



Original research article

Determining the local acceptance of wind energy projects in Switzerland: The importance of general attitudes and project characteristics



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ABSTRACT

This article explores the relationship between general attitudes toward wind energy, local acceptance of specific wind projects and respective intentions to act on those attitudes in Switzerland. Its primary instrument of data collection was a survey experiment with 919 citizens in five Swiss rural municipalities with potential wind sites. The survey presented descriptions of several potential wind projects. Participants rated their acceptance and intention to act for each wind project, as well as their general attitude toward wind energy. Results showed that general attitude is a strong predictor of local acceptance but is rated significantly higher than local acceptance. When matched with the effects of three procedural and distributive justice measures on local acceptance, the results of the study seem to support the concept of 'Qualified Support': local acceptance by participants with a moderate or positive general attitude is dependent on the associated local benefits, while local acceptance by participants with a negative attitude is not. Interestingly, the study also finds that general attitude and local acceptance both had only minimal effects on respective intentions to act. Thus, researchers should be aware of cognitive and behavioral aspects of local acceptance and seek to better distinguish between these two dimensions.

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1. Introduction

Research on local acceptance of wind energy has matured in recent years. While we still cannot fully explain the 'gap' between high levels of public support and frequent local opposition, our knowledge has increased significantly: the NIMBY (not-in-my-backyard) explanation which states that "people have positive attitudes toward something (wind power) until they are actually confronted with it, at which point they oppose it for selfish reasons" ([3], p. 2699) has been widely criticized by researchers due to its simplicity, lack of both empirical and theoretical foundation, and pejorative use (e.g. [3–9]). It has consequently been largely abandoned as a research paradigm. Researchers now use other theories and concepts to explain the intricacies and complexities of local acceptance of wind energy projects. From a socio-psychological perspective, important new concepts are place attachment [5,10],

protected values [11], moral mandates [12] and, perhaps most important, distributive and procedural justice theory.

Distributive justice theories explain when outcome distributions of specific resources are perceived to be fair and when they are not. Fairness is assessed by comparing the outcome distribution against justice principles. The most notable principles used in literature are equity, equality and need (e.g. [13]). The degree of perceived outcome fairness influences a number of further variables, including outcome acceptance. When it comes to local acceptance of wind energy projects, distributive justice pertains to the costs and benefits as perceived by local residents, and how they are distributed between society, community, local residents and the companies involved. In this context, costs and benefits are not only considered in their monetary dimension but may encompass a wide range of topics, for example climate protection, adverse impacts on the landscape, constraints on quality of life and various economic costs and benefits [14–16].

Procedural justice theories can be grouped into structural models and relational models. Structural models focus on how structural procedure characteristics influence perceived justice (e.g. [17]). Using an applied perspective on renewable energy technologies, it is deemed practical to differentiate between

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participation and information offers (e.g. [18]) and to assess how these offers influence local acceptance. Relational models, on the other hand, focus on characteristics and behavior of authorities which are seen as relevant for sustaining stable long-term relationships between these and citizens or subordinates (e.g. [19]). In the context of wind energy projects, the characteristics of community stakeholders, project developers and operators have an impact on public acceptance: in particular, the importance of citizens' trust in project developers and operators as a factor influencing public acceptance has been highlighted in many qualitative studies (e.g. [15,18,20,21]).

These theoretical advancements together with recent empirical studies, both experimental [8,14,22,23] and correlative [6,24], give us new reliable insights into social, techno-economic and psychological factors influencing local acceptance of wind energy projects. However, ambiguities still exist. In the author's opinion, two of these ambiguities are most prominent. The first concerns the relationship and distinction between different kinds of attitudes toward wind energy, and the second ambiguity concerns the relationship between different attitudes toward wind energy and the intention to act pro/contra wind energy projects.

1.1. The relationship between general attitudes toward wind energy and local acceptance

Three different kinds of attitudes toward wind energy can be distinguished in the literature:

- Attitude toward wind energy in general, also known as public attitude, e.g. what do people think about wind energy projects in their country?
- Attitude toward local wind energy projects, e.g. what do people think about wind energy projects in their vicinity in general, regardless of the specific project characteristics? Jones and Eiser [6] labeled this attitude "specific attitude".
- Local acceptance, e.g. what do residents think about a specific wind energy project in their vicinity?

The first two attitudes can be labeled as general attitudes toward wind energy; they are collected not only in studies analyzing acceptance of wind energy but also in representative opinion polls. Bell et al. [2], p. 118f give an overview of opinion polls measuring attitude toward wind energy in general. Attitude toward local wind energy projects has been surveyed for example in opinion polls in Germany ([46,25]).

The relationship between general attitudes toward wind energy and local acceptance of specific wind energy projects has been widely discussed by researchers. Wolsink [9] argues that general attitudes are of limited value when predicting local acceptance of specific wind energy projects: "For wind power schemes, by far the most important variables for acceptance are fully case-specific" ([9], p. 86). Aitken [4] criticizes the practice by researchers of quoting representative opinion poll data as proven fact "that the majority of the public supports wind power" ([4], p. 1835). Van der Horst [26] put forward a hypothetical model describing possible relationships between general attitudes toward renewable energy technologies and local acceptance; he argues that "people are inclined to express a pro-renewables attitude in principle, but this does not indicate really how strongly they feel about the issue" ([26], p. 2712). Due to further variables, such as "specific technical criteria and/or the undemocratic planning process" ([26], p. 2712), being taken into account only when a local project is proposed, positive general attitudes may still result in negative local acceptance. Bell et al. [1,2] put forward a similar explanation for high levels of public support for wind energy in the UK and low success

rates in planning applications for wind farms. They propose that there are a large number of qualified supporters who have positive general attitudes toward wind energy but whose local acceptance is also influenced by landscape effects and distributive and procedural fairness ([2], p. 125f). They furthermore propose that there are a small number of unqualified opponents ([2], p. 126), i.e. citizens whose negative general attitudes also result in negative local acceptance.

The sometimes rather heated discussion among researchers regarding the relationship between general attitudes toward wind energy and local acceptance of specific wind energy projects has not brought forth many empirical studies dealing with this issue. Only the relationship between attitude toward wind energy in general and attitude toward local wind energy projects has been researched in any detail: "[...] general attitude was a strong predictor of specific attitudes and continued to make a substantial contribution to the variance in all subsequent analyses despite the addition of other variables ([6], p. 4610). However, while the effect of project characteristics concerning distributive and procedural justice criteria on local acceptance of wind energy projects has been researched in some detail ([14,16,22,27]), the author of this study does not know of any empirical research regarding the relationship between general attitudes toward wind energy and local acceptance of specific wind energy projects. This is surprising in view of the potential advancement such empirical data could deliver for the interpretation of representative opinion polls. Moreover, a better understanding of the effect of general attitudes on local acceptance could also lead to new insights regarding the importance of project characteristics which concern distributive and procedural justice: it seems possible that the effect of such project characteristics on local acceptance is moderated by general attitudes. Bell et al. [1,2] argue that project characteristics are especially relevant for local residents with a positive general attitude. In contrast, in the case of persons with negative general attitudes toward wind energy, it appears plausible that the effect of project characteristics on local acceptance is low or even nonexistent: qualitative research findings imply that negative general attitudes can function as moral mandates [28], causing project characteristics which influence procedural justice to lose their effect on local acceptance [12,15]. Moral mandates are conceived as "representing a special class of strong attitudes [...] but include the additional layer of moral conviction" ([28], p. 589). A "procedural failure to uphold a moral mandate will be perceived to be a form of personal affront and will shape people's subsequent reactions to both the outcome and the procedure used to decide it" ([28], p. 590). Moral mandates are similar to the concept of protected values in the context of distributive justice. Such values "resist trade-offs with other values, especially economic values" ([29], p. 1), and their relevance for public acceptance of energy technologies including renewable energies has recently been shown [11]. If a wind energy project challenged a moral mandate or protected value, local residents with such mandates/values would oppose local wind energy projects no matter what, i.e. regardless of the characteristics of the specific project (see also research question no. 30 of the *ERSS Journal*: "How do people make decisions about energy when those decisions necessitate tradeoffs?" [30], p. 18). Strazzera et al. [8] found tentative quantitative evidence supporting this hypothesis: in an experimental setting, they identified a subgroup (ca. 26% of their participants) which opposed the proposed wind energy projects outright and were not open to trade-offs (e.g. monetary compensation).

In sum, there is currently no empirical analysis regarding the effect of general attitudes toward wind energy on local acceptance of specific wind energy projects. Furthermore, it seems plausible that general attitudes moderate the effect of project characteristics involving distributive and procedural justice on local acceptance.

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