

Executive Summary

for

An Empirical Analysis of Local Opposition to New Transmission Lines Across the EU-27

by

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The recent 2020 and 2050 energy initiatives set forth by the European Commission lay out an ambitious plan for the reduction of carbon emissions and increases in renewable energy generation within the European Union (EU) electricity sector. The realization of this vision, as it is currently conceived, requires a large scale expansion of energy infrastructure including: wind farms, solar arrays, and transmission lines. One major hurdle to this expansion is local opposition to new developments which causes project delays and occasionally cancellation. Transmission lines and power pylons in particular are a major sticking point due to the negative effects they can impart on nearby residents such as viewshed obstruction, noise or electromagnetic pollution and the destruction of valued sites. Nevertheless, an estimated 18,000 kilometers of overhead transmission lines are required to fulfill the EU electricity goals, with approximately 80% of these new transmission lines needed to link renewable generation with the existing grid network.

This study works towards a solution to the issue of local opposition to transmission line developments under the paradigm that while these developments may have negative welfare impacts on many locals, they also bring economic and environmental benefits that may not be obvious to local stakeholders. We present and analyze data from an unprecedented survey on the social acceptance of transmission lines that was conducted in all EU-27 member states. As previous research has shown that residents' perceptions of project costs and benefits influence their level of opposition, we hypothesize that positive information regarding nearby infrastructure projects will improve local acceptance by highlighting previously unclear benefits. To test this hypothesis the survey included a built-in experiment in the form of a question regarding the acceptance of a hypothetical grid expansion project with different groups of respondents receiving different information on ancillary project benefits.

The raw survey data show that 34% of respondents would "definitely not accept without opposition" a nearby transmission line project. This figure climbs to as high as 51% for respondents in Cyprus and is strongly heterogeneous across EU-27 nations.

A pair of ordered probit statistical models are employed to analyze the built-in experiment included in the survey. The results from this analysis show that auxiliary information regarding the positive effects of a grid development project can have a substantial impact in decreasing the opposition of local stakeholders. In particular, emphasizing any long-term carbon reduction potential or economic benefit of a particular project will, on average, decrease the likelihood that a local is strongly opposed to the project by 10-11%. This effect is also shown to be strongly heterogeneous across nations.

We pursue a second-stage analysis which focuses on the role of country-level institutions and infrastructure on project acceptance. We find that laws and institutions play a distinct role in driving the general level of acceptance in a given nation.

The main results flowing from the survey and our econometric analysis imply, not surprisingly, that the perceptions of residents regarding the benefits of a proposed project drive the level of opposition encountered. Additional information regarding project benefits is shown to alter these perceptions. Thus, advertising the factual positive benefits of a proposed transmission line is likely to increase acceptance. This leads to the policy recommendation that information campaigns regarding the ancillary benefits of specific projects, and/or electricity-sector transition in general, would be beneficial in reducing opposition and resultant delays to transmission line projects. The results can also be used as a practical guide when deciding which benefits should be focused on in which nations, with the general recommendation that the largest gains from information campaigns will be realized in nations with the highest levels of opposition.