



Positive energies? An empirical study of community energy participation and attitudes to renewable energy

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ABSTRACT

It has been suggested that participation in community energy initiatives may play an important role in enabling a transition towards renewable energy (RE) deployment by fostering positive attitudes toward renewables. Yet, little is known about how members of community energy initiatives differ from non-members in terms of energy attitudes and whether different profiles of community energy members exist. This article empirically analyses the relations between community energy membership and attitudes toward RE and onshore wind energy. Based on statistical analyses of a large-scale quantitative dataset from an original survey ($N = 3963$) conducted with two energy cooperatives in Belgium, it contrasts different groups of cooperative members with each other and a comparison group of non-members. Results show that members have significantly more positive attitudes towards RE than non-members. Results also suggest that non-members tend to be more indifferent or more uncertain, not more objecting, than members to wind power. Finally, significant differences among cooperative members are highlighted, illustrating the contrast between communities of place and communities of interest. The findings suggest a novel perspective on the benefits of community energy membership – to overcome indifference or uncertainty – that is relevant to foster a rapid and socially acceptable low carbon transition.

1. Introduction

The dominance of fossil fuels poses major ecological and social threats to the sustainability of energy systems. These threats call for a displacement of fossil resources by low carbon and, in particular, renewable energy (RE) sources. Any technological transition away from fossil fuels will involve important issues of social acceptance of technologies, and public participation is likely to play a crucial role in these.

Onshore wind power is an emblematic example of such issues. This technology has a major role to play in the deployment of RE sources, as it is characterized by high technical potential and promising commercial prospects, and has become more economically affordable than other RE sources (Ackermann and Söder, 2002; Harborne and Hendry, 2009). However, wind power development has provoked considerable opposition in many places all over the world, despite broad positive public views of renewable energy (Devine-Wright, 2008). The motivations often invoked by opponents include the perceived impacts on natural landscapes (Meyerhoff et al., 2010) and their subsequent perceived effects on tourism, the generation of noise pollution or flicker shadow and the perceived consequences for property prices (Gibbons, 2015) and local fauna and flora (Tabassum et al., 2014). Such resistance

sometimes takes the form of formalized citizen networks (Ogilvie and Rootes, 2015) such as Vent de Colère (France), Vent de Raison (Belgium), Opzione 0 (Italy), Jaeden (Spain), Stilhed (Denmark), etc.

Most recent community acceptance research has taken the form of case studies of opposition responses to particular wind energy projects, with a focus upon the opinions of nearby residents and stakeholders (Devine-Wright and Howes, 2010; Gross, 2007; Hall et al., 2013; Swofford and Slattery, 2010; Zoellner et al., 2008). The present article distinguishes itself from these contributions by using questionnaire survey methods to quantitatively analyze community energy members' attitudes toward energy sources (RE and onshore wind energy), both at the general and local levels. Accordingly, this study crosses scales between societal acceptance (captured through general attitudes toward RE) and community acceptance (captured through attitudes toward locally installed technologies) (Wüstenhagen et al., 2007). Studying general attitudes is important for two reasons: on the one hand, policy makers often draw on opinion surveys of general attitudes to inform energy policy-making (Batel and Devine-Wright, 2015) and, on the other, several studies have found that general attitudes are related with attitudes toward specific wind energy developments (van der Horst, 2007; Walter, 2014; Wolsink, 2000). For instance, in a study of public

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attitudes towards potential wind energy development sites in the United Kingdom, Jones and Eiser (2009) found that general attitudes towards renewables were a strong predictor of attitudes towards specific projects. Accordingly, recent studies (Bidwell, 2016; van der Horst, 2007) suggest that ‘the gap in public support for renewables could be reduced by strengthening general support for wind energy and other renewables’ (Bidwell, 2016: 749). Indeed, for a wider low carbon transition and more widespread systemic change to take place and have greater legitimacy, it is important to develop positive general attitudes towards RE amongst society as a whole as well as positive attitudes towards specific RE proposals amongst local residents.

This paper focuses on one specific factor that may have an important role in strengthening general public support for renewables: community energy participation. ‘Community energy’ projects are formal or informal citizen-led initiatives which propose collaborative solutions on a local basis to facilitate the development of sustainable energy technologies and practices, producing local benefits (Bauwens et al., 2016; Walker and Devine-Wright, 2008). Community-developed and community-owned initiatives, i.e. schemes in which local communities take the leading role in the development of projects, fully own the production assets, and capture most of the benefits, can be distinguished from other, more hybrid models of community participation, such as community benefit funds, in which communities typically benefit from a utility-led energy project through a community fund (Aitken, 2010; Cowell et al., 2011) or shared ownership, which occurs when a local community and a commercial developer enter into a legal relationship (Goedkoop and Devine-Wright, 2016). Community energy initiatives have been regarded by UK policy makers as a means to remedy a perceived backlash against large scale onshore wind farms, fostering positive general attitudes towards RE technologies generally and wind energy specifically (Walker et al., 2007). However, whether this overly simplistic policy assumption holds is uncertain and merits further research. For example, it is theoretically possible that participation in a community wind energy initiative fosters positive general attitudes towards renewable energy. Whether it also leads to more positive general attitudes to other specific renewable energy sources (e.g. solar, hydro) or to more positive attitudes towards a specific wind farm project will depend on many other factors. Specific project attitudes are likely to also be influenced by the environmental and visual impacts of the project, the ownership model (e.g. community-owned or private developer owned), the perceived fairness of how costs and benefits are distributed and the degree of actual involvement of ordinary citizens in projects. Overall, little is known yet about how members of community energy initiatives differ from non-members in terms of attitudes toward RE generally, and wind energy specifically, and whether different profiles of community energy members can be distinguished. These are the research gaps that the quantitative analysis performed in this article seeks to address.

Our approach is novel in four ways. First, since most studies on community energy look at the participants or instigators of such projects (Seyfang et al., 2013; Walker et al., 2007), very few studies to our knowledge have sought to ask community energy participants about their attitudes to RE sources, both generally and locally. Second, our study is further distinguished by including in our analysis communities of different kinds, more precisely communities of interest and communities of place. Third, the large scale, quantitative nature of our methodology allows us to explore differences between members and non-members in energy attitudes. Finally, our study examines differences in attitudes amongst community energy participants, investigating potential differences between individuals who have joined energy cooperatives at different times and for different purposes.

The following sections of this article present the theoretical framework (Section 2), the methodology used (Section 3), the empirical analysis (Section 4), the discussion of the results and recommendations for future research (Section 5), and some concluding remarks and policy implications (Section 6).

2. Theoretical framework

Seeking to go beyond the NIMBY phenomenon,¹ which has been largely criticized on the grounds that it is too simplistic and unable to apprehend the real motives of the majority of opponents (Burningham et al., 2006; Devine-Wright, 2005, 2009, 2011; Wolsink, 2006), scholars have advanced various factors to explain community acceptance of RE technologies and wind turbines in particular (e.g. Huijts et al., 2012). These include factors such as perceived risks and benefits (Visschers and Siegrist, 2014), emotions and personal values (Truelove, 2012), perceived trust in the owners and operators of the technologies or fairness of the decision-making process and of the distribution of associated costs and benefits (Gross, 2007; Wolsink, 2007). The importance of more deliberative and inclusive citizen participation in the ownership and planning procedures of projects has also been emphasized (Haggett, 2011). Community-based energy projects are likely to play an important role in this respect. For instance, in a study of public attitudes to onshore windfarm development in Scotland, Warren and McFadyen (2010) show that community ownership can create a strong sense of pride and connection with the windfarms project and is associated with more positive local attitudes than in the case of windfarms owned by commercial companies.

Community is a term which can encompass a wide variety of meanings. Looking across a range of environmental and climate-related uses of community, Walker (2011) identifies six different but interconnected meanings.² Among these, the community as *place* and the community as *network* are two categories of particular interest for this study. On the one hand, a community as *place* implies a set of social relationships embedded in a particular geographical context. On the other hand, a community as *network*, also referred to as a community of interest, is formed by networks and social relationships, but these can extend beyond specifically place-based networks. Having said that, different categories of communities can coexist within one community-based energy project. For instance, looking at the geographical distribution of the membership of the RE cooperative Ecopower in Flanders, Bauwens (2016) shows that early generations of cooperative members form communities of place, while later members form a community of interest. The present study extends this analysis to investigate whether distinctions are likely to be observed between members of communities of place and communities of interest as far as attitudes toward RE and wind energy in particular are concerned.

As a specific form of community energy scheme, RE cooperatives generally share strong community features and their model of ownership contrasts with that of classical economic firms (Hansmann, 1996). They are controlled by their members/users and are not investor-owned, unlike capitalist corporations, at least when they are energy suppliers. Furthermore, the net surplus is typically allocated pro rata among the members. In addition, the cooperative governance structure is democratic, involving democratic member control (e.g. the ‘one person-one vote’ rule, regardless of the number of shares owned) and voluntary and open membership. These characteristics may have important implications in terms of attitudes toward RE technologies. If local residents are the beneficiaries of the organization’s surplus and decision-making procedures, they are likely to feel more fairly treated and to be more supportive of the outcomes. In addition, while different studies suggest that trust in actors involved in the conventional energy industry is limited as far as the development of alternative energy is concerned (Mumford and Gray, 2010), it has been argued that cooperatives benefit from a high level of trust, given their constraint on the profits distribution and their democratic governance (Hansmann,

¹ The concept of NIMBY describes the position of people that view wind energy as positive for society in general, but who are motivated by their personal cost-benefits analysis to resist the construction of a wind farm in their direct neighborhood.

² These meanings are: community as actor, community as scale, community as place, community as network, community as process and community as identity.

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