



Contents lists available at ScienceDirect

Energy Research & Social Science

journal homepage: www.elsevier.com/locate/erss

Original research article

Who owns an energy transition? Strategic action fields and community wind energy in Denmark

Franziska Mey^a, Mark Diesendorf^{cb,*}^a School of Biological, Earth & Environmental Sciences, Faculty of Science, UNSW, Sydney, NSW 2052, Australia^b School of Humanities & Languages, UNSW, Sydney, NSW 2052, Australia

ARTICLE INFO

Keywords:

Community renewable energy
Wind energy
Denmark
Strategic action fields

ABSTRACT

This paper investigates the development of, and changes in, the field of community renewable energy in Denmark since it commenced in the late 1970s. The focus is on community wind projects. We use an organisational and institutional theory perspective following Fligstein and McAdam's concept of strategic action fields. Within this framework we explore the rise, decline and revitalisation of CRE fields and respond to the research question of 'how and why the field of CRE in Denmark changed'. Input data comprise document analysis supplemented by quantitative and qualitative data analysis. The results indicate the following: firstly, the mobilisation of CRE action is closely related to normative elements of shared identification and objectives that go beyond environmental and technology motivations. Secondly the state dependence and growth trajectory requires some additional support structures that are able to reflect the unique nature of CRE projects. Thirdly, top-down measures accompanied by local approaches ensure that the acceptance of RE can be fostered through the CRE approach.

1. Introduction

In the context of increasing anthropogenic climate change, market dynamics and public policy intervention, energy transitions are underway in many countries across the world. A phenomenon that has driven and accompanies these developments is community renewable energy (CRE). This is because new decentralised technologies such as wind and solar photovoltaic power allow citizens to engage collectively with and benefit from it. The Danish energy transition is potentially the most prominent and well-studied case for a successful shift from high dependence on imported fossil fuels to partial self-sufficiency with a high share of renewable energy (RE). The production of electricity from RE accounted for 56% of Danish domestic electricity production in 2015; the largest contribution came from wind energy (42% of electricity supply) making the country number one worldwide in wind power generation per capita that year [1,2]. Furthermore, the country is referred to as one of the best examples of localised CRE ownership with the first wind energy cooperatives emerging in the late 1970s. Numerous studies highlight the role of the bottom-up movement and local actors as vital in the transformation of the energy sector in Denmark [3–8], making it a classic study object for CRE developments. Hence it offers model for learning from past transitions to help understand current and imagine future developments in the context of

community energy ([9], [this issue](#), [10], [this issue](#)).

This article explores the development of RE through the lens of the CRE sub-field activities focusing on social movement activities and public policy as factors for change. We apply elements of the strategic action fields' approach which is coalesced in the 'Theory of Fields' by Fligstein and McAdam [11], in order to shed a new light on the transition. Therefore, we ask why did the Danish CRE sub-field emerge, how did it develop over time, and what conclusions could be drawn for other countries? Due to the Denmark's large wind resource and advanced implementation of wind power, community wind energy projects are at the centre of analysis. The theoretical approach of strategic action fields allows us to trace the historical trajectory of the CRE sub-field by paying attention to critical milestones along the stages of emergence, settlement, and decline.

There is a consensus among scholars and policy makers that a just and rapid energy transition requires public support [12–15]. Several studies have established the close link between community acceptance and community participation in large-scale RE deployment [16–19]. Hence it is vital to understand how CRE actions emerge and can be sustained. The Danish example has inspired communities across the world yet in many countries CRE fields are still in early stages of development [20–23]. Hence this case study offers insights for other countries into the maturation process and continuation of CRE activities

* Corresponding author.

E-mail addresses: f.mey@student.unsw.edu.au, franziska.mey@uts.edu.au (F. Mey), m.diesendorf@unsw.edu.au (M. Diesendorf).<http://dx.doi.org/10.1016/j.erss.2017.10.044>Received 8 March 2017; Received in revised form 15 October 2017; Accepted 20 October 2017
2214-6296/ © 2017 Published by Elsevier Ltd.

in constantly changing technology and political ‘environment’.

The Danish transition has been extensively discussed and analysed in the literature with the aim to identify the recipe of its success. In historic accounts the country case is used to illustrate the technological transition [3,24,25,7] and aspects of the path dependency [24–28]. The policy design is elucidated [29–31] for example by applying rational choice theory to explain interactions between politicians, their constituencies and institutions [32,33,7]. In numerous country comparisons, Denmark’s participatory, collaborative and bottom-up approach is highlighted as a distinguishing success factor [4,34–36] while special attention is devoted to the influence of social movements and the local cooperative ownership structure [37,6]. Our article builds on those studies yet expands the analysis in several respects. It considers the historic development from a CRE-centric perspective and traces CRE activities to the present, framing the analysis in the strategic action field approach. Thus, this analysis contributes to the growing body of literature under the CRE theme [37–41,21,42,23,43] and fills a gap with a long-term account of a CRE field emphasising the constant struggles in its trajectory.

The next section describes the theoretical framework and research method. This is followed in Section 3 with a brief discussion of the characteristics of CRE. The main body of this article is Section 4, which examines the evolution of the electricity field in Denmark and, within that broader context, the emergence, growth, and partial retreat of the CRE sub-field. Section 5 concludes with a discussion of the findings and recommendations.

2. Framework and method

The strategic action field’s approach is concerned with stability and change in meso-level orders of social life. Originating in the works of Bourdieu [44], Bourdieu [45], Meyer and Rowan [46], DiMaggio and Powell [47], DiMaggio [48], Scott [49] and Fligstein and McAdam [11], the approach focuses on interactions of individual and/or collective actors based on a mutual understanding of the purpose and the rules that characterise a field. Following Fligstein and McAdam [11], the field is composed of incumbent and challenger actors who determine the field dynamics. These actors hold opposing positions and disparate resources: incumbents are characterised by wielding disproportional influence shaping the character of the field whereas challengers occupy niches with an alternative vision of the field. For the analysis of the Danish CRE development two aspects of strategic action field approach are considered as central: the dependences of fields on other fields and the abilities of socially skilled actors to fashion new and sustain existing orders.

The first aspect views strategic action fields as exposed to transformative processes due to their interdependence with other fields in which they are embedded or with which they overlap. Hence changes that occur outside an existing field can lead to significant crises within a particular field. Drawing on elements of social movement theory, Fligstein and McAdam [11] consider periods when fields are under enormous pressure as ‘episodes of contention’, in which actors try either to reproduce the existing order or to take advantage of opportunities presented to them to change the order. Yet, to bring about change the actors require capacities and resources and have to be able to mobilise innovative collective action. An important player in this regard is the state. Since their establishment, modern fields are largely dependent on the involvement of governments whose interest rests mainly on stability: state interventions usually benefit incumbent actors.

To foster and sustain change, the field approach theorises a second aspect with the strategic actions by social actors. These are perceived as change agents who have been considered in other theoretical accounts as social, institutional or technology entrepreneurs [50–52]. Fligstein and McAdam [11] emphasise the ability of socially skilled actors to frame visions, create shared identities, mobilise for collective action, and build political coalitions to induce and organise a field.

In the view of Hoffman [53–55] fields must be seen as highly complex collections of constituents with varying and diverse influences, while historical processes and culture also have to be taken into account. The stability in a field is mainly associated with institutional environments that are created through coercive powers or political coalitions [11]. This can imply a consensus about the relative position of incumbents and challengers, further contributing to the field’s settlement. An additional element to facilitate the order in a field are *internal governance units* that oversee the compliance with rules and support the reproduction of the system. Since Fligstein and McAdam’s [11] approach centres on the genesis of change, they argue that incremental change is the rule in even the most stable of fields. Hence the process of contention, mobilisation, and jockeying for position in the field can restart at any time.

Following this theoretical approach of fields, our analysis of the Danish case study is structured in chronological order following the emergence, growth, maturation, and decline of CRE activities. From this perspective, we expect that CRE fields are a temporary phenomenon if CRE actors are not able to secure continuous and tailored state facilitation. It helps to trace processes of change and stability within and outside the CRE field in a long-term perspective, which is almost unique to the Danish case. Except for Germany, other CRE fields across the world are quite young and so lack the knowledge regarding the settlement and change process. Thus, this case study can be relevant to other regions in understanding the particular role of CRE in the energy transition.

The paper’s analysis is based on a literature review of academic, government, and not-for-profit resources. In addition, empirical data was gathered to validate and deepen the understanding of the CRE field status. By applying a mixed method approach, multiple data was used to broaden the understanding of the research topic. Thus, this approach combines quantitative and qualitative research in a single study [125,126]. It enables triangulation to improve the validation of the research findings. Therefore, quantitative data was obtained on community wind projects from the Danish Wind Turbine Owners Association (number of wind energy projects in community ownership, see Fig. 1) and data on number and capacity of solar PV system installations derived from the website of Energinet 2017 (public company owned by Danish Ministry of Climate and Energy). We analysed 30 wind energy cooperatives listed by the DWTOA [56]. This included viewing all organisations’ websites and investigating information such as year of establishment, type of technology (offshore or onshore), output capacities (kW and MW), legal arrangements (sole or co-ownership), number of members or shareholders, and further relevant details about current activities of the organisation offered e.g. in annual reports. In addition, fourteen semi-structured interviews of experts were conducted. The interviewees were either centrally involved in the development of CRE in Denmark or worked for support organizations or local governments. The interviews took place between January 2015 and Feb 2017. Interviews typically took between 45 min and one hour. The interview partners were chosen on the basis of an online search, on the basis of references to organizations in academic and non-academic articles, and by asking interviewees for further references (snowballing). The interviewees are anonymised and listed in Table 1 with their affiliation and the time of the interview.

All interviews were recorded and fully transcribed. The transcripts were compiled and coded using a combination of deductive and inductive approaches. Our main focus was on the cultural, normative, and regulative elements that influenced the CRE field development process. Major disruptions in the field were identified and details from the mobilisation process evaluated.

Although the limitations of our study rest with the small scale of the qualitative data, we believe that our approach is valuable since it combines different data sources and offers a new perspective on the energy transition in Denmark by applying strategic action field theory.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات