

Drivers of People's Preferences for Spatial Proximity to Energy Infrastructure Technologies: A Cross-country Analysis

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Decarbonisation of the global energy system is an important prerequisite for the reduction of greenhouse gas emissions. Many countries plan to decarbonise their energy systems by expanding the use of renewable energy sources (RES). Such actions require significant investments in new energy infrastructures. While people are generally accepting of these infrastructures, opposition sometimes arises when these developments are sited at close proximity to people's residences.

In this context, this study examines the factors influencing people's spatial proximity preferences to a range of different energy technologies using a cross-country econometric analysis of the stated preference data from an unprecedented survey conducted on nationally representative samples of the population in Ireland, the US and Germany. Given the ordered nature of the dependent variable (distance) a generalised ordered logit model is estimated for each energy technology (wind turbines, solar power technology, biomass power plant, coal-fired power plant and natural gas power plant).

In general, German and Irish citizens are more willing to accept different energy technologies at smaller distances to their homes than their US counterparts. For the five energy technologies examined, people from Germany are shown to be much more willing to accept any of the power generating technologies at distances of 0–1km/miles to their residences compared to people from the US. Thus, it could be argued that people's preferences for spatial proximity are embedded in the broader social, economic and geographic environments of their respective countries.

Moreover, this study finds that attitudinal factors shape people's preferences more consistently than any of the socio-demographic characteristics. People who value environmental sustainability as more important than any other national energy policy objective (economic viability, reliability of supply or social acceptance) are found to be less inclined to oppose the three renewable technologies regardless of distance. In addition, people's technology specific perceptions are also found to be significant drivers for their preferences for spatial proximity between the separate technologies and their residences. For all five energy technologies, the perceived influence on the landscape, health and the local economy are determined to be important.

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