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Transition without Conflict? Renewable Energy Initiatives in the Dutch Energy Transition

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Abstract: In the context of the slowly progressing energy transition, a number of renewable energy initiatives have been emerging in the Netherlands. These initiatives represent alternatives to the dominant functioning of the energy system, and as such, may come into conflict with it. Transitions involve system destabilisation and conflict between the incumbent regime and the initiatives originating in niches. In order to assess the transformative potential of such initiatives, this paper addresses the question: what kind of conflicts and tensions arise from renewable energy initiatives, and what strategies do they develop to overcome or avoid them? Combined with a business model perspective, transition thinking enabled a better understanding of how the initiatives organise themselves, and where the points of friction with their institutional context emerge. We suggest that the instances of conflict may function as an indication for the state of the energy transition and the transformative potential impact of such initiatives. The instances discussed in this contribution relate to existing support schemes, technology choices, and the overall organisational networks of the emerging sector.

Keywords: energy transition; niche-regime dynamics; business model; conflict

1. Introduction

Like many other countries, the Netherlands has recently witnessed the emergence of renewable energy initiatives (REIs) that aim at integrating the production and consumption of renewable energy, which is referred to as prosumption [1–4]. The country counted 392 energy cooperatives in 2017, marking an increase of about 20% compared to 2016 [5]. As of late 2017, 63,000 people were involved in the cooperative field, either as members-investors or as customers [5]. The tangible result of the movement in terms of generation capacity involves 36.6 MWp of solar (up by 53% between 2016 and 2017), and 118 MW of wind power (also up by 2.7 MW within the same period); these figures are expected to double in the coming two years [5]. Looking at the numbers, the contribution of cooperatives to the national target, although growing, still appears to be negligible. The total cooperative solar capacity comprises about 1.8% of the (already low) total solar capacity installed in the country [5]. As regards wind energy, the contribution of the cooperative movement amounts to about 2.8% of the national total [6].

Apart from this tangible contribution, cooperatives may have a wider impact on the energy transition. Whereas top-down policies and market forces push for replacing the system based on large scale fossil with one based on large scale renewables, REIs envision an alternative for the current energy system with broader implications for society. They are considered to represent a vehicle for the democratisation of the energy system [7–9].

Yet, it remains unclear what their potential transformative impact is. In exploring the transformative potential of REIs in the Netherlands, this paper takes a transition perspective.

Transitions are complex, co-evolutionary processes of fundamental change [10,11]. They bring about a change of institutions, and of the formal and informal (explicit or implicit) rules of the game that shape the behaviour of its key actors (p. 14) [12]. Transitions are processes of disruptive change that entail system destabilisation, tensions and conflicts [10,11]. In system transitions, change comes about as the result of processes operating at multiple scales [10,11]. External pressures, like climate change or nuclear disasters, occur at the *landscape level*, an exogenous environment. The landscape puts pressure on the incumbent *regime*, the dominant functioning of the system. It causes tensions within the regime and enables increasingly competitive configurations in *niches* to gain importance [13,14]. To break through, innovations in the niche have to struggle against the selection pressures exercised by dominant regimes [11,15]. Concurring with Hård [16] who argued that social conflict should "*be treated as a cause of innovation, diffusion, transfer, and application-not only as a result of these processes*" (p. 409), we suggest that conflict may serve as an indicator of the state of the energy transition process, and the potential transformative impact of the initiatives in the niche. Therefore, in order to understand, and potentially support, the transformative potential of REIs, this paper addresses the question: *what kind of conflicts and tensions arise around renewable energy initiatives, and what strategies do they develop to overcome or avoid them*?

Although niche and regime contrast by definition, their interaction is not always conflictual. Some strategies take a more radical stance than others. There may be several reasons why niche-innovations avoid conflict with the regime. First of all, through actions tailored to maintain the status quo, the regime can, on the one hand, constrain the freedom of action for parties in the niche, keeping them under control; however, on the other hand it can embrace niches in so far as they are instrumental for meeting regime goals. We expect to make this observation with respect to the situation in The Netherlands, which is characterised by a very powerful energy regime as compared to those of surrounding nations. In fact, the "unfriendliness" of the Dutch context for the deployment of renewable energy technologies has been acknowledged by several scholars (e.g., [15,17]). In 2016, almost 6 percent of Dutch final energy consumption was based on renewable energy sources (RES), placing the country only ahead of Luxemburg within the European Union [18,19]. About 2 years away from the target year, the Netherlands is less than halfway to achieving its EU2020 goal [20] of attaining 14 percent of its final energy consumption from RES [18] which, in fact, it is not expected to meet [19].

Second, REIs may resist the regime's discipline, because regime policies and the overall selection environment need to be altered for them to flourish. However, previous research shows that REIs do not necessarily have the ambition to contribute to changes in the system [9]. Actually, some groups are happy to remain small only providing local solutions to local needs [21]. We expect to find that REIs will avoid political conflict, as they prefer to remain in their niche.

Third, transition research underlines that initiatives in the niche need a strategic vision to achieve lasting results [4]. Strategic behaviour, especially the ability to deliberately enter into conflict with a powerful regime, very much depends on the presence of a strategic vision. Yet, it has been documented that the emerging community energy niche in the UK is characterised by a lack of coherence in terms of substance, along with a lack of direction and strategy [22]. In line with this, we expect to make the observation that, in the Netherlands too, the different REIs are not strategically focused on moving beyond their niche (status), to engage with a new regime.

While international climate agreements may offer direction, energy policy, concerning energy systems that may vary from one country to the next in terms of what comprises them, who the main actors are, and how they are governed, remains a national policy responsibility. In this paper, we look at the Dutch energy system with its peculiarities, yet at the same time, we hypothesise that a number of the issues we identify here will also possibly emerge in other countries.

Our contribution takes an analytical perspective on the kinds of conflict and tensions at play in the context of niche-regime interactions, which may enable the initiatives' reflexivity [23], and potentially inform more effective governance [10] within the context of transition.

This paper is structured as follows: Section 2 presents our research framework and the methodology employed. Section 3 presents 12 cases of REIs in the Netherlands. Section 4 presents three case studies on conflict and collaboration. Finally, we analyse and discuss our findings in Section 5, and offer conclusions in Section 6.

2. Research Framework and Methodology

2.1. Analytical Framework

To systematically identify the ongoing niche-regime dynamics and the potential instances of conflict, we have designed an analytical framework that combines insights on (sustainability-oriented) business models and sustainability transitions [24,25]. The business model concept functions as the vehicle for assessment of how an organisation defines and aims to realise its intended sustainable impact (e.g., [26]). We operationalise this concept into four building blocks:

(A) *Value proposition*, which clarifies the kinds of benefits the organisation offers to its customers, investors and all other stakeholders (e.g., [27]). For sustainable companies such as energy cooperatives, the value proposition not only relates to immediate monetary profit, but more importantly, to realising societal benefits.
(B) *Product or Service*, which the company delivers to its customers. This could be clean electricity, but also knowledge and advice (e.g., [28]).
(C) *Architecture of value*, which relates to the partnerships through which value creation and delivery is accomplished (e.g., [27]). This building block relates to the strategy of the organisation to realise its value proposition.
(D) *Value capture*, which relates to the cost and revenue flows that determine the monetary and non-monetary values associated with the organisation, and define its viability (e.g., [27,29,30]).

The potential of the initiatives to generate their intended impact directly relates to their ability to deal with their institutional context, as imposed by the incumbent energy regime. For actors in the niche, such as REIs, materialising sustainability potential actually means transforming this very context; this is where conflict emerges. For this part of the framework, we draw on notions developed in transition research.

Niches cannot be considered a unity. Some will perish, others will be adopted or absorbed by the regime, and only a few will eventually break-through and take part in a new sustainable regime [14,31,32]. Hence, some initiatives prefer to follow a "fit-and-conform" strategy, trying to become competitive within the given selection environment, whereas others try to "stretch-and-transform" the institutional environment to their benefit [33]. However, it has been argued that reality is much messier than these conceptual categories suggest, and that the strategies utilised are rather unclear or difficult to compartmentalise into one category or another [15]. Therefore, we avoid categorizations such as "radical" or "moderate" in our assessment of REIs within the Dutch renewable energy niche.

Our framework relies upon two notions. The first holds that niches, regardless of their size and visibility, can be considered as "embryonic regimes" [34]. This means that they are characterised by a (very) low degree of institutionalisation as compared to the dominant regime. Second, niches stand in an antagonistic relationship to the regime, but the extent of radicality may vary for the separate dimensions that feature the dominant energy regime. Destabilization and the collapse of an incumbent regime implies that the dimensions constituting a new energy regime are as yet unknown. Building on Laclau and Mouffe [35], we assume that energy transition will bring about a rearticulation of the system's dimensions [24]. For assessing niche-regime dynamics, we distinguish seven system dimensions, thereby drawing upon Smith and Raven [33], with slight modifications:

(1) *Organisational logic* refers to how an organisation generates value, including organisational decision-making processes, routines and activities directed towards the achievement of

organisational aims, along with issues regarding ownership and the relationships between investors, producers and users;

(2) *Technologies and Infrastructures* attends to the material dimension required for societal (energy) demand;

(3) *User Practices* relates to the application domain of the concept or technology, and the associated routines and norms (e.g., prosumption);

(4) *Cultural significance* relates to (widely) shared values associated with the (new) energy system, including the system's representation and symbolic meanings;

(5) *Knowledge base* involves scientific, as well as tacit practical knowledge related to technological or social and organisational issues;

(6) *Sector Structure* refers to the organisational networks, collective efforts, and the specific interaction platforms for the coordination of common interests;

(7) *Policies and Political Power* relates to the role of government and the socio-economic lobbies in influencing policy-making, e.g., on the support framework for REIs.

Whereas Smith and Raven [33] use this framework to highlight the regime options for constraining a given niche, for our analytical framework they are equally relevant for the identification of options for the niche to "attack" the regime. Furthermore, in combination with the business model logic, we may be better able to assess the ways in which each of these dimensions shapes the actual freedom of action for REIs in practice.

2.2. Methodology

2.2.1. Case Study Approach and Selection Criteria

We followed a case study approach [36,37] with the purpose of capturing a broad variety of REIs within the context of The Netherlands. From our analytical framework, it follows that the 12 selected organizations would be similar with respect to their value proposition, as all share a strong focus on sustainability. They also should collectively represent the largest variation possible with respect to their organizational structure, the technologies employed, user practices (prosumers or not), knowledge base, sector oriented networking efforts, and use of political power, reflected in their respective business models. To cover the variety of alternative business models which affect energy production and consumption, and the potentially different systemic impact of the initiatives, our case selection included energy cooperatives and private companies, as well as hybrid organisations from the network operators. The selection of energy cooperatives was driven by our wish to select cases with different geographical focuses (local–national) and membership sizes.

2.2.2. Data Collection

Next to a study of case-related documents, we conducted 15 semi-structured interviews with persons involved in the 12 organisations which we intended to study (directors, project managers and employees), over the period from September 2015–October 2016 (see Appendix A for the interview protocol). Our interviewees were assured confidentiality with respect to sensitive information. The information provided was complemented with information from secondary sources. The research project had access to the database of the National Community Energy Monitor [38,39]. Furthermore, the researchers followed the organisations over time: during the period 2014–2017, the principal investigator took on the role of observer on multiple occasions. In this way, the project remained up-to-date regarding ongoing developments.

2.2.3. Data Analysis

The data were analysed using our conceptual framework. The analysis started with a "baseline" analysis and comparison of the organisations. With this step, we confirmed that our selection criteria

regarding variety were met. The sample overview is presented in Section 3. The baseline analysis also enabled us to obtain information with respect to tensions and conflicts. This resulted in a selection of 3 case studies, presented in Section 4.

3. Renewable Energy Initiatives in the Netherlands: Sample Overview

Out of the 12 organisations, 7 are cooperatives (Table 1). The oldest, the wind cooperative Deltawind, was founded in 1989. The youngest, the solar cooperative DE Ramplaan in Haarlem, was founded in 2014. In terms of membership size, the Windvogel (Windbird) is the largest, with over 3000 members. However, this is the only cooperative in our sample with a national focus. Deltawind, a locally based organisation on the island of Goeree Overflakkee (with 49,000 inhabitants), has over 2000 members, and by far the largest operational production capacity. The local cooperatives operate either at city or neighbourhood levels (DE Ramplaan in Haarlem and Thermo Bello in Culemborg). Thermo Bello is a special case, in that whereas most cooperatives produce electricity through wind or solar, this cooperative runs a low temperature district heating system serving 220 households and office buildings.

Our sample includes three commercially operating companies (Table 2). The Windcentrale is a nationally operating commercial firm which establishes wind cooperatives through crowdfunding. BAS Netherrlands was an Energy Service Company (ESCO) assisting its clients in becoming energy neutral, but which went bankrupt in 2016 [40]. WeKa Daksystemen is a commercial roofer and a pioneering company offering solar roofs to municipalities, cooperatives, and the like.

Additionally, the sample was broadened with two intermediary organisations: spin-offs of two grid operators with a focus on energy efficiency and conservation (Table 3). These organisations were included because they involve (potentially) moderate niches. While Buurtkracht is still part of a network operator, the initiative Hoom recently evolved into a cooperative.

This sample is very diverse in many respects, but all organizations have one feature in common: their focus on sustainability.

Table 1. Renewable energy cooperatives.

	Zuiderlicht, Amsterdam	**Eigen Wijkse Energie Cooperatie (EWEC), Wijk bij Duurstede (Province of Utrecht)**	**DE Ramplaan, Haarlem**	**Grunneger Power, Groningen**	**Deltawind, Goeree Overflakkee (Island in the Province South-Holland)**	**De Windvogel, The Netherlands (National Focus)**	**Thermo Bello, Culemborg (Gelderland Province)**
Founded in	2013	2013	2014	2011	1989	1991	2008
Members	130	165	220	1200	2080	3300	200
Geographic focus	Amsterdam metropolitan area	Wijk bij Duurstede (town)	District in Haarlem (city)	Groningen (city)	Island Goeree Overflakkee	The Netherlands	District in Culemborg (village)
Projects	3 solar & 1 wind	2 solar	1 solar	6 solar co-owned & others developed	3 wind & 1 solar	4 wind & 3 solar	1 thermo & (1 solar)
Capacity	358 kWp	166 kWp	370 kWp	2.911 kWp	15.542 kW & 840 kWp	5.235 kW & 565 kWp	About 9000 GJ/year

Table 2. Project Developers.

	De Windcentrale	**BAS Nederland**	**WeKa Daksystemen**
Founded in	2012	2010–2016	1991
Business Model	Crowdfunding platform for wind cooperatives	ESCO towards energy neutrality	ESCO specialising in solar roofs & insulation
Clients	15,000	about 400	Unknown

Table 3. Intermediary actors on energy efficiency.

	Cooperatie Hoom (Former Alliander)	**Buurkracht (Enexis)**
Founded in	2013 (end)	2013 (mid)
Engagement Phase A	42 districts	130 districts
Engagement Phase B	17 cooperatives	234 districts

4. Findings

This section presents three case studies that shed light on the main conflicts and tensions that REIs encounter, and the strategies they develop to overcome or avoid them. These conflicts mainly relate to aspects around the given *Policy and Political power*, *Technology and Infrastructure*, as well as the *Sector structure*.

4.1. Support Schemes for REIs: The Case for Prosumption

A year after the sudden government decision in 2006 to end the grant scheme for producing renewable electricity the Netherlands, the Court of Audit made the observation that three companies had been able to acquire 51% of the support money (p. 26) [41]. This confirmed the suspicion among critics that subsidies for the Dutch energy transition mainly benefit large companies. New grant arrangements followed. The current Premium tariff SDE+ (Stimulating Renewable Energy production) covers the difference between the wholesale price of electricity from fossil sources and the price of electricity from RES. SDE+ targets companies, non-profit organisations, and public institutions [42]; energy cooperatives are also eligible to apply for it. Applicants face uncertainty, as SDE+ operates on a "first come, first served" basis, while the tariff increases with each stage of the tender procedure. As the actual premium tariff is paid after the plant begins its operation, this system also puts the investor-developer at financial risk.

The second scheme which has existed for a long time is net metering (Salderen). For private electricity prosumers, who mainly produce solar energy on their rooftops, energy related taxes only apply to their net electricity consumption over a yearly period. Although this mechanism is principally addressed to individual consumers, REIs have used it for collective project development for tenants in collaboration with housing associations. The tax exemption in this arrangement only applies if the electricity is produced in-house, or, in official language "behind the meter", i.e., not on other peoples' rooftops.

Since most people cannot produce their electricity requirements on their own rooftops, they need to look elsewhere. In 2008, Amsterdam scientist Anne Stijkel initiated the project "Farmer looking for Neighbour" (Boer zoekt Buur), to enable city households to produce "their own" renewable electricity on farmers' barns [43]. However, Dutch legislation prohibits the so-called "self-consumption" of the electricity produced. For Stijkel and the cofounder of the later Zuiderlicht cooperative, Pauline Westendorp, consuming your electricity produced elsewhere must be as legal as consuming the lettuce from your allotment garden. However, the Ministry of Finance, tax division, refused to allow this.

The wind cooperative Windvogel (Windbird) issued a lawsuit in 2013 to "*ensure that its members do not have to pay taxes on their remotely self-produced electricity*" [44]. The case was lost in court. Nevertheless, the cooperative continued lobbying for a tax reform. Its website cites 2014 figures, stressing that under the current system, citizens subsidize the depletion of fossil resources at up to 2.3 billion euros in energy tax, through their electricity bills, while 5.5 billion euros are transferred to fossil energy through subsidies (including tax breaks) and only 1.5 billion to renewables [42].

The lobby for prosumption had some success. The coalition agreement of the right wing liberal and social-democrat government taking office in 2012 announced a lower energy tax for REIs. By 2014, following the National Energy Agreement [45], the so-called postal-code-area regulation (Postcoderoosregeling) went into force. This regulation provides energy tax relief to private consumers organized in a cooperative or homeowner association, who produce electricity up to the amount they consume yearly, on another rooftop than their own. The most salient constraint of this arrangement relates to the spatial area for which the tax relief applies: the postal code area where the installation (a solar roof) is situated, together with all adjacent postal code areas. While at this small scale, cooperative solar projects may be developed, wind projects are not. Additionally, there were major financial uncertainties. Since the national budget including tax rules is decided by Parliament on a yearly basis, there was no certainty that projects could realize a return on investment. During the national cooperative manifestation (HIER Opgewekt) in 2013, several REIs filed a petition asking for

guaranteed tax relief for at least a 15-year period, the calculated average pay-back time of a collective solar PV project. However, a few days later, parliament supported an amendment from the Green party (GroenLinks), asking for a 10-year guarantee [46]. On top of this, uncertainties remained regarding the implementation of the rules by the tax division, and high grid connection costs.

Given the half-heartedness through which this major policy change was brought about, most REIs concluded that the tax relief would be unfeasible for them. Among the few who did make use of this scheme was DE Ramplaan in Haarlem. Its chair reflects: "*I was not aware that it was such a complex matter. Not everybody can do this . . . Not because I want to put us on a higher level [for having done it], but because of the content. It is so difficult*" (Interview 7).

Zuiderlicht developed its business model in order to bypass the tax issue. People involved in this producers' cooperative, collectively gain ownership of a number of solar panels leased to the buildings' owners, who then consume the electricity. The cooperative is outspoken concerning national and local policy schemes. As a board member points out: "*policies are constantly and consistently changing*" (Intv1b). He suggests that the existing energy tax scheme makes it more attractive for household owners to invest in energy, while big companies are not stimulated because their energy tax is too low. Moreover, he notes that through the SDE+ grant, money paid by small energy consumers is channeled to large companies, while the former are not able to participate (Intv1b).

Over recent years, the tax relief arrangement has been slightly adjusted. The tax return increased from 9 to 12.26 €cts per kWh (after V.A.T.). The duration of support increased from 10 to 15 years, whereas the pay-back period for a cooperative solar project could be about 10 years, which is quite acceptable for energy prosumers. According to Schwencke [5], in 2017, cooperative solar energy is still, for the most part, produced with the support of the premium tariff (24.5 MWP via SDE+ vis-à-vis 8.7 MWP via energy tax relief). Yet, in 2017, more cooperative projects were developed with the energy tax relief method than with the premium tariff 114 vis-à-vis 29). Most wind projects tend to use the SDE+ scheme; however, in 2017 the first small wind turbine (10 kW) was financed through the tax relief scheme [5].

4.2. Technology Choice

Daltawind belongs to the first generation of energy cooperatives focusing on wind. Based on the island of Goerre-Overflakkee (south of Rotterdam), the cooperative thrives on having the support of the local community. Interestingly, only island inhabitants are allowed to become members and to invest in their projects. Their motto is: "*those who have to look at it may benefit from it*". Having established four wind projects (with a total capacity of 15,542 kW), Deltawind is currently developing, in collaboration with the cooperative Zeeuwind (Zeeland province), the biggest community-owned wind project in the country (100 MW). It sells part of its electricity to a big industrial consumer, Akzo Nobel. When the Province of South Holland allowed the development of an additional 225 MW of wind energy in the region, Deltawind, in collaboration with the energy company Eneco, established the "Windgroep Goeree-Overflakkee". This ensures collaboration between the local initiatives (Intv2).

No doubt, Deltawind has benefited from spatial planning policies allowing wind turbines to operate on and around the island. One of the unintended consequences of Deltawind's success is that the island is running out of suitable locations for turbines.

De Windvogel is also an older cooperative. Its business model focuses on acquiring and upgrading existing wind turbines. Notwithstanding its experience and membership, the cooperative has been unable to develop new wind projects for several years. To compensate for this, in 2007 the Windvogel invested in solar parks in Germany. After years of limbo, the cooperative is now involved in the development of a big wind park (windpark Zeewolde), in collaboration with Zuiderlicht and 199 other commercial wind developers and land owners.

Windcentrale began its operations in 2012. For its projects, it sells wind shares to citizens who then become owners of the wind turbine. They buy the energy by becoming a customer of the energy company, Greenchoice. In 2013 the initiative established a new crowdfunding record, generating

1.3 million euros for one wind turbine within 13 h. Since then, the Windcentrale has purchased 10 existing wind turbines with a total capacity of around 15 MW. Given its business model, the need for Windcentrale to find turbines is immediate. Building new ones would be too time consuming, as Windcentrale is a company with paid employees: "*We need to sell wind shares and we need to have wind turbines. Sometimes we don't have a product. It's not that we can easily acquire something and sell it. For us it's difficult*" (Intv8). This initiative also struggles to develop wind projects. Windcentrale's director stresses that the "*lack of support from the government*" as well as "*volatile subsidy schemes*" are the causes for not reaching the national wind energy targets (Intv8).

Provincial regulations directly determine the status of community wind projects. One of the main examples of a province obstructing on-shore wind development in North-Holland is the case of Amsterdam Wind, a pro-wind coalition of cooperatives in Amsterdam and the Windvogel. In 2016, Amsterdam Wind submitted a license application for a 15 MW wind project in Amsterdam with the province. This initiative was embraced by the Amsterdam municipality, which has the ambitious goal of reducing its CO_2 emissions to 40% below its 1990 levels by 2025. However, political opposition at both the national and provincial levels led to regulations that made the project impossible (Intv1b). In the 2015 elections, the right wing liberals, along with the extreme right, campaigned for a moratorium on wind energy. The new coalition decided to allow the minimum target of 685.5 MW onshore wind, as dictated by the National Energy Agreement, mainly in the northern part of the province. Projects would have to comply with provincial rules, which are tougher than the national ones. Turbines must be placed at a distance of 600 m from the nearest dwelling. A wind project must comprise at least six turbines. Additionally, to install a new wind turbine, two old ones must be retired. While the Amsterdam Wind project would have been given the green light under national regulations, under the provincial rules it was not, because one wind turbine is located only 450 m from houses, albeit within an industrial area. Our interviewee argued that these rules are justified when it comes to the aesthetic protection of rural scenery, but that they do not make sense in the context of Amsterdam port. The wind turbine fits the scenery, and noise is not a problem in this area. "*We could have had way much more wind energy*", but the provincial regulations block this.

One cooperative, together with the Amsterdam municipality, took the provincial authorities to court in order to challenge the regulations. Yet, the country's highest administrative court, The Council of State, ruled in the province's favour. Although Amsterdam Wind cannot meet all the requirements, the initiative, with the support of Amsterdam city, sought an exemption from provincial regulations. In 2017, North Holland placed a moratorium on wind on land, while at the same time granting permits for a number of wind farms in Amsterdam [47].

In the case of Utrecht province, where a moratorium also exists, REIs follow a less confrontational strategy. The director of the cooperative EWEC (Wijk bij Duurstede) attributes delays of implementing wind-generated power to a "*loud minority*". The municipality rejected any wind projects in the Wijk bij Duurstede area. EWEC was established in response to this local opposition. The idea was that "*we will never get an energy transition when people always say NO*". EWEC's goal is to involve "*as many members as possible to have backing*" (Intv6). To circumvent the opposition, EWEC focuses on solar, because "*people love solar projects*" (Intv6). Therefore, the choice of technologies was of strategic importance in the build-up of trust and support for the cooperative. They consider this crucial for taking "*bigger steps*" (with wind) (Intv6).

The choice of technologies thus relates to the strategic decision to avoid conflict. While "*everyone loves solar*", as one employee of Grunneger Power stated, wind is associated with lots of conflict (Intv5). Yet, in 2017, the cooperative started exploring the possibility of developing small-scale wind turbines that are not expected to raise objections from the local community.

4.3. Towards a Renewable Energy Sector?

This case study focuses on the collaboration within the REIs own communities. We address (1) the tensions around the collaboration of cooperatives with commercial parties; (2) the

initiation of cooperatively owned energy utilities, and (3) the role of the national umbrella organisation, ODE-Decentraal.

4.3.1. Collaboration with Commercial Parties

The debate regarding collaboration with commercial parties on renewable energy projects has not yet been settled. Some community initiatives are very critical of such partnerships. As one interviewee points out "*commercial companies come here and say: we want to develop a solar park with you / . . . / and what about the people who want to invest? For SDE+, they need to have a social component . . . that's not what we do. They think they can use us*" (Intv5).

In contrast, wind cooperatives like Deltawind or the Windvogel with professional staff have been collaborating with project developers to set up wind farms. In fact, cooperatives are represented in the North Sea Energy Lab, initiated by the Ministry of Economic Affairs to increase popular support for offshore wind development. In 2017, cooperatives founded the Association Participation Offshore Wind, to promote cooperative investment alliances with private consortia tendering for offshore wind projects.

4.3.2. Cooperative Renewable Energy Providers

To avoid the dependence on dominant energy utilities, REIs founded two energy companies to serve their membership: OM and Our Energy (Energie van Ons). From our sample, EWEC is affiliated with OM, and Grunneger Power was among the initiators of Our Energy, focusing on the Northern part of the country. In both cases, only cooperatives can be a member. It is worth mentioning that, for legal reasons, OM has a partnership with the energy utility Eneco, and Our Energy with PVNED. By becoming a member of a cooperative supplier, a cooperative offers its membership, as well as renewable electricity and gas for prices comparable to those of other energy companies operating in the Dutch market. In some instances, the cooperative companies also sell energy to municipalities.

When investigating the reasons why cooperatives did not join the cooperative supplier OM, instead choosing to enter into partnerships with a commercial company, some suggested that OM was new, and prone to making mistakes. For Deltawind, the reason was that OM requires local cooperatives to bring in their own customers, which excludes Deltawind, a production cooperative, from participation.

Initiatives from the North did not join OM because they wanted to do it "their way", i.e., without the involvement of any commercial party (Eneco) (Intv5b). This interviewee suggests that people in the North want to keep their project local. In 2017, the two cooperative energy providers tried to collaborate. However, due to issues concerning outreach and marketing strategy (among other factors), and probably cultural identity, this partnership was not realized.

4.3.3. Coordination within the Sector

ODE-Decentraal is the umbrella organisation responsible for political lobbying for renewable energy cooperatives. Remarkably, it started in 2011 with the active support of the Ministry of Economic Affairs (p. 15 & 17fn) [48], which for some time paid its staff. The organization merged with an older environmental organization, and is about to merge again, this time with the interest organization "Energetic Society" [49]. Our findings suggest that many interactions between cooperatives and authorities are based on a one-to-one basis, rather than through the umbrella organization. One interviewee suggested that ODE-Decentraal "*cares about the interest of lots of different issues—so we don't expect much from them*" (Intv7). Examples like this suggest that the coordination between different initiatives, and subsequently, the strategic capacity of the cooperative field as a whole, is limited.

5. Analysis and Discussion

This paper focuses on the question: what kind of conflicts and tensions arise around renewable energy initiatives, and what strategies do they develop to overcome or avoid them? Using transition theory, we formulated three expectations a priori. In this section, we will analyze the extent to which the case study findings are able to confirm or contradict these expectations. We will thereby discuss the interaction between specific system dimensions in our analytical framework, and their impact on REIs' strategies.

5.1. Regime Constrains the Niche, Keeping It Small

We indeed find that the freedom of REIs is constrained by the behaviour of the regime. Government policies have an immediate impact on their business models. First of all, the main grant scheme for renewable energy, currently SDE+, has mostly benefited regime parties, although REIs have also successfully applied for grants. Yet, wind cooperatives using SDE+ cannot offer their customers prosumption of the produced electricity.

The issue of prosumption became a mainstream focus for politicians when initiatives took off all over the country local, demanding policy facilitation. Interestingly, the first national lobby organization for cooperatives was initiated by the Ministry. Right from the beginning, it was clear that the post-code-area arrangement was intended to target small projects, thus preventing competition between REIs and incumbent energy companies. Furthermore, cooperatives have to enter into partnerships with energy companies, since energy trade requires a permit. The small size of the anticipated projects, combined with the high costs for project realization, are still considered barriers for community energy initiatives. Successful efforts may be attributed to hard working, entrepreneurial volunteers with the ability to collaborate with municipalities and their grid operators, and to lobby MPs. The constraining and controlling mechanisms at play here relate to the *Policies and Political power* aspect of our analytical framework.

We also find that policies constrain REIs in their choice of technology, as the cases of Amsterdam Wind and EWEC exhibit. Although the national government does not appear willing to provide REIs with support regarding wind energy, this appears to primarily be an issue at provincial level. An explanation can be sought in the political coalitions in power. Since 2015, North-Holland has had a right-wing majority what is fiercely opposed to wind energy. However, this does not explain why Frisia, which does not have a right wing majority, has banned on-shore wind, whereas the coalitions in Gelderland, and in North-Holland, take a more positive stance.

A better explanation could take into account recent national developments regarding offshore wind. In the Netherlands, offshore wind took off after 2012 (much later than, for instance, in the UK) [15]. Only recently, major investments near the Dutch coast were facilitated by the national government. Although national targets for onshore wind also exist, it appears that the priorities of the government have shifted towards boosting offshore wind. Since offshore wind requires very large investments, complex engineering, and time consuming procedures, this option is implemented by the consortia of big, incumbent companies. In contrast, decentralized wind on land is more likely to be implemented with citizen (cooperative) involvement. Thus, it becomes clear that the niche of REIs is also constrained through impediments falling into the *Technology and Infrastructure* category.

Furthermore, REIs are constrained along the system dimension *Knowledge base*. Our sample holds one cooperative that produces low-temperature heating, Thermo Bello in Culemborg. Founded in 2008, this is still the only REI exploiting a renewable energy-based heating system. At the moment, the dominant knowledge base in the transition to 'gasless' heating is still high temperature district heating (using natural gas or biomass), and this is held by actors operating within the regime. Local initiatives may prefer low temperature options, which are sustainable, but still "too innovative"; as such, such endeavours are largely ignored by major energy consultants [50].

So far, we conclude that the Dutch energy regime, to a large extent, constrains the business models of REIs and keeps them small. At the same time, the Dutch government recognizes the positive effects of REIs. We will further discuss this point below.

5.2. Dealing with Conflict

The case studies confirm the expectation that REIs tend to resist the regime's discipline, but also that they seek to avoid conflict. The main example of political conflict relates to prosumption. Typical for Dutch political culture, the issue was eventually addressed in the tradition of "green poldering". Consensus politics prevailed over effective regulation, as is illustrated by the amendment of the Green party requesting a 10 year guarantee of "post-code-area projects", whereas the REIs involved had argued for a minimum of 15 years. The wind issue gave rise to political conflicts at a regional level. In both cases, we see that issues were brought to court, which can be considered an attempt to settle the dispute in a manner that avoids a political confrontation. As the case studies show, a number of the initiatives under study tend to seek to avoid conflict. The third case study also indicates that REIs find it difficult to cooperate amongst themselves.

As a possible explanation for conflict avoiding behaviour, we suggested that REIs do not necessarily wish to contribute to system change. Research into motivations that underlie community initiatives in Dutch local food production indicate that such initiatives do not have the ambition to replace the incumbent regime [51]. However, from the REIs under investigation, only one mentioned that its task was limited to managing one particular project, and that it had no ambitions to expand; all others expressed the ambition to grow bigger.

As an alternative explanation for conflict avoidance, the Dutch polder model of decision-making relates to the system dimension *Cultural significance*. We will further discuss this below.

5.3. Strategic Focus

A strategy is broadly defined as an action plan designed to achieve a specific goal [52]. Thus, it involves two main components: (1) a long-term vision or target, and (2) a contingent plan or pathway to get there, supported by a specific partnership or coalition. In other words, strategy is what links the business model to the broader system dimensions that may work against, or in favour, of the niche. A strategy allows REIs to make deliberate decisions on collaboration with others, thus entering into political conflict, or avoiding it.

Although we find that the REIs under study show ambition, good will, and willingness to make a lot of effort, we tend to confirm the expectation that they fall short on strategy. As regards vision, the conflict on the post-code-area arrangement (energy tax relief) is, again, illuminating. So far, we have pointed out the deficiencies that killed off many initiatives. However, it must also be stressed that this regulation opens a window of strategic opportunity for the niche. A unique feature (at least in the Dutch context) of this arrangement is that it allows citizens to choose how to spend their (tax) money: either give it to the state, or invest in their own renewable system. The cooperative movement claims that cooperatives invest in the local economy, thus keeping consumers' money in the community [7]. This is what cooperatives that take advantage of the tax exemption regulation could bring about. So far, the movement has lobbied for improving the regulation; however, our findings indicate that it has not yet achieved this goal. The same is true for another potential benefit of this regulation: it shields the niche from the commercial energy sector. The regulation states that the cooperative must enact legal and economic ownership of the energy producing facilities. Cooperatives could use this condition to their advantage when working with commercial parties. So far, however, the daily troubles with its implementation have overshadowed the possibility of envisioning policy which would advance the REI's expansion.

When it comes to the "how to get there and with whom" part of strategy, we also find ambivalence in the niche. An example is the inability to establish a united cooperative energy company. We find ambivalence amongst cooperatives regarding the development of projects with commercial parties,

including other niche parties. That some wind cooperatives take a more confident stance towards commercial developers is explained by the fact that they are more experienced, and work with professional staff.

In conclusion, we observe a lack of strategic focus; however, this is not attributable to a lack of ambition amongst the REIs. Constraints for intra-niche interactions would immediately affect the system dimension *Sector structure*, where a new regime could develop.

5.4. In Search for Explanations

In this part of this article, we discuss two explanations for our findings. These relate to the ambivalence of the Dutch REIs vis-a-vis the regime, and the ambivalence in regime behaviour vis-a-vis the niche. This section then briefly discusses the REIs' transformative potential.

An explanation for the relative weakness of the niche relates to the huge power differences that feature the Dutch energy (sub)system. This is exemplified by the NAM, the company exploiting the Dutch natural gas stock, which is owned by Shell and Exxon, and which shares its profits with the Dutch state. We are not aware of any other example of such a concentration of economic power (i.e., one which affects electricity production, heat and transport fuels) across the entire energy sector in a single country. This power structure coincides with a type of energy policy creation that has been typified by the term "Rule" (pp. 163–173) [53]. This type of policy making is featured by (imposed) consensus, monolithic power, and little willingness to incorporate public participation. In contrast, to the more pluralist model featured by advocacy coalitions [54], Rule lacks an organized opposition. This would explain the inability of the renewable energy sector in embryo to build strong organizations, as well as some REIs lobbying for themselves.

Since the introduction of Transition Platforms in the early 2000s, the polder model of policy development partly took over, which became salient through the National Energy Agreement in 2013. The decision-making in this type of policy is characterised by compromises between (regime) parties representing contrasting values, but who are interdependent, i.e., they cannot overrule each other. In terms of public participation, this type of policy is not very different from Rule. What is critical for explaining the position of the niche is that institutionalized power relationships are generally known, or better, have been internalized, even by critics in the REIs. This would explain the propensity for conflict avoidance; to use the English expression: if you can't beat them, join them. This may also resonate with the Gramscian concept of *war of position*, which suggests a conscious decision to avoid confrontation, instead coordinating actions to gain resources, build organisational capacity and alliances, and eventually to increase influence in civil society [55].

This observation goes beyond the actual use of power; the exercise of power to constrain is anticipated in the attitudes and behaviour of the REIs themselves. Hence, this is relevant to the dimension *Cultural significance*, as it relates to how dominant institutions frame actors' behaviours by either implicitly or explicitly giving direction. We can now understand the ambivalence in the behaviour of REIs, and their lack of strategic focus. On the one hand, within the niche, they feel free to make their own judgments and demands; on the other, once they enter the policy arena, they anticipate the informal rules of the game, thereby possibly overlooking opportunities to strengthen their position.

We also observe ambivalence on the side of the regime, which has obviously come under huge pressure. By 2012, it could no longer ignore REIs, as it became obvious that they represented a genuine citizen-based movement, rather than merely the "usual suspects", i.e., the (institutionalized) environmental NGOs and critical scientists. Assuming that ignoring all demands for prosumption would provoke a confrontation with an unpredictable outcome, the regime made a strategic move: rather than treating the REIs as the opposition, they suddenly framed them as a movement in support of government environmental policy deserving some encouragement, in the form of the post-code-area arrangement. This new frame became possible when social-democratic party PvdA-affiliated enlightened regime actors joined the new government coalition.

The argument underlying this new strategy was eloquently presented in the essay *The Energetic Society* [56] by Maarten Hajer, who was by then director of the Dutch Environmental Assessment Agency (PBL). Hajer argues for a new philosophy for sustainability governance, building a coalition between government and the energetic society, or "*a society of articulate citizens, with an unprecedented reaction speed, learning ability and creativity.*" (p. 9) [56]. This relationship will be based on the notion that "*(t)he government does not have a monopoly on wisdom, but it is capable of focusing society's learning capacity on what it sees as the important public issues*" (p. 63) [56]. The REIs movement has possibly also embraced this publication, as is shown in the name of their new lobby organization in the making [46]. Wouldn't they benefit from a new social contract promising that the government will take them seriously for a change? Indeed, Hajer takes the energetic society very seriously, as he realizes that critical citizens can work with the government, but also against it. The main challenge is therefore: "*How can governments exploit the potential of this* energetic society *on the road to sustainability?*" (p. 10) [56]. We note that it is the government that is exploiting the energetic society, not the other way around. Although Hajer supports bottom-up processes, the division of tasks between the government and society is, on closer inspection, not that new. The government sets the goals and targets, and society will realise them. Hajer justifies this traditional division of tasks by claiming that "*(t)he government wants to take action based on a global sense of urgency, whereas citizens lack sufficient insight into the problem, the objective and the solution strategy*" (p. 25) [56].

The ambivalence in both regime and niche is reflected in *The Energetic Society.* Controlling the niche and keeping it small is justified by denying citizens' ability to make a difference in the energy transition. The relevance of the REIs is a signal to speed up the process of energy transition, and not merely their ambition to become part of a new energy regime with a (more or less) radically different content.

What do our findings imply for the transformative potential of Dutch REIs? The regime has been able to constrain them in many ways, affecting their business models and their choice of technology by using political power, institutional culture, as well as the dominant knowledge system. One feature of REIs has not been addressed by the regime: their organisational logic. The cooperative structure in particular appears not to be susceptible to regime constraints. This may be due to the fact that a cooperative is a social enterprise of entrepreneurial citizens working for sustainability; this notion cannot be easily undermined. Furthermore, the support base for prosumption in the Netherlands is still growing. A significant part of the population wants to break with the culture of passive consumerism. Hence, the transformative potential of Dutch REIs may unfold along the system dimension where divergence from the regime is most obvious: *Organizational logic* and *User practices*.

6. Conclusions

Can REIs make a difference in the direction and speed of the energy transition? The Netherlands, which may be characterised by an energy regime, i.e., where power is concentrated in very few hands, ranks significantly low in terms of the production of renewable energy in the EU, and the contribution of REIs therein is still marginal. Within this context, this paper addresses the question: *what kind of conflicts and tensions arise around renewable energy initiatives, and what strategies do such initiatives develop to overcome or avoid them*?

Our research finds ambivalence both at the regime and niche levels. As expected, the regime constrains the (business) opportunities for REIs. We find both conflict and conflict avoiding behaviour. Although the REIs have ambition, we do not find a clear strategy, nor a clearly-defined position vis-a-vis the regime, nor a clear view on how to overcome institutional barriers. They also have not (yet) been able to build unity via the establishment of a strong network, and by lobbying. The ambivalence on the side of the niche can be explained by the huge power gap with the regime. In fact, REIs may anticipate the use of the regime of its inherent power, and avoid immediate confrontation with it, not realising that the regime is also under extreme pressure, and that its institutions are already weakening. Instead, REIs appear to engage in a "war of position", that may allow them to build the required capacities for future confrontation. As for the regime, we find that it uses the niche to legitimise

climate policy, while keeping it small at the same time. Although the niche is supported, even among enlightened regime actors there is consensus that, eventually, solutions in the energy transition will be offered by the incumbent system. The potential strength of the Dutch energy niche is the high public interest in the prosumer movement. The cooperative ownership structure of many REIs is uncontested; this bridges the gap between the shareholder, the consumer, and the producer, in a new type of energy utility. We consider this social innovation to be potentially transformative.

Furthermore, our results point towards the inevitability of conflict in the process of energy transition. In fact, the emergence of conflict may open a window of opportunity for accelerating or steering energy transition in a certain direction. Additionally, as previous research on the more advanced German energy transition concludes, on a turning point, the critical factors are primarily of institutional nature, and will thus be determined in the political arena [57]. Consequently, conflict may indeed function as the *cause* of the diffusion and application of innovation(s) [16], and its emergence may also serve as an indicator for the state of energy transition.

A final observation relates to the conceptual framework of our study, which distances itself from dichotomous thinking about radical niches whose transformative potential is counter-balanced by their radicality, and by non-radical niches that do not have transformative ambitions. Instead, our framework considers niche-regime dynamics on different dimensions, yielding conclusions with respect to the articulation of more and less radical elements featuring niches. In our view, this framework may also help niche actors in developing a long-term strategy. Our contribution may thereby increase the initiatives' reflexivity, prerequisite for learning, and may facilitate the emergence of a more transformational agenda for the energy sector, the materialisation of which also depends on strategic capacity at the niche level. Future research could explore new types of interventions that could help build this capacity, thereby increasing the prospects of regime transformation. Lastly, while the empirical focus of our research has been the Dutch energy system, we expect that a number of the issues we have discussed here will be also applicable to other political economies. Further research will offer new insights about the validity and practical usefulness of this conceptual framework, as well as how it can be used in different contexts. In fact, the application of our conceptual framework beyond the Dutch context may enable comparative analyses to be undertaken, thereby highlighting patterns across cases.

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Appendix

The interview protocol is presented below:

Motivation—Vision

1. How did the INITIATIVE begin? What is the background of its emergence? Who was the initiator?
2. What is your personal background? Did you have any specific relevant knowledge before getting involved in the INITIATIVE?

Product/service

3. What is the exact product/service that you offer?
4. Which technologies do you use? Why?
5. Have you noticed any change in member's behaviour (i.e., energy saving)? Do you have any data for this?

Value proposition

6. What is the value that you offer to your members (through your product/service i.e., problem solving/goal support)?
7. What is the value that you offer to your customers and the broader society?

Value architecture

(Internal organization)

8. How many members do you have?
9. How is ownership arranged?
10. What are your key activities (and key resources)? What role do you take in the energy system (value chain)?
11. How is the INITIATIVE organised internally? Do you have specific roles and tasks? How do you make decisions? Are there scheduled meetings with the members?

(Stakeholders)

12. Who are your key stakeholders? (How many customers do you have?)
13. Who are your key partners? (Suppliers? Retailers?) Why?
14. What kind of interaction/relationship do you have with them? (What are the specific channels through which you reach your members, customers and society?)

Value capture

15. What are the most important costs in your operation?
16. How do you make revenues?
17. Have you received any subsidy or grant?
18. Do you make any profit? How do you manage it?

Institutional work

19. Are you engaged in any initiative aiming to support the overall sector? Are you active in ODE Decentraal, etc.?
20. In what respect do you differ from the regime? What have you struggled with; has any conflict emerged? What kind of barriers/challenges have you faced?
21. What kind of actions did you take to circumvent them?
22. Where are you vulnerable? What are the weak points of your business model?

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