

The Interrelationship between National Government Policies and the Emergence, Diffusion and Development of Renewable Energy Cooperatives

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Abstract— Renewable energy cooperatives (RECs) have been on the rise across Europe since the 1980s. They contribute to sustainable development in various ways. National governments generally support this grassroots movement, but little is known about the interrelationship between government policies and the rise of RECs. This comparative study of the Netherlands, Sweden and the UK addresses this gap. Following a simple pattern matching approach, the study chronicles aims and means of national support policies from 1985 until 2016, placing them next to the patterns of emergence, diffusion and development of RECs. The results indicate that the rise of RECs is closely related to and influenced by government policies and pending policy changes. Although innovative forms of governance are often thought to arise spontaneously and through self-organization, as suggested in literature on polycentric governance, the results reveal the enduring role of national governments in this sector. Furthermore, we notice that relevant government policies undergo changes over time. Subsidies play a diminishing role as the sector matures and costs of installations go down. It is now up to national governments to decide whether to shift to other types of support policies, like the UK appears to be doing. Inclusive policy-making is recommended.

Keywords—Community energy; renewable energy cooperatives; renewable energy policy; Netherlands; Sweden; UK

1. INTRODUCTION

Renewable energy cooperatives (RECs)¹ have emerged and diffused across Europe (European Commission, 2015; Hufen and Koppenjan, 2015; Seyfang et al., 2013; Yildiz et al., 2015). This paper examines the interrelationship between national government policies and the rise of such cooperatives. A renewable energy cooperative is here defined as ‘an autonomous association of persons united voluntarily to meet their common economic, social, cultural and environmental needs and aspirations through a jointly owned and democratically-controlled enterprise which concerns itself mainly with energy conservation and/or the production, buying, (re)selling and/or promotion of energy from non-fossil sources’ (adapted from the International Co-operative Alliance, ICA, <http://ica.coop/en/what-co-operative>, July 10, 2017).

It has been suggested that RECs contribute to all three dimensions of sustainable development. They contribute to the *environmental dimension* through their involvement with energy conservation and/or renewable energy-related activities. They are said to contribute to the *social dimension* since they can increase community cohesion and the confidence and ability “to take collective positive action” (Tarhan, 2015). Finally, as Li (2005) points out, they potentially contribute to the economic dimension because they strengthen local economies. In view of these multiple contributions to sustainable development it is desirable to gain insight into the emergence, diffusion and development of RECs over the years.

The consensus opinion in the literature is that the rise of RECs is a grassroots phenomenon (Arentsen and Bellekom, 2014; Oteman et al., 2014; Seyfang et al., 2014). According to Rotmans (2014) and De Moor (2013), it forms part of a wider, bottom-up movement of citizens taking matters into their own hands in different areas, such as finance, retail, agriculture and education. Fitting with certain conceptions of networked and polycentric governance, the underlying assumption is that suitable, innovative forms of governance will come about more or less spontaneously, as a result of an evolutionary process involving many actors, who take control themselves, organize and experiment with various alternative approaches (see for instance Aligica and Tarko, 2012).

¹ RECs: Renewable Energy Cooperatives

Top-down factors cannot be ignored, though, when explaining the rise of RECs. Somewhat contrary to the image of spontaneity and self-organization that dominates, there are plenty of indications that government regulations and policies have always played an important part in shaping the general structure of the energy sector. Take the EU-wide policy to liberalize (deregulate) the energy market in the 1990s, which turned electricity markets into competitive markets. It gave new suppliers the freedom to enter the markets of EU Member States, and it offered consumers the freedom to choose their own suppliers (European Parliament, 2017). It also ensured connection of distributed generation to distribution grids and networks (International Energy Agency, IEA, 2002). Or take the various renewable energy support policies across the EU that have been deployed since the 1970s (for an overview, see Blok, 2006). It would appear that liberalization and support policies were amongst the policy factors that helped create the conditions under which RECs were able to emerge.

Several studies confirm that national government support policies are important to RECs and similar initiatives (Bomberg and McEwen, 2012; Markantoni, 2016; Oteman et al., 2014; Seyfang et al., 2013; Strachan et al., 2015). This applies to financial support in particular (Hatzl et al., 2016; Oteman et al., 2014). Research has further indicated that support policies need to be stable (Oteman et al., 2014; Seyfang et al., 2013) and aligned with community needs (Markantoni, 2016; Oteman et al. 2014), to be of benefit to the sector. Several authors (Markantoni, 2016; Mendonça et al., 2009) have proposed that governments include non-state actors (such as communities) in the policy-making process.

Although above mentioned studies have indicated the importance of government support policies in general, they do not tell us if and how government policies from the past few decades can actually be linked to the rise of RECs over that same period. This study aims to fill this gap. In line with this, the central research question is: ‘what is the interrelationship between national government policies and the emergence, diffusion and development of renewable energy cooperatives (RECs)?’

‘Emergence’ in this study refers to the first appearance of RECs in a country, ‘diffusion’ refers to the subsequent spread of RECs in that country, and ‘development’ refers to the growth of individual RECs after their conception, either quantitatively (in terms of increased installed capacity or membership) or qualitatively (by becoming more professional organizations).

The research strategy for this study comprised an inductive approach, in the form of a comparative case study of three countries over three decades, combined with pattern matching (Campbell, 1966; Trochim, 1985). The rationale for taking an inductive approach is the fact that the subject of the study has not been sufficiently theorized (yet).

2. METHODOLOGY

The study required the collection of data on the emergence, diffusion and development of RECs on the one hand and on the main national government support policies relevant to RECs on the other. The data cover the period from 1985 until 2016. Data collection took place for three countries: the Netherlands, Sweden and the UK. These countries lend themselves well to a comparison, because they are fairly similar. All three are economically developed, capitalist, industrialized, democratic Northern European countries (Lijphart, 2012). Because of this, it is possible to make comparisons and draw lessons with regard to the governance of RECs. At the same time, the Netherlands, Sweden and the UK are different enough for policy conditions to vary and thus ensure an interesting comparison along the lines of a different systems approach. A drawback of these differences is that they may reduce the generalizability of the results.

The taxonomy proposed by Howlett and Cashore (2009) proved useful for describing national policies in the three countries. This taxonomy distinguishes policy aims and means at different levels of abstraction. With regard to policy aims, the authors distinguish in decreasing order of abstraction: policy goals, objectives and settings - the settings being the on-the-ground requirements of policy. With regard to policy means, Howlett and Cashore (2009) distinguish in decreasing order of abstraction: instrument logic (preferences for certain types of instruments), mechanisms (specific instruments) and calibrations (e.g. changed levels of subsidies). Another taxonomy, used by the International Energy Agency, IEA (<https://www.iea.org/policiesandmeasures/renewableenergy/>, July 10, 2017), was used to categorize policy mechanisms. This taxonomy distinguishes six types of mechanisms: economic instruments, information and education, policy support (institutional creation

and strategic planning), regulatory instruments, voluntary approaches, and research, development and deployment (RD&D).

Data collection took place by means of a combination of secondary research (desk research) and expert interviews (4-7 per country). Analysis of the data to some degree took the form of pattern matching (Campbell, 1966; Hak and Dul, 2010) and thus the scanning for “patterns of relationships among constructs” (McLaren, 2010, p. 458), the constructs in this study being national government policies on the one hand and the emergence, diffusion and development of RECs on the other.

3. RESULTS AND DISCUSSION

The three parts of this section correspond with the three countries included in the study. Each part starts with a description of the main government policies relevant to RECs from 1985 onwards, using the taxonomies used by Howard and Cashore (2009) and the IEA (<https://www.iea.org/policiesandmeasures/renewableenergy/>, July 10, 2017), followed by data - insofar as available - on the emergence, diffusion and development of RECs over that same period.

3.1 The Netherlands

At the highest level of abstraction the main goals guiding environmental policies in the Netherlands have been sustainable development (Leroy and Driessen, 2007) and related concepts such as “green growth” (Lucas et al., 2016) and “green economy” (Hanemaaijer et al., 2012). With regard to the energy system the Dutch government has defined multiple goals: it strives for an energy system which is safe, reliable, affordable and low on CO₂-emissions (Ministry of Economic Affairs, 2016). Less abstract than policy goals are the stated policy objectives. Broadly summarized, these shifted in the Netherlands from learning more about alternative energy sources in the 1970s and 1980s (Van Selm and Verbong, 2001) to stimulating the market implementation of renewable energy (RE) technologies in the 1990s (Blok, 2006; VROM (former Ministry of Housing, Spatial planning and the Environment), 2007). With regard to community energy (i.e. RECs and similar initiatives) the national government of the Netherlands wrote a policy document in 2013 in which it discussed the implications

of this phenomenon and stated the government's support (Rijksoverheid, 2013). At the lowest level of abstraction there are the settings, the specific on-the-ground requirements of policy. An important requirement, based on the literature (see section 1), is a stable support policy climate. In the Netherlands this requirement has not been met: the government frequently changed the renewables support scheme (Oteman et al., 2014; Van Rooijen and Van Wees, 2006). A second on-the-ground requirement, based on the literature (see section 1), is alignment of government policies and the needs of communities. This requirement has partly been met in the Netherlands: some support measures have been specifically designed for RECs, but the main operating subsidy for RE projects in the Netherlands, the so-called SDE+ scheme, particularly suits large projects, according to De Jong (2016), Advisor Sustainable Energy at the Netherlands Enterprise Agency. The SDE+ (Sustainable Energy Production Plus) is a feed-in premium which compensates producers of renewable energy for the difference between the cost price and the market price of renewable energy (The Netherlands Court of Audit, 2015).

Governments can use various means to reach the policy aims they have set. At the level of the instrument logic of policy tools (the general norms which guide implementation preferences), the Dutch national government prefers voluntary approaches and economic instruments (Van Rooijen and Van Wees, 2006). Going down one level of abstraction we get to the specific mechanisms deployed by the government. Support mechanisms in the Netherlands mostly comprise economic instruments aimed at stimulating RE in various ways. The first such mechanism was an investment subsidy program for wind energy that ran from 1986 until 1990 (House of Representatives, 1985-1986). Fiscal support measures started in 1991 (Compendium for the Environment, 2008).

The most recent fiscal support measure, the so-called "postcode rose arrangement", introduced in 2014, offers energy tax reduction to small consumers who are members of a REC that owns a production installation. To benefit from the arrangement, members need to live in a postcode area that forms part of the "postcode rose", a cluster of postcode areas close to where the installation is situated (Netherlands Enterprise Agency, <http://www.rvo.nl/onderwerpen/duurzaam-ondernemen/duurzame-energie-opwekken/duurzame-energie/saldering-en-zelflevering/collectieven>, July 10, 2017). Premium feed-in support schemes for electricity production from RE sources exist since 2003 in the

Netherlands, and the most recent scheme, the SDE+, since 2011 (The Netherlands Court of Audit, 2015, 2007).

Ten years earlier, in 2001, the Dutch government had also implemented a regulatory system, the Green Certificate System, later replaced by Guarantees of Origin (Knowledge Center InfoMil, <https://www.infomil.nl/onderwerpen/integrale/handboek-eu/klimaatverandering/elektriciteit/omzetting-nationale/>, July 10, 2017). Finally, the government supports RECs and similar initiatives by providing information, mainly through the Netherlands Enterprise Agency (De Jong, 2016).

Recalibrations of support mechanisms have taken place regularly in the Netherlands, for example in the form of yearly changes to the list of investments to which fiscal incentives apply (The Netherlands Enterprise Agency (<http://www.rvo.nl/subsidies-regelingen/miavamil/milieulijst/wijzigingen>, July 10, 2017; <http://www.rvo.nl/subsidies-regelingen/energie-investeringsaftrek-eia>, July 10, 2017).

Having discussed the main aims and means of relevant government policies from the past few decades, we will now look at the emergence, diffusion and development of RECs in the Netherlands. A monitor recently carried out in the Netherlands for the second year in a row by Schwencke (2016a) provides a fair amount of data on this subject. The researcher distinguishes three types of RECs: wind cooperatives (focused on owning and operating wind turbine installations), local energy cooperatives (focused on multiple, local activities such as energy conservation projects and solar PV) and project cooperatives (focused on a *single* project or installation). To avoid possible double counting, Schwencke (2016a) does not include in this latter category project cooperatives established by other RECs (typically local energy cooperatives).

Wind cooperatives emerged in 1986 in the Netherlands, followed by local energy cooperatives in 2007 and project cooperatives in 2011. The latter two types of RECs quickly grew in number since their emergence. In total there were 313 RECs in 2016, mostly local energy cooperatives (Schwencke, 2016a). As the Netherlands counts approximately 17 million inhabitants (Eurostat, 2016), it follows that there were around $313/17 = 18.4$ RECs per million inhabitants in the Netherlands in 2016.

In terms of development, RECs cover a wide range in the Netherlands, from “kitchen table initiatives”

with a strong focus on energy conservation to older wind cooperatives which have evolved over time into professional businesses (Schwencke, 2016b). According to Boon and Westendorp from energy cooperative Zuiderlicht (2016), it typically takes a couple of years before newly established RECs, initially heavily reliant on volunteers, start to professionalize. Boon adds it is important for RECs to develop business models that at some point allow the hiring of paid help, thus diminishing the burden on volunteers.

The total membership of RECs in the Netherlands is approximately 50,000 (Schwencke, 2016a).

Reliable historical figures are lacking. The installed turbine capacity owned by Dutch wind cooperatives in 2016 was 115 MW (Schwencke, 2016a). This amounts to 2.7% of the 4240 MW total installed wind turbine capacity in the Netherlands in 2016, as estimated by Statistics Netherlands (2017). The installed capacity of collective solar was 23 MWp in 2016 (Schwencke, 2016a), which amounts to 1.1% of the 2040 MWp installed solar PV capacity in 2016 as estimated by Statistics Netherlands, 2017). The installed capacity of cooperatively owned wind and solar PV installations increased much more over the past year than the number of RECs, which means that RECs, on average, are growing and developing. In the coming years Dutch RECs plan to install an additional 87 MW cooperatively owned wind turbine capacity and 82 MWp solar PV capacity, which points to continued strong growth (Schwencke, 2016a).

3.2 Sweden

Policy aims in Sweden with regard to RE(C)s have been fairly comparable to those in the Netherlands. An important goal has been sustainable development (Lönnroth, 2010). From the mid-1990s the focus shifted somewhat towards “ecological modernization” (Lundqvist, 2000) and “green growth” (Persson, 2014). With regard to the energy system Sweden has been aiming for a combination of ecological sustainability, competitiveness and security of supply (Ministry of the Environment and Energy, 2016). With regard to policy objectives, Sweden has been aiming for transition of the country’s energy system through – amongst others – the support of RE. The government has set specific and ambitious targets (International Energy Agency, IEA, 2013; Ministry of the Environment

and Energy, 2016), but promoting local ownership was never an objective, according to Wizelius (2016). As to the on-the ground requirements of policy: these have not been met in Sweden. Support policies have not been stable (Nilsson et al., 2004; Åstrand and Neij, 2006) and policies that specifically benefit RECs are hard to find.

With regard to instrument logic - the general norms guiding implementation preferences - Lönnroth (2010) points out that Sweden has placed much hope in market forces from about 1990 onwards.

Policy mechanisms in the past decades were the funding of R&D in the 1970s and 1980s (Blok, 2006) and later the introduction of economic (Nilsson et al., 2004) and regulatory mechanisms, notably the Electricity Certificate System (Swedish Energy Agency, 2015a). Wizelius (2014) stresses that Certificate prices are not the result of market forces, but of political decisions, as the government sets the quotas. Recalibrations of the various policy mechanisms have taken place quite often. Amongst others, this has taken the form of adjustments of subsidy levels (Lindahl, 2014; Nilsson et al., 2004; Svensk Vindenergi, <http://www.vindkraftsbranschen.se/start/vindkraft/frågor-och-svar-om-vindkraft>, April 5, 2016) and Certificate quotas.

The first Swedish REC, a wind cooperative, emerged in 1990 (Wizelius, 2012). Diffusion of wind cooperatives took place in the years that followed, and by 2012 their number reached 73 (Wizelius, 2014). Since then diffusion has stagnated (Wizelius, 2016). According to Fredriksson, senior advisor at Swedenergy (2016) this stagnation is caused by low electricity prices. Wizelius (2016) believes that low Certificate prices and a particular tax measure, *uttagsbeskattning*, directed at RECs also played a role. The introduction of this tax measure, decided upon by the Supreme Administrative Court in 2010, meant that RECs which sell electricity to their members at cost had to start paying tax on the difference between the market price of electricity and the price charged to the members (Swedish Tax Agency, 2011).

Solar PV is - for the moment- very small in Sweden (Swedish Energy Agency, 2015a). By 2014 three solar PV cooperatives were established (Lindahl, 2014). Based on a population size of approximately 10 million (Eurostat, 2016), the number of RECs is around $76/10=7.6$ per million inhabitants.

Total installed capacity of wind power coops in Sweden rose from 0 to 28 MW between 1990 and

2000, and from 28 MW to 144 MW between 2004 and 2012 (Wizelius, 2012). Between 2000 and 2004 there was insecurity due to a new policy that was being developed: i.e. the Electricity Certificate System. This insecurity explains the stagnation in installed capacity between 2000 and 2004, according to Wizelius (2016). In recent years total installed capacity of wind power coops stagnated again. Data from the Swedish Energy Agency (2015b) show that Swedish wind cooperatives have made almost no investments since 2012 (note that, as these reports are voluntary, they might not present a complete picture).

Swedish wind power cooperatives had over 25,000 members in 2011 (Wizelius, 2012); according to Fredriksson (2016), membership figures are approximately the same today.

3.3 The UK

Policy aims of the UK Government with regard to renewable energy have been fairly similar to those in the Netherlands and Sweden, but have a bigger focus on community energy, as this section will show. The main goal of government policies relevant to RECs in the UK has been sustainable development (see, for example, HM Government, 2005) and related concepts, such as the “green economy” (<https://www.gov.uk/government/groups/green-economy-council#role-of-the-group>, October 2, 2016). With regard to the energy system, the UK formulated multiple aims, just like the Netherlands and Sweden. These aims include competitiveness, energy security and addressing environmental impacts (Pearson and Watson, 2012). Of the many objectives formulated by the UK Government over the years, the focus here is on the government’s objective to support community energy. Aware since at least 2003 of the role community energy can play in the energy system (Department of Trade and Industry, DTI, 2003), the UK Government showed a growing determination until at least 2014 to stimulate the community energy sector (see, for example, Department of Energy and Climate Change, DECC, 2014). Looking at the settings of UK policies with relevance to RECs, we find that RE support policies in the UK have not met the on-the-ground requirement of stability (Mitchell and Connor, 2004) and have historically not been tailored to bottom-up initiatives (Pearson and Watson, 2012). Meeting this latter requirement has improved in recent years with the introduction

of feed-in tariffs for small generators (see below) and the 2014 Community Energy Strategy (DECC, 2014).

With regard to instrument logic the UK has shown a preference throughout the years for market-based instruments (Pearson and Watson, 2012).

Policy mechanisms aimed at stimulating renewable energy have consisted of a combination of regulatory and economic mechanisms (IEA, 2012; Mitchell and Connor, 2004). In 2010 the UK Government introduced a feed-in tariff scheme for small-scale RE and low-carbon technologies (DECC, 2010). Recent years have seen several tariff cuts (Ares, 2016). At the same time, the UK Government has introduced other types of support, notably policy support (institutional creation and strategic planning) and information/education. The Community Energy Strategy (DECC, 2014) and several newly created institutions bear witness to this. Two such institutions are the Community Contact Group, an informal body that has provided input to policy development (UK Government, <https://www.gov.uk/government/groups/community-energy-contact-group>, May 14, 2016) and the Shared Ownership Taskforce (UK Government, <https://www.gov.uk/government/groups/shared-ownership-taskforce>, May 14, 2016). According to Garry Charnock (2016) - instigator of a community energy project and member of the Community Energy Contact Group – government subsidies, the Community Energy Strategy, education and the sharing of information all contributed to the rise of RECs in the UK.

Recalibrations of policy instruments have been manifold over the years. A clear example is the earlier mentioned repeated reduction of feed-in tariffs. An important reason for these cuts was the need felt by the government to control costs, following a higher than expected response to the feed-in tariff scheme (Ares, 2016; IEA, 2012). Another reason was the sharp fall in solar PV costs (IEA, 2012).

RECs emerged in 1996 in the UK, ten years later than in the Netherlands and four years later than in Sweden. The first REC was Baywind Co-operative Limited (<http://www.baywind.coop/about-us-3/>, July 10, 2017), a wind power cooperative whose founders had been inspired by successful Scandinavian cooperative models. Diffusion of wind cooperatives took place in the years that

followed. Research by Capener (2014) identified approximately 200 REC-like organizations: 150 Industrial and Provident Societies and 50 Community Interest Companies. Most of the Industrial and Provident Societies date from 2011 onwards (DECC and Consumer Futures, 2014). In August 2014, two new legal forms of societies were introduced and already existing Industrial and Provident Societies were renamed as pre-commencement societies (Financial Conduct Authority, FCA (2015). Reports with relevant figures from this recent period have not been published. The current number of REC-like organizations in the UK is therefore not known.

With a population of 64 million people (Eurostat, 2016), it follows that there were approximately $200/65 = 3$ RECs in the UK per million inhabitants in 2014.

Although recent figures are lacking, several studies and reports showed the community energy sector rapidly developing a few years ago (DECC and Consumer Futures, 2014, 2013; Capener, 2014).

According to Capener (2014), total capacity of community RE installations (including non-RECs such as charities) amounted to 66 MW, with an additional 239 MW in various stages of development.

Membership figures for all RECs in the UK are unknown, but umbrella cooperative Energy4All (under which 20 projects operate) claims to have 13,000 members alone

(<http://energy4all.co.uk/about-us/>, March 14, 2016).

3.4 Inter-country comparison and discussion

Comparing the timing and pattern of emergence and diffusion of RECs in the Netherlands, Sweden and the UK to (changes in) national government policies over the same period reveals the role that government policies have played in the rise of RECs. Table 1 presents the results of this analysis, showing both similarities and differences between the three countries.

Table 1. Similarities and differences between national government support policies and the emergence, diffusion and development of RECs in the Netherlands, Sweden and the UK (for sources: see sections 3.1, 3.2 and 3.3).

<p>National government policies in the Netherlands, Sweden and the UK</p>	<p>Emergence, diffusion and development of renewable energy cooperatives (RECs) since 1985</p>
<p>Similarities</p>	<p>Similarities</p>
<p>During the 1980s and 1990s NL, SE and UK all started to aim for sustainable development and a greater deployment of renewable energy (RE), leading all three to introduce policies to stimulate investments in RE installations.</p> <p>Various support policies, mainly economic and regulatory, have been in place in NL, SE and UK throughout the past few decades.</p> <p>RE support policies in NL, SE and UK have been unstable and unpredictable over the years, leading to insecurity for members/shareholders.</p>	<p>In all three countries RECs emerged around the same period as the first RE support policies.</p> <p>RECs have diffused in all three countries during that same period.</p> <p>In none of the three countries RECs have become mainstream.</p>
<p>Differences</p>	<p>Differences</p>
<p>NL was the first of the three countries to stimulate market introduction of RE.</p> <p>Between 2000 and 2004 a new regulatory policy was in the making in SE. In 2011 a new tax that hit RECs was introduced.</p> <p>Feed-in tariffs for small generators were introduced in the UK in 2010.</p>	<p>RECs emerged in NL first.</p> <p>Diffusion and development of Swedish RECs stagnated between 2000 and 2004 and from 2012 onwards</p> <p>RECs strongly diffused in the UK in the period 2011-2013; also, large investments were planned</p>

<p>NL introduced two policies in 2011 and 2014 that were conducive to project cooperatives.</p>	<p>for the years that followed.</p> <p>Project cooperatives showed strong growth in NL during that period; in addition, large investments were announced.</p>
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The results show that the emergence, diffusion and development of RECs in the Netherlands, Sweden and the UK over the past few decades can consistently be linked to concurrent or preceding (changes in) national government policies in these countries. In itself, the finding that government policies affect RECs comes as no surprise: existing studies already mentioned that government policies are important for the sector (Bomberg and McEwen, 2012; Hatzl et al., 2016; Markantoni, 2016; Oteman et al., 2014; Seyfang et al., 2013; Strachan et al., 2015). The significance of this study lies in revealing just *how* important. For the first time, a clear relationship between government policies and the ensuing rise of RECs has been empirically shown, both within and across the case countries. This finding places the widespread view of RECs as a (purely) grassroots movement into perspective. Whether intentional or not, national governments appear to have played a large part in shaping the conditions encountered by this bottom-up movement, (partly) determining the timing and extent of its rise.

Looking more closely at the policy aims and means of the three governments over the years reveals another significant finding: for the most part, support policies benefiting RECs have not been the result of national governments making conscious decisions to stimulate RECs. Especially in Sweden and, to a lesser extent, the Netherlands, the main policies benefiting RECs have been aimed at stimulating RE in general, not RECs in particular. RECs have thus been able to emerge and diffuse on the wings of RE support policies. Of the three countries, the UK has been the most outspoken supporter of RECs and similar initiatives; the fact that the country drew up a Community Energy Strategy shows that the UK, for one, has recognized the merits of community energy for society. In recent years, however, the UK has sent mixed messages to the sector, slashing feed-in tariffs while

increasing other types of support. The overall effect on the sector is not known and deserves further investigation.

Given the findings described above – the importance of government policies for the diffusion and development of RECs, and the uncertainty surrounding the commitment of national governments towards RECs – the sector would do well to aim for more influence on the policymaking process.

The main limitation of this study is the fact that data on the diffusion and development of RECs proved scarce. The research design, however, has added to the soundness of the research in several ways. Firstly, the conclusions are based on a combination of longitudinal, within-country analyses and a cross-country comparison. Secondly, expert opinions were used to complement the collected data. The findings are coherent and consistent with existing studies.

4. CONCLUSIONS AND POLICY IMPLICATIONS

This comparative case study of the Netherlands, Sweden and the UK explored the interrelationship between national government policies and the emergence, diffusion and development of renewable energy cooperatives (RECs). The results suggest that emergence, diffusion and development of RECs in the Netherlands, Sweden and the UK have been closely related to (preceding and pending changes in) national government policies. Although we have to be careful because of the limited nature of our comparison, the findings point to the conclusion that the financial and regulatory conditions for RECs as created by national governments have enabled the emergence, diffusion and development of this grassroots movement.

In terms of support mechanisms, the past few years have seen a shift, notably in the UK, from economic to policy support (institutional creation and strategic planning) and information/education. Although this shift is arguably going too fast, it could lead the way for other governments wishing to strengthen the sector and help it transition away from subsidies.

With costs of RE installations coming down, economic support for RE production is sure to be (further) reduced. This will raise the question for national governments whether to support RECs in

other/new ways, similar to the UK. This question falls into two parts: what are the merits of RECs for society and do these merits warrant government support?

As Mulugetta et al. (2010, p. 7541) note, RECs and similar initiatives make important contributions to carbon reduction, both direct and indirect: amongst others, they help reduce carbon emissions, provide opportunities for involving citizens and provide “a marketplace where low carbon options can gain some traction”. As mentioned in the introduction, RECs also contribute to the economic and social dimensions of sustainability. Given the fact that sustainability has been a guiding principle for policy in all three nations, one would expect the countries’ national governments to be strongly and lastingly committed towards the community energy sector. This research has shown that this has not consistently been the case in the countries included in the study. One possible reason for a lackluster attitude towards the REC movement is that its contributions to reaching government goals, such as climate goals, are small compared to those of commercial projects. Moreover, these contributions can be indirect and/or hard to measure and can therefore easily escape attention. Finally, the contributions are diverse (environmental, social, economic) and may therefore hover, in a fragmented manner, in the peripheral view of individual ministries. A cross-departmental study could shed light onto the total (potential) contribution that RECs make to society and to the achievement of government goals.

Once the contribution of the community energy sector to society is established, national governments face the question whether the REC movement warrants specific government support, and, if so, what type of support is called for. The answer to the latter question depends on the specific needs of RECs in the various phases of their development. Input from the sector itself can provide insight into these needs. Governments can secure this input by actively including the sector in the process of policy-making. This can lead to improved alignment between the goals of national governments and those of RECs, thus boosting the sector’s prospects and resilience.

FUNDING

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

CONFLICTS OF INTEREST

None.

ACKNOWLEDGMENT

The authors are grateful to Dr. E.A. Breunese from Shell Nederland B.V. for his guidance and assistance in this research.

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