Community acceptance and planning decisions: the case of onshore wind and solar farms

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Renewable energy is crucial for the global mitigation of **climate change**. However, it is sometimes unpopular with **local communities**. We analysed the role that **community acceptance** has played in planning outcomes for onshore wind and solar farms in Great Britain (1990-2017). We did this by compiling a set of indicators for community acceptance (Figure 1) and statistically testing their association with planning decisions.

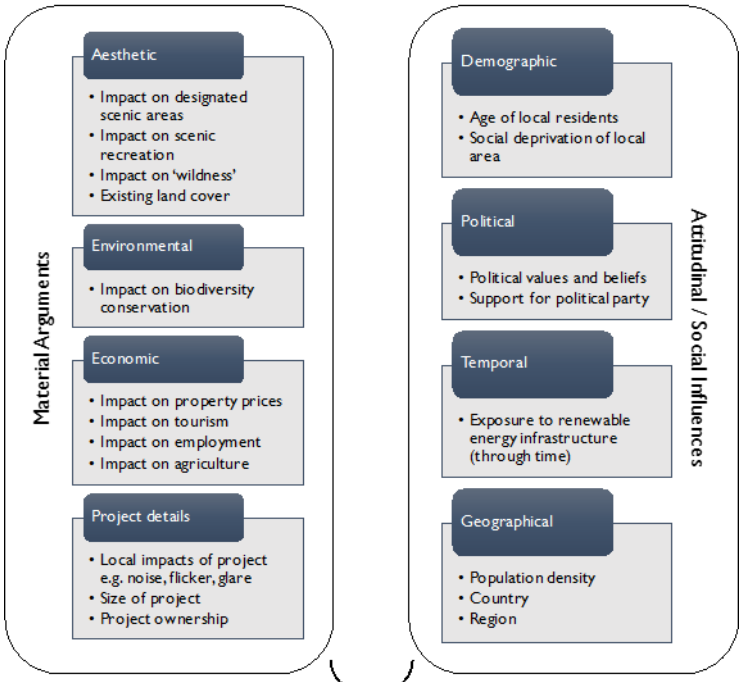
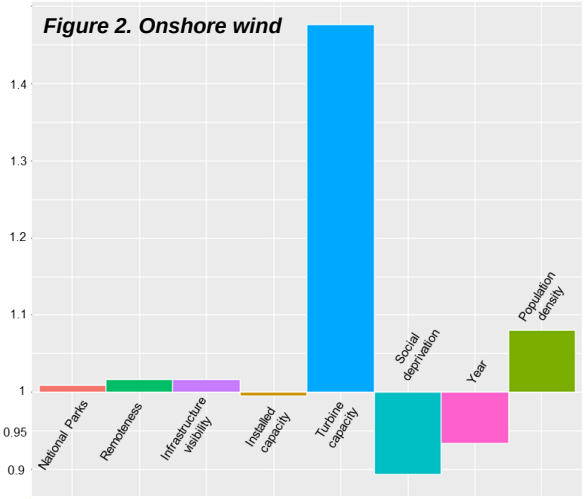
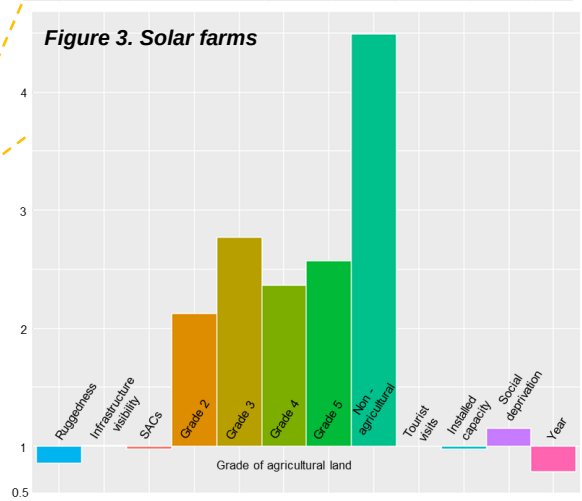


Figure 1. *Community acceptance conceptual framework*





Bars show the odds ratios for a positive planning outcome given a unit increase in the independent variable (categorical variables are compared to a reference category)

Method:
We used **binomial logistic regression** to assess the effect of community acceptance variables on planning outcomes. This evaluates the probability that an observation falls into one of two dichotomous categories. Data on outcomes for onshore wind and solar farm **planning applications** were obtained from the UK Renewable Energy Planning Database (REPD). Independent variables were calculated from the REPD as well as from a range of **geospatial** datasets.

Results:
12 community acceptance variables were associated with planning outcomes in a **statistically significant** way: 4 for onshore wind, 4 for solar farms, and 4 for both (Figures 2/3).

Conclusions:
- Community acceptance **does** appear to be associated with planning outcomes for onshore wind and solar farms
- Onshore wind projects with fewer **larger turbines** are more likely to be approved than those with many small turbines
- Solar farm projects on lower grades of **agricultural land** are more likely to be approved than on the highest grade
- Onshore wind farms are more likely to be approved in **wealthy** areas, and solar farms in more **deprived** areas
- It becomes more difficult for projects to be approved the later planning applications are made (measured by **year**)
- Our research raises questions about the relationship between public acceptance and the idea of **energy justice**
- Energy justice demands the **even distribution** of costs and benefits of energy-related impacts, and fair representation of all stakeholders in energy-related **decision-making**

Poster based on: Roddis P, Carver S, Dallimer M, Norman P, Ziv G (2018) 'The role of community acceptance in planning outcomes for onshore wind and solar farms: an energy justice analysis.' *Applied Energy* 226: 353-364.

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