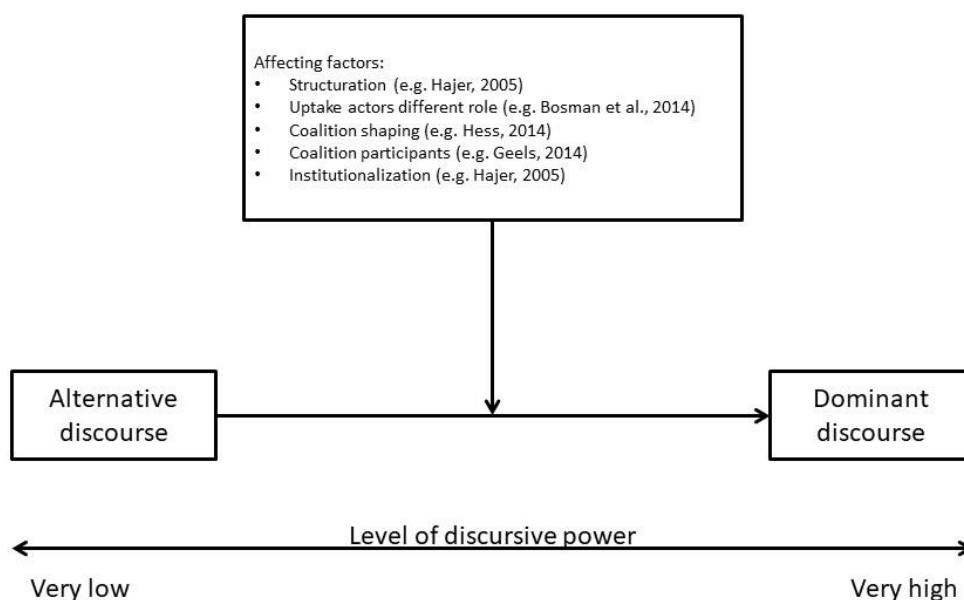


Figure 4: Factors affecting the level of discursive power

Table 1: Levels of discursive power framework

Level of discursive power	Category description	Uptake in actor group	Structuration	Uptake different actors	Coalition forming	Institutionalization
Very low	Alternative discourse used by at least 1 actor within an actor group and disagreements on the content of the discourse.	X				
Low	The discourse is not subject to disagreements about policy core beliefs and is used by the majority (at least 50%) of the within an actor group.	X	X			
Medium	The discourse is acknowledged and used by actors within at least 2 actor groups. Resources from actors with the original and different actor group, are mobilized to support the discourse.	X	X	X		
High	The discourse is used by actors from different actor groups, and at least 1 long-term coalition, containing actors from multiple actor groups, is shaped around the specific discourse.	X	X	X	X	
Very high	The policy core belief of the discourse is institutionalized in at least 1 formal rule that guides the decision making process.	X	X	X	X	X

In general, every new discourse starts out as an alternative set of norms and values that contrasts with the dominant discourse in a policy subsystem (Bosman et al., 2014). Such an alternative discourse often comes into existence when a discursive space opens up. A discursive space refers to a gap in the spectrum of discourses in a policy arena (Avelino, 2011; Pesch, 2015). A new discourse often originates from a specific actor or group of actors that have a specific role in the system. In this research, an actor group is perceived as a group of actors with a specific perspective and responsibility with regard to the net-metering policy arena. The actor groups that will be used in this research are identified in the actor mapping. In the actor mapping, the actors in the net-metering policy arena were identified and classified in actor groups. This is further elaborated in the methodology. A key advantage of a new discourse is that it is still flexible and agile, and can easily be adapted to new insights (M. A. Hajer, 2006). However, when a new discourse emerges, it has only little discursive power. For the purpose of this research, a discourse has a **very low** level of discursive power if it is used by at least 1 actor within an actor group and there are still disagreements on the content of the discourse.

In order for a discourse to increase its power, the content and structure have to be defined in a more detailed manner. Specifically, the policy core beliefs have to be defined and agreed upon in a more detailed manner compared to when the discourse just emerged and had a very low level of discursive power. According to discourse theory, this structuration step is an important step for the increase of power of a discourse (M. A. Hajer, 2005). To become more powerful, the discourse also has to become the dominant way to perceive the issue for the majority of actors within an actor group (Bosman et al., 2014). To provide a tangible measure the discourse is regarded as the major discourse in an actor group if at least 50% of the actors within an actor group. This boundary might be hard to observe in some of the actor groups, however, as the analysis proceeds it will become clear whether a discourse is the major discourse in an actor group. The limit thus serve more as a general guideline. Furthermore, the content of the discourse is agreed upon and no disagreements about the policy core beliefs can be observed. When these conditions are met, this research assess the discourse to have a **low** level of discursive power.

Accordingly, in order to increase the level of discursive power, a discourse needs to be taken up by actors from other actor groups. This will lead to more support and resources from actors in other actor groups which increases its ability to influence the policy making process and its outcome (Bosman et al., 2014; Pesch, 2015). This is instrumental for creating cross-

coalition learning, which is identified by the ACF as one of the key policy change pathways. When a discourse is used by actors from at least 2 actor groups, it can be interpreted to have a **medium** level of discursive power.

When a discourse is taken up by actors from other actor groups, cross-coalition learning may eventually lead to coalitions being shaped around the discourse. These coalitions are set up around a shared set of policy core beliefs. Coalitions can have major effects on the ability to exercise discursive power and are hence identified as separate factor in this framework (Hess, 2014; Jenkins-Smith et al., 2015). On a more detailed level, the type of actors involved in a coalition also influence what level of power a discourse has. Involvement of actors such as citizens, labour unions and other organizations are important for a coalition because it creates socio-political legitimacy of a discourse (Steffek, 2003). However, an important increase in discursive power can also be created when policymakers and incumbents are involved in the coalition and start to utilize the discourse (Geels, 2014). When at least 1 coalition is shaped around the discourse and contains actors from multiple actor groups, and that can be observed in at least 1 collective effort, the level of discursive power is **high**.

A last step through which actors can increase discursive power is through institutionalization (M. A. Hajer, 2005). According to discourse theory, this is the second step, after discourse structuration, through which a discourse can become the dominant discourse in a policy arena. This step can be observed by institutional or physical changes in the policy arena, such as changes in the law about who is allowed to participate (Avelino, 2011; Bosman et al., 2014). In terms of the ACF, this is a policy change. When this occurs, the discourse becomes embedded in formal (e.g. rules) and informal structures (e.g. social practices) that guide the decision making process (Lockwood et al., 2017). Although it is hard to observe whether a discourse is embedded in the informal structures, it can be done for formal structures. Hence, when the policy core belief of a discourse is embedded in at least 1 formal rule, the level of discursive power is classified as **very high**.

The categories laid out above are not meant as absolute categories, but rather as a categorized continuum. They have been defined to provide a structured framework to assess the level of discursive power and the relative position of different discourses. This is important because it provides the possibility to relate changes in discursive power to policy changes. There will be diverging cases that do not perfectly fall within one category. The categories are defined based on a combination of theoretical factors, that might differ from the empirical reality. Four diverging cases will be elaborated here. For other cases, the researcher

will determine the level of discursive power during the analysis, based on the discourse's characteristics relative to those of other discourses.

A first diverging case is that a discourse is used by actors from different actor groups, but there is not 100% agreement on the content. In this case, it is argued to have a medium level of discursive power as the use by different actor groups is argued to be more important than 100% agreement on the content. Actors from different groups will have more resources and can create more support. In a more extreme diverging case where a coalition is formed and there is not yet 100% agreement on the content, it is argued to have a high level of discursive power, for the same reason. A third exceptional case is that a discourse was formalized and used by a coalition. However, at some point after it was formalized, the coalition fell apart. In this case the discourse will be categorized as having a very high level of power. This holds also for the fourth diverging case in which the discourse is formalized but used by only one actor. For these two cases, formalization is taken as starting point for determining the level of discursive power. It is assumed that despite the absence of use by actors or coalitions, the formalization still provides an important influence over the policy making process through, for example, socio-political legitimacy creation.

3. Methods

This chapter elaborates the methods on which this study builds. First, a case description of the Dutch net-metering policy arena is given. Next, the methodology, data collection and data analysis are elaborated.

3.1 Case study description

In this study, the research object was the Dutch net-metering policy arena between January 2000 and April 2018. The net-metering policy establishes that customers with a small grid connection (up to 3 x 80A) can annually subtract the amount of electricity they supply to the grid from the amount of electricity they consume from the grid. This means that at the end of the year, they are only billed for the net amount of electricity they consumed. On the net-metered amount of electricity they do not have to pay any taxes, which gives them an additional financial benefit. In the current policy, net-metering can be done up to a maximum of 5000 kWh for unsustainable electricity, and is unlimited for sustainable electricity. Electricity is considered sustainable if it is produced by production facilities that use exclusively renewable energy sources or use renewable energy sources in combination with conventional energy sources. The list of energy sources that are classified as renewable, is

Renewable energy sources
Wind energy
Solar energy
Air heat
Water heat
Geothermal heat
Ocean energy
Hydropower
Biomass
Biogas
Landfill gas
Wastewater treatment gas

Figure 5: Renewable energy sources

provided in Figure 5. If a customer supplies more electricity back to the grid than they consume, the energy supplier has to pay a “decent reimbursement” per kWh. This decent reimbursement can be determined by the energy supplier, but it should be similar to the basic electricity price (i.e. without taxes) (Raad van State, 2016). Some energy suppliers also provide higher compensations to support customers to produce renewable electricity (Ypma, 2012).

The net-metering policy has been a topic of debate and over time its content has been subjected to changes (Figure 6). The first net-metering policy dates back to 2004, when it was set-up to account for a discrepancy between the law and practical reality. When the first households started supplying electricity back to the grid, old analogues meters (Ferraris meters) were running backwards. In this situation, electricity was automatically net-metered. This was not accounted for in the Dutch law and therefore there was a discrepancy between anticipated tax income and real tax income. To account for this, the Dutch government developed the net-metering policy which allowed for net-metering. In the initial policy, the maximum net-metering amount was set at 3000 kWh and taxes had to be paid on the net-metered amount (Tweede Kamer der Staten-Generaal, 2004).

In 2008, the government decided that households did not have to pay any taxes on the net-metered amount of electricity. This was done because the analogue meters only registered the net-consumed amount of electricity, and did not separately register the total amount of electricity consumed and supplied back. It was therefore impossible to collect transparent information about the net-metered amount of electricity. Furthermore,

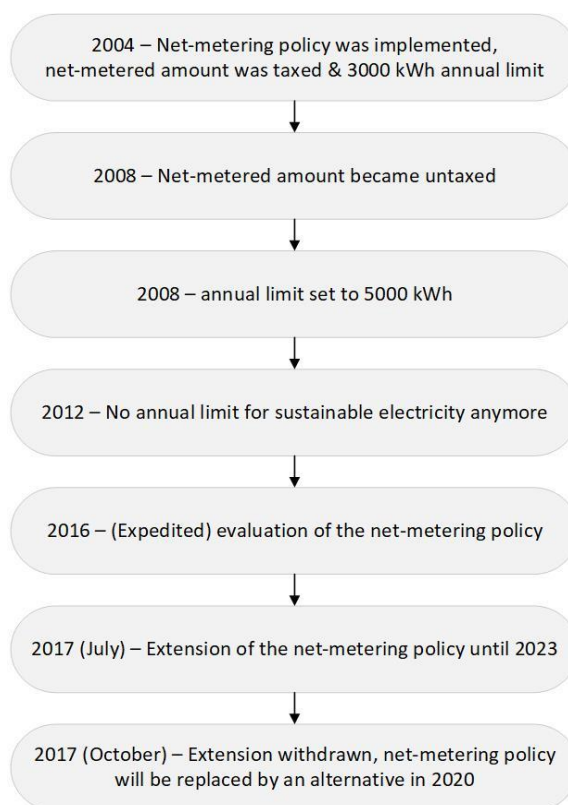


Figure 6: Net-metering policy development

this would make it more financially viable for people to invest in solar technology as this reduced the payback time of solar panels (Tweede Kamer der Staten-Generaal, 2007). Later in 2008 the Dutch government decided to further increase the maximum amount of electricity that could be net-metered to 5000 kWh. This made it more financially interesting for households to generate larger amounts of sustainable electricity. (Tweede Kamer der Staten-Generaal, 2008).

A few years later, in 2012, the Dutch government decided to get rid of a maximum amount of sustainably produced electricity that could be net-metered. The reason for this was that larger buildings (e.g. schools and flats) often have a small grid connection (3 x 80A), but they tend to consume more than 5000 kWh and they also have the potential to generate more sustainable electricity. This means that the net-metered amount is expected to be more than 5000 kWh. To make it more financially attractive to produce large amounts of sustainable electricity, the unlimited net-metering of sustainably produced electricity was implemented. For unsustainable electricity, the maximum net-metering amount of 5000 kWh was still applicable (Tweede Kamer der Staten-Generaal, 2012).

To determine how the net-metering policy would continue after 2020, the Dutch government intended to evaluate the policy in 2017. In the period between 2011 and 2015, the amount of sustainable electricity, produced by small scale producers, increased with an annual average growth rate of 91%. This growth was mainly caused by households installing solar panels on their roofs. For many of these households, the net-metering policy was an important driver (PWC, 2016). However, due to this growth, the total amount of net-metered electricity in the Netherlands also increased. Since consumers did not pay any taxes on the net-metered amount of electricity, tax losses for the government increased. This caused some people in the government to question the policy's cost-effectiveness. In turn, the fact that people in the government questioned the policy created uncertainty amongst households about the policy's continuation. Since people demand certainty before they invest in renewable energy, evaluation of the net-metering policy took place in 2016 (Tweede Kamer der Staten-Generaal, 2016). The evaluation showed that the policy was responsible for a big increase in household solar energy production. However, the measure was also shown to be costly for the government since a lot of taxes were missed. In 2015, the policy cost the Dutch government approximately 80 million euros. Furthermore, the costs per amount of CO₂-reduction proved to be relatively high in relation to other subsidies (PWC, 2016). Based on the findings from the evaluation, the then Minister of Economic Affairs (Henk Kamp) decided in July 2017 to

extend the net-metering policy until 2023 (H. G. J. Kamp, 2017). This was seen by many as a good step to further promote the increase of solar PV.

However, in October 2017, a new coalition was formed as a result of the Dutch elections that took place. As part of the agreement, the new governmental coalition decided to withdraw the extension and replace the net-metering policy with a new policy in 2020 (Schotten, 2017). At the start of this Master Thesis, May 2018, the alternative policy had been proposed yet. There were many different opinions about the withdrawal as well as the right replacement. On the 15th of June 2018, the Minister of Economic Affairs and Climate (Eric Wiebes) announced that the net-metering policy will be replaced in 2020 by a feed-in-tariff that can be adapted based on the costs of solar panels. The main argument for doing this is the growing costs of the net-metering policy. In line with this, the new policy will have a maximum annual budget. When the minister developed the policy, he took into consideration the support of renewable energy within society, the required growth of renewable energy and the complexity of the policy. He also argues that he has taken into account consistency because the new policy will provide a smooth transition from the net-metering policy. Furthermore, he will investigate the possibility of extending the policy to larger consumers such as those in the utility sector (E. Wiebes, 2018). Considering the time line of this research project, it was not possible to include this policy change in the empirical research. Instead it will be considered in the discussion to provide additional understanding of the results.

3.2 Case study & discourse analysis

This research used case study methods. The knowledge gap that is addressed is the lack of understanding of the effect of the increasing amount of CRE on discursive power dynamics in the energy policy arena. To study discursive power and come up with useful inquiries, a qualitative in-depth approach was required. A discourse analysis case study was selected because it was most suitable to provide these in-depth empirical results (Verschuren & Doorewaard, 2010; Yin, 2013).

The case study used qualitative empirical data sources. These included journal articles, website articles, newspaper articles, magazine articles, government reports, white papers, blogs and webpages. There were two cycles in which data was collected through a desk research. Two cycles were performed because of the iterative nature of discourse analysis, and to ensure important data sources missed during the first cycle were included (M. A. Hajer, 2006; Taylor-Powell & Renner, 2003).

In each of the two desk research cycles a desk search was performed using Scopus, LexisNexis and a hand search. Scopus was used for three reasons. First, it contains a large number of scientific journals and articles compared to other databases (Falagas, Pitsouni, Malietzis, & Pappas, 2008). Second, it focuses on social sciences. Third, it is regularly updated (Burnham, 2006). LexisNexis is a newspaper database and was used to derive website, newspaper and magazine articles. The decision was made to search for Dutch data sources because decision making occurs in Dutch. Hence, if a document is affecting the decision making process, it is expected to be available in Dutch. An exception was made for scientific articles from Scopus, as these are often published in English. Search terms were translated to English and the term “Netherlands” was added when searching in Scopus. In the first cycle, the databases were searched using the search terms: “salderen”, “salderingsregeling”, “terugleversubsidie” and “teruglever* AND stroom”. These terms were based on the preliminary literature review. In the second data collection cycle the term “Saldering” was added because it was used by the articles found during the first cycle, to refer to the net-metering policy. The hand search was performed to look for other relevant sources, such as government reports, white papers, blogs and webpages. In this hand search, data sources were collected that were specifically mentioned in other data sources. Collectively, these data sources provided a broad representation of the net-metering policy arena, which is crucial for a good content analysis (Macnamara, 2006).

It was necessary to use criteria and strategies to limit the number of data sources (Verschuren & Doorewaard, 2010). Aside from the search criteria set out above, two additional boundaries were set. First, only sources published between January 2000 and April 2018 were used. Second, documents needed to relate to the Dutch net-metering policy arena. This led to a manageable set of data sources consisting of 6 data sources from Scopus, 389 data sources from LexisNexis and 11 sources from the hand search. More details regarding the number of results for each cycle and for specific search can be found in Appendix A. A complete list of the data sources used in this study is provided in Appendix B.

In an additional data collection effort, actors were approached with the request to provide documents they used in the net-metering policy arena. This was done because not all documents that affect the net-metering policy arena are publicly available. Requesting documents from actors was expected to lead to a more complete set of data sources, thus increasing the reliability of the results. To send the request to a representative group of actors, an actor map was made (see figure 7). Actors were identified from data sources collected in

the first data collection cycle. For all actors, their responsibility with regard to the energy systems was identified (e.g. grid operator, energy supplier). For all actor groups, the 2 most mentioned actors were approached. The regulating bodies were not approached because they are a public body and relevant documentation was retrieved during the hand search through public sources. The actor VEC Noord-Brabant does not exist anymore and hence the third most mentioned actor, REScoop, was approached. In the first instance, actors were approached through personal contacts. If this was not possible, it was done by searching a specific person working on the net-metering policy. In the last instance, a general e-mail address was used. Of the 20 actors 10 responded, of which 4 agreed to send relevant data sources, these were: Stedin, Groenlinks, Aedes and Powerpeers. Of the responding actors 2 were contacted personally and 2 through general contact details. The way in which actors were approached did thus not provide any skewness. Other actors argued they were too busy or that they did not have relevant data.

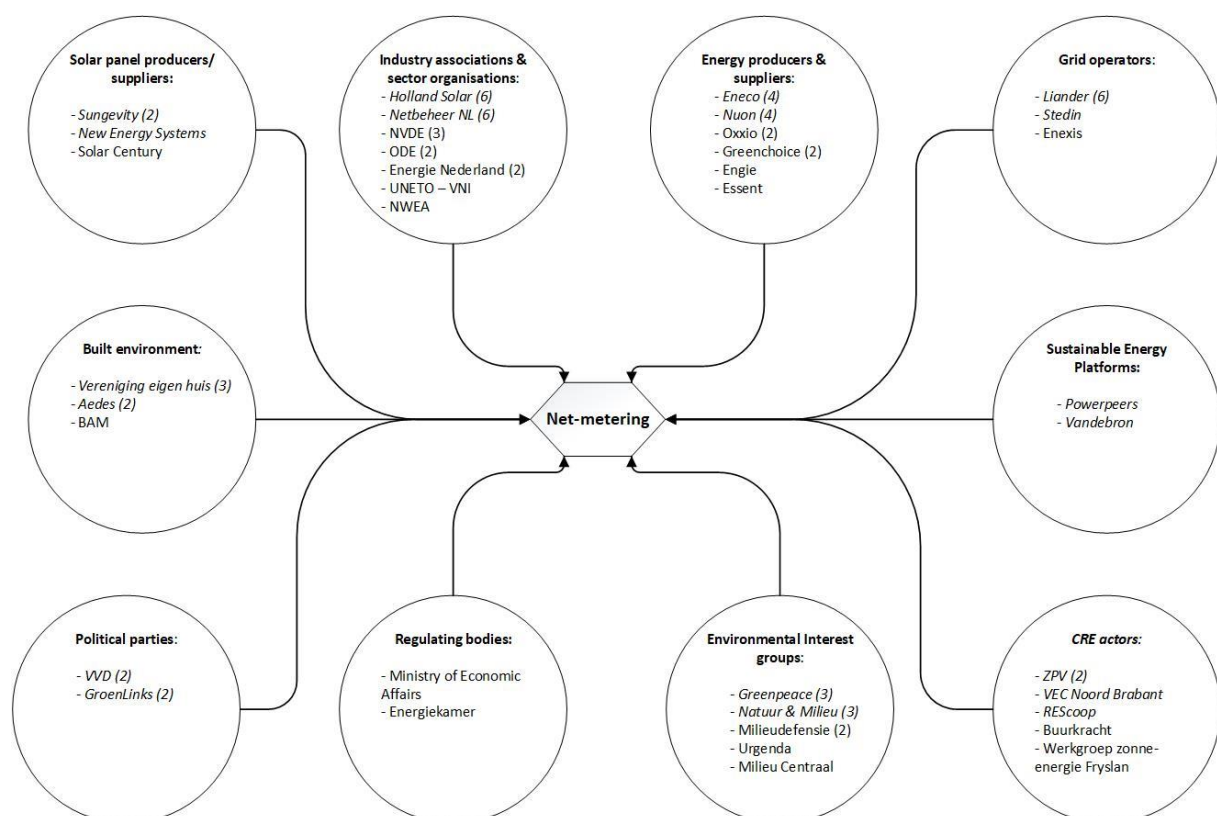


Figure 7: Actor mapping visualizing the different actor groups. Between brackets it is shown how often they were mentioned. The actors in *italic* were approached to provide documents.

The collected data sources were subjected to an argumentative discourse analysis. In this analysis, the aim was to identify discourses and their underlying beliefs with regard to the research objective. To aid the analysis, the data sources were coded in Nvivo (Wong, 2008). Coding entails the labelling of pieces of text based on common themes. A theme can be seen as a recurring general topic, such as the economy or solar energy. Using a deductive approach, an initial set of themes was identified from literature consulted in the preparatory phase of this research. The set of themes was extended by emergent themes that were identified while performing the discourse analysis (Taylor-Powell & Renner, 2003). Themes were added, removed, merged or changed as the coding process progressed (Saldana, 2012). Accordingly, the complete data set was re-coded based on the final set of themes. The final set of themes can be found in the description of the discourses in the results chapter. While performing the analysis some themes evolved into discourses, whereas other themes evolved into policy core beliefs (Sabatier & Jenkins-Smith, 1993). The distinction between the discourse and policy belief is that a discourse is a broad coherent view on the issue that is often constructed around multiple policy core beliefs. The policy core beliefs are less issue specific and concern a specific value used to construct the broader discourse. In the analysis, discourses were the main focus. The pieces of text that were coded as a discourse were also coded in terms of policy core beliefs and actors. This provided insights regarding the interrelations between the actors and their policy core beliefs. The ACF was used to identify coalitions built around the discourses and to relate those to policy changes. Finally, each discourse's 'level' of discursive power was assessed by using the framework laid out in the theory chapter (see table 1). The analysis resulted in an overview of the different discourses, their underlying beliefs, their use by actors and coalitions, their relatedness to policy change, and their levels of discursive power.

4. Results

This chapter describes the results from the discourse analysis of the Dutch net-metering policy arena in the period between 2000 and 2018. Table 2 provides a detailed overview of the content and the implications of the discourses. In the table each discourse is labelled with a representative discourse name. They are listed in order of prevalence over the whole time period. The table shows which policy core beliefs are part of the discourse and which actors have used it. The table also indicates in how many sources the discourse was encountered, whether coalitions existed and whether these have led to policy change(s). If applicable, the coalitions and policy change(s) are further elaborated in the respective discourse descriptions.

In table 3, the results are structured based on the policy core beliefs and show their use in discourses and by actors. From the table it can be seen that there are three policy core beliefs (“long-term policy planning”, “active government support” and “energy security”) used in three different discourses. Their occurrence in three discourses reveals that they provided common ground between the actors using these discourses. Specifically, the common ground provided by the beliefs “long-term policy planning” and “active government support” has resulted in collective efforts. These findings will be further integrated in the discourse descriptions below.

For each discourse description the main reasoning is explained first. Next, the policy core beliefs on which a discourse builds, are highlighted. This provides insight into the underlying beliefs, aids in understanding of the discourses and reveals congruencies between discourses. The policy core beliefs will be related to specific actors where possible. In the case that secondary beliefs of a discourse were mentioned, they will also be highlighted. Since the data sources do not contain all secondary beliefs of actors, the secondary beliefs presented in this study are by no means exhaustive. They are rather used to give examples and a better understanding of the discourse. Discourses are mainly based on policy core beliefs and hence these were focused on during the analysis. Next, the actors, coalitions and collective efforts that are associated with the discourse are discussed. Finally, the findings regarding the discourses and their use by actors and coalitions are used to describe the discursive power dynamics. These power dynamics are described using the level of discursive power framework developed in the theory chapter.

Table 2: Discourse overview: policy core beliefs, actors, number of sources, coalitions and policy change

Discourse label	Policy core beliefs used to construct the discourse	Actors using discourse	Number of sources	Coalition shaping?	Policy change?
Keep policies consistent	long-term policy planning; active government support; financial incentivization	solar panel producers/installers; industry association/sector organization; energy producers/supplier; built environment actors; sustainable energy platforms; political parties; environmental interest groups; CRE actors	251	Yes	No
Make solar PV financially viable	Solar energy; financial incentivization; maintain the net-metering policy	Solar panel producers/supplier; built environment actors; environmental interest groups; CRE actors	205	Yes	Yes
The net-metering policy is socially unequal/unjust	Social justice/equality; active government support; representative policies	Industry association/sector organisation; built environment actors; sustainable energy platforms; political parties; environmental interest groups; CRE actors	199	Yes	Yes
The net-metering policy reduces innovative effort	Innovation; energy security; long-term policy planning	Industry association/sector organizations; energy producers/suppliers; grid operators; built environment actors; political parties; regulating bodies	133	Yes	No
Promote the energy transition	renewable energy; active government support	Solar panel producers/suppliers; industry association/sector organisation; energy producers/suppliers; grid operators; built environment actors; sustainable energy platforms; political parties; regulating bodies; environmental interest groups; CRE actors	118	Yes	No

Keep the grid stable	Energy security; solar energy	Solar panel producers/suppliers; built environment actors; environmental interest groups; CRE actors	117	No	No
Develop the PV sector	Economic development; solar energy	Solar panel producers/suppliers; industry association/sector organization; political parties	104	No	No
The net-metering policy is too complex	Convenience	Energy producers/suppliers; grid operators; built environment actors; CRE actors	91	No	No
The net-metering policy is too expensive	Affordability; economic development	Regulating actors; political parties	73	No	Yes
The net-metering policy reduces grid stability	Long-term policy planning; renewable energy; energy security	Grid operators	52	No	No
Take into account technological and practical limitations	Representative policies	Grid operators; energy producers/suppliers; political parties; regulating bodies; CRE actors	40	No	Yes

Table 3: Policy core beliefs and their corresponding discourses and actors

Policy core belief	Discourse	Actors
Long-term policy planning	<ul style="list-style-type: none"> - Keep policies consistent - The net-metering policy reduces innovative efforts - The net-metering policy reduces grid stability 	<ul style="list-style-type: none"> - Industry associations/sector organisations - Built environment actors - CRE actors
Active government support	<ul style="list-style-type: none"> - Keep policies consistent - Promote the energy transition - The net-metering policy is socially unequal/unjust 	<ul style="list-style-type: none"> - Environmental interest groups - Built environment actors - CRE actors
Energy security	<ul style="list-style-type: none"> - The net-metering policy reduces innovative efforts - Keep the grid stable - The net-metering policy reduces grid stability 	<ul style="list-style-type: none"> - Energy producers/suppliers - Grid operators - Environmental interest groups - CRE actors
Renewable energy	<ul style="list-style-type: none"> - Promote the energy transition - The net-metering policy reduces grid stability 	<ul style="list-style-type: none"> - All
Representative policies	<ul style="list-style-type: none"> - The net-metering policy is socially unequal/unjust - Look at the technological and practical limitations 	<ul style="list-style-type: none"> - Political parties - Industry associations/sector organisations - CRE actors
Economic development	<ul style="list-style-type: none"> - Develop the PV sector - The net-metering policy is too expensive 	<ul style="list-style-type: none"> - Solar panel suppliers/producers - Industry associations/sector organisations - Political parties
Financial incentivization	<ul style="list-style-type: none"> - Keep policies consistent - Make solar PV financially viable 	<ul style="list-style-type: none"> - Built environment actors - Political parties - Environmental interest groups - CRE actors
Solar energy	<ul style="list-style-type: none"> - Make solar PV financially viable - Keep the grid stable 	<ul style="list-style-type: none"> - Solar panel producers/suppliers - Environmental interest groups - Built environment actors - CRE actors

Social justice/equality	- The net-metering policy is socially unequal/unjust	- Built environment actors - Environmental interest groups - Political parties
Maintain the net-metering policy	- Make solar PV financially viable	- CRE actors
Innovation	- The net-metering policy reduces innovative efforts	- Energy suppliers/producers - Grid operators - Political parties - Regulating bodies
Convenience	- The net-metering policy is too complex	- CRE actors - energy suppliers/producers - grid operators
Affordability	- The net-metering policy is too expensive	- Political parties

4.1 Discourses

4.1.1. *Keep policies consistent*

This discourse argues that the net-metering policy should stay in place because policies have to be consistent over time. It relies on the idea that people act differently if they are uncertain about long-term benefits. In this case, if people are uncertain about how long they will be able to benefit from the net-metering policy, they are not as likely to invest as when they are certain. As stated in the building magazine Cobouw: “*Without that policy [the net-metering policy] there are no financial arguments anymore to invest in such systems [solar panels].*” (Heijbrock, 2016). This discourse also argues that people who have already invested in solar panels will unexpectedly lose assumed benefits.

These arguments build on the following policy core beliefs: long-term policy planning, active government support and financial incentivization. Long-term policy planning means that policies should be designed such that they take into account short-term and long-term interests. This belief was mainly found in the statements by industry associations, built environment actors and CRE actors. Active government support refers to the belief that the government has to take an active role in supporting socially desired alternatives (e.g. technologies). Financial incentivization refers to the belief that individuals can be incentivized to make certain decisions by providing monetary benefits to them. This belief was mostly expressed by built environment actors (e.g., housing associations, construction firms), political parties, environmental interest groups and CRE actors. The main secondary belief of this discourse is the belief in maintaining the net-metering policy until at least 2023.

In recent years, actors from multiple actor groups have used this discourse. It has been an instrumental shared discourse that facilitated coalition shaping in 2017. The coalition consisted of industry associations, built environment actors, environmental interest groups and CRE actors. Especially after the government withdrew their decisions to maintain the net-metering policy until 2023, this discourse became widely used. A coordinated collective effort from the coalition resulted in a letter to the Dutch minister of Economic Affairs and Climate. The letter was signed by more than 20 organizations representing various actor groups: built environment actors (e.g. Vereniging eigen huis), industry associations (e.g. UNETO VNI), environmental interest groups (e.g. Urgenda), CRE actors (e.g. REScoopNL) and solar panel suppliers/producers (e.g. Holland Solar). Some of these actors also represented larger groups of actors, such as house owners or energy cooperatives in a specific region. This collective

effort can be seen as one of the biggest events in the net-metering policy arena. Despite the size of this effort, it has not led to any formal policy change.

Before 2013 this discourse was hardly used and had a very low level of discursive power. Around 2014, more actors adopted the discourse which increased the discursive power to a low level. However, it was not until the government's withdrawal decision and the coalition shaping in 2017 that the discourse gained a high level of discursive power. Currently, the level remains high as the discourse is still widely expressed and there is still a coalition of actors relying on it.

4.1.2. Make solar PV financially viable

In this discourse, the main argument is that the net-metering policy is the best measure to make solar PV financially viable. In essence, it argues that a policy is needed to reduce the payback time of solar panels to such an extent that consumers are willing to invest in it. Within this discourse, the net-metering policy is seen as the most cost-effective and appropriate policy to achieve this goal.

The discourse builds on the following policy core beliefs: solar energy, financial incentivization and maintain the net-metering policy. The belief in solar energy refers to preference for this form of renewable energy. This policy core belief was the main reason for solar panel producers/suppliers and environmental interest groups, to pursue this discourse. The financial incentivization belief touches upon the idea that people need financial motivations to make certain decisions. This belief was promoted by the CRE actors. Another important policy core belief on which this discourse builds, is the extension of the net-metering policy. Usually the net-metering policy would be seen as an instrument to achieve a goal and the belief would therefore classify as a secondary belief. However, this discourse sees the net-metering policy not just as an instrument, but as a goal in itself. Therefore this discourse uses the net-metering policy as a policy core belief.

In 2004, this discourse was used by solar panel producers/suppliers and environmental interest groups. They shaped a coalition and collectively expressed this discourse in media. Over time actors from other actor groups also adopted the discourse. This led to the implementation of the net-metering policy in 2004, and its expansions in 2008 and 2012. No major collective efforts were undertaken but the absence of powerful opposing discourses allowed small efforts to still affect the policy making process. Around 2012, alternative discourses emerged, as alternative policies were researched. Actors let go of the idealistic

view of the net-metering policy and started to adopt other discourses. Currently, the discourse is only supported by some solar panel producers/suppliers, housing associations, environmental interest groups and CRE actors.

Before 2012, the discourse had a very high level of power. Many actors were using it, coalitions were shaped and it was formalized in the net-metering policy. After 2012, the level of discursive power remained very high, as the discourse and its underlying beliefs are still captured in the net-metering policy.

4.1.3. The net-metering policy is socially unequal/unjust

The main point that this discourse advocates is that policies should be designed such that the whole society can benefit from them. According to this discourse, the net-metering policy creates inequality because important parts of society are not eligible. The policy is also socially unjust because rich people are more likely to benefit. For example, poorer households that live in rented flats do not have their own roof and they can therefore not use the net-metering policy. As stated in a newspaper article of the Volkskrant: *“People with high incomes can easily set aside a few thousand euros to buy solar panels. Thanks to the bold subsidies they can get some solid returns. People with low incomes cannot afford to buy solar panels, and they miss out on these benefits.”* (Gerard Reijn, 2017). Furthermore, companies can often not benefit because they have a small grid connection. However, they have large roofs and could thus greatly contribute to the national renewable energy targets. Overall, this discourse argues that the net-metering policy should be replaced by a more socially just alternative.

The policy core beliefs of this discourse are social justice/equality, active government support and representative policies. Social justice/equality refers to belief that everyone should have the same rights, which in this case is the right to benefit from the net-metering policy. Political parties and built environment actors are the main pursuers of this belief. Active government support concerns the idea that the government should play an active role in society, in this case specifically to improve social justice and equality and to promote sustainable energy. This belief is mainly expressed by the environmental interest groups, sustainable energy platforms and CRE actors. The belief in representative policies refers to the perception that policies should be representative of the whole society. Within this discourse, this belief is mainly brought forward by political parties and industry associations/sector organizations. One policy alternative mentioned by actors using this discourse is a loan scheme that supports poorer people to invest in solar panels. However, this

was only briefly mentioned once by a political party. In essence this discourse focuses on having more representative, less stringent regulation, that has more budget available to support a larger part of society. It has to be noted that less stringent regulation does not mean that there should be less regulation. However, in its current form the policy is only available for the elite due to the criteria that have to be met (e.g. solar panels placed at own roof). Less stringent regulation means getting rid of these criteria that limit the policy to the elite, and rather make it accessible for a larger group within society.

This discourse came into existence around 2006 and grew to be more important after 2010. It is used by the actor groups industry association/sector organisation, built environment actors, sustainable energy platforms, political parties, environmental interest groups and CRE actors. Initially actors used this discourse to express concerns about the exclusion of the group that they represented. This led to policy change, when in 2008 the maximum amount that could be net-metered was increased from 3000 kWh to 5000 kWh to allow larger consumers/producers to also benefit from the net-metering policy. It was still argued however, that large parts of society were not represented by the policy. Around 2012, actors realized that other actors used a similar discourse with the same policy core beliefs, but in the interest of other groups in society. When actors realized this, they started to collectively pursue the discourse in the interest of multiple groups at the same time. A coalition, which included CRE actors, was formed that collective expressed the discourse in the media. Again this resulted in policy change, as in 2012 the maximum amount of sustainable electricity that could be net-metered was removed. Furthermore, the collective efforts in media and in notes to the government led to the development of the “Postcoderoosregeling” in 2013. This policy aimed to facilitate larger cooperative solar PV projects. Although households living in apartments now had an alternative, it was still argued that it did not make the net-metering policy more representative for society. In 2017, the discourse was used as one of the key arguments in the letter to the then Minister of Economic Affairs (Henk Kamp) (Terpstra et al., 2017). The discourse has thus been very instrumental for coalitions.

The discourse is characterized by a steady increase of discursive power. Initially the discourse had a low level of discursive power. Many actors argued for the improvement of the policy for a specific group (e.g. apartment owners or utilities). However, there were no clear collective efforts about how the policy should become more representative for everyone. A common discourse had yet to be shaped. After 2010, the common discourse became more influential as more actors started to use it and the level of discursive power increased to

medium. The coordination of collective efforts in 2012 increased the discursive power to a high level. Although the discourse led to policy change in 2008, 2012 and 2013, the discourse has not been formalized. Net-metering is still limited to a specific group of society (those with a small grid connection) and does not represent the whole society. Therefore, the current level of discursive power of this discourse only remains high.

4.1.4. *The net-metering policy reduces innovative efforts*

The main argument on which this discourse builds is that innovation should be promoted. It is argued that innovation is needed to be able to achieve a future proof energy system. According to this discourse the net-metering policy does not support, but instead inhibits innovation that is crucial to balance future energy supply and demand. Currently, net-metering is a source of income for households and hence there is no incentive to invest in, for example, home storage. As the then Minister of Economic Affairs (Henk Kamp) said: *“the consumer does not have an incentive to invest in a battery or in smart energy management system to use as much of the produced energy themselves.”* (H. Kamp, 2017). It is the belief of actors using this discourse that without such innovations the future holds an unstable grid and excessive costs.

The analysis revealed that this discourse builds on three policy core beliefs: innovation, long-term policy planning and energy security. Innovation refers to the belief in development of new services or technologies that replace conventional alternatives. Energy producers/suppliers, grid operators and regulating bodies expressed this belief. Long-term policy planning has been elaborated before and in refers in this discourse to the aspiration of policies that take into account future interests. The energy security belief refers to the desire to have a stable and secure energy supply. This was the main belief for energy producers/suppliers and grid operators. In this discourse, secondary beliefs refer to the belief in measures that support innovation or even in specific technologies. A number of specific technologies that were consistently mentioned are smart grids and domestic energy storage systems. The actors using this discourse do not believe in the net-metering policy. One mentioned policy alternative in this discourse is a feed-in-tariff. Another policy alternative that was mentioned is a capital subsidy for domestic energy storage systems. Thus, this discourse does not have one clear secondary belief.

Around 2010, the discourse was taken up by various actors from the actor groups industry associations/sector organizations, energy producers/suppliers, grid operators, built environment actors, political parties and regulating bodies. The development of this discourse

was mainly fuelled by new knowledge regarding the need for innovations to secure future energy supply. The shared beliefs led to collective efforts, such as the letter sent to the Dutch parliament by the Dutch Association Sustainable Energy (NVDE) and Holland Solar. This collective effort was (partly) based on this discourse and hence it is found that a coalition existed based on this discourse (Solar Magazine, 2017). Despite the fact that the collective efforts cannot be related to any of the policy changes, the discourse was also used by the then Minister of Economic Affairs (Henk Kamp) as a criteria for the renewed net-metering policy (H. G. J. Kamp, 2017).

The level of discursive power of this discourse was very low until 2010. After 2010, the ability to affect the policy making process and its outcome gradually increased after more actors started to take up the discourse. The collective efforts then led the level of discursive power of this discourse to increase to a high level. Currently, the discourse can be seen as one of the most widely supported discourses with one of the highest levels of discursive power.

4.1.5. Promote the energy transition

This discourse argues that the energy transition has to be promoted and that much effort should be put in accelerating it. It is argued that it is the government's responsibility to implement policies to achieve this goal. Since the net-metering policy is shown to have a positive effect on solar PV uptake, actors using this discourse argue that the net-metering policy has to stay in place. However, alternative policies are also supported as long as they promote the energy transition.

The discourse builds on the policy core beliefs in renewable energy and active government support. The belief in renewable energy refers to the belief that a transition from fossil to renewable energy sources has to be made. All actors relied on this belief. The active government belief implies that the government has to take responsibility in achieving this goal. This is specifically used by environmental interest groups, CRE actors and some political parties. The secondary belief on which this discourse builds is the belief in the net-metering policy.

It is only since 2010 that this discourse has found support. Since then, it has been used by actors from multiple actor groups. In itself this discourse represents a coalition consisting of actors who collectively argue for the energy transition. This coalition exists of amongst others industry associations/sector organisations, political parties, energy suppliers, grid operators and CRE actors. Their collective efforts are visible in documents/statements in

which they collectively argue for the energy transition, such as: *“The investment in solar PV is for many consumers a great chance to contribute to the desired energy transition.”* (Rob Mulder, 2017). Despite the fact that it has been instrumental for connecting actors, this discourse has not lead to policy change. The reason for this is that everyone agrees on the policy core belief of “renewable energy”. This discourse was therefore not used in a discussion or in a collective effort.

Before 2010, the energy transition was a relatively new concept and the discourse was hardly used in the net-metering policy arena. This gave it a very low level of discursive power. After the concept gained ground, the discourse became used amongst actors from different actor groups and facilitated the shaping of a coalition based on the renewable energy belief. This increased the level of discursive power of this discourse to a high level. After some time, however, the number of actors who held on to the secondary belief in the net-metering policy reduced and the support for this discourse also decreased. Whereas actors still associated themselves with the policy core beliefs, this did not hold for the secondary beliefs. Furthermore, this discourse was accepted by so many actors, that it did not provide any reason to have a discussion. The active use of this discourse greatly reduced because of these reasons and the level of discursive power decreased to medium.

4.1.6. Keep the grid stable

This discourse argues that a diverse mix of renewable energy sources is needed to keep the grid stable. It is said that without policies only the cheapest renewable energy source will be exploited. A good mix is essential because of the intermittent nature of renewable energy. Since wind energy is currently the cheapest, a policy is needed to ensure that the uptake of solar PV is in line with the uptake of wind. A statement capturing this discourse is: *“For a good balance of the energy system, an increase of solar energy is needed alongside the increase of wind energy”* (Terpstra et al., 2017). The actors support the net-metering policy because it has been useful to increase solar PV uptake. However, they are open to alternative policies.

The discourse builds on the following policy core beliefs: energy security and solar energy. Energy security refers to the idea that it is of major importance for society to maintain a grid that is able to provide a stable and secure energy supply. This policy core belief is mainly pursued by the environmental interest groups in this discourse. The belief in solar energy concerns the belief that solar energy should have an important role in the energy system. The actors that expressed this belief were solar panel producers/suppliers, built

environment actors and CRE actors. The secondary belief of this discourse is the net-metering policy or any alternative policy that complies with the policy core beliefs. The alternative policies were not specified in more detail in the data sources examined.

The set of beliefs on which this discourse has been constructed was not instrumental for any long term cooperation between actors. There is thus no coalition that is based on this discourse. However, the main argument of this discourse was used as one of the arguments in the letter to the Minister of Economic Affairs and Climate, Wiebes (Terpstra et al., 2017). Since multiple arguments were used in this discourse, of which grid stability was only a minor one, the letter cannot be seen as collective effort that was based on this specific discourse. Aside from collective efforts, this discourse is individually supported and used by housing associations, solar panel producers/suppliers, environmental organisations and CRE actors.

In the period between 2000 and 2008 the level of discursive power was very low. Only in the period between 2008 and 2014 the discourse become more prevalent, but the level of discursive power remained low. After 2014, actors from different actor groups started to familiarize themselves with this set of policy core beliefs, and started to take up the discourse. This uptake increased the level of discursive power to medium, but no further increase in the level of discursive power has taken place after that.

4.1.7. Develop the PV sector

The core argument of this discourse is that we need to benefit from the potential growth of the Dutch solar PV sector. It is argued that we need to anticipate the growth of solar PV by ensuring development of the Dutch solar PV sector. This can lead to financial benefits and creation of jobs. Since the net-metering policy is one way to achieve this, the discourse is in favour of the net-metering policy.

The policy core beliefs on which this discourse relies are economic development and solar energy. The economic development belief refers to the idea that economic benefits should be optimized as much as possible. Of the actors using this discourse, it is mainly held by solar panel producers/suppliers and industry associations/sector organisations. The belief in solar energy refers to the belief that solar energy is going to, and has to, play an important role in the energy system. This belief is expressed by solar panel producers/suppliers. The main criteria of the secondary beliefs is that it should support the development of the PV sector. Since the net-metering policy is one way to do this, they are not opposed to it. However, any other policy that could achieve the same goal, is seen as a good alternative.

This discourse is only used by solar panel suppliers/producers and their industry association. This also means that no coalition has been shaped around this discourse. In line with this, the discourse has not led to any collective actions.

As is clear, the level of discursive power of this discourse has been low. The discourse has not led to any collective efforts or coalitions. Furthermore, the development of the solar PV sector is not taken up in any rules and hence this discourse has not been formalized. Because the discourse is not used by actor groups other than solar panel supplier/producer, the level of discursive power has not exceeded a low level. Its impact on the policy making process remained limited due to the lack of uptake by other actors.

4.1.8. The net-metering policy is too complex

In this discourse it is argued that policies should be as simple and convenient as possible in order to optimize their effectiveness. The actors using this discourse argue that the net-metering policy is too complex: *“Many consumers who supply back to the grid have a hard time not having to pay for the net-metered amount electricity [i.e. they are often billed for the net-metered amount of electricity].”* (Geertsma, 2006). This complexity partly arises due to the suggested registration of solar panels, the functioning of old meters and the criteria set out in the policy (e.g. only small grid connections). In addition, the availability of alternative policies (e.g. SDE, postcoderoosregeling) adds another layer of complexity as it is sometimes unclear for which policy one is eligible.

The arguments of this discourse mainly rely on the policy core belief of convenience. The belief in convenience is based on the idea that policies will be most effective in achieving their targets by having a simple, clear design. This discourse suggests that the net-metering policy should be improved or replaced with a more convenient policy. There is not one clear policy instrument supported by this discourse and hence there is no specific secondary belief. One suggestion that is made is a net-metering policy with less stringent criteria (i.e. no specific grid connection size). Another suggested policy instrument is a feed-in tariff with a fixed price, that can be universally used by everyone supplying electricity back to the grid.

Until 2011, this discourse was only used by a few CRE actors. After the increased uptake of solar panels, more complexities revealed themselves and the discourse was taken up by energy producers/suppliers, grid operators and built environment actors. However, actors from different actor groups kept separately bringing up why the net-metering policy was too complex for them. No collective efforts were found that highlighted the overall complexity of

the policy and hence it can be said that no coalitions were shaped around this discourse. In line with this, no policy change can be related to this discourse.

In terms of discursive power, this discourse has not reached a high level. Until 2011, it had a very low level of discursive power, as it was hardly used. Until 2011, more CRE actors started to use it which raised the level of discursive power to a low level. Around 2012, the discursive power level grew to medium as other actor groups took up the discourse. Since no further collective efforts were made, the level of discursive power remained medium.

4.1.9. The net-metering policy is too expensive

The reasoning behind this discourse is that policies should be cost-effective and not too expensive. Since the uptake of solar PV, the government's costs for the net-metering policy drastically increased. This discourse argues that the policy is now too expensive, especially considering the cost reduction of solar PV and the cheaper alternative policies. Only in 2015, the net-metering policy cost the Dutch government 80 million euros and this amount is only expected to increase (PWC, 2016).

The policy core beliefs of this discourse are affordability and economic development. Affordability refers to the belief that policies should be affordable. The policy core belief of economic development concerns the belief in the importance of the economy and the market as an instrument. Both policy core beliefs are expressed by political parties. The secondary belief of this discourse is a new policy, such as a feed-in tariff, which reduces the cost for the government and which is determined based payback time of solar panels.

Only two actor groups have used this discourse: regulating actors and political parties. The regulating actors are expected to be objective and take an informative role in the policy making process. Hence, they are not involved in any coalitions with political parties. Other actors have also acknowledged this discourse and they even agree with the fact that it is expensive. However, other actors are not directly affected by these costs and hence they have not actively used this discourse. Despite the absence of a coalition, the discourse can be related to policy change as it has been the main argument in October 2017 to replace the net-metering policy with an alternative policy.

With regard to the level of discursive power, the discourse has not reached more than a medium level of discursive power. In 2015, when uptake of solar PV increased and knowledge about the costs of the policy became available, this discourse came into existence.

It had a low level of discursive power, that quickly increased to medium. Since no collective efforts were made, the level has not increased any further.

4.1.10. The net-metering policy reduces grid stability

In this discourse the end goal is grid stability. According to this discourse, the unstructured approach that allows households to add a renewable energy source to the energy system is a risk for the grid stability: *“Until now, the grid could handle the small amount of net-metering. Grid operators like Liander and Tennet are worried what will happen if not only a few thousand, but a few millions of these mini electricity plants in homes permanently supply/consume from the grid.”* (Didde, 2017). They therefore, argue that the net-metering policy should be replaced with a policy that leads to a more structured addition of renewable energy to the energy system.

The discourse builds on the policy core beliefs: long-term policy planning, renewable energy and energy security. Long-term policy planning refers to the idea that a long-term approach is needed that will lead to a futureproof system. The belief in renewable energy refers to the belief that a shift should be made from fossil to renewable energy sources. The belief in energy security is concerned with a stable energy system. For the grid operators the belief in renewable energy and energy security are the main reasons to use this discourse. The secondary belief of this discourse is the belief in a more structured approach, that better manages the implementation of the amount of renewable energy sources, such as the SDE+. This policy consists of a fixed budget that serves as a capital subsidy for renewable energy projects. Projects can apply for money and are selected based on costs per MW.

This discourse is only used by grid operators and hence no coalitions with actors from other actor groups could be created. In line with this, the discourse cannot be related to any of the policy changes.

Like many of the other discourses, this discourse was only taken up in the period between 2011 and 2015, when the amount of solar PV increased. The discourse has not gained more than a low level of power, because it is only sporadically used and it has not become the dominant discourse for grid operators. For example, discourses like “the grid reduces innovative efforts” has been taken up by more actors within this actor group. Since, no actors from other actor groups took up this discourse, the level of discursive power has remained low.

4.1.11. Take into account technological and practical limitations

The core reasoning of this discourse is that policies have to be in line with the limitations set in society. In this case it refers to the type of electricity meter. These can be old electricity meters (Ferraris meters) that run backwards when electricity is supplied back to the grid, or smart meters, which separately register this. Within the discourse some actors argue that as long as there are old meters the net-metering should stay in place. However, other actors argue that smart meters are now the reality and hence the policy should be adapted.

The policy core belief of this discourse is representative policies. This means that the goal of policy making processes should be to ensure that policies are functional within the technological and practical boundaries provided by society. This also implies that policies should not necessarily be used to steer behavioural change, but in cases also support the status quo. The belief in representative policies was mainly adhered to by the CRE actors. The secondary belief of this discourse does not have one clear conceptualization. Whereas CRE actors argue for the net-metering policy, other actors, such as political parties, prefer a new policy. The actors in this discourse are thus held together by the policy core belief, but differ in terms of the secondary beliefs.

In 2004, this discourse was used by actors from actor groups such as grid operators, energy suppliers and government actors. Their efforts as a coalition resulted in policy change when net-metering came into existence. After the large scale implementation of the smart meter, the discourse was still supported by a broad range of actors. As elaborated above, they agreed on the policy core belief, but opinions differed in terms of the secondary beliefs. Although the discourse is widely supported, it has not resulted in any great collective efforts which led to policy change in recent years.

Over time this discourse has had a stable level of discursive power. At the outset of the studied period, multiple actors were using it, which gave the discourse a medium level of discursive power. Currently, the discourse is still supported by a broad range of actors and therefore it still has a medium level of discursive power.

5. Discussion

In the results, the discourses were elaborated in terms of their core argument, beliefs, actors, coalitions and level of discursive power. This chapter discusses the implications of these results. First, the implications regarding the discourses are considered. Next, the differences and congruencies of the discourses' policy core beliefs are discussed. While doing so,

potential future coalitions are revealed. To provide additional understanding, findings will be related to literature on other policy arenas. The findings are then used to discuss the practical implications for CRE. Finally, the theoretical implications and the limitations of this study are discussed.

5.1 Discourses

This study identified eleven discourses in the Dutch net-metering policy arena. The majority of these discourses became prevalent when the amount of solar PV increased. This can be devoted to the fact that many actors only became affected by the net-metering policy when the amount of solar PV increased. For example the costs of the policy increased and the reliability of the grid reduced (PWC, 2016). These growing implications caused actors to develop a perspective on the policy. This led to the presence of more structured discourses in the net-metering policy arena. In other parts of the energy arena the same principle can be recognized. In the context of wind, social resistance against wind energy often only develops if citizens become affected by wind energy themselves (Wüstenhagen et al., 2007). In the context of natural gas, the increased impacts of the gas drilling in Groningen, the Netherlands, led citizens and other actors (e.g. political parties) to developed a perspective on the issue (van der Voort & Vanclay, 2015). In the upcoming years, the amount of solar PV is expected to further increase (Ministerie van Economische Zaken, 2016). It is thus likely that in the next years, even more discourses will emerge as the policy's implications will further grow. On a broader level, people will also developed more structured views on renewable energy because the share of renewable energy in the Netherlands will also increase (Ministerie van Economische Zaken, 2016).

As more discourses develop and they become more frequently used, they also become more prevalent and identifiable in data sources (Pan & Kosicki, 1993). In this study, the increased observability of a discourse mainly occurred in terms of the policy core beliefs and less so in terms of the secondary beliefs. This can be explained by the use of storylines. The use of storylines implies that actors mainly base their arguments on the goals (i.e. policy core beliefs) and leave out the measures to achieve these goals (i.e. secondary beliefs). According to Hajer (2005) actors do this to prevent the discourse from becoming too complex and detailed. In line with this, Munoz et al. (2014) found that actors with common goals often have radically different opinions on the best way to achieve them. Duygan et al. (2018) also found that cooperation of actors often builds on the policy core beliefs and that secondary beliefs are left out to prevent conflict. As a consequence of all this, the text data sources used

in this study mainly contained the discourses and their underlying policy core beliefs. Because of this it was not possible to make statements regarding the interrelatedness of the policy core beliefs and secondary beliefs.

Another interesting finding is that many discourses are defined based on the policy in use, which is in this case the net-metering policy. One such discourse is “keep policies consistent”, which aims to maintain the current policy, irrelevant of the policy in place. Which policy instrument is supported by discourses can thus be dependent on the existing policy. This observation is in line with the argument of Hajer (2006) who argues that a discourse depends for an important part on the context in which it is exercised. The influence of the existing policy on discourses can have an important consequence, namely path-dependency. This means that earlier decisions affect the outcomes of later decisions (Thelen, 1999). Such dependency can be caused by, for example, capital investments made (i.e. households that bought solar panels) or by institutional or social resistance to change. Path dependency is also a characterizing factor of lock-in, which can have even more severe consequences (Van Den Bergh, Faber, Idenburg, & Oosterhuis, 2006). A lock-in scenario represents a situation in which decisions have been made that are very hard to reverse (Kaiserfeld, 2015; Unruh, 2000). The presence of path-dependency, or even lock-in, is an important concern, because it can be an important hurdle in the transition to a low-carbon economy (Goldthau & Sovacool, 2012). If a discourse is formalized it can thus be part of a path-dependency or lock-in situation. This shows that formalization of a discourse (i.e. integration in the rules) can be an important step in gaining discursive power. This is also in line with discourse theory which identifies discourse formalization as one of the two steps for gaining discourse dominance (M. A. Hajer, 2006). The ACF also identifies formalization as a crucial step that can lead to important policy changes (Jenkins-Smith et al., 2015).

Another interesting implication of the discourse findings is that actors with different discourses have used the results of the policy evaluation in 2016 in different ways. This difference is caused by selective use of information. Kleinschmit, Böcher and Giessen (2009) describe this as the politicisation of science. Giessen, Kleinschmit and Böcher (2009) emphasize the danger of such use of knowledge to pursue an actors interest rather than using it as a rational tool, because it can have important effects on its credibility. For example, the discourse “promote the energy transition” has used the evaluation’s results regarding the policy’s effectiveness in creating awareness about the energy transition. At the same time, actors with the discourse “the net-metering policy is too expensive” used the evaluation’s

results about how expensive the policy is. The selective use of information is in line with the definition of a discourse. In this definition it is said that each discourse has their own set of concepts and ideas to look at phenomena (M. A. Hajer, 2006). This finding shows that each discourse indeed selectively uses concepts to describe a phenomena. This selective use of knowledge is important to take into account in future research. The ACF, for example, considers empirical knowledge development as one the four pathways to policy change (Jenkins-Smith et al., 2015). However, as this research showed, even scientific knowledge can be used in different ways and hence its role in policy change has to be studied with care (Giessen et al., 2009; Sotirov & Memmler, 2012).

Despite the path-dependency and several discourses that wanted to maintain the net-metering policy, the government still decided to replace the policy with a feed-in tariff. This indicates that the discourses that wanted to replace the policy have been most influential. However, not all of these discourses had a high or very high level of discursive power. Understanding how this policy change took place can therefore provide relevant insights. To understand which discourses have been most influential, the considerations used in the policy making process of the new feed-in tariff can be discussed. These considerations correspond to five discourses:

1. Keep policies consistent
2. Make solar PV financially viable
3. Promote the energy transition
4. Develop the PV sector
5. The net-metering policy is too expensive

The fact that the first two discourses were considered in the policy making process is in line with the expectations. These discourses were encountered most often in the data sources. Both were used by many different actors and for both discourses coalitions were shaped. Based on their level of discursive power, they were likely to influence the policy making process. It has to be noted that even though they were considered in the policy making process, their desired policy change has not been realized. Actors with these discourses wanted to maintain the net-metering policy, yet it was replaced. The collective efforts of these discourses have thus not led to their secondary beliefs being realized. Only the policy core beliefs were taken into consideration during the policy making process. The third discourse that was considered is not surprising either. This discourse was agreed upon by all actors, and hence not a point of discussion in the policy making process. The last two discourses that have been used in the

policy making process are more surprising. For both discourses, there were no coalitions nor were they used by a wide range of actors. In the period between the analysis and the new policy announcement, from April 1st until June 15th, this might have changed, but based on the observations of the researcher, that is unlikely. The most probable reason why these discourses were considered is because they were used by political parties which guide the policy making process. According to Haugaard (2012) political parties are often privileged to structural power due to their elected position within the social system. Whereas the first three discourses seem to get their influence from the discursive power dimension, the latter two discourses seem to get their influence from other factors. Considering the type of actors, these factors are likely to be part of the structural and instrumental power dimensions (Lukes, 2005). The political parties that adhered to these discourse are those that have a majority coalition in the Dutch government. This shows that a discourse does not always have to be used by many actors, but that influence over the policy-making process can also be derived from other sources, such as the institutional settings (Dowding, 2008) or an actor's position in the system (Moe, 2010). It is important to acknowledge therefore, that this study has only looked at one power dimension, and hence does not provide a complete picture of the political power dynamics in the Dutch net-metering policy arena.

Another discourse that deserves to be highlighted is the discourse “the-net metering policy reduces innovative efforts”. This discourse was assessed as having a high level of discursive power. This means that multiple actors were using it and a coalition was created. Even though the new policy is in line with this discourse, it cannot be found that the discourse has been considered in the policy making process. Understanding why it has not been considered is relevant for understanding how future coalitions can ensure effectiveness. A first reason could be that the actors in the coalition were not powerful enough. In a study of the Dutch energy sector, Proka, Hisschemöller and Loorbach (2018) found that even though a discourse might be supported by a broad range of actors, one key incumbent often has the ability to overrule their interests. This dominance of incumbents also occurs in the Finnish energy policy arena, where the incumbents are found to suppress efforts of new entrants through a diverse set of strategies (Heiskanen et al., 2018). However, the composition of the coalition is unlikely to be the cause here, as incumbents supported this discourse. Another reason could be that the discourse was considered, but that this was not clear from the elaboration of the policy. Finally, it might be related to the policy core beliefs of this discourse. This potential explanation will be further discussed in the next section.

5.2 Policy core beliefs

A first discussion point regarding the policy core beliefs is understanding why some beliefs were not taken up by more than one group of actors. This can provide relevant insights that can help actors to increase uptake of their beliefs. The policy core beliefs that were expressed by only one group of actors are “maintain the net metering policy” and “affordability”. The discourse “maintain the net-metering policy” was held by a majority of CRE Actors. The lack of uptake of this belief can be explained by the fact that the net-metering policy is a policy instrument. Based on the definitions of the tiers of beliefs, the net-metering policy would classify as secondary belief rather than a policy core belief (Sabatier & Jenkins-Smith, 1993). However, CRE actors saw the net-metering policy as a goal in itself rather than an instrument to achieve other policy goals. Other actors might rely on the belief “maintain the net-metering policy” but have used it as a secondary rather than a policy core belief. The blurriness between the understanding of these two tiers of beliefs is also acknowledged by Sotirov and Memmler (2012) and Kukkonen, Ylä-Anttila and Broadbent (2017). However, using a policy instrument as policy core belief does not make it less susceptible to the secondary’s belief inherent nature of being a source for disagreement (Weible et al., 2009). The belief “affordability” is only expressed by some political parties. Other actors do not reject this belief, but they give more priority to other policy core beliefs. Since actors often have limited time/space to express their beliefs, they have to prioritize. Furthermore, one of the core hypotheses of the ACF states that a certain amount of informed conflict is a precondition for policy learning to take place. If actors would only use beliefs that other actors agree on, the likelihood of policy change is thus smaller (Cairney & Heikkila, 2014; Sotirov & Memmler, 2012).

Another discussion point is that there seem to be two clusters of actors in which actors have similar policy core beliefs (see table 3). The first cluster of actors consists of built environment actors, CRE actors and environmental interest groups. The second cluster consist of energy suppliers and grid operators. One overlapping belief between the clusters is “energy security”. This policy core belief could provide common ground between the actors of these two clusters. However, the policy core belief is used in a contradicting way, specifically in the discourses “keep the grid stable” and “the net-metering policy reduces grid stability”. Both discourses rely on the policy core belief “energy security”, but they differ in their opinion on the implications of the net-metering policy on energy security. Instead of creating common ground, facilitating coalition shaping and potentially inducing policy change, the policy core

belief has thus created controversy. However, the common belief could be used in the future to facilitate cooperation. The important role of energy security in the energy policy making process is not brought forward for the first time. Other studies have also identified it as an important aspect of the policy making process that is often the source of disagreements (Bang, 2010; Papież, Śmiech, & Frodyma, 2018; Sovacool & Saunders, 2014).

Aside from ‘energy security’ there are other policy core beliefs which are used in multiple discourses, but that have failed to fulfil their potential as common ground. These are “renewable energy”, “solar energy” and “innovation”. There are a number of reasons that can explain the lack of cooperation on these policy core beliefs. In the first place, other policy core beliefs of actors can be too diverging. For example, although actors believe in renewable energy, their opinions might differ in terms of other policy core beliefs such as social justice. In turn, it can also be the case that the actors secondary beliefs are too divergent. However, this is less likely to be the reason for the absence of possible coalitions. Ingold (2011) found that coalitions can be shaped around policy core beliefs, even though the actors’ secondary beliefs differ.

Another reason could be that actors that share policy core beliefs are not able to produce collective efforts. They might lack resources or access to the right people. This relates to back to the remark that the composition of a coalition matters for its ability to influence the policy making process (Matti & Sandström, 2011). For example, the social support of societal actors can lead to socio-political legitimacy needed for a discourse to be accepted (Steffek, 2003). At the same time, inclusion of a large incumbents can provide important resources (Geels, 2014). Kooij et al. (2018) argue specifically that the involvement of an incumbent in a bottom-up coalition is major importance for the possibilities to produce collective efforts. The composition of the coalition can thus be an important reason for the absence of collective efforts.

A third explanation for the absence of collective efforts is that common beliefs were not recognized. Actors that shared the policy core beliefs were unaware of the commonalities and it never occurred to them to engage in a collective effort. In the analysis it seemed as if many actors had the same end goal, but used their own framing to pursue this end goal. These framings are in essence the core of discourse theory that is used in this study (M. A. Hajer, 2005). In turn, potential collaborations are being unexploited. Practitioners could use this studies’ findings regarding common discourses and policy core beliefs, to investigate potential coalitions.

Another explanation could be that collective efforts were not observable in the data sources used in this study. This is a likely explanation since this study mostly relied on news articles, magazine articles and scientific articles. These data sources might not capture the “behind the screens” collaboration that other data collection methods, such as interviews, could have captured (Alshenqeeti, 2014; Berg, 2007). One example of a collaborative effort that was not observed is the collective effort coordinated by the NVDE. In a collective effort with other actors (e.g. grid operators) they proposed an alternative for the net-metering policy to the government (Nederlandse Vereniging Duurzame Energie, 2017). Although this collective effort did not become clear in the data analysis, it has influenced the policy making process. The findings of this study should therefore be seen as a broad, but not all-encompassing picture of the Dutch net-metering policy arena. Overall, there are thus various reasons why common policy core beliefs have not led to collective efforts.

In contrast to the policy core beliefs discussed above, some beliefs have been instrumental in collective efforts. Specifically, the beliefs “long-term policy planning”, “active government support”, “renewable energy” and “social justice/equality” have taken such a role. These have been specifically instrumental in the letter of December 2017 send to the Minister of Economic Affairs and Climate (Terpstra et al., 2017). A broad range of actors was involved in this collective effort. Many of these actors had these policy core beliefs in common. This underlines that support of a policy core belief amongst a broad range of actors is an important factor driving coalition shaping (Matti & Sandström, 2011; Sabatier, 1988). The policy core beliefs on which this collective effort relied specifically matched with the policy core beliefs of built environment actors and CRE actors. The correspondence between the beliefs of the coalition and built environment actors can be explained by the fact that they initiated the collective effort. An important observation is also that the policy core beliefs of CRE actors are in line with those of built environment actors. This could be relevant in their search for creating coalitions to increase their ability to induce policy change.

A final discussion point is which policy core beliefs are integrated in the new policy, the feed-in tariff. The policy core beliefs that can be recognized are “active government support”, “financial incentivization”, “renewable energy” and “affordability”. These policy core beliefs correspond to the discourses that were considered in the policy making. The actors that adhere to the considered policy core beliefs are political parties, CRE actors, environmental interest groups and built environment actors. The inclusion of the beliefs of the political parties underlines the use of their privileged position as policy makers. The inclusion of the beliefs of

the other actors can be explained by their involvement in the big collective effort that resulted in the letter to the minister. This indicates that the collective effort has been successful in ensuring that the coalition's policy core beliefs were considered in the policy making process. However, it has to be said that this does not mean that the actors are satisfied with the new policy. For some actors, such as CRE actors, their other policy core beliefs were not considered in the policy making process. The implications for CRE actors are further discussed in the next section.

5.3 Practical implications for CRE

This study focused on the effect of the increase in CRE on political power dynamics. There are a number of ways in which CRE actors have affected the net-metering policy arena. First, CRE actors were found to use seven of the eleven discourses in the Dutch net-metering policy arena. The use of discourses by CRE actors has contributed to an increased level of discursive power of these discourses. The use increased the number of actors supporting the discourses and the resources available to express them. A further increasing amount of CRE will provide a further increase in level of discursive power for the discourses used by CRE actors. Second, CRE actors have participated in collective efforts such as the letter sent to the parliament in December 2017. The participation of the CRE actors in this collective effort increased the effort's momentum which increased the likelihood of the collective effort resulting in policy change. Based on the findings the marginal contribution of CRE actors to collective efforts cannot be directly related to policy changes. However, the collective efforts in which they were involved did lead to policy change.

The use of discourses and the participation in collective efforts by CRE actors also increased the level of discursive power of CRE actors themselves. Over time, CRE has thus provided power to other actors and discourses, but also to CRE actors. Despite this increase, it seems that CRE actors still have a low level of power compared to other actors such as large incumbents. CRE actors are still struggling to have their discourses and policy core beliefs integrated in policies. Based on the latest policy change and the discourses and policy core beliefs on which this change builds, it can be said that the increase in the amount of CRE has marginally affected the policy process and the policy outcome. Although some of the discourses and beliefs of CRE actors were considered, the majority of discourses and policy core beliefs of CRE actors were not considered. If the amount of CRE further increases, it might have the potential to gain a higher level of discursive power. This could result in broader support for the discourses and more resources to express the discourses and organize

collective efforts. This could lead to policy change that integrated more policy core beliefs of CRE actors.

Taking into account the recent announcement of the feed-in-tariff, it is not expected that any new policy change will occur on the short term. The discourses that were assessed as most powerful are now formalized. This also means that there remain no powerful discourses that dispute the new policy. There are, however, a few small discourses that remain unaccounted for. One pathway that could lead to policy change is negotiated agreements between these discourses. As elaborated before, there are a number of discourses and policy core beliefs that could provide common ground to shape coalitions. A discourse that could for example be used is “keep the grid stable”. A policy core belief that could be instrumental is “energy security”. Specifically, the actors that showed commonalities with CRE actors could be an important ally in the process of cross-coalition learning. The actors that were identified to have similar discourses and policy core beliefs were built environment actors and environmental interest groups. If these findings are effectively used, it might lead to an increased level of discursive power of CRE actors. In addition, a further increase of CRE could also increase the role of CRE actors and give them a more important role in coalition shaping.

5.4 Theoretical implications

This study has a number of theoretical implications. First, this research has applied an adaptation of the power framework laid out by Brisbois (2018), and has operationalized and applied the concept of discursive power. This demonstrates the usability of the framework and the discursive power concept to understand political power dynamics. Moreover, this research has combined power theory, discourse theory and the ACF to study the role of discourses in the policy making process. This aids in the understanding of the role of discourses in policy change. Furthermore, this research has studied the role of CRE actors in the policy making process. This provides input for the literature on CRE and the energy transition from a political science perspective. It also aids in understanding what role CRE actors play in policy making and how they affect political power.

5.5 Limitations and further research

Although the discourse analysis in this study builds on a fundamental basis of power theory, discourse theory and the ACF, there are a number of limitations that affect the validity and reliability. External validity is affected due to the case study methodology. Results of this case

might not be generalizable to other cases (Verschuren & Doorewaard, 2010). Overall validity was affected by three factors. First, practices through which discourses are expressed were excluded from this research due to time limitations. Second, for the same reason, no interviews were conducted, which could have been a valuable extension to the text data sources. Third, the majority of the data sources were newspaper and magazine articles. Few lobby articles were retrieved since not all actors were willing to share the documents. According to Svendsen (2011) the lack of willingness to share lobby information is an inherent, but important aspect of the energy policy arena. There is no easy alternative way to get hold of secret lobby documents and hence this limitation is unavoidable (M. A. Hajer, 2006). Furthermore, the inherent qualitative interpretative character of the discourse analysis and emergent coding has impacted the reliability of this study (Saldana, 2012). An attempt is made to reduce this effect by building an initial coding framework based on literature and to follow a consequent coding approach.

Another improvement of this study would be to apply a more structured approach for relating the policy core beliefs with the actors. This study identified the connection between policy core beliefs and actors by using their common presence in discourses. An approach that would focus on directly relating the policy core beliefs to the actors could have provided more detailed and accurate results. The structured approach taken in this study ensures that the results still provide an important understanding of the discursive power dynamics in the Dutch net-metering policy arena.

Another limitation is that the net-metering policy is part of broader energy transition. It is expected that other policy subsystems influence the net-metering policy subsystem. This research only looked at the individual policy subsystem and has not taken into account external dynamics. Including external dynamics could be an important addition to this research (Sabatier, 1988). Moreover, the net-metering policy is part of a very recent debate, which made it impossible to include the most recent data sources. Nevertheless, it still provides the important practical and theoretical implications.

This research provides a starting point for further research in a number of ways. First, it provides a basis to study how the discussion of net-metering can be related to the energy transition discussions. Furthermore, further research could extend this research by performing interviews to increase validity. Further research could also focus on the practices through which discourses were expressed. This could improve the validity and understanding of how discourses and practices are related. Furthermore, future research could focus on the other

structural and instrumental power dimension in the Dutch net-metering policy arena, to better understand interaction between the power dimensions.

6. Conclusion

This research aimed to understand how CRE actors have shaped the political discourses in the net-metering policy arena in the Netherlands. CRE actors were found to be broadly present in the policy arena because they were associated with 7 of the 11 identified discourses. This reveals that CRE actors are actively trying to take an important role by engaging with multiple discourses. Furthermore, CRE actors have participated in a number of coalitions and collective efforts. Their involvement increased the momentum of these collective efforts. These collective efforts also resulted in policy change. However, the marginal contribution of CRE actors cannot be directly related to policy change. Additionally, CRE actors have not initiated any new coalitions or collective efforts themselves, but they have rather joined existing efforts.

This study also investigated the implications that CRE actors may have on the future energy policy. Currently, the likelihood that CRE actors will induce policy change by themselves is very small. Although they have some discursive power by means of the discourses that they support, their structural and instrumental power are rather low. This is displayed by the current situation of the net-metering policy arena in which the political parties and the government replaced the net-metering policy with a feed-in-tariff. In the near future, CRE actors are thus not yet expected to influence the energy policy arena to a large extent due to the high level of power of incumbents and other actors. Considering their active involvement in the policy arena, it is likely that when the amount of CRE further increases, the discursive power of CRE actors will also increase. Concluding, CRE actors are thus more likely to become influential if they are able to increase their level of discursive power and transfer it to the other dimensions of power.

7. References

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Appendix A – Data collection results

Scopus – first search cycle

Search terms	Number of results	Number of results in time frame	Relevant results*	Date
Salderen	0	0	0	10-4-2018
Salderingsregeling	0	0	0	10-4-2018
terugleversubsidie	0	0	0	10-4-2018
teruglever*	2	0	0	10-4-2018
Net-metering Netherlands	3	3	3	10-4-2018
Net-metering policy Netherlands	1	1	1	10-4-2018
Back supply subsidy Netherlands	1	1	0	10-4-2018
Back supply Netherlands	64	48	2	10-4-2018

LexisNexis – first search cycle

Search terms	Number of results	Number of results in time frame	Relevant results*	Date
Salderen	706	669	190	10-4-2018
Salderingsregeling	296	295	113	10-4-2018
terugleversubsidie	10	10	0	10-4-2018
teruglever* AND stroom	183	178	50	10-4-2018

Hand search – first search cycle

Number of results
11

* The number of relevant results is lower than the number of results in the time frame due to other applications of the words used in the search strings. In addition, it is accounted for that some articles were published in multiple media.

Scopus – second search cycle

Search terms	Number of results	Number of results in time frame	Relevant results*	Date
net-billing Netherlands	0	0	0	7-5-2018

LexisNexis – second search cycle

Search terms	Number of results	Number of results in time frame	Relevant results*	Date
saldering AND (stroom or saldering)	63	63	36	7-5-2018

Hand search – second search cycle

Number of results
0

Appendix B – List of data sources

Documents from and to the government

Nvivo name	Title	Author(s)	Year
Brief aan Wiebes (2017)		Henis, F., Terpstra, D., Norder, M., Fokkema, J., Meijers, L., Bouwens, C., ... Brester, C	2017
Brief veh aan regering (2017)	Onduidelijkheid salderingsregeling	R. Mulder	2017
Kamp (2017a)	Evaluatie salderingsregeling	H. Kamp	2017
Kamp (2017b)	Vervolg salderingsregeling	H. Kamp	2017

Reports

Nvivo name	Title	Author(s)	Year
Ali & Kazmi (2017)	Minimizing Grid Interaction of Solar Generation and DHW Loads in nZEBs Using Model-Free Reinforcement Learning	Ali & Kazmi	2017
Huijben & Verbong (2013)	Breakthrough without subsidies? PV business model experiments in the Netherlands	Huijben & Verbong	2013
Soshinskaya, Crijns-Graus, Van der Meer & Guerrero (2014)	Application of a microgrid with renewables for a water treatment plant	Soshinskaya, Crijns-Graus, van der Meer, Guerrero	2014
Strachan & Dowlatabadi (2002)	Distributed generation and distribution utilities	Strachan & Dowlatabadi	2002
Delgado, Kotireddy, Ceo, Hasan, Hoes, Hensen & Sirén (2018)	Lifecycle cost and CO2 emissions of residential heat and electricity prosumers in Finland and the Netherlands	Benjamin Manrique Delgado; Rajesh Kotireddy; Sunliang Cao; Ala Hasan; Pieter-Jan Hoes; Jan. L.M. Hensen; Kai Sirén	2018

Scientific articles

Nvivo name	Title	Author	Year
Merosch (2015)	De effecten van en oplossingen voor aanpassing van salderingsregeling op NOM-woningen in 2020	Merosch	2015
Kema (2010)	National Survey Report of PV Power Applications in the Netherlands 2009	KEMA Nederland BV, J-ob & TU/e	2010
PWC (2016b)	De toekomstige impact van salderen	PWC	2016
ECN (2017)	De salderingsregeling: Effecten van een aantal hervormingsopties	ECN	2017

PWC (2016a)	De historische impact van salderen	PWC	2016
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Webpage/newspaper articles

Newspaper Article	Newspaper	Title	Author(s)	Year
AD (2011)	AD	Amsterdam test zonnepanelen	Unassigned	2011
AD (2014)	AD	Juist door er te zijn kon Bosman leren loslaten	Unassigned	2014
AD (2016)	AD	Nederland loopt niet warm voor Tesla's powerwall	David Bremmer	2016
AD (2018)	AD	Zet nu door met duurzame energie	Arwen Kleynveld	2018
ANP (2011)	ANP	Amsterdam begint met proef zonnepanelen (2)	Paula van Rooij	2011
ANP (2013)	ANP	BTW dreigt voor particulier met zonnepanelen	Gerard den Elt	2013
ANP (2014)	ANP	Klantenservice energiebedrijven ondermaats	Jorian van der Morst	2014
ANP (2017)	ANP	Salderingsregeling zonnepanelen blijft	David Davidson	2017
ANP (2017b)	ANP	Energienota 200 euro hoger door plannen	Sjoerd Schotten	2017
ANP (2018)	ANP	Flinke groei in zonnepanelen Nederland	Marnix Heijboer	2018
BN De Stem (2012)	BN De Stem	Energieplannen voor groot duurzaamheidsknooppunt langs traject HSL in Breda, Zonnepark bij Princeville	Edine Wijnands	2012
BN De Stem (2018)	BN De Stem	Brieven	Unassigned	2018
BN De Stem (2018b)	BN De Stem	Zaamslag Duurzaam gaat in zonne-energie	Guido van der Heijden	2018
Bodegraafs Nieuwsblad (2016)	Bodegraafs Nieuwsblad	Zonnepanelen op bibliotheek in Vergeer	Unassigned	2016
Bodegraafs Nieuwsblad (2016a)	Bodegraafs Nieuwsblad	Voorlezen bij de Read Shop info avond zon Reeuwijk Tabletcafe	Unassigned	2016
Boerderij (2010)	Boerderij	Zonnepanelen een zeker investering	Tjitske Ypma	2010
Boerderij (2012)	Boerderij	Grootschalig zonnepanelen op stallen kan nog niet	Rene Stevens	2012
Boerderij (2012a)	Boerderij	Zonnepanelen op boerendaken nu hot	Tjitske Ypma	2012
Boerderij (2012b)	Boerderij	Chinees zonnepaneel voor groene energie	Wijnand Hogenkamp	2012
Boerderij (2013)	Boerderij	Zonnepaneel in stroomversnelling; Vooral veehouder en akkerbouwer investeren	Esther de Snoo	2013
Boerderij (2013b)	Boerderij	Energieakkoord maakt ruimte voor coöperaties	Tjitske Ypma	2013
Boerderij (2017)	Boerderij	Zonnepanelen in trek door saldering	Mariska Vermaas	2017
Boerderij Vandaag (2012)	Boerderij Vandaag	CDA plan voor duurzame energie energieopwekking; 'Tien procent energie decentraal opwekken'	Mariska Vermaas	2012
Boerderij Vandaag (2012a)	Boerderij Vandaag	Wijffels: verruim regels salderen groene energie	Mariska Vermaas	2012
Boerderij Vandaag (2012b)	Boerderij Vandaag	LTO Commerce pusht zonnepanelen	Jan Cees Bron	2012
Boerderij Vandaag (2012c)	Boerderij Vandaag	Wetgeving beperkt grootschalig gebruik van zonnepanelen	Esther de Snoo	2012

Boerderij Vandaag (2013)	Boerderij Vandaag	Zonnestroom voor iedereen; Boeren bieden staldaken aan voor productie zonne-energie	Aart van Cooten	2013
Boerderij Vandaag (2015)	Boerderij Vandaag	Knopen doorhakken over zonnepanelen	Bart Westenbrink	2015
Boerderij Vandaag (2015a)	Boerderij Vandaag	Zon wordt de grootste energiebron	Johan Oppewal	2015
Boerderij Vandaag (2017)	Boerderij Vandaag	Zonnepanelen steeds minder in trek	Mariska Vermaas	2017
Brabants Dagblad (2012)	Brabants Dagblad	Verschillen in professionaliteit	Jan Bekkering	2012
Brabants Dagblad (2013)	Brabants Dagblad	Verstand van energiezaken én goed hart	Maarten van den Hurk	2013
Brabants Dagblad (2014a)	Brabants Dagblad	Slimme meter kan eigenaar zonnepanelen geld gaan kosten	Mathijs Noij	2014
Brabants Dagblad (2014b)	Brabants Dagblad	Lezersbrieven	Unassigned	2014
Brabants Dagblad (2016)	Brabants Dagblad	Vragen	Irene van den Berg	2016
Brabants Dagblad (2017)	Brabants Dagblad	Stroom van de zon	Unassigned	2017
Cobouw (2012)	Cobouw	Energievoorziening is geen hoofdpijndossier	Marcel Engels	2012
Cobouw (2013)	Cobouw	Nul op de meter is geen energiedingetje	Marc Doodeman	2013
Cobouw (2013a)	Cobouw	Het onverstand	Ferry Heijbrock	2013
Cobouw (2013c)	Cobouw	Salderingsregeling is niet vol te houden	Unassigned	2013
Cobouw (2014)	Cobouw	Is all-electric DE oplossing?	Harm Valk	2014
Cobouw (2014a)	Cobouw	Zonnepaneel als gebouwdeel	Jan Sint-Nicolaas	2014
Cobouw (2014b)	Cobouw	Gemeenten moeten over hun grens kijken	Robbert Coops	2014
Cobouw (2014c)	Cobouw	Praktijkproef met opslag zonnestroom	Ad Tissink	2014
Cobouw (2014d)	Cobouw	Netbeheerders anticiperen op groei private energie	Bart Mullink	2014
Cobouw (2015)	Cobouw	Vergaande industrialisatie vereiste voor werkelijke verduurzaming	Ad Tissink	2015
Cobouw (2015a)	Cobouw	Blijburg blijft trouw aan duurzame pijlers	Ad Tissink	2015
Cobouw (2015b)	Cobouw	Verfijn regeling voor saldering geleidelijk	Bart Mullink	2015
Cobouw (2015c)	Cobouw	Toekomst nom onder druk	Michiel Maas	2015
Cobouw (2015d)	Cobouw	Saldering hard nodig voor nom	Michiel Maas	2015
Cobouw (2015e)	Cobouw	Proef helpt 'energiefile' te bestrijden	Jean Quist	2015
Cobouw (2015f)	Cobouw	Gevolgen energietransitie voor energienet en energie-opslag	Unassigned	2015
Cobouw (2015h)	Cobouw	Zoncooperatie wint aan populariteit	Ad Tissink	2015
Cobouw (2016)	Cobouw	Nieuwe woning, zonnepanelen liggen verderop	Bart Mullink	2016
Cobouw (2016a)	Cobouw	Afschaffen salderingsregeling is einde private zonne-energie	Ferry Heijbrock	2016
Cobouw (2016b)	Cobouw	Aan minister Blok	Unassigned	2016
Cobouw (2016c)	Cobouw	Bouw onnodig bang voor snelle transitie's	Unassigned	2016
Cobouw (2016d)	Cobouw	In een zwerm loont de thuisbatterij wel	Ad Tissink	2016

Cobouw (2016e)	Cobouw	Nul op de meter moet nice to have worden	Unassigned	2016
Cobouw (2016f)	Cobouw	Salderingsregeling remt af	Unassigned	2016
Cobouw (2016g)	Cobouw	Leven van de	Ad Tissink	2016
Cobouw (2016h)	Cobouw	Duidelijkheid over saldering in 2017	Ferry Heijbrock	2016
Cobouw (2016i)	Cobouw	Steun voor vergoeding NOM-woning	Ferry Heijbrock	2016
Cobouw (2018)	Cobouw	De friese fetisj voor circulair: zonder passie dood in de pot	Unassigned	2018
Dagblad de Limburger (2013)	Dagblad de Limburger	Particulier kan BTW panelen terugkrijgen	Unassigned	2013
Dagblad de Limburger (2016)	Dagblad de Limburger	Zonnepanelen straks op maat gemaakt	Nick Bruls	2016
Dagblad van het Noorden (2011)	Dagblad van het Noorden	Goedkope zonnepanelen uit China	Mannus van der Laan	2011
Dagblad van het Noorden (2013)	Dagblad van het Noorden	Eneco en Veenkoloniale samen verder	Pieter Broesder	2013
Dagblad van het Noorden (2016)	Dagblad van het Noorden	Onzekerheid remt zonne-energie	Bart van Zoelen	2016
Dagblad van het Noorden (2016b)	Dagblad van het Noorden	Geld toe bij laag energieverbruik	Mannus van der Laan	2016
Dagblad van het Noorden (2017)	Dagblad van het Noorden	Zorgen over regeling zonnepanelen	Unassigned	2017
Dagblad van het Noorden (2017b)	Dagblad van het Noorden	Bewoners haken af bij dure energiemaatregelen	Frits Poelman	2017
De Dordtenaar (2013)	AD/De Dordtenaar	Europese subsidie zonnepanelen	Unassigned	2013
De Dordtenaar (2013b)	AD/De Dordtenaar	Nieuwe daken gezocht voor zonnestroom	Unassigned	2013
De Dordtenaar (2014)	AD/De Dordtenaar	Stroom van ander dak	Andre Oerlemans	2014
De Dordtenaar (2015)	AD/De Dordtenaar	Plein vol zonnepanelen	Andre Oerlemans	2015
De Dordtenaar (2017)	AD/De Dordtenaar	Regio haalt mijlpaal van 10 megawatt	Andre Oerlemans	2017
De Gelderlander (2012)	De Gelderlander	Uitstel van zonnepark Silvolde	Unassigned	2012
De Gelderlander (2014)	De Gelderlander	Samson 'effe weg van de Randstad' op z'n plek bij Nedap	Domien Esselink	2014
De Gelderlander (2018)	De Gelderlander	Help iedereen duurzamer te worden	Jan Jacob van Dijk	2018
De Schakel (2017)	De Schakel	Zonnepanelen, nu doen	Unassigned	2017
De Schakel (2017b)	De Schakel	Financiering	Unassigned	2017
De Schakel (2017c)	De Schakel	Salderingsregeling	Pieter van Deursen	2017
De Schakel (2017d)	De Schakel	De thuisbatterij	Unassigned	2017
De Schakel (2017e)	De Schakel	Slimme apparaten	Unassigned	2017
De Schakel (2018)	De Schakel	Verduurzaming ook voor huurders	Unassigned	2018
De Stentor (2012)	De Stentor/Deventer	Deventer kan fluiten naar subsidie zonnepark	Harry Hekkert	2012

	Dagblad			
De Stentor (2012a)	De Stentor/Deventer Dagblad	Unassigned	Unassigned	2012
De Stentor (2012b)	De Stentor/Deventer Dagblad	Plan zonnepark naar Den Haag	Unassigned	2012
De Stentor (2013)	De Stentor/Sallands Dagblad	Cooperatie krijgt tien mille van Dalfsen	Unassigned	2013
De Stentor (2013a)	De Stentor/Sallands Dagblad	Bedrijven hopen op eigen elektriciteit	Unassigned	2013
De Stentor (2013b)	De Stentor/Deventer Dagblad	Energieakkoord ook lokaal impuls economie	Sander Grootendorst	2013
De Stentor (2013c)	De Stentor/Dagblad Flevoland	Schaduw over zonnepanelensucces	Frans Ebeltsjes	2013
De Stentor (2013d)	De Stentor/Deventer Dagblad	Zonnepanelen op het Deventer industrieterrein zijn nauwelijks te vinden. Energie-akkoord oplossing? Alleen met loop panelen te vinden.	Unassigned	2013
De Stentor (2013e)	De Stentor/Gelders Dagblad	Maak van je huis een energiecentrale	Unassigned	2013
De Stentor (2013f)	De Stentor/Deventer Dagblad	Energieakkoord: sallcon krijgt 1500 zonnepanelen op zijn dak	Sander Grootendorst	2013
De Stentor (2015)	De Stentor/Apeldoornse Courant	Duurzame energie deA geeft uitleg over zonnepanelen	Unassigned	2015
De Stentor (2015b)	De Stentor/Deventer Dagblad	Investeren in zon blijft snel geld opleveren	Harry Hekkert	2015
De Stentor (2015c)	De Stentor/Gelders Dagblad	Tweehonderd zonnepanelen onder de sneeuw	Gerrit Jan Riedstra	2015
De Telegraaf (2009)	De Telegraaf	Stad van de Zon nog niet; Prins Willem Alexander opent vandaag wijk zonneklaar	Unassigned	2009
De Telegraaf (2012)	De Telegraaf	De zon op je dak; energiespreekuur	Unassigned	2012
De Telegraaf (2012b)	De Telegraaf	Overstap loont	Unassigned	2012
De Telegraaf (2012c)	De Telegraaf	Aan de slag met zonne-energie; Per 2 juli 2012 subsidie van 15%	Unassigned	2012
De Telegraaf (2013)	De Telegraaf	Onduidelijkheid zonnepanelen	Unassigned	2013
De Telegraaf (2014)	De Telegraaf	Kater huishoudens met zonnepanelen	Unassigned	2014
De Telegraaf (2014a)	De Telegraaf	Licht op zonnepanelen; Opbrengst onder vuur door mogelijk verdwijnen salderingsregeling	Unassigned	2014
De Telegraaf (2014b)	De Telegraaf	Voors en tegens; Slimme meter	Unassigned	2014

De Telegraaf (2015)	De Telegraaf	Energieverspilling	Wouter van Bergen	2015
De Telegraaf (2015a)	De Telegraaf	Zonnetje in huis; panelen	Bernard Vogelslang	2015
De Telegraaf (2015b)	De Telegraaf	Tesla-accu's niet rendabel	Wouter van Bergen	2015
De Telegraaf (2016)	De Telegraaf	Transitie niet ten koste koopkracht	Patrick Lammers	2016
De Telegraaf (2016b)	De Telegraaf	Utrecht wil steun Rijk voor zonne-energie	Unassigned	2016
De Telegraaf (2016c)	De Telegraaf	Elektriciteit kopen van de buurman	Wouter van Bergen	2016
De Telegraaf (2017)	De Telegraaf	Rendement zit vooral in jezelf	Patricia Boon	2017
De Telegraaf (2017a)	De Telegraaf	Besparen op energie loont zeker	Patricia Boon	2017
De Telegraaf (2017b)	De Telegraaf	Dit bedrijf is het waard om voor te vechten	Edwin van der Schoot	2017
De Telegraaf (2017c)	De Telegraaf	Daken vol zonnepanelen	Unassigned	2017
De Telegraaf (2017d)	De Telegraaf	Salderingsregeling onduidelijk	Unassigned	2017
De Telegraaf (2017e)	De Telegraaf	Goud blinkt voor de zon	Wouter van Bergen	2017
De Telegraaf (2017f)	De Telegraaf	Zonnepanelen in 't zonnetje	Wouter van Bergen	2017
De Telegraaf (2017g)	De Telegraaf	Baten zonnepanelen niet gelijk verdeeld	Wouter van Bergen	2017
De Telegraaf (2017h)	De Telegraaf	Brieven	Unassigned	2017
De Telegraaf (2017i)	De Telegraaf	Terugleveren stroom van zonnepanelen	Unassigned	2017
De Volkskrant (2011a)	De Volkskrant	Atoomstroom wil graag zonne energie	Michael Persson	2011
De Volkskrant (2011b)	De Volkskrant	Amsterdam zoekt zelf zon op	Michael Persson	2011
De Volkskrant (2012)	De Volkskrant	Eneco: Fiscale maatregelen nodig voor duurzame energie	Michael Persson	2012
De Volkskrant (2012b)	De Volkskrant	Overdag vang je de zon, s'avonds zit je eronder	Michael Persson	2012
De Volkskrant (2015)	De Volkskrant	Consument moet in zon geloven	Wilfried van Sark	2015
De Volkskrant (2015a)	De Volkskrant	Vind een zonnedak bij u in de buurt	Jeroen Trommelen	2015
De Volkskrant (2015b)	De Volkskrant	Een accu van Tesla aan de muur, levert dat wat op?	Bard van de Weijer	2015
De Volkskrant (2015c)	De Volkskrant	Burger gaat aan de haal met duurzame energie	Peter de Smet	2015
De Volkskrant (2015d)	De Volkskrant	Seks en theaterschool Het onderwijsklimaat van de	Unassigned	2015
De Volkskrant (2015e)	De Volkskrant	Utrechtse primeur met opslag stroom in elektrische auto's	Jeroen Trommelen	2015
De Volkskrant (2015f)	De Volkskrant	Donkere wolken boven zonneakker	Jeroen Trommelen	2015
De Volkskrant (2016)	De Volkskrant	Niet voor niets gaat de zon op	Gerard Reijn	2016
De Volkskrant (2016a)	De Volkskrant	Wat wil Den Haag met het klimaat?	Gerard Reijn	2016
De Volkskrant (2016b)	De Volkskrant	Volgooien, dat dak	Unassigned	2016
De Volkskrant (2017)	De Volkskrant	Teruglevertarief zonnepanelen blijft behouden	Unassigned	2017
De Volkskrant (2017b)	De Volkskrant	Iedereen een energieopwekkend huis met superbatterij	Rene Didde	2017
De Volkskrant (2017c)	De Volkskrant	Alle stralen pakken zon	Bart van de Weijer	2017
De Volkskrant (2017d)	De Volkskrant	Energiecentrale aan huis	Gerard Reijn	2017
De Volkskrant (2018)	De Volkskrant	Iedereen het net op	Bart van de Weijer	2018
De Volkskrant (2018a)	De Volkskrant	Zonnepanelen lucratiever op andermans dak	Gerard Reijn	2018

De Vonk (2018)	De Vonk	Postcoderoos	Unassigned	2018
Eindhovens Dagblad (2013)	Eindhovens Dagblad	Zonnepaneel wint terrein in Kempisch buitengebied	Twan Linders	2013
Eindhovens Dagblad (2014)	Eindhovens Dagblad	E.ON kan de teruggeleverde elektriciteit nog eens verkopen. Eerlijk salderen zonne-energie is er niet bij	Unassigned	2014
Eindhovens Dagblad (2015)	Eindhovens Dagblad	Eindhovense 'Audi' loopt voorop in zonne-energie	Hanneke van den Nieuwenhof	2015
Eindhovens Dagblad (2017)	Eindhovens Dagblad	Zonnepanelen niet langer aantrekkelijk	Michel Theeuwen	2017
Eindhovens Dagblad (2017a)	Eindhovens Dagblad	Brieven	Unassigned	2017
Eindhovens Dagblad (2017b)	Eindhovens Dagblad	Echte banen dankzij energietransitie	Henk Daalder	2017
Eindhovens Dagblad (2017c)	Eindhovens Dagblad	Vijf hectare panelen in Best Zuid	Geert van Elten	2017
Eindhovens Dagblad (2017d)	Eindhovens Dagblad	Slim verwarmen met zonnepanelen van start-up Duroplan uit Mierlo	Peter Scholtes	2017
Elsevier (2014)	Elsevier	Voor niets gaat de zon op; Zonne-energie/Steeds meer Nederlanders besparen met zonnepanelen op hun energierekening. Maar hoelang nog?	Nic Vrieselaar	2014
Elsevier (2014a)	Elsevier	Haal de zon in huis en spek uw bankrekening	Simon Rozendaal	2014
Elsevier (2015)	Elsevier	Niet zo zonnig als het lijkt; Zonnepanelen/ Investeren in zonnestroom levert meer op dan rente bij de bank, maar zonder risico is dat niet. Waarop moet u letten?	Nic Vrieselaar	2015
Elsevier (2015b)	Elsevier	Survivalgids voor uw spaargeld; Vermogen/Spaarders zijn door de steeds verder dalende rente nu echt de klos: het rendement op hun geld is historisch laag. Welke veilige alternatieven hebben zij? De beurzen stijgen, maar de risico's zijn fiks.	Michiel Dijkstra	2015
Elsevier (2016)	Elsevier	Leef luxe (en bespaar) door de zon	Nic Vrieselaar	2016
Elsevier (2017)	Elsevier	Rutte III goochelt met lastenverlaging burger; De nieuwe coalitie belooft burgers 6,2 miljard euro lasten verlichting. Maar wat merkt u daarvan?	Joris Heijn	2017
Elsevier (2018)	Elsevier	Onverwachte bondgenoten; Milieuclubs en multinationals trekken steeds vaker samen op in hun lobby voor 'groen beleid'.	Rypke Zeilmaker	2018
Forum (2016)	Forum	Medy van der Laan: Niemand weet echt hoe energielandschap er straks uit ziet.	Unassigned	2016
Forum (2018)	Forum	Deze 9 kamerleden verdienen een medaille (volgens ondernemers)	Unassigned	2018
Gelders dagblad (2006)	Gelders Dagblad	Klachten betaling stroom	Unassigned	2006
Groenten en Fruit (2009)	Groenten en Fruit	Rendabel aan de slag met Zonnepanelen	Joost Stallen	2009
Groenten en Fruit (2012)	Groenten en Fruit	Zonnepanelen gemiddeld in 10 jaar terugverdiend	Harry Stijger	2012
Groenten en Fruit (2012b)	Groenten en Fruit	Zon als energiebron voor glastuinbouw	Harry Stijger	2012

Groenten en Fruit (2013)	Groenten en Fruit	Project 'Vraagbundeling zonnepanelen' helpt telers bij maken keuzes; Inschrijvingsronde voor 8 à 9 hectare panelen	Joost Stallen	2013
Groninger Internet Courant (2018)	Groninger Internet Courant	Eigen opbrengst van zonnepanelen voor bewoners van De Boog Groningen	Unassigned	2018
Haarlems Dagblad (2017)	Haarlems Dagblad	Alliance '22 maakt reuzestap	Rob Spierenburg	2017
Harderwijk Courant (2017)	Harderwijker Courant	'Harderwijk in de zon' maakt keuze voor leverancier	Unassigned	2017
Het Financieele Dagblad (2011)	Het Financieele Dagblad	Meer brieven	Unassigned	2011
Het Financieele Dagblad (2011b)	Het Financieele Dagblad	Nieuwe groene beroepen	Unassigned	2011
Het Financieele Dagblad (2012)	Het Financieele Dagblad	Liever geen subsidie, maar saldering voor zonne-energie	Unassigned	2012
Het Financieele Dagblad (2012b)	Het Financieele Dagblad	Wispelturigheid overheid maakt moedeloos	Laurens Berentsen	2012
Het Financieele Dagblad (2013)	Het Financieele Dagblad	Anticlimax dreigt voor SER-onderhandelingen over energieakkoord; Sleutelfiguren zijn het eens over energiebesparingen, maar moeilijke dossiers blijven de partijen verdelen	Unassigned	2013
Het Financieele Dagblad (2013a)	Het Financieele Dagblad	Hoe lang schijnt het zonnetje nog?	Jaap Roelants	2013
Het Financieele Dagblad (2013b)	Het Financieele Dagblad	Brieven	Unassigned	2013
Het Financieele Dagblad (2014)	Het Financieele Dagblad	Zon is veel lucratiever dan sparen	Unassigned	2014
Het Financieele Dagblad (2015a)	Het Financieele Dagblad	Beleggen in de schaduw van het torentje	Unassigned	2015
Het Financieele Dagblad (2015b)	Het Financieele Dagblad	Te weinig info over tarief zonnepanelen	Unassigned	2015
Het Financieele Dagblad (2016)	Het Financieele Dagblad	In de wet is nog helemaal niet nagedacht over mensen die zelf energie opwekken	Carel Grol	2016
Het Financieele Dagblad (2016a)	Het Financieele Dagblad	Brieven	Unassigned	2016
Het Financieele Dagblad (2016b)	Het Financieele Dagblad	'Theemuts' op je huis, nuttig maar duur	Unassigned	2016
Het Financieele Dagblad (2017)	Het Financieele Dagblad	Investerings in zon nemen flink toe	Unassigned	2017

Het Financieele Dagblad (2017a)	Het Financieele Dagblad	Sparen via klusjesman, hypotheekverstrekker of autofabrikant	Unassigned	2017
Het Financieele Dagblad (2017b)	Het Financieele Dagblad	De lichtmasten van ADO tonen de toekomst van het elektriciteitsnet	Carel Grol	2017
Het Financieele Dagblad (2017c)	Het Financieele Dagblad	Bezitters van zonnepanelen houden vaste teruglevertarief tot 2023	Unassigned	2017
Het Financieele Dagblad (2018)	Het Financieele Dagblad	Tweede kamer bezorgd over draagvlak onder bevolking nieuwe klimaat akkoord	Unassigned	2018
Het Financieele Dagblad (2018a)	Het Financieele Dagblad	Zonne-energie heeft nog veel ruimte om te groeien in Nederland	Bert van Dijk	2018
Het Kontakt (2018)	Het Kontakt	Alblasserwaard - Onderzoek naar meerdere postcoderozen in Molenlanden	Bert Bons	2018
Het Parool (2011)	Het Parool	Proef met zonnepanelen gesplitst pand	Unassigned	2011
Het Parool (2012)	Het Parool	Geen subsidie zonnestroom	Marc Laan	2012
Het Parool (2012a)	Het Parool	Schone stadswarmte Almere	Marc Laan	2012
Het Parool (2012b)	Het Parool	Proef zonnestroom VvE's	Marc Laan	2012
Het Parool (2013)	Het Parool	Amsterdam moet btw betalen over zonlicht	Liza Titawano	2013
Het Parool (2013b)	Het Parool	Herman de zonnestroomverdelers	Joost Zonneveld	2013
Het Parool (2014)	Het Parool	Kamp maakt zonnepanelen duur	Bart van Zoelen	2014
Het Parool (2015a)	Het Parool	Rust op Pampus dankzij oude accu	Bart van Zoelen	2015
Het Parool (2015b)	Het Parool	Hoofdstad van elektrisch rijden	Bart van Zoelen	2015
Het Parool (2015c)	Het Parool	Maximaal profijt van je energie	Bart van Zoelen	2015
Het Parool (2016)	Het Parool	Windturbine raakt zijn wieken kwijt	Joost Zonneveld	2016
Het Parool (2016a)	Het Parool	Met de buurt een virtuele elektriciteitscentrale	Bart van Zoelen	2016
Het Parool (2016b)	Het Parool	'Grootdakbezitters' moeten ruimte geven aan extra zonnepanelen	Bart van Zoelen	2016
Het Parool (2016c)	Het Parool	Grootdakbezitters moeten ruimte geven aan extra zonnepanelen	Bart van Zoelen	2016
Het Parool (2017)	Het Parool	Wel 100 zonnedaken per week	Bart van Zoelen	2017
Het Parool (2017b)	Het Parool	Zonnepanelen veel minder voordelig	Bart van Zoelen	2017
Het Parool (2017c)	Het Parool	Reken op een volksoptstand rond Schiphol	Unassigned	2017
Het Parool (2017d)	Het Parool	Stroom als handeltje met de burens	Bart van Zoelen	2017
Het Parool (2017e)	Het Parool	Kort nieuws	Unassigned	2017
Leeuwarder Courant (2012)	Leeuwarder Courant	Innovatie in duurzaamheid	Unassigned	2012
Leeuwarder Courant (2013)	Leeuwarder Courant	Windstreek anders	Simon Berendsen	2013
Leeuwarder Courant (2014)	Leeuwarder Courant	Doelredenering bij oppositie windenergie	Yme Hempenius	2014
Leeuwarder Courant (2016)	Leeuwarder Courant	Vlieland dakturbine blijkt een misser	Marscha van der Vlies	2016
Leeuwarder Courant (2017)	Leeuwarder Courant	Zet maximaal in op energiebesparing	Lieuwe Jensma	2017

Leeuwarder Courant (2017b)	Leeuwarder Courant	Met het CDA netwerken bij tv-kok Reitse	Atze Jan de Vries	2017
Leidsch Dagblad (2009)	Leidsch Dagblad	De tijd is nog niet rijp voor de slimme meter	Unassigned	2009
Leidsch Dagblad (2012)	Leidsch Dagblad	Nuon geeft een zonneklaar antwoord	Unassigned	2012
Leidsch Dagblad (2014)	Leidsch Dagblad	Explosieve groei zonnepanelen	Unassigned	2014
Leusden Nu (2017)	Leusden Nu	Kort nieuws	Unassigned	2017
Limburgs Dagblad (2016)	Limburgs Dagblad	3 vragen over	Unassigned	2016
Metro (2011)	Metro	Amsterdam begint met proef zonnepanelen	Unassigned	2011
Metro (2016)	Metro	Woningeigenaren als energieleveranciers	Unassigned	2016
Metro (2016b)	Metro	De feiten en fabels op een rij; zonnepanelen, wat doen ze nu echt?	Unassigned	2016
Nederlands Dagblad (2016a)	Nederlands Dagblad	De cv-ketel heeft zijn langste tijd gehad	Unassigned	2016
Nederlands Dagblad (2017)	Nederlands Dagblad	Huiseigenaren willen hulp bij verduurzamen woning	Unassigned	2017
Nederlands Dagblad (2017b)	Nederlands Dagblad	De zon wordt steeds populairder	Unassigned	2017
Nieuwsbode Zeist (2017)	Nieuwsbode Zeist	Thuisbatterij toekomst?	Unassigned	2017
Noordhollands Dagblad (2009)	Noordhollands Dagblad	Al vergoeding voor eigen zonnestroom?	Unassigned	2009
Noordhollands Dagblad (2013)	Noordhollands Dagblad	Retourstroom niet apart afrekenen	Durk Geertsma	2013
Noordhollands Dagblad (2014)	Noordhollands Dagblad	Hoge en lage stroom	Durk Geertsma	2014
Noordhollands Dagblad (2014b)	Noordhollands Dagblad	Onze telecom blijft dalen	Unassigned	2014
Noordhollands Dagblad (2014c)	Noordhollands Dagblad	Je huis als energiecentrale	Unassigned	2014
Noordhollands Dagblad (2015)	Noordhollands Dagblad	Nul euro op energierekening	Nico Volkerts	2015
Noordhollands Dagblad (2015b)	Noordhollands Dagblad	Halve Finale	Unassigned	2015
Noordhollands Dagblad (2016a)	Noordhollands Dagblad	Stroomnota is hogere wiskunde	Unassigned	2016
Noordhollands Dagblad (2016b)	Noordhollands Dagblad	Waar is de zonne-energie?	Durk Geertsma	2016
Noordhollands Dagblad (2017)	Noordhollands Dagblad	Pot goud leidt tot run op zonneparken	Roel van Leeuwen	2017
Noordhollands Dagblad (2017a)	Noordhollands Dagblad	Regeling zonnepanelen niet eerlijk	Wouter van Bergen	2017
Noordhollands Dagblad (2017b)	Noordhollands Dagblad	Eenvoudiger salderen door NLE levert minder op	Durk Geertsma	2017

Noordhollands Dagblad (2018)	Noordhollands Dagblad	Zonne-energie overtreft alles	Roel van Leeuwen	2018
NRC Handelsblad (2012)	NRC Handelsblad	Urgentie ontbreekt	Unassigned	2012
NRC Handelsblad (2012a)	NRC Handelsblad	Wij willen geen overheid; column	Jacco Kroon	2012
NRC Handelsblad (2012b)	NRC Handelsblad	Zonnestroom is niet te stoppen; zonnepaneleninstallateur Solar Total verandert zijn strategie	Jesse Groenewegen	2012
NRC Handelsblad (2012c)	NRC Handelsblad	Nieuwe nuts, lokaal energie opwekken	Hanneke Chin-A-Fo	2012
NRC Handelsblad (2012d)	NRC Handelsblad	In de schaduw van Duitsland	Joost Ramaer	2012
NRC Handelsblad (2013)	NRC Handelsblad	Het slaat nergens op belasten van zelf opgewekte stroom	Unassigned	2013
NRC Handelsblad (2014)	NRC Handelsblad	Iedereen wil gratis energie; Simplistische rekensommetjes	Frederieke de Raat	2014
NRC Handelsblad (2015)	NRC Handelsblad	Lenen voor je energielabel	Sam de Voogt	2015
NRC Next (2012)	NRC Next	Die zon is van ons allemaal; Geen panelen, wel panelen, wel panelen, geen panelen. De Nederlandse zonnenergiesector hapert door subsidiechaos en aardgasverslaving. De Duitsers doen dat beter.	Stephane Alonso	2012
NRC Next (2016)	NRC Next	Loont een windmodel in de tuin?	Frederieke de Raat	2016
NRC Next (2017)	NRC Next	Je stroom bewaren in de buurtbatterij	Hester van Santen	2017
NRC Next (2017b)	NRC Next	Meer zonnepanelen, maar ook meer broeikasgas	Erik van der Walle	2017
NRC Next (2018)	NRC Next	Alle daken in Nederland vol zonnepanelen	Hester van Santen	2018
Ons eiland Goeree-Overflakkee (2017)	Ons eiland Goeree-Overflakkee	Zonnehub komt zo goed als zeker Collectief zonnedak	Unassigned	2017
Pluimveehouderij (2014)	Pluimveehouderij	Keuze voor zonnepanelen met het oog op hogere energieprijzen op de lange termijn	Bouke Poelsma	2014
Puttens Weekblad (2018)	Puttens Weekblad	Coöperatie voor zonnepanelenpark Leden worden eigenaar installatie	Unassigned	2018
PZC (2014)	PZC	Klantenservice Delta pover	Unassigned	2014
PZC (2018)	PZC	Lijst Babijn wijst op postcoderoosregeling	Unassigned	2018
Reformatorisch Dagblad (2014)	Reformatorisch Dagblad	Zonnepaneel straks wellicht minder lucratief	Jaap Roelants	2014
Reformatorisch Dagblad (2014a)	Reformatorisch Dagblad	Voor niets gaat de zon op	Marcel ten Broeke; Tiemen Roos	2014
Reformatorisch Dagblad (2014b)	Reformatorisch Dagblad	We oogsten ruim 9500 kWh per jaar	Tiemen Roos	2014
Reformatorisch Dagblad (2015)	Reformatorisch Dagblad	Buffer tussen buiten en binnen	Geertje Bikker-Otten	2015
Reformatorisch Dagblad (2015a)	Reformatorisch Dagblad	Batterij voor in de wijk	Bart van den Dikkenberg	2015

Reformatorisch Dagblad (2016)	Reformatorisch Dagblad	Zonnepaneel voor ieder dak	Bart van den Dikkenberg	2016
Reformatorisch Dagblad (2016b)	Reformatorisch Dagblad	De buurman doet het ook	Peter Siebe	2016
Reformatorisch Dagblad (2017)	Reformatorisch Dagblad	Salderingsregeling zonnepanelen blijft	Unassigned	2017
Reformatorisch Dagblad (2017b)	Reformatorisch Dagblad	Solliciteren naar je eigen baan is dramatisch	Unassigned	2017
Reformatorisch Dagblad (2017c)	Reformatorisch Dagblad	Veel was al bekend, maar nog lang niet alles	Unassigned	2017
Reformatorisch Dagblad (2017d)	Reformatorisch Dagblad	Dag 21: onderhandelaars willen nog meer advies en reken tijd	Gerard Vroegindeweyj	2017
RTL Nieuws (2018)	RTL Nieuws	Megabatterij in hartje Utrecht moet stad groener maken	Gert-Jan Verstegen	2018
RTL Nieuws (2018a)	RTL Nieuws	VN-doelen: 'Nederland blijft vieste jongetje van de klas' - RTL Nieuws	Chris Koenis	2018
Spits (2007)	Spits	Bezwaar maken tegen slimme energiemeters?	Unassigned	2007
Streekblad (2015)	Streekblad	Blokt opent eerste nul op de meter woning	Unassigned	2015
Streekblad (2015a)	Streekblad	Aanvraag 0-op-de-meter makkelijker	Unassigned	2015
Streekblad (2016)	Streekblad	Geen energierekening meer	Unassigned	2016
Trouw (2012)	Trouw	Windcentrale sluist windwinst slim door naar molenkopers	Vincent Dekker	2012
Trouw (2013)	Trouw	Energieakkoord: snel echt leiderschap gewenst	Unassigned	2013
Trouw (2013a)	Trouw	Unassigned	Unassigned	2013
Trouw (2013b)	Trouw	Fotonen oogsten en opslaan	Marianne Wilschut	2013
Trouw (2013c)	Trouw	Zon voor daklozen	Marianne Wilschut	2013
Trouw (2014)	Trouw	De ijzeren driehoek heeft niets geleerd van Fukushima	Sybilla Claus	2014
Trouw (2015)	Trouw	Nederland te vol voor grote zonneparken	Joop Bouma	2015
Trouw (2016)	Trouw	Vergroening huurhuizen is stilgevallen	Unassigned	2016
Trouw (2017)	Trouw	Zekerheid over zonnepanelen	Unassigned	2017
Trouw (2017b)	Trouw	Als de groene strik van het akkoord is	Roebym Anders	2017
Trouw (2018)	Trouw	Lezersreacties	Unassigned	2018
Tubantia (2012)	Tubantia	Kosten lager door eigen stroom	R. Berkelland	2012
Tubantia (2013)	Tubantia	We hebben rijk niet nodig voor AGEM, maar werk ons niet tegen	Unassigned	2013
Tubantia (2013b)	Tubantia	Raedthuys komt met zon concept particulieren	Unassigned	2013
Tubantia (2014)	Tubantia	Bewonders de Condor halen voordelen uit gezamenlijke aanschaf en installatie zonnepanelen. Voor niets gaat de zon...	Unassigned	2014

Utrechts Nieuwsblad (2015)	AD/Utrechts Nieuwsblad	Bijeenkomst zonnepanelen	Unassigned	2015
Utrechts Nieuwsblad (2017)	AD/Utrechts Nieuwsblad	Vragen & Reacties	Unassigned	2017
Vrij Nederland (2015)	Vrij Nederland	Het geweten; Evert Nieuwenhuis houdt duurzaamheidsclaims tegen het licht	Evert Nieuwenhuis	2015
Vrij Nederland (2016)	Vrij Nederland	Ik ben van het constructieve activisme	Harm Ede Botjes; Dana Lixenberg	2016
Eindhovens Dagblad (2016)	Eindhovens Dagblad	Nog niet klaar voor slim energieverbruik	Bart Brouwers	2016
De Volkskrant (2016c)	De Volkskrant	Geachte redactie	Unassigned	2016
Het Financieele Dagblad (2016c)	Het Financieele Dagblad	Variabele stroomprijs is doodsteek voor zonnepanelen	Unassigned	2016
Nieuwsblad (2015)	Nieuwsblad	Groene Geheim van Giessen gaat door	Unassigned	2015
De Telegraaf (2015c)	De Telegraaf	Hou nota zelf laag; energierekening	Bernard Vogelslang	2015
Dagblad de Limburger (2015)	Dagblad de Limburger	Goed voor onze beurs	Siebrand Vos	2015
Noordhollands Dagblad (2014a)	Noordhollands Dagblad	Slimme meter is niet verplicht bij teruglevering	Durk Geertsma	2014
Trouw (2014a)	Trouw	Uitstoot verlagen op z'n Amerikaans	Bas den Hond	2014
AD (2014a)	AD	Regels funest voor lokaal energieplan	Heleen Boex	2014
AD (2014b)	AD	Hoe machtig ik m'n dochter?	Unassigned	2014
De Stentor (2013g)	De Stentor/Apeldoornse Courant	Column - Zonnepaneel	Unassigned	2013
De Telegraaf (2013a)	De Telegraaf	Alles over energie; vraag en antwoord	Unassigned	2013
Vrij Nederland (2013)	Vrij Nederland	23 ideeën voor een beter wereld; Radicale vernieuwers	Unassigned	2013
Groenten en Fruit (2012a)	Groenten en Fruit	Samen aan zonnestroom; Jaarlijks verschil 100 ton CO2	Joost Stallen	2012
Dagblad de Limburger (2012)	Dagblad de Limburger	Burger investeert graag in schone energie	Hans Gertsen	2012
Limburgs Dagblad (2012)	Limburgs Dagblad	Tupperwareparty met zonnepanelen	Peter Heesen	2012
De Telegraaf (2012a)	De Telegraaf	Tijd voor overstap!; Energiespreekuur	Unassigned	2012
Brabants Dagblad (2012a)	Brabants Dagblad	Netwerkbeheerder Enexis spekt beurs van provincie en gemeenten	Kees Bechtold	2012
Eindhovens Dagblad (2012)	Eindhovens Dagblad	Goedkope zonne-energie is een sprookje	Joep Christophe	2012
Nederlands Dagblad (2012)	Nederlands Dagblad	Laat burger zelf energie opwekken	Unassigned	2012
Het Parool (2012c)	Het Parool	De zon schijnt, de teller loopt	Joost Zonneveld	2012
Noordhollands Dagblad (2011)	Noordhollands Dagblad	Slimme meter? Wees wijzer	Unassigned	2011
Noordhollands Dagblad (2011a)	Noordhollands	Bekering van atoomstroom tot zonnestroom	Unassigned	2011

	Dagblad			
Eindhoven's Dagblad (2011)	Eindhoven's Dagblad	Unassigned	Unassigned	2011
De Stentor (2010)	De Stentor/Sallands Dagblad	Eerste zonnepaneel op gemeentewerf - Wethouder leest voor op Olster basisschool	Benny Koerhuis	2010
Het Financieele Dagblad (2010)	Het Financieele Dagblad	Privé centrale een goede belegging	Vincent Strik	2010
Elsevier (2009)	Elsevier	Het zonnetje in huis; Vorige week werd in Heerhugowaard de stad van de zon geopend: De duurzame toekomst?	Simon Rodenzaal	2009
Noordhollands Dagblad (2009a)	Noordhollands Dagblad	Nieuwe meter? Geldklopperij	Unassigned	2009
Trouw (2009)	Trouw	Subsidie zonnepanelen alleen voor doorzetters	Ineke Bij nagte	2009
Haarlems Dagblad (2009)	Haarlems Dagblad	Terugleveren zonnestroom kost veel energie	Unassigned	2009
Brabants Dagblad (2009)	Brabants Dagblad	Goed voor portemonnee en milieu	Unassigned	2009
Boerderij Vandaag (2008)	Boerderij Vandaag	Congestiesysteem is te duur en kost te veel tijd	Kelly Lubbers	2008
Haagsche Courant (2008)	AD/Haagsche Courant	Congestie management - Tijdelijk systeem voor terugleveren van stroom	Fred Vermeer	2008
Het Financieele Dagblad (2008)	Het Financieele Dagblad	Particulieren onderschatten overstap naar 'thuiscentrale' voor opwekken zonnestroom	Jorinde Schrijver	2008
Groenten en Fruit (2008)	Groenten en Fruit	EiKas zet overvloedige warmte om in elektriciteit	Peter Visser	2008
Trouw (2008)	Trouw	Tweede kamer stelt eisen aan slimme energiemeter	Unassigned	2008
Noordhollands Dagblad (2008)	Noordhollands Dagblad	Zonnesteek	Unassigned	2008
De Gelderlander (2008)	De Gelderlander	Snel slag slaan met subsidie zonnepanelen	Unassigned	2008
Leidsch Dagblad (2008)	Leidsch Dagblad	Voor altijd het zonnetje in huis; Leidenaar Floris Wouterlood en het belang van zonne-energie	Unassigned	2008
Dagblad de Limburger (2008)	Dagblad de Limburger	Boxhoorn: verplicht zonnepaneel bij nieuwbouw	Unassigned	2008
Boerderij (2007)	Boerderij	Nieuwe kansen voor kleine windmolens	Tjitske Ypma	2007
Leeuwarder Courant (2007)	Leeuwarder Courant	Pleidooi voor nieuwe stimulans zonne energie	Unassigned	2007
De Gelderlander (2007)	De Gelderlander	Hans Barkmeijer leeft van de wind	Unassigned	2007
PZC (2007)	PZC	Eiland heeft dit voorjaar de primeur: een straatlamp met groen licht - Waddeneiland wordt energie etalage	Willem Bosma	2007
Leeuwarder Courant (2007a)	Leeuwarder Courant	Eiland als etalage vol energiesnuffjes	Willem Bosma	2007
De Gelderlander (2007a)	De Gelderlander	Energie - Mini-centrale veroorzaakt revolutie in energiesector	Chris van Alem	2007
Apeldoornse Courant (2006)	Apeldoornse Courant	Het leed dat heet	Durk Geertsma	2006
Apeldoornse Courant (2006a)	Apeldoornse Courant	Vechten tegen de bierkaai	Unassigned	2006

Apeldoornse Courant (2006b)	Apeldoornse Courant	Buitenlandse vergoedingen	Unassigned	2006
Veluws Dagblad (2004)	De Stentor/Veluws Dagblad	Nuon bouwt een muur van onbegrip	Roel Kleine	2004
Het Parool (2016d)	Het Parool	'Rem op groei zonnepanelen in de stad' - Amsterdam - PAROOL	Bart van Zoelen	2016
Leeuwarder Courant (2018)	Leeuwarder Courant	Gasloos wonen duurzame kat in de zak	Wouter Bourgonje	2018
Reformatorisch Dagblad (2017a)	Reformatorisch Dagblad	Zorg over saldering zonnestroom	Unassigned	2018
Eindhovens Dagblad (2017e)	Eindhovens Dagblad	Stroom uit de gevel slaat nog niet aan	Michel Theeuwens	2017
Nederlands Dagblad (2017a)	Nederlands Dagblad	Noem dit plan 'doorgaan met roken'	Han Blok	2017
Boerderij (2017a)	Boerderij	Stroomopslag wordt cruciaal voor stroomleverende boer	Wim Esselink	2017
Tubantia (2017)	Tubantia	Boeskoolstroom: 100 procent groene energie	Stephan Schepper	2017
Leeuwarder Courant (2016a)	Leeuwarder Courant	Damstra Driezum in zee met Tesla	Unassigned	2016
Het Financieele Dagblad (2016d)	Het Financieele Dagblad	Nieuw kabinet moet energiebelasting moderniseren	Niels Muller	2016
Eindhovens Dagblad (2016a)	Eindhovens Dagblad	Energiecoöperatie 'Zon op Oirschot' in startblokken	Frank van den Heuvel	2016
De Volkskrant (2016d)	De Volkskrant	Kopen die zonnepanelen!	Jeroen Trommelen	2016
Het Parool (2015)	Het Parool	Solarcoaster	Lara Aerts	2015
Het Financieele Dagblad (2015)	Het Financieele Dagblad	Greenpeace en Nuon trekken samen op naar grote aandeel zonne- en windenergie	Lenneke Arts	2015
Cobouw (2015i)	Cobouw	Schijn neutraal	Harm Valk	2015
Haagsche Courant (2015)	AD/Haagsche Courant	Huurders betalen straks geen energierekening meer	Unassigned	2015
De Volkskrant (2015g)	De Volkskrant	Tesla stort zich op batterij voor thuis	Peter Van Ammelrooy	2015
De Volkskrant (2015h)	De Volkskrant	Thuisbatterij maakt weinig kans	Jeroen Trommelen	2015
Trouw (2014b)	Trouw	Er is meer uit de zon te halen	Joep Engels	2014
Cobouw (2014e)	Cobouw	PV paneel genoeg voor 'all electric'	Jean Quist	2014
Dagblad de Limburger (2014)	Dagblad de Limburger	Belastingteruggave bij aanschaf zonnepanelen	Unassigned	2014
De Volkskrant (2014)	De Volkskrant	Voor privé zonnepanelen lijkt er geen vuiltje aan de lucht	Jeroen Trommelen	2014
Haarlems Dagblad (2014)	Haarlems Dagblad	Zonnig jaar voor de zonne energiesector	Roel van Leeuwen	2014
Haarlems Dagblad (2013)	Haarlems Dagblad	Saldering Nuon in 2014	Durk Geertsma	2013
Leeuwarder Courant (2013a)	Leeuwarder Courant	Burger betaalt prijs duurzame stroom	Nico Hylkema	2013
NRC Handelsblad (2013a)	NRC Handelsblad	We hoeven de zon alleen maar te vangen	Cees Banning	2013
Eindhovens Dagblad (2013a)	Eindhovens Dagblad	Veel daken voor panelen geschikt	Unassigned	2013
Trouw (2013d)	Trouw	Unassigned	Unassigned	2013
Eindhovens Dagblad (2012a)	Eindhovens Dagblad	Duurzamer moet, maar hoe dan?	Ruth Mourik	2012
Leeuwarder Courant (2012a)	Leeuwarder Courant	Geld groene energie mist doel	Unassigned	2012

NRC Handelsblad (2012e)	NRC Handelsblad	Haags geknoei met schone energie	Unassigned	2012
De Groene Amsterdammer (2012)	De Groene Amsterdammer	Intelligentie verplicht; Do it Ourselves: Zelf energie opwekken	Annemiek van der Ploeg	2012
Noordhollands Dagblad (2012)	Noordhollands Dagblad	Ook op het westen levert zon energie	Ed Dekker	2012
De Volkskrant (2012a)	De Volkskrant	Voor het eerst zijn panelen ook zonder subsidie rendabel	Michael Persson	2012
De Volkskrant (2012c)	De Volkskrant	Profiteren van zonnestroom: nu ook voor daklozen	Michael Persson	2012
Het Financieele Dagblad (2011a)	Unassigned	Proeftuin	Unassigned	2011
De Stentor (2011)	De Stentor/Veluws Dagblad	Putten goed bezig met zonne-energie	Ron Maaat	2011
De volkskrant (2011)	De Volkskrant	Zonder subsidie gaat het beter met zonnestroom	Michael Persson	2011