



Wind farm acceptance for sale? Evidence from the Danish wind farm co-ownership scheme

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ABSTRACT

The Danish Renewable Energy Act features several financial incentive structures with direct local-level implications. One of these is the wind farm co-ownership scheme, OPSS. In this study, we explore local perceptions of OPSS via survey-data collected during the Danish near-shore bid for tender in 2015 from almost 2000 respondents. Empirical evidence suggests that demographic facts, such as gender and age, influence the general appeal of the scheme, and as engagement in wind-projects via OPSS presupposes investment liquidity, OPSS is not equal for all. Furthermore, most potential OPSS-investors already support the planned wind farm projects, and many project opponents will not engage themselves in something they are against in principle. Finally, economic benefits potentially gained via OPSS do not appear to compensate for values feared violated by wind farms by many wind farm project stakeholders. While OPSS is a very positive policy attempt at creating local engagement via wind farm co-ownership, it is clear that the scheme alone will not adequately compensate for local wind farm related grievances. Real world facts and complications, such as demographics, preconceived project perceptions and personal values, get in the way. Implications of the study for related policies are discussed.

1. Introduction

1.1. The Danish history of wind

Denmark is a wind nation. Located in a region of the world with rich, natural wind resources, historically the small nation has successfully utilized this readily available natural source of energy for multiple purposes (Nissen et al., 2009). Currently about 40% of national electricity consumption is based on wind-power (Bæk et al., 2016; Dansk Energi, 2015; Quartz + co, 2015), and wind energy remains a cornerstone in national ambitions for the transition to sustainable energy resources (Danish Ministry of Climate Energy and Building, 2012; Sovacool, 2013).

The wind industry in Denmark has deep-seated historical roots: From grain-grinding wind-mills to Poul la Cour, a physicist with who had a dream that the entire rural population in Denmark would receive their energy from small, local power-plants fueled by wind, through anti-nuclear idealists seeking alternatives, to the modern, industrial-scale wind-turbine parks of today characterized by individual and/or corporate ownership (Danmarks Vindmølleforening, 2013; Nissen et al.,

2009). Development of wind-energy, and the broader wind-energy related supply chain, has been politically prioritized in Denmark (Quartz + co, 2015, pp. 35–36; Sovacool, 2013). Despite this national history of wind, however, as the size and costs of turbines grew, and as larger companies gradually replaced individually owned turbines and smaller cooperatives as key players, the wind farm opposition also grew (Warren and McFadyen, 2010). Now it seemed that not all local populations, and potential wind farm neighbors, shared quite the same enthusiasm for wind-related technological advancements, and plans for more, as planners and policy-makers did. This emergent local opposition (Sovacool, 2013; Warren and McFadyen, 2010) was not well in sync with Danish government ambitions for a grand scale transition to a largely wind-energy driven sustainable energy infrastructure. Something had to be done.

The Danish Renewable energy Act of 2009, REA, can be seen as a policy answer to the energy transition challenges posed by local wind farm resistance. REA features four policy measures with the aim of promoting “local support for the establishment new wind farms” (Olsen and Anker, 2014, p. 146), and it does so in the form of financial incentive structures for windpower with direct local-level

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implications (Sperling et al., 2010, p. 5445). These are the wind farm co-ownership scheme, the community benefit scheme (the green scheme),¹ the loss of property-value scheme and the guarantee fund (Anker and Jørgensen, 2015; Olsen and Anker, 2014).² A popular view has been that greater provision of benefits to communities affected by wind farms would make wind farms “more socially acceptable” (Cowell et al., 2011, p. 552). And yet, as we argue in this paper, the potential mitigating and compensating effects of community benefit schemes may be quite a complicated matter, mirroring inherent community heterogeneity, values, contextual complexity, issues of process, power, justice and trust (Bidwell, 2013; Cass et al., 2010; Cowell et al., 2011; Goedkoop and Devine-Wright, 2016; Kerr et al., 2017; Warren and McFadyen, 2010). Thus, the pending question remains what the local effects of the chosen community benefits schemes, CBSs, actually are.

1.2. The Danish wind farm co-ownership scheme

In this study, we examine the potential local effects of one of the four Danish REA policy measures, namely the wind farm co-ownership initiative, the Option to Purchase wind farm Shares Scheme, OPSS. OPSS is a community benefit scheme (Cowell et al., 2011; Kerr et al., 2017); it is an investment and co-ownership scheme for citizens living within pre-defined geographical proximity of windfarms. Minimum 20% of the wind farm must be offered to the public as wind farm shares at cost-price.³ OPSS then redistributes potential wind farm investment returns among OPSS investors, and it does so following a standardized investment procedure defined through the legal framework of REA (Anker and Jørgensen, 2015; Energi-, Forsynings- og Klimaministeriet, 2017; Energinet.dk, 2012). Accordingly, OPSS can be seen as an “interventionist” statutory policy approach (Kerr et al., 2017) to mitigating public wind farm opposition/promoting local project acceptance. The scheme has been internationally recognized as a serious policy attempt at creating local wind farm project engagement through co-ownership (Aitken et al., 2014; Ellis and Ferraro, 2017; Kerr et al., 2017; National Economic and Social Council & SLR Consulting, 2015).

The aim of this study is to understand how, and to what extent, OPSS as a CBS potentially promotes local engagement in and acceptance of planned near-shore wind farms among potential near-shore wind farm ‘neighbors’ in Denmark.⁴ More specifically, we pursue evidence as to how OPSS is perceived among the target groups of the scheme. Survey-data for the study, collected during the Danish near-shore bid for tender in 2015, mirrors perceptions of OPSS as indicated by almost 2000 respondents.

We lean on two main theoretical anchors: 1) Reflecting the redistributive ambition and logic of OPSS we turn to theoretical insights from the field of environmental justice, specifically distributive justice (Goedkoop and Devine-Wright, 2016; National Economic and Social Council & SLR Consulting, 2015; Walker, 2012). 2) Taking the analysis

¹ The green scheme supports community projects promoting landscape and re-creative values. It also supports cultural and information activities that encourage greater accept of sustainable energy technologies in the municipality. The green scheme only applies to on-shore wind farm projects. (Anker and Jørgensen, 2015; Energinet.dk, n.d.a).

² The guarantee fund supports preliminary project investigations for local wind farm initiative groups through a loan guarantee (Anker and Jørgensen, 2015).

³ Citizens eligible for investing in wind farm shares through OPSS must be 1) minimum 18 years of age. Citizens must also be registered in the Danish CPR-register with 2) permanent residency address a) up to 4.5 km from the wind farm project site, or b) in the municipality hosting the wind farm project, or c) in municipalities with coastline up to 16 km from off-shore project sites when shares are sold. Shares are sold at cost price. Group a is prioritized, and citizens in this group a can buy up to a maximum of 50 wind farm shares. The remaining shares are then offered to citizens above 18 in groups b and c. The wind farm developer disposes freely over shares not sold during the min 8 week period when shares are offered for sale (Anker and Jørgensen, 2015; Energinet.dk, n.d.b).

⁴ In this context the Danish Energy Agency tender criteria define ‘near-shore’ as minimum 4 km from the coast (Danish Energy Agency, 2013).

to the individual, value-based level, we are inspired by the theory of “webs of significance” (Geertz, 1973). This theory aptly elucidates the potential mental reach, as it were, of OPSS within our webs of personalized significance; it gives us an indication of the extent to which OPSS may actually comfort in places where personal values are perceived violated via wind farm planning and development.

Our investigation is guided by three main research questions:

1. What demographic factors matter for willingness to invest in OPSS?
2. To what extent does OPSS appeal to wind farm opponents?
3. To what extent is some level of distributive justice achieved through OPSS?

The paper is organized as follows: In Section 2, we briefly introduce theoretical concepts and background. In Section 3, the data collection process, relevant sample characteristics and survey questions are described, and the key data tendencies are presented. In Section 4, a logistic regression controls for the effects of demographics, general support for wind energy and indicated attitude towards the specific plans for local near-shore wind farms on willingness to invest in OPSS. Finally, open-ended respondent comments provide qualitative depth to our findings. Informed by these powerful empirical insights, in Section 5 the paper concludes with a discussion of study implications for related policy.

2. Background and theory

2.1. Procedural justice, distributive Justice and place related impact

Recent research on public perceptions of wind farms has unveiled in-depth “nuances and realities of public [wind farm] opposition and support. (...) This growing body of literature points to the complexities of public opinions (...), to the importance of considering local values and contextual factors (...), [and generally] to the multiple forms that responses to wind farms can take (Aitken et al., 2016, p. 558)”. People-place relations have been identified as important for local perceptions of wind farms/renewable energy technologies, RETs (Devine-Wright, 2009; Ellis and Ferraro, 2017; Johansen,), and person/s/peoples’ particular attachments to certain places may shape their reactions towards RET-related change to those places. Some key issues identified as important for local perceptions of/attitudes towards wind farms are concerns about project impact on the local (coastal) landscape, the environment, biodiversity, noise, health, tourism, and concerns about project impact on the future local well-being generally (Devine-Wright, 2009; Devine-Wright and Howes, 2010; Ellis and Ferraro, 2017; Pasqualetti, 2011; Zaunbrecher and Ziefle, 2015).

Based on European case studies two main types of locally perceived injustice associated with wind farm planning and development have been identified. 1) Procedural (in)-justice concerns the degree to which local wind farm related decision-making processes are perceived as open and fair by the local public, and relating to this, that the projects are often “foisted on a local community rather than accepted by choice” (National Economic and Social Council, & SLR Consulting, 2015, pp. iv–viii). 2) Issues of distributive justice have also proved crucial. In this paper, we refer to distributive justice broadly as “justice [...] conceived in terms of the distribution or sharing out of goods (resources) and bads (harm and risk)” (Walker, 2012, p. 10) from impacts on the local environment. Distributive justice “concerns the ways the distribution of costs, risks, and benefits between different actors is perceived” (Goedkoop and Devine-Wright, 2016). In the context of wind farm planning and development “distributive justice refers to issues emerging from the perception that while local communities (...) bear the main impacts of a wind energy proposal (...) external bodies, particularly developers, accrue most of the benefits” from the wind farm projects (National Economic and

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