

# *Are all electrons the same? Evaluating support for local transmission lines through a survey experiment*

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## **Overview**

The United States is in the midst of a energy transition as a result of policies and market forces that are gradually moving the country from a carbon-intensive to a lower-carbon economy. As part of this transition, the American public will be regularly asked whether it will accept new power plants, pipelines, transmission lines, and other infrastructure. Citizens can act as important constraint or facilitator of the energy the United States chooses to use, and the location of the infrastructure to generate, distribute, and consume it.

This analysis focuses specifically on public acceptance of high-voltage transmission lines (HVTL). Using a survey experiment, we test the hypothesis that individuals will be more likely to support a HVTL project being located near their home if they know that the lines carry electrons from a low-carbon electricity source. Our hypothesis is based on the premise that people increasingly care about the attributes of the energy they consume, and this concern is one of the primary motivating factors for opposition or support of new energy infrastructure.

## **Methods**

In this analysis, we employ data collected from a original public opinion survey with an embedded experiment. The survey was administered by YouGov on a random and representative sample of 2,000 individuals located across the U.S. in Fall 2017. Survey respondents were randomly assigned into either a control group or one of three treatment groups. The control group was told “To meet growing electricity demand in your community, it will be necessary to build new transmission lines in your area that connect to new sources of electricity generation”. The first treatment group was given this same information as well as “These new sources consist of several solar and wind farms that have been built to generate electricity.” The second and third treatment groups were instead told that the new sources were natural gas and coal fired power plants, respectively. Respondents were then asked, “Would you support or oppose a decision to build these transmission lines to connect these new sources of electricity?,” and provided a Likert scale set of responses to gauge level of support.

To analyse the data, we first confirm that the four groups are balanced on all observable and relevant demographics and other factors, including the degree to which one is favourable toward specific types of energy resources. We then estimate t-tests, comparing each treatment group to the control group. Finally, as a robustness check, we estimate an ordered logit model in which we include a binary variable for all three treatment groups, as well as a set of control variables. Besides demographics, we also control for other factors that the literature tends to feature as primary predictors of support or opposition, such as risk aversion or perceptions of risk; trust in government, developers, or utilities; attachment to place; and environmental attitudes or worldviews. Our objective is to ensure that the treatment effect does not dissipate when we control for these other explanations.

## **Results**

Preliminary results reveal that the provision of information about where the electricity that runs through transmission lines is sourced significantly affects support or opposition. Those that were told that the transmission lines would carry wind or solar were significantly more likely to report support for the project. The same was true for the case of natural gas, but to a much smaller degree than for wind and solar. Those that saw the coal vignette, on the other hand, were significantly more likely to oppose the project. These results persist even after controlling for a number of competing theories about what drives support or opposition to infrastructure projects. We discuss the implications

of these findings as they relate to the literature on energy project support and ecological economics, as well as the practical implications for future energy infrastructure developments.

## **Conclusions**

This analysis makes important contributions to literatures in public opinion, energy policy, and U.S. environmental politics, and has important practical implications for stakeholders and policymakers as the United States continues along its energy transition path.

## **References**