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Mapping value perspectives on wind power projects: The case of the danish test centre for large wind turbines

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ABSTRACT

Social acceptance of wind power is a complex matter, and national public interest does not necessarily translate into local public interest. If community concerns is disregarded in public spatial planning and the private development of wind power projects, the expected increase in the production of wind power energy will be jeopardized. Value propositions for installing wind farms in a community often consider only national policy targets, end users and those organizations that make a profit on installing, running or owning a wind turbine power plant. In many cases, the impact of technologies on society is underestimated, especially the impact on those actors who are influenced by technological change but without perceived benefit. This paper applies a value framework to systematically analyse the perceived value of the National Test Centre for Large Wind Turbines in Denmark, considering different stakeholder dimensions of acceptance (socio-political, market and community) from four perspectives (economic, psychological, sociological and environmental) before arriving at some policy recommendations on how to incorporate community values when siting wind turbines.

1. Introduction

Wind power systems are expected to contribute significantly to Danish fossil-free energy production by 2050, and community acceptance is an important element for meeting this ambitious target. However, in Denmark and many other countries, the degree to which wind energy is seen as a public good changes when citizens are confronted with an application for developing wind turbines in their vicinity (Wolsink, 2007). This change in attitude has often been characterized as self-interested and irrational (often under the stigmatising umbrella term Not-In-My-Back-Yard or NIMBY) (e.g. Devine-Wright, 2011; Van der Horst, 2007; Wolsink, 2007).

This approach to technological change in local communities gives rise to miscommunication, lack of trust and unnecessary escalations of controversies. Hence, it is a well-established fact that sitings of large technical facilities often create controversy, and wind turbines and their associated technological artefacts are no exception (Batel et al., 2015).

Although Denmark has been very successful in developing onshore wind power since the eighties and public acceptance of wind power has been considered high (Sørensen et al., 2002), Denmark has witnessed a growing concern in local communities neighbouring planned sitings of wind turbines. The concerns have been expressed as various arguments against specific sitings in local media and legal hearings, which have delayed or stalled planned wind power projects in several municipalities across Denmark (Anker, 2016).

Public acceptance is a complex matter, and national public interest in wind power does not necessarily translate to a local context (Bergek, 2010). Therefore, it is not surprising that municipality planners find it difficult to accommodate contextualized citizen concerns (Huber et al., 2012). These concerns often lead to protests and empirical evidence has convincingly argued that referring to protests as NIMBYism is opaque, inappropriate, and unhelpful (e.g., Devine-Wright, 2011; Van der Horst, 2007; Wolsink, 2007). It has been postulated that conflicts on wind turbines are limited to land-based developments, and off-shore wind parks are less problematic alternatives. However, wind farms off the coast of the UK have not proceeded without opposition or conflicts (e.g., Devine-Wright and Howes, 2010; Ellis et al., 2007; Eltham et al., 2008). Thus, studies of wind farms outside Massachusetts and Delaware, US, show that the majority of the public expects negative impacts from the project (Firestone and Kempton, 2007; Lilley et al., 2010). Different attributes have been reported to influence the attitudes towards and acceptance of off-shore wind farms in Denmark (Ladenburg and Möller, 2011). In any case, land-based wind power has a significantly lower LCOE (levelized cost of energy) compared to offshore wind power.

Value propositions for installing wind farms in a local community often consider only national policy targets, and the economic value often benefits remote investors rather than the local community.

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Therefore, negative value from socio-technical conflicts is underestimated, especially from a community acceptance perspective (Wüstenhagen et al., 2007). Such ambiguity regarding the value proposition may lead to anxiety and lack of recognition of wind power projects among citizens in local communities. As den Ouden (2012) (p.19) puts it, 'A more integral view on value is needed that will help organizations to create innovations that bring value to users and society. Such an integral view should include potential harmful effects and support creative processes to reduce harm and increase value.' Thus, combining the acceptance perspectives from Wüstenhagen et al. (2007) with den Ouden's Value Framework is help full to analyse value proposition to increase the perceived value of wind turbines in the community.

However, the notion of 'value' is ambiguous. Thus, technological change itself should not only be of value to the immediate stakeholders but should also contribute to the interests and values of the community in which the change is embedded. Thus, 'value' refers to the value of something, whereas 'values' refer to a more holistic and comprehensive view of what is important in life. These different views on values lead to different, polarised narratives on technological change, which often lead to controversies and conflicts over wind turbine sitings in communities.

Today, wind power planning is dominated by the industrial paradigm focusing on shareholder value and profit maximization. Policy measures to mitigate conflicts between local communities and wind power developers can be found in the Danish legal framework; however, these measures only address economic interests in the form of compensation for loss of property value due to nearness to wind turbines and a community benefit scheme (providing funding for local projects that enhance the landscape or recreational values or promote cultural and informative activities) (Anker and Jørgensen, 2015). Furthermore, a co-ownership scheme obliges developers to offer a minimum of 20% ownership shares to local residents (Ibid.). Recent studies on wind power controversy in Denmark (CONCITO, 2018) have demonstrated that these compensation measures are often perceived inappropriate and the citizens do not consider the community benefit scheme of value to them, but rather a contribution to the municipality budget (Jørgensen, forthcomming). In addition, proponents of wind power projects consider it immoral to invest in co-ownership and see it as a provocation that conflicts with their interests and basic values (Johansen and Emborg, 2018).

The aim of this paper is to use discourse analysis to map themes of controversy over 'values' followed up by discussion of what 'value' entails from different stakeholder dimensions and perspectives using the Value Framework (den Ouden, 2012). The hypothesis is that the combination of controversy mapping and Value Framework can give a more varied picture of perceived stakeholder 'values' concerning technological change and in turn help authorities and developers ameliorate conflicts over loss of local values in the wind turbine planning process. The legitimacy in this hypothesis comes from community studies that show that local patriots are not necessarily against wind power; instead, their focus is on legitimate, community-relevant concerns (Barry and Ellis, 2010). Therefore, this paper seeks to answer the following question: can a more varied view of local interests and 'values' mitigate wind turbine siting conflicts?

To answer this question, a mapping of controversy is performed on communication between key stakeholders and the opposition in connection with the mandatory public hearing as part of the planning procedures at the National Test Centre for Large Wind Turbines in Denmark (DTU, 2012) (hereafter, the Test Centre). The mapping of controversy was followed up by an exploration of value proposition from different acceptance dimensions and value perspectives using the Value Framework (den Ouden, 2012).

The paper is structured as follows. Section 2 introduces the methodology namely the discourse analysis used for controversy mapping between central actors and the adapted Value Framework. Section 3 presents the case (the Test Centre) and the results from the controversy mapping. Section 4 map the themes of controversy and explores the values of the Test Centre from multiple acceptance dimensions and value perspectives. Section 5 discuss the usefulness of using an integral view on 'value' in connection with wind turbine siting. Section 6 arrives at conclusions on how a more varied view of local interests and 'values' can mitigate wind turbine siting conflicts with some reflections considering policy implications for siting wind turbines.

2. Methodology

2.1. Discourse analysis

The siting of the Test Centre was a political decision that involved new social relationships between several parties with diverse characteristics and location attachments. Therefore, in order to map the controversy, discourse analysis was applied to hearing statements and letters to the editors of national and local media to identify different exante positions at the Test Centre (Laclau and Mouffe, 2001:105). Laclau and Mouffe (2001:96) describe discourse analysis as: "… an articulatory practice, which constitutes and organizes social relations". This articulatory practice is further defined as "… any practice establishing a relation among elements such that their identity is modified as a result of the articulatory practice. The structured totality resulting from the articulatory practice, we will call discourse" (Laclau and Mouffe, 2001:105).

A discourse analysis involves analysis of all text in relation to a discourse to provide a rich, thick and detailed description. However, to limit the workload analysis was limited to communication between the most central actors (see 2.1.1) in the period from the announcement of the Test Centre siting in Østerild on 30.09.2009 (the first-order observation), until approval of the Test Centre by the National Parliament on 15. June 2010. This includes 140 responses to the mandatory public hearing of the Environmental Impact Assessment (EIA) on 7 January 2010.

2.1.1. The central actors

The following people were identified as central actors (authors of texts either in favour, in opposition, undecided, or first-order) and their communication in the form of letters to newspaper editors or responsible authorities was analysed:

- Landowners representing the community in Østerild: Henrik Svanholm[1] (opponent, 5 texts) and Jochum Kirsebom[1] (opponent, 3 texts).

- Ministry of the Environment: former minister Troels Lund Poulsen (proponent, 1 text), acting minister Karen Ellemann[1] (proponent, 1 text), vice director Svend Koefoed-Hansen (first-order text).
- The Danish Society for Nature Conservation: CEO Rene la Cour Shell[1] (opponent, 3 texts).
- MP's acting as environmental policy spokesmen from 3 parties: Steen Gade[1] from the Peoples Socialistic Party, SF (has only been interviewed as a proponent), Johs. Poulsen[1] from the Social-Liberal Party, B (opponent, 3 texts) and Mette Gjerskov[1] from the Social Democratic Party, S (has only been interviewed as undecided).
- The Danish Wind Power Industry: CEO Jan Hyldberg[1] (proponent, 1 text).

The central actors were identified by an Internet search with the terms 'Østerild' and 'wind power'. This gave a list of local landowners, NGO's and civil servants in the Ministry of the Environment. The list

[1] has been interviewed to clarify uncertainties concerning the analysed text and for background information.