



Original research article

## Supporting civic engagement in German energy cooperatives – Transdisciplinary research based on the reflection of individual needs

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## ABSTRACT

Civic engagement is currently playing a major role in the transformation of European energy systems. In Germany, citizen-driven renewable energy cooperatives (RECs) are often presented as pioneers of change and as models for the development of energy initiatives within Europe. Current research on RECs focuses mainly on entrepreneurial adaptations and innovations; what is generally missing from the research, however, is a detailed consideration of the human dimensions of this engagement. In view of this, the present paper proposes applying the needs-oriented Human Scale Development Approach (HSDA) as a means of supporting civic engagement within a transdisciplinary research framework. It is argued that the needs perspective can be helpful in developing new strategies that support initiatives in their objective to remain stable and robust over the long term. The empirical part of the paper presents three case studies of German RECs which (1) explore the challenges encountered by active members in their everyday organizational efforts, (2) describe the potential benefits from their involvement, and (3) identify factors that encourage civic engagement. The results indicate that the challenges are inhibiting factors which not only jeopardize the groups' shared objectives but also adversely influence the emotional well-being of those who are actively involved.

### 1. Introduction: how can the members of renewable energy cooperatives be supported in their largely voluntary activities?

It is increasingly being recognized that insufficient social acceptance may be a limiting factor in the promotion of renewable energy [1–3]. This is especially so with respect to the conversion of European energy systems, which is closely linked to political long-term objectives including a low-carbon economy, energy security and the reduction of negative impacts on the environment [1–3]. In this context, renewable energy cooperatives (RECs) run by citizens have attracted the attention of academics in many European countries in recent years [4,5]. As part of Germany's so-called *Energiewende* (energy transition), the dynamics of German RECs have been described extensively, with RECs often being portrayed as pioneers of change and as models for the development of energy initiatives in Europe [6–10].

This article describes a study conducted as part of a work package within the EnGeno research project [11], in which members of RECs reflected on the challenges and potential of their own involvement, starting with their individual needs. Until now, the question has never been asked whether or not people's personal commitment has been matched by a fulfilment of their individual needs. The study's rationale was therefore that a needs-based perspective might contribute towards developing new strategies which help the members of RECs

individually to meet the challenges arising from their civic engagement. Three case studies will be presented as a means of exploring the challenges experienced by the members of RECs due to the rapid development of the latter as well as the potential benefits their involvement may bring. The process of reflecting about individual needs is described in order to

- (1) explore the challenges active members face in their everyday organizational efforts,
- (2) describe the potential benefits resulting from the members' involvement and
- (3) identify factors that encourage civic engagement in the case studies at hand.

The nature of this research is explorative rather than claiming to build a theory of challenges and respective potential solutions for REC members – this would have required a larger dataset and have therefore gone beyond the scope of this article. Instead, then, the study utilizes a transdisciplinary framework in order (1) to begin to find answers to the questions raised and (2) to offer support to the RECs involved regarding the specific challenges they face. We regarded the transdisciplinary approach as appropriate because it enabled us to explore the views and subjective assessments of RECs members themselves while also

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generating a sense of ownership among them regarding their problems and potential solutions. Although transdisciplinary research harbors several challenges (e.g. vagueness and ambiguity of results or limited case-specific solutions), a vital aspect and advantage of transdisciplinary approaches is the co-production of knowledge that is solution-oriented, socially robust, and transferable to both research and social practice [12].

The article proceeds as follows: Section 2 gives a literature review on German RECs. Section 3 introduces the transdisciplinary Human Scale Development Approach (HSDA) that was applied in the three German case studies, before presenting the cases and the research design. Section 4 provides a description of the various internal and external challenges faced by REC members, the specific stages of development they identified and how they implemented strategies to meet the challenges. Section 5 discusses the empirical results in relation to the wider research field, while Section 6 concludes and presents recommendations for further research.

## 2. Literature review on the rise of German RECs and their challenge of stabilization

In general RECs are understood to be registered cooperatives whose main purpose is to undertake activities in the energy sector [13]. They adhere to the cooperative principles of autonomy, self-help, responsibility for one's own affairs, democracy and regionality. Such bodies are credited with having a considerable cultural influence on the transformation of the energy system and are regarded as active participants in shaping new structures. They are a special form of commercial enterprise, being neither investor-owned companies nor non-profit organizations [4,6]. Although they are for-profit organizations, profit-seeking is not their main focus. In accordance with the law of associations (*Genossenschaftsgesetz GenG*), their activities are focused on achieving their members' objectives.

However, Huybrechts and Mertens [6] argue that new types of cooperative such as RECs differ from traditional ones in at least two ways. First, they tend to involve multiple stakeholders (such as producers, consumers or workers) rather than a single dominant or homogeneous stakeholder. In the case of German RECs, there are completely citizen-based cooperatives as well as cooperatives in which municipalities, local banks, utilities or commercial enterprises are heavily involved. Overall, however, nearly 90% of the ordinary members of German RECs are private individuals. Second, RECs can show a stronger orientation towards general interest goals rather than focusing on the monetary interests of the cooperative's members. Nearly all energy cooperatives state that they want to contribute to the fight of climate change and to environmental protection. Volz [14] states, for example, that the main objectives of nearly all German RECs are to provide and market renewable energy, to contribute toward efforts to combat climate change, and to offer an alternative energy concept compared to the large energy providers. Holstenkamp and Kahla [15, p. 118] confirm this finding, stressing that "investments are motivated mostly by environmental (nature conservation) and political (participation, energy transition) considerations". For some RECs (especially those that run local heat networks), ensuring a self-sufficient energy supply is one objective among others [15]. Overall, RECs present a broadly heterogeneous picture in terms of business models, actors involved, size and operating area. Most of them (76%) have fewer than 200 members [16]. Their main sphere of activity up to now has been the production of renewable energies within the feed-in tariff system. Photovoltaic has dominated, followed by biomass, while wind and water power figure less prominently. Only a few cooperatives are engaged in operating networks or in trading [17]. Most cooperatives have a local or regional focus and seek to contribute toward supplying energy to their community. Not least because of this heterogeneity of business models, they are seen as having the potential to contribute to a decentralized energy transition initiated by citizens [18]. Müller et al. [19] estimate that German RECs

have invested 1.45 billion euros in production facilities and that they generate 0.58% of electricity from renewable sources. Despite this small amount, more than 157,000 private individuals have invested money in RECs. The bulk of RECs is managed by an honorary board and thrives on the civic engagement of citizens<sup>1</sup> [19]. Whereas the business models are heterogeneous, the demographic characteristics of RECs' members are fairly homogenous. Fraune [20] as well as Rauschmayer et al. [21]<sup>2</sup> show that predominantly well-educated, male individuals aged on average over 45 and with above average incomes are involved in operating RECs. This is the case not only for ordinary members but also for the decision-making bodies. Concerning the role of the cooperatives' members, the Cooperatives Act §1 (*Genossenschaftsgesetz*) states that their situation within this legal form is very special, as the primary focus of the organization – at least formally – is not to generate profits but rather to further the objectives of its members, which can be of an economic, social or cultural character [22]. A number of researchers have described the entrepreneurial potential as well as the motivation of people who commit themselves to a REC [9,18].

The upsurge of citizen-led RECs in Germany is well documented [23,17,24,25]. The start-up boom began in 2006 with 9 new registrations of RECs; by the end of 2015 there were nearly 1000 RECs in Germany [16]. Three main factors are responsible for this development: first, several cooperative associations began in 2001 to provide special start-up incentives aimed at supporting the establishment of new RECs. Second, the amendment of the Cooperatives Act in 2006 made it easier to set up a cooperative, while the elimination of the prospectus requirement (*Prospektpflicht*)<sup>3</sup> also reduced the organizational effort involved. Finally, the promotion of renewable energies through the Renewable Energies Act (EEG) encouraged the formation of energy production cooperatives. With the amendment of the EEG and the Capital Investment Act (KAGB) in 2014, the conditions for such formations deteriorated again, and this is reflected in the decline of start-up activities [19]. Since then, a shift has taken place away from the cooperative model and toward the limited partnership model. This shift is characterized by an increase in onshore wind projects and a decline in photovoltaics, which up to that point had been the predominant technology installed due to its relatively easy implementation [26].

In addition to the reduced funding quotas entailed by the EEG and the capital market regulations that force RECs to professionalize their management in order to meet certain requirements, RECs face several other obstacles to their entrepreneurial success. Müller et al. [19] describe the following additional threats to RECs. First, RECs are challenged to maintain the initial motivation of the responsible board members who are mostly acting pro bono, whilst the employment of full-time staff is usually too costly. Second, progress in the energy market requires repeated adaptation of the business model being used; most RECs lack the know-how and the ability to react quickly enough. Third, RECs may lack equity capital, a factor which hampers their economic growth. Müller et al. assume market saturation, not necessarily due to a geographical diffusion of RECs but rather because most highly engaged citizens have already set up RECs. Accordingly, they identify a need to mobilize citizens who have so far not been active.

Rommel et al. [27] also argue along these lines: they see the challenges in the Renewables Act and low levels of actual involvement in decision making as major challenges that threaten the existence of RECs. They also identify a lack of active participation on the part of

<sup>1</sup> As far as we are aware, there is no statistical data available on volunteerism in RECs.

<sup>2</sup> This survey shows that members of RECs behave more environmental friendly than non-members and are more frequent members of environmental organizations.

<sup>3</sup> The prospectus requirement is an obligation of disclosure and information that is controlled by the German Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht-BaFin*). Due to their compulsory membership in cooperative auditing associations cooperatives have been exempted from the prospectus requirement and hence from financial burdens.

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