



Three is a crowd? Exploring the potential of crowdfunding for renewable energy in the Netherlands



E. Vasileiadou ^{a,*}, J.C.C.M. Huijben ^a, R.P.J.M. Raven ^{a,b}

^a School of Innovation Sciences, Eindhoven University of Technology, Netherlands

^b Copernicus Institute of Sustainable Development, Utrecht University, Netherlands

ARTICLE INFO

Article history:

Received 28 October 2014

Received in revised form

20 May 2015

Accepted 6 June 2015

Available online 15 June 2015

Keywords:

Renewable energy

Crowdfunding

Sustainability transitions

Business models

Up-scaling

ABSTRACT

There is a huge gap between demand and supply of finance for energy transitions, and the financial and economic crisis have had a negative impact in the already meagre funds for transforming the energy system towards renewable sources. In this paper we explore whether crowdfunding for renewable energy, as a novel sociotechnical practice developed in a niche, has the potential to break through and transform both the energy and the financial regimes, utilising the Multi-Level Perspective theory. We empirically investigate crowdfunding platforms linked to renewable electricity projects in the Netherlands. The main conclusion is that the volume of crowdfunding today is low, but the dynamic of these projects holds potential. There is limited indication of learning processes until now, as well as limited support from regime actors, pointing at a low level of niche stabilization and break-through potential, which may however be related to the early stage of development of crowdfunding in the Netherlands. On the other hand, the heterogeneity of crowdfunders is very promising. Platforms dedicated to renewable electricity exclusively, and with an investment based business model seem to be the most successful. We show how governmental market regulation and support mechanisms are shaping crowdfunding as a business model, and discuss the implications for other countries.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

Sustainability transitions, large scale changes in socio-technical systems for the provision of needs such as energy, food and healthcare, have been advocated the last decades as solutions to environmental and socio-political challenges: energy security, resource scarcity, and climate change (Geels and Schot, 2010). The nature of these transitions is such that large investments would be necessary, even if the level of this transition is confined within one nation state (Jacobsson and Jacobsson, 2012). Since the financial crisis of 2009, both governmental funding as well as bank investments decreased, with a resulting gap between supply and demand of financial resources for renewable energy projects in different national settings (Creutzig et al., 2014; Eleftheriadis and Anagnostopoulou, 2015; Geels, 2013; Luthra et al., 2015; Suzuki, 2015; Yildiz, 2014). At the same time, especially in the energy

market, new business models have emerged to fill in this gap, even though at smaller scales. Business models can be defined as ‘the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities’ (Zott and Amit, 2010) (p. 219), and they are a means to market new technologies like renewables (Chesbrough, 2002; Zott et al., 2011).

Many of these models are based on the direct participation of the energy user in energy production: for instance citizens owning shares in solar PV installations (Huijben and Verbong, 2013). More recently, some of these models are based on crowdfunding, defined as “the collective effort by people who network and pool their money together, usually via the internet, in order to invest in and support efforts initiated by other people or organizations” (Ordanini et al., 2011). Crowdfunding is not new – it builds upon previous models, such as cooperatives, or microfinancing; but the recent use of social media has given a tremendous boost to crowdfunding and enabled new forms (Harrison, 2013). Different forms of crowdfunding exist, including donation, lending and reward systems where investors are rewarded with a token.

* Corresponding author.

E-mail address: e.vasileiadou@tue.nl (E. Vasileiadou).

Our starting point in this paper is that crowdfunding as a business model for renewable energy projects might not only financially shape energy transitions, by, for instance, tapping into financial resources of users, at a time of scarce bank loans after the global financial crisis (Tomczak and Brem, 2013), but can also increase societal support for renewable energy as users and citizens become more actively engaged in energy systems. This can potentially translate in political support. As such, crowdfunding can shape positive feedback loops between technological, market, social and political dimensions of energy system transformation.

Indeed, the growth rates of crowdfunding have been impressive (Tomczak and Brem, 2013). Even though systematic figures are scarce, there is an estimated \$2,7 billion raised worldwide, in different types of platforms, with \$1,6 billion in North America, \$945 million in Europe, and 110 million in the rest of the world.¹ In 2014, €12,5 billion was crowdfunded worldwide, with €7,3 billion in North America, €2,5 billion in Europe, and €2,6 billion in Asia.²

The Netherlands offers an interesting case of crowdfunding in many respects. The Netherlands ranks 4th in the world in number of CF platforms (2012 data).³ Structural conditions are very favourable: internet access is among the highest in the world, and there is a very successful online payment system called iDEAL.⁴ Indicatively, €63 million euros were crowdfunded in the Netherlands in 2014 in more than 2000 projects.⁵ This represents 3.75 euro per resident, somewhat lower than the United Kingdom, but above average in continental Europe (less than 1 euro per citizen).⁶

The Netherlands is also an interesting case from the point of view of renewable energy transition. While it has been among the pioneer countries in the discourse around sustainability transitions (Markard et al., 2012), the actual practice in terms of renewable energy is lagging behind other countries, as a result of low levels of governmental support and turbulent public policies (Huijben and Verbong, 2013; Verbong et al., 2008). In 2013, the share of renewables to the total use of electricity was 10%, including hydro, wind, solar, biomass and biogas.⁷ Recently, the number of projects where citizens joined forces and, through different forms of collective action, together enabled PV and wind implementation has seen substantial growth rates (Doci et al., 2015; Huijben and Verbong, 2013). This suggests that in the Netherlands there is great need for new business models for renewable energy such as crowdfunding, and the country has favourable facilitating conditions in place.

Our paper explores crowdfunding for renewable energy projects in the Netherlands as a novel socio-technical practice developing in a niche, with the aim to evaluate its potential to upscale and transform the energy and financial regimes. Our main research question therefore is:

“To what extent can we see evidence of crowdfunding for renewable energy projects having stabilised as a niche and having the potential to break through the energy and financial regimes?”

2. Literature review

2.1. Novel socio-technical practices

We position our paper in the sustainability transitions literature, and in particular in relation to one of the field's key frameworks – the Multi-Level Perspective (MLP). The multi-level perspective explains long-term transformations as interactions between socio-technical regimes, broader landscape developments and innovative niches (Geels, 2002). Socio-technical regimes are the incumbent path-dependent structures such as institutions, networks and infrastructures that stabilise the provision of human needs. A radical transformation of these regimes is needed for achieving sustainable development. Such a sustainability transition comes about as the result of broader ‘landscape’ trends and events that provide a dynamic context for regimes, and experimentation by heterogeneous actor networks developing socio-technical alternatives in protective spaces called niches (Schot and Geels, 2008).

In this paper we view crowdfunding for renewable energy as a novel socio-technical practice developed in a niche, with the potential to upscale and transform both the energy regime, as well as the financial regime. We also draw upon recent advances in literature on business models, to understand whether crowdfunding for renewable energy as a new business model, that is, a socio-technical practice developed in a niche has the potential to upscale. Such a link between MLP and business model literature has been attempted before; for instance the suggestion that new business models are being developed in niches (Boons et al., 2013; Huijben and Verbong, 2013; Jolly et al., 2012).

With the recent increasing interest in the literature about business models, there have been several taxonomies of business models, most of which rest in slightly different definitions of the term. A comprehensive and systematic study identified eight different archetypes of sustainable business models, depending on the main type of business model innovation (technological, social and organisational) (Bocken et al., 2014). Interestingly, crowdfunding is mentioned there as an example of a business model based on organisational innovation, which can help develop and scale up sustainability solutions. Even though this typology is useful for studying broader changes in businesses, such as corporate social responsibility, and for emphasising the innovation aspect in different archetypes, it is too generic for categorising business models for renewable energy specifically, which our paper explores. Therefore we turn to, and utilise an existing categorisation, based on PV market developments, and show how we can categorise other literature in this taxonomy. We realise that there are country-specific models, but these three broader categories hold true for these country-related specificities.

In a study on PV market developments in the Netherlands three main types of business models were identified: a. *customer owned*, b. *third party* and c. *community shares* (Huijben and Verbong, 2013). *Customer-owned* or *self-investment* refers to a model where individual households or companies invest in renewable energy technology (e.g. solar panel) and own it individually. This model has also been identified as a *microgeneration plug and play model* in the UK context (Sauter and Watson, 2007), with a relatively small role for the company providing the system to the customer in a one stop

¹ infoDev (2013), *Crowdfunding's potential for the Developing World*. Finance and Private Sector Development Department. Washington DC: World bank, p. 19. Available at: http://www.infodev.org/infodev-files/wb_crowdfundingreport-v12.pdf.

² <http://www.douwenkoren.nl/en/crowdfunding-worldwide-12-5-billion-euro-in-2015/>.

³ Some statistics suggest it is the third <http://www.statista.com/statistics/251573/number-of-crowdfunding-platforms-worldwide-by-country/while> the World bank report suggests it is fourth http://www.infodev.org/infodev-files/wb_crowdfundingreport-v12.pdf.

⁴ It is not a coincidence that the largest worldwide platform, Kickstarter opened in the Netherlands, in the spring 2014, in its first outside-the-USA attempt.

⁵ <http://www.douwenkoren.nl/crowdfunding-in-nederland-2014-de-cijfers/>.

⁶ <http://www.douwenkoren.nl/crowdfunding-in-europa-25-miljard-euro-in-2014/>.

⁷ According to official statistics, at <http://statline.cbs.nl/StatWeb/publication/?DM=SLEN&PA=70789ENG>.

Download English Version:

<https://daneshyari.com/en/article/1744137>

Download Persian Version:

<https://daneshyari.com/article/1744137>

[Daneshyari.com](https://daneshyari.com)