

Public Support for the UK's Green Industrial Revolution

A PECC Lab Research Brief

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Executive Summary

- The Prime Minister has recently unveiled a ten-point plan for a Green Industrial Revolution to meet net-zero emissions targets.
- We conducted an original survey experiment to causally identify the public's support for particular points of this plan and their overall level of support.
- Public support is increased substantially by consumer grants for electric vehicles, funding of electric public transport, planting of trees, and wind power.
- Investment in air and sea vehicles and nuclear power does not meaningfully increase the public's support.
- An ambitious version of the Green Industrial Revolution sees majority support amongst the public, while taking no action is widely opposed.
- This ambitious version of the Green Industrial Revolution sees support across party lines, being similarly popular amongst Conservative and Labour supporters.

Public Support for the Green Industrial Revolution

The Prime Minister has recently outlined a ten-point plan for a Green Industrial Revolution, in order to reach net zero emissions by 2050.¹ This research brief analyses new survey data to assess the public's support for the specific policy proposals within this plan, and the overall level of support for ambitious policy programs to mitigate climate change.

To do so, we conducted a nationally representative survey in December 2020 and used a survey experiment in order to identify the causal effect of policy features on the public's support. Specifically, we used a conjoint analysis, an approach originating in consumer research that is increasingly used by social scientists to understand individuals' preferences for multidimensional policy problems.²

This technique allows us to identify two key quantities of interest:

1. The causal effect of specific features of the Green Industrial Revolution (e.g. grants for buying electric vehicles, levels of investment in nuclear power, etc.) for preferred policy choice.
2. The public's support, opposition, and indifference for specific policy combinations embedded within the Green Industrial Revolution.

The use of randomisation, analogous to randomised controlled trials in medical research, allows us to make causal statements about the public's support for the Green Industrial Revolution and its constituent parts.

What Are the Most Important Features of the Green Industrial Revolution?

First, we examine what are the most important features of the ten-point plan for the Green Industrial Revolution for gaining the public's support. Figure 1, displays whether support increases or decreases for a given policy proposal within the specific policy point.

The results suggest that certain aspects of the Green Industrial Revolution are particularly popular amongst the public. Features of the Green Industrial Revolution that increase support by approximately ten percentage points or more are:

- Grants for electric vehicle purchases.
- Funding of electric public transport.
- Planting of trees (30,000 and 45,000 hectares per year).
- Wind power (six times larger than current capacity).

In contrast, all forms of investment in air and sea vehicles and nuclear power fail to meaningfully increase preference for a given version of the Green Industrial Revolution. Additionally, while the public favours a ban

¹ <https://www.gov.uk/government/news/pm-outlines-his-ten-point-plan-for-a-green-industrial-revolution-for-250000-jobs>

² Hainmueller, J., Hopkins, D., & Yamamoto, T. (2014). Causal Inference in Conjoint Analysis: Understanding Multidimensional Choices via Stated Preference Experiments. *Political Analysis*, 22(1), 1-30. doi:10.1093/pan/mpt024

of internal combustion engine vehicles in the future, they prefer this to be further away (2035) than currently proposed (2030).

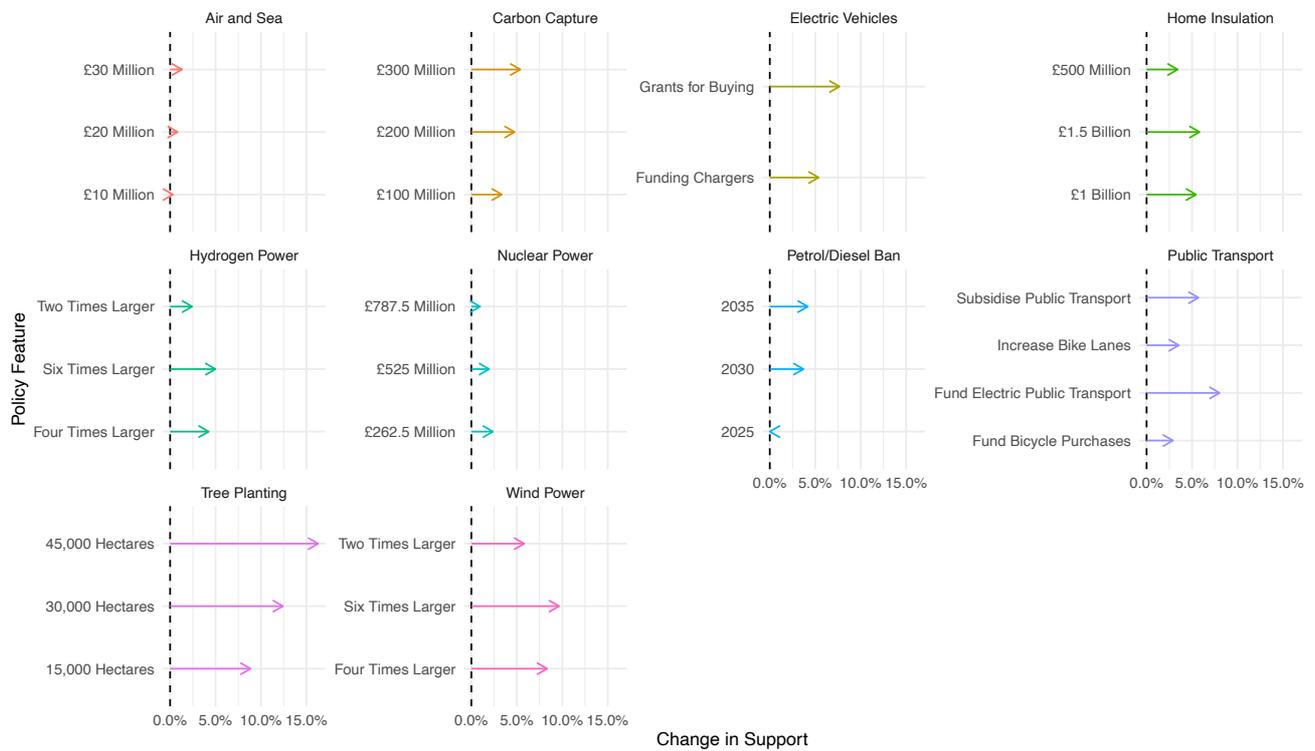


Figure 1: The Causal Effect of Policy Features Upon Policy Preference. Changes in Support are Relative to the baseline of *no policy action* in the stated area

Overall support

We now turn to identifying overall levels of support for particular policy combinations embedded within the Green Industrial Revolution. This allows us to assess whether there is a majority in favour of the Green Industrial Revolution, and if so, what this policy program would entail. To do so we use a Machine Learning algorithm to estimate support, opposition, and indifference for all possible policy combinations.³

The policy program estimated to be the most supported by the public is in fact ambitious in its scope. Specifically, it entails a:

- Fourfold increase in **wind power**
- Sixfold increase in **hydrogen power**
- £787.5 Million investment in **nuclear power**
- **Banning internal combustion engine vehicles** by 2035
- Grants for buying **electric vehicles**

³ For full details please consult the methodological appendix.

- Funding electric **Public Transport**
- £30 Million for greener energy in the **air and maritime sector**
- £1.5 Billion funding for **insulating homes and public buildings**
- £300 Million investment in **carbon capture technologies**
- Planting 45,000 Hectares of **trees** per year

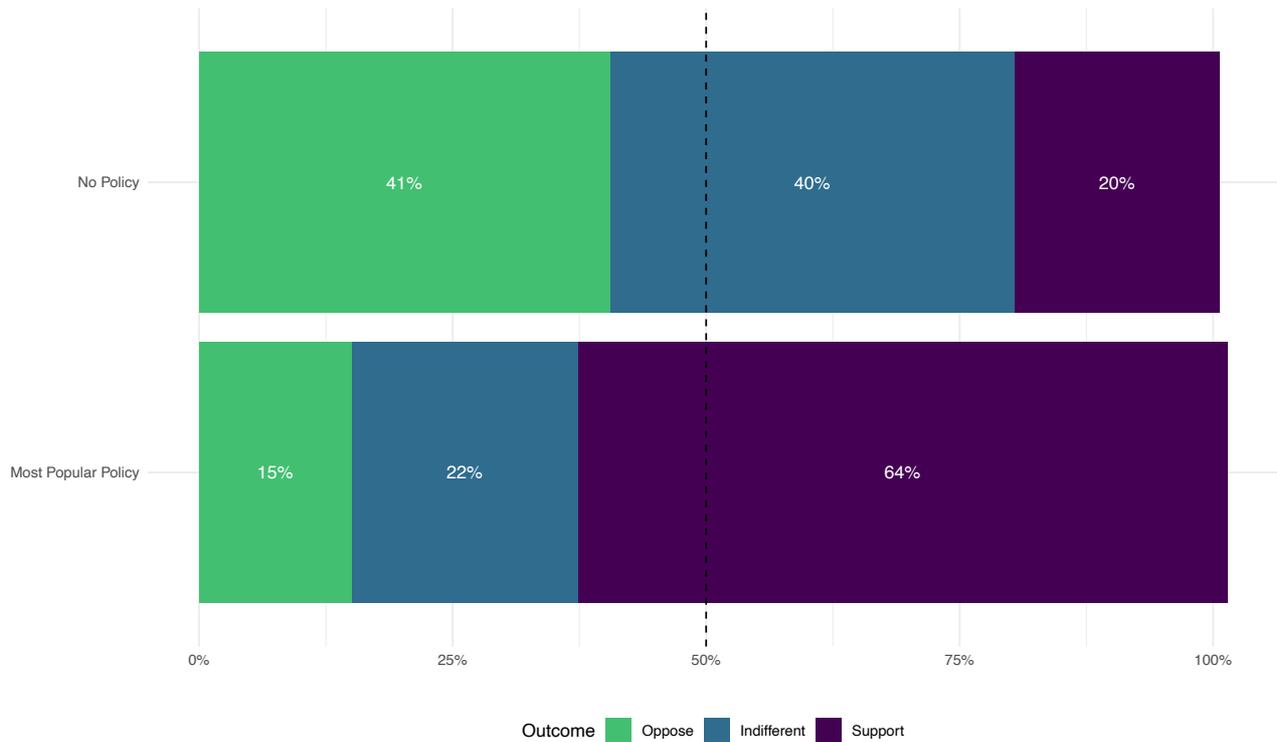


Figure 2: Support, Opposition, and Indifference for no policy action and the most popular policy proposal, as estimated by a machine learning algorithm

As displayed in Figure 2, this policy program is supported by 64% of the public, with 15% opposing and 22% expressing indifference.⁴ In comparison, the baseline policy of no environmental action and investment is widely opposed by the public. Only 20% of the public support taking no environmental action, with 41% of the public opposing and 40% being indifferent.

The results thus provide strong evidence that the public is broadly in favour of engaging in a large scale green industrial revolution. In fact, there is even appetite for proposals that would go further than the current plans.

Support by Political Party Affiliation

One additional point of analysis, is to examine whether support and opposition for these policy proposals is partisan. To examine this question, we conduct additional analyses where we subsample based upon respondents reported political party attachment.

⁴ Note percentages do not sum to 100 due to rounding.

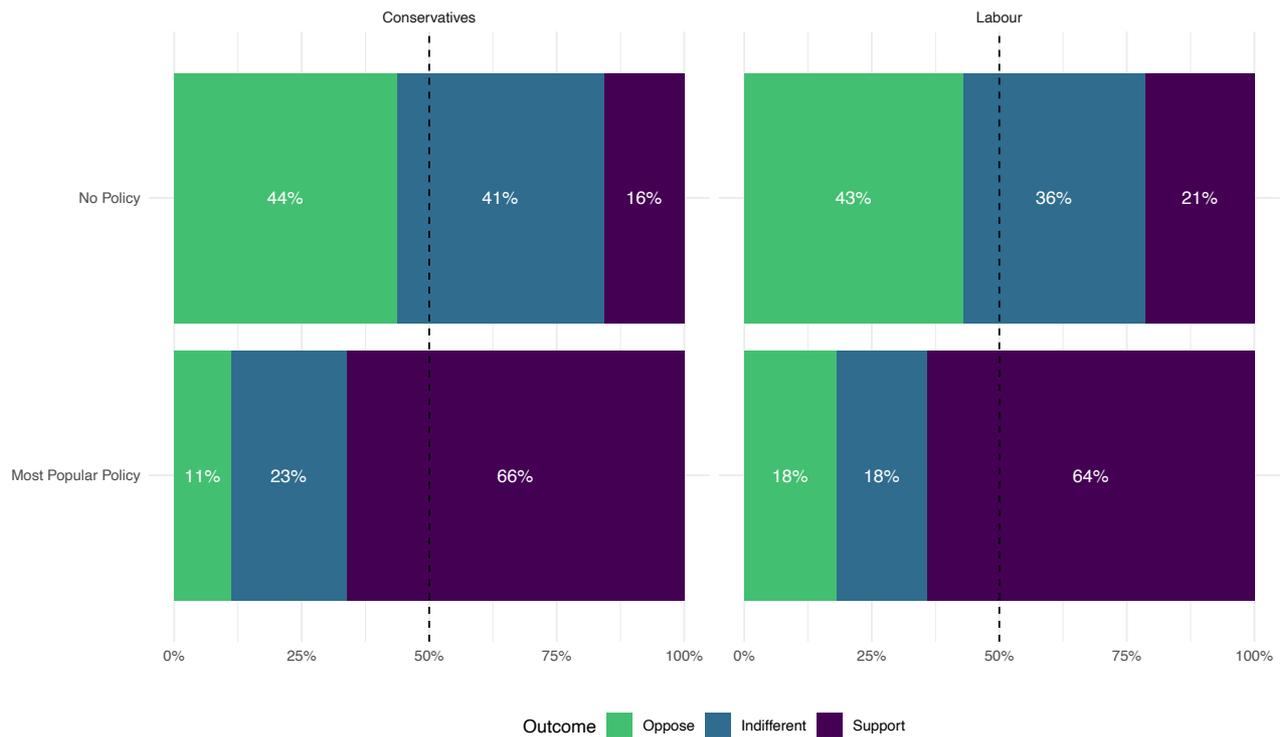


Figure 3: Support, Opposition, and Indifference for no policy action and the most popular policy proposal, distinguishing Conservative and Labour supporters

We find small changes in preferences when focusing on differences between Conservative and Labour supporters. There is a slightly higher level of support amongst Conservative compared to Labour supporters when considering the public’s most popular policy (66% to 64%). Considering the baseline policy with no environmental action and investment, we find slightly higher support amongst Labour supporters when compared to Conservatives (21% to 16%).

Ultimately, the overall picture is not substantively different when considering individuals’ political affiliations. The most popular policy program amongst the general public, sees support from a majority of both Conservative and Labour supporters. Therefore, a particularly ambitious version of the Green Industrial Revolution sees high levels of support across party lines within the UK.

About the Author

Liam F. Beiser-McGrath is a Lecturer (Assistant Professor) in Politics and Director of the [PECC Lab](#) at Royal Holloway, University of London. Their research primarily focuses on the political economy of climate change, using experimental research designs and machine learning. This research has been published in peer-reviewed journals such as *Science Advances*, *Nature Climate Change*, *Political Analysis*, *Regulation and Governance*, *Political Science Research & Methods*, and *Climatic Change*.

Funding

Survey recruitment was funded through an Independent Research Grant from the University of Konstanz.

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Methodological Appendix

The following methodological appendix provides details on data collection and sampling, the experimental design, and statistical estimation.

Data Collection and Sampling

Respondents for the survey were recruited through the Lucid platform, an increasingly used source for survey respondents that corresponds well with national probability samples.⁵ Responses were collected from 17th to 29th December 2020 covering the whole of the UK. 3009 responses were collected in total, with 21 respondents being identified as speeders and subsequently removed from the sample (response time 1/3 of the median response time) resulting in a final sample size of 2988. Quotas on age, education, gender, and country of residence were used to ensure national representativeness. Additionally, post-stratification weights were calculated using raking, based upon age, education, gender, and country of residence. All statistical analysis presented in this research brief uses these weights.

Experimental Design

The main focus of the survey is a conjoint experiment. This involves respondents choosing between one of two Green Industrial Revolution proposals with randomly assigned attribute values (as displayed in Table 1). Respondents choose which of the pair of proposals they support and rate these proposals, on a scale of 1 (fully oppose) to 7 (fully support), four different times. Due to random assignment of the policy values, we are able to identify the causal effect of policy values on policy choice and support.

Table 1: Policy characteristics in the conjoint experiment

Policy Area	Policy Value
Wind Power	<ul style="list-style-type: none">• No Increase• Two Times Larger• Four Times Larger• Six Times Larger
Hydrogen Power	<ul style="list-style-type: none">• No Increase• Two Times Larger• Four Times Larger• Six Times Larger
Nuclear Power	<ul style="list-style-type: none">• No Investment

⁵ Coppock A, McClellan OA. Validating the demographic, political, psychological, and experimental results obtained from a new source of online survey respondents. *Research & Politics*. January 2019. doi:10.1177/2053168018822174

Policy Area	Policy Value
	<ul style="list-style-type: none"> • £262.5 Million • £525 Million • £787.5 Million
Internal Combustion Engine Ban	<ul style="list-style-type: none"> • No Ban • 2025 • 2030 • 2035
Electric Vehicles	<ul style="list-style-type: none"> • No Investment • Grants for Buying • Funding Chargers
Public Transport	<ul style="list-style-type: none"> • No Investment • Fund Electric Public Transport • Fund Bicycle Purchases • Increase Bike Lanes • Subsidise Public Transport
Air and Sea Transport	<ul style="list-style-type: none"> • No Investment • £10 Million • £20 Million • £30 Million
Insulation	<ul style="list-style-type: none"> • No Investment • £500 Million • £1 Billion • £1.5 Billion
Carbon Capture	<ul style="list-style-type: none"> • No Investment • 100 Million • £200 Million • £300 Million
Tree Planting	<ul style="list-style-type: none"> • No Planting • 15,000 Hectares • 30,000 Hectares • 45,000 Hectares

Statistical Estimation

To estimate the causal effect of specific policy attributes (e.g. Fourfold increase in wind power compared to no wind investment), referred to as Average Marginal Component Effects in the scientific literature, we used linear regression with robust standard errors clustered by the individual.

To estimate general support levels for policy combinations, we used the adaptive Lasso, a commonly used machine learning algorithm, and allowed for pairwise interactions between all attributes.

To estimate the level of support, opposition, and indifference for specific policy combinations by political party support, we used linear regression with robust standard errors clustered by the individual. Age, education, gender, and country of residence were included for covariate adjustment, in addition to the use of post-stratification weights.