Community Benefits for Electricity Transmission Network Infrastructure – Social Research

Technical Report

Prepared by BMG Research for the Department for Energy Security and Net Zero

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Contents

Introduction

This report details the methodology and technical specification for the 2023 Community Benefits for Electricity Transmission Network Infrastructure study, which The Department for Energy Security and Net Zero (DESNZ) commissioned BMG Research to undertake. The core objectives of the project are:

1. To understand communities' views and preferences towards transmission infrastructure.
2. To understand communities' views and preferences towards community benefits.
3. To explore how different approaches to community benefits schemes could affect community acceptability of transmission infrastructure projects across different groups.

This was a mixed methods study comprising a quantitative and qualitative phase:

- Quantitative: Survey of members of the public in three case study areas (n=2359)
- Qualitative: Three deliberative workshops with members of the public. One workshop per area with 12 community members in each of Inverness/Keith and Lincolnshire County, and 11 in East Suffolk/Dover/Thanet

The fieldwork for both phases was conducted between July and September of 2023.

This report outlines the approach to this project in detail.

1.1 Use of a case study approach

The study required a case study approach of multiple areas where electricity network transmission infrastructure projects are proposed. The case studies aimed to cover a variety of infrastructure project types, regions, geographies, and demographics.

Potential infrastructure projects in scope of the research were included in the project brief and were utilised to identify case study areas to sample. The potential projects in scope met the following criteria:

- Classified as an "HND essential option" in the "Network Options Assessment (NOA) 2021/22 Refresh".[1]

- Projects are new infrastructure. Those which only involve changes to existing infrastructure, such as line reinforcements or developing existing substations, are not within scope.

- The initial brief was for projects in England only, but this was subsequently expanded to Scotland.

The case studies were selected collaboratively by BMG and DESNZ, fulfilling requirements to cover a range of infrastructure project types, regions, geographies, and demographics. The final three case study areas and associated infrastructure projects selected were:

- Lincolnshire county: multiple new line projects proposed in the county.[2] The whole county was included in the sample for this case study.

- Inverness/Keith: proposals for a 400 kV double circuit addition.[3] Wards rather than local authorities were sampled, as local authorities cover relatively large geographic areas in this part of Scotland. The following wards that the proposed project may cover were sampled: Keith and Cullen, Speyside Glenlivet, Forres, Nairn and Cawdor, Aird and Loch Ness, and all Inverness wards.

- East Suffolk/Dover/Thanet: proposals for a new High-Voltage Direct Current (HVDC) link between Suffolk and Kent, which includes onshore infrastructure.[4] East Suffolk, Dover, and Thanet local authorities were sampled as the offshore link would come ashore in these areas.

Areas to sample were identified using National Grid Electricity System Operator's interactive map of Great Britain's electricity transmission system.[5] This provides high-level illustrative maps of proposed projects rather than the final routes which are yet to be finalised. To account for differences in the types of projects and geographies, different levels of geography (county, local authority, and ward) were utilised to build the sample for each case study; these have been outlined above.

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[1] The NOA 2021/22 Refresh: https://www.nationalgrideso.com/document/262981/download
[2] See projects references LRN4 and GWNC
[3] See project reference BBNC
[4] See project SCD1
[5] National Grid ESO interactive map

2.1 Quantitative Approach

The target sample of 1,890 was split across three case study areas, giving a target of 630 interviews in each sampling unit.

Fieldwork for the survey took place using a primarily push-to-web methodology whereby select addresses from within the three case study areas were sent letters through the post which invited them to take part in the survey online. This approach was designed to achieve 95% of the target sample – 1,800 of the 1,890 interviews.

A secondary methodology used a face-to-face methodology whereby respondents were interviewed on the doorstep with the interviewer recording answers onto an interactive version of the survey on a tablet device. This approach was designed to achieve the remaining 5% of the target sample – 90 of the 1,890 interviews.

While these two methodologies achieved enough responses to deliver the required sample, poor response rates amongst respondents aged 16-34 meant that the sample was not representative of the local populations. As a result, a third online panel and river sampling methodology was introduced towards the end of the fieldwork period. This involved specifically targeting younger respondents via panel providers and river sampling (whereby respondents are sourced through the purchase of mailing databases). This achieved 324 additional completes.

A breakdown of the final sample by approach and survey mode is provided below.

Table 1: Survey sample count by sampling approach and survey mode

Sampling approach	Survey mode	Sample count
Random probability	Online (push-to-web)	1945
Random probability within those digitally excluded	Face-to-face	90
Non-probability: Online panel/river	Online	324

These three approaches are detailed further in section 2.3 of this report.

In total BMG Research surveyed 2,359 adults, aged 16+ between July 13th and August 22nd 2023. Interviews were carried out across 3 case study areas across the UK with between 725 and 841 interviews carried out in each. Each interview took approximately 20 minutes to complete.

Hard quotas are not available as part of a push-to-web methodology, therefore any individual responding to an invitation letter is permitted to take part. However, monitoring quotas were set

(sourced from Census 2021 or Defra's urban/rural designation) within each chosen area so that each could be checked for how representative the sample collected was by age, gender, housing tenure, and rurality. These monitoring quotas allowed BMG to assess the sample and led to our recommendation to introduce online panels and river sampling targeted at groups where deficits existed.

After fieldwork, weights were also applied to the data so that it was representative of the three individual areas by age, gender, housing tenure, and rurality. Finally, a weight was applied to each area so that it accounted for a third of the total project sample. This is summarised in the table below.

Table 2: Total survey sample count per case study (unweighted and weighted)

Case Study	Unweighted sample count	Weighted sample count
Lincolnshire County	793	786
Inverness/Keith wards	725	786
East Suffolk / Dover / Thanet local authorities	841	786

While these case study areas vary considerably in population size, because each case study sample is constructed to be representative, and each is given equal weighting in total level data, comparisons can be made across each, and conclusions drawn from the total level.

The study approach means that survey data is representative only of the case study areas surveyed, rather than the population of Great Britain (GB). The sample for this project was not intended to be and cannot be said to be representative of the wider GB population and therefore drawing conclusions about the views of the public has not been included in reporting. Data should be interpreted as representative of the three case study areas and only provides indicative insights beyond the case study areas.

Further details of the sampling frame, research methodology, weighting procedures, and reporting are outlined in the following pages.

2.2 Quantitative Sample design

Fieldwork was conducted via three methodologies.

- A primary push-to-web methodology. This approach accounted for 1,945 completed interviews.

- A secondary methodology using a face-to-face approach, which accounted for 90 interviews.

- A supplementary methodology of an online panel/river sample blend, which delivered 324 completed interviews.

The original two methodologies were selected so that the same random probability approach within the three sampled areas could be utilised for sampling across both. This means everyone within the sampled areas had the same probability of being included within the sample. This approach was also selected with the aim of being able to calculate confidence intervals and to undertake statistical significance testing. Addresses within the sampled area were stratified by deprivation level and rurality for monitoring purposes. No quotas were placed on this stratification, with addresses to be sampled selected based on natural fallout on a 1 in n basis.

During fieldwork, it became clear that those aged 55+ were taking part in the survey in much greater numbers than younger respondents, particularly those aged 16-34. One solution that was considered was to send additional letters to areas within the three sample areas with a younger demographic profile, but in the context of the low response rates the number of letters that would have been required was prohibitively expensive. This solution also provided no guarantees of surveying younger respondents, and instead may have simply resulted in more completes from older age groups.

As a result, the decision was taken to introduce an online panel and river sample method. While this uses a hard quota sampling approach and therefore moves away from a random probability approach, it allows for the possibility of targeting exclusively at the age group required to balance the sample.

Given that the majority of respondents had still been sampled through the push-to-web and face-to-face approach, and that all respondents had been given the opportunity to take part using this method, it was agreed that it was more important to achieve a sample that represented the three local areas in a more balanced way than an unbalanced sample which utilised a more purist methodology. Without making this change there would not have been enough responses from younger age groups for meaningful analysis to be conducted on the data; this was felt more important than the purity of the sample.

2.2.1 Selecting case study areas

To overcome issues around comparability, the desired target sample between the areas was kept uniform despite the variation in area and population size. The population size and target sample can be seen in Table 3 below.

Table 3: Population size per area and target sample

Case study	Units in scope	Population size	Target sample
Lincolnshire County	County: Lincolnshire	640,202	630
East Suffolk/ Dover/ Thanet	Local Authorities: East Suffolk, Dover, Thanet	418,264	630
Inverness area	Wards: Keith and Cullen, Speyside Glenlivet, Forres, Nairn and Cawdor, Aird and Loch Ness, and all Inverness	100,637	630

Once the sample areas were defined, addresses within these were sourced from the postcode address file (PAF). This list provides residential addresses throughout the UK and is updated quarterly to include all new developments.

Once the sample was extracted and sorted, it was checked for close correspondence to the local population by deprivation - using indices of multiple deprivation (IMD) – and rurality – using Defra's Urban and Rural classifications.

Because of the differing profile of each region, only the number of addresses required to achieve the target sample were selected, therefore the same number of addresses were selected in each region. The number of addresses was defined using an expected 10% response rate – based on historic response rates to other BMG push-to-web projects. Each address selected within an area was assigned an ID.

This approach meant that a reserve list of addresses was available should response rates not achieve the expected 10%.

2.2.2 Quotas

Within each area, analysis was done to understand the demographic profile by age, gender, rurality, housing tenure, and ethnicity. These statistics were sourced from Census 2021[6] or Defra's urban/rural designation[7].

Hard quotas are not possible in a push-to-web methodology. This is because letters are not targeted based on anything more than the address, and the profile of the resident is not known. Instead, the population statistics of each area were used to monitor the profile of the interviews achieved. These allowed us to understand whether the responses being collected were representative of the local population. Due to the relatively small size of the areas sampled, the decision was made to use a 3-category age range (16-34, 35-54, 55+) which interlocked with gender when constructing these quotas – a more granular categorisation would reduce target samples into numbers too small to use in the analysis. The same is true for only using a 2-category range for rurality (rural, urban) and ethnicity (white, ethnic minority groups).

The target proportions for each area are detailed in the quota set column in Table 4 below.

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[6] https://www.nomisweb.co.uk/sources/census_2021
[7] For England: https://www.gov.uk/government/statistics/2011-rural-urban-classification For Scotland: https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/pages/5/

Table 4: Breakdown of demographic targets for each area vs actual push-to-web sample achieved

Case study: East Suffolk / Dover / Thanet

Demographic	Demographic target proportion	Push-to-web sample achieved	Push-to-web sample achieved (count)
Male – 16-34	12%	3%	16
Male – 35-54	14%	8%	51
Male – 55+	23%	47%	295
Female – 16-34	12%	4%	25
Female – 35-54	15%	9%	54
Female – 55+	26%	30%	187
Rurality - Rural	28%	36%	239
Rurality - Urban	72%	64%	432
Tenure – Own outright	41%	60%	402
Tenure – Own with mortgage	26%	20%	133
Tenure – Social renter	13%	4%	25
Tenure – Private renter	20%	8%	51
Ethnicity – White	95%	92%	616
Ethnicity – Ethnic minority groups	5%	3%	15

Table 4: Breakdown of demographic targets for each area vs actual push-to-web sample achieved

Case study: Lincolnshire County

Demographic	Demographic target proportion	Push-to-web sample achieved	Push-to-web sample achieved (count)
Male – 16-34	13%	3%	18
Male – 35-54	14%	10%	60
Male – 55+	21%	46%	281
Female – 16-34	13%	4%	25
Female – 35-54	15%	11%	67
Female – 55+	24%	26%	157
Rurality - Rural	48%	57%	364
Rurality - Urban	52%	43%	277
Tenure – Own outright	39%	52%	336
Tenure – Own with mortgage	28%	24%	146
Tenure – Social renter	13%	7%	41
Tenure – Private renter	20%	7%	46
Ethnicity – White	96%	94%	605
Ethnicity – Ethnic minority groups	4%	2%	13

Table 4: Breakdown of demographic targets for each area vs actual push-to-web sample achieved

Case study: Inverness / Keith

Demographic	Demographic target proportion	Push-to-web sample achieved	Push-to-web sample achieved (count)
Male – 16-34	12%	3%	17
Male – 35-54	16%	15%	89
Male – 55+	21%	44%	259
Female – 16-34	12%	4%	24
Female – 35-54	16%	11%	64
Female – 55+	23%	24%	141
Rurality - Rural	34%	46%	289
Rurality - Urban	66%	54%	344
Tenure – Own outright	34%	53%	335
Tenure – Own with mortgage	33%	21%	136
Tenure – Social renter	17%	6%	41
Tenure – Private renter	16%	9%	54
Ethnicity – White	98%	94%	594
Ethnicity – Ethnic minority groups	2%	2%	18

When it became apparent that there was a deficit to the target of 16-34s, and to a lesser extent 35-54s in the sample achieved through push-to-web, the sample for the supplementary online panel and river methodology was constructed to specifically target these groups. This is possible because the panel and river respondents are sourced with many background demographics already known about those within the sample. While the younger sample available in both Inverness/Keith and East Suffolk/ Dover/ Thanet was limited, it was decided that achieving additional responses in these areas would be of value to the sample even if the original quota could no longer be achieved.

Table 5 below shows the quotas set for this supplementary methodology.

Table 5: Breakdown of age targets by area for online panel and river methodology vs actual achieved sample

Case study	Age	Quota set	Online/ river sample achieved	Online/river sample achieved (count)
East Suffolk/Dover/ Thanet	16-34	57%	33%	45
	35-54	43%	67%	91
	55+	0%	0%	4
Lincolnshire County	16-34	59%	50%	61
	35-54	41%	50%	60
	55+	0%	0%	1
Inverness/Keith	16-34	62%	42%	26
	35-54	38%	58%	36
	55+	0%	0%	0

Ultimately, the approach was adapted in this way so that the final sample was more balanced and representative of the three selected areas. While the online methodology did not fully achieve the targets, it boosted the sample enough to provide bases that allow for robust sub-group analysis.

2.3 Quantitative Fieldwork

Fieldwork took place between July 13th and August 22nd 2023. Only one interview could be conducted per address.

Two methodologies were utilised for conducting interviews: push-to-web driven online interviewing, and CAPI (Computer Assisted Personal Interviewing) administered face-to-face. A further reserve methodology of telephone completion was offered to push-to-web respondents as a back-up.

During fieldwork, a third approach was added through online panel and river sampling.

Before fieldwork began, three identical scripts were set up: a primary online script, and secondary CAPI script, and a reserve telephone script. The online script was reused for the supplementary methodology.

Further details of the process for the two main methodologies and supplementary methodology are explained below.

2.3.1 Push-to-web interviewing

A sub-set of addresses within each of the three areas were selected randomly to be sent a letter containing information about the purpose of the survey and an invitation to take part in the study via a URL link and unique ID. The letters also contained contact details for the BMG Research support-line should they have difficulties taking part (this included a freephone number and email address) along with FAQs about DESNZ and the study.

Table 6 below details the number of addresses per area and the number of letters sent.

Table 6: Number of addresses and letters sent per area

Case study	Addresses	Letters sent
East Suffolk/Dover/Thanet local	223,501	6,000
Lincolnshire County	333,548	6,000
Inverness/Keith	50,794	6,000

Respondents would have to go to the URL link on their phone, tablet, or computer, and enter the ID to access the survey. For ease of access, a QR code linking to the survey was also provided in the letter. The option to request a paper copy was also provided.

To understand how many letters to send, BMG used a conservative estimate of a 10% response rate (estimated using similar instances of push-to-web in other projects) to extrapolate what number would need to be sent for 600 completes across the three areas. This meant that an initial 18,000 letters were sent to households, equating to 6,000 addresses per area. The intended and actual response rates are detailed in Table 7 below.

Table 7: Intended and actual response rate

Target sample	Required response from 18,000	Interviews achieved	Actual response rate
1800	10%	1945	11%

This shows that, at an overall level, the response rate was higher than initially projected. However, as discussed already in this report, there were issues with the balance of these responses across different age groups. Addresses who received letters were removed from the available sample for face-to-face interviewers.

Partway through fieldwork, a targeted reminder was sent to addresses that had not yet completed. The original plan had specified two reminders to be sent, however, it was decided that because the 1,800 responses had been achieved with just two letters sent, the budget would be repurposed for the online panel and river completes.

2.3.2 CAPI interviewing

Addresses in the three areas were also selected for CAPI interviews using a random probability sampling method, drawn from the postal address file. Though there were to caveats to recruiting for this methodology:

- Addresses selected for the push-to-web element were excluded
- Respondents were screened on the doorstep to ensure they were digitally excluded

Interviewers were assigned to each area, and within this, they were asked to conduct interviews amongst a digitally excluded audience only. Questions to determine whether they were digitally excluded examined the following (question numbers shown in brackets, for full wording, see the questionnaire appendix):

- Whether the respondent has internet access (S05)
- How confident they are on the internet (S06)
- Which activities they use the internet for (S07)

If more than one person in the household met the quota a respondent was selected using the birthday method (i.e. the person who will be the next to have a birthday).

Using an individual link, specific to the address, the interviewers were instructed to conduct the interview in person on the doorstep, with the interviewer using a tablet device to enter respondents' answers into the CAPI script with the aid of showcards for more complex questions.

While COVID-19 restrictions are no longer a consideration mandated by UK law, interviewers were asked to be mindful of any concerns that respondents might still have about the disease and to act with care in respect of these.

2.3.3 Online panel and river interviewing

While they were recruited in a different manner, a respondent for the online panel and river methodology would take the survey in the same way as the push-to-web respondents. An online panel is defined as an online group of recruited people willing to conduct social and market research surveys in return for a small financial incentive for each survey completed. These respondents were sourced through panels provided by Dynata and Lucid.

River sample participants were contacted via email with the same text as was used on letters to push-to-web respondents. Email addresses were sourced via DataScope.

2.4 Quantitative Weighting

The survey data used for this report is weighted to ensure the data is representative of each area aged 16+. Data from all methodologies is weighted together under one process.

Rim weighting[8] was applied within each area to age, gender, housing tenure, and rurality. Weighting was calculated separately for each area so that data was representative of each distinct population distribution. These all followed the same proportions as the monitoring quotas detailed above. An overall weighting was applied to the total sample so that each area accounts for a third of the overall results.

A full unweighted and weighted breakdown of the final sample can be seen in Table 8 below.

Table 8: Breakdown of final sample (unweighted and weighted)

Case study: East Suffolk / Dover / Thanet

Demographic	Unweighted sample	Unweighted sample (counts)	Weighted sample	Weighted sample (counts)
Male – 16-34	4%	35	11%	91
Male – 35-54	10%	85	14%	109
Male – 55+	39%	322	23%	178
Female – 16-34	7%	58	12%	91
Female – 35-54	15%	126	15%	116
Female – 55+	26%	215	26%	201
Rurality - Rural	32%	266	28%	219
Rurality - Urban	68%	575	72%	567
Tenure – Own outright	58%	465	44%	322
Tenure – Own with mortgage	24%	207	26%	202
Tenure – Social renter	8%	83	12%	102
Tenure – Private renter	9%	86	19%	160

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[8] Rim weighting creates interlocking weights based on defined criteria so that a sample matches known population distributions. The weighting calculations run all possible iterations and combine these together to create one overall interlocking weight for each respondent.

Case study: Lincolnshire County

Demographic	Unweighted sample	Unweighted sample (counts)	Weighted sample	Weighted sample (counts)
Male – 16-34	5%	40	12%	101
Male – 35-54	10%	84	14%	111
Male – 55+	39%	303	22%	169
Female – 16-34	9%	71	13%	101
Female – 35-54	15%	115	15%	118
Female – 55+	22%	180	24%	186
Rurality - Rural	51%	408	48%	378
Rurality - Urban	49%	385	52%	408
Tenure – Own outright	51%	392	39%	305
Tenure – Own with mortgage	27%	220	28%	223
Tenure – Social renter	12%	96	14%	105
Tenure – Private renter	10%	85	19%	153

Case study: Inverness / Keith

Demographic	Unweighted sample	Unweighted sample (counts)	Weighted sample	Weighted sample (counts)
Male – 16-34	3%	27	11%	97
Male – 35-54	15%	105	16%	123
Male – 55+	40%	286	21%	162
Female – 16-34	6%	47	12%	94
Female – 35-54	13%	92	17%	127
Female – 55+	23%	168	23%	83
Rurality - Rural	44%	317	34%	265
Rurality - Urban	56%	408	66%	522
Tenure – Own outright	55%	380	35%	266
Tenure – Own with mortgage	24%	181	32%	260
Tenure – Social renter	12%	90	17%	134
Tenure – Private renter	10%	74	16%	126

The percentages described above as '% Weighted' are the targets used to weight the data. The figures for age, gender, and housing tenure are taken from the 2021 Census. Rurality was taken from Defra's Urban/Rural designation. The '% Unweighted' column shows the actual percentage of interviews achieved in the fieldwork.

To ensure an adequate sample size for sub-group analysis in each category, respondents in younger age groups were boosted via the online and river sampled methodology. However, while this improved representation in this group, it did not align perfectly with quotas, therefore weighting ensures that the total sample is not skewed as the proportion of those in each age group is adjusted to be representative.

2.5 Cognitive testing and piloting

The quality of data collected in a survey is partially determined by respondents interpreting each question according to its intended meaning. Pre-testing attempts to ensure consistent interpretation of questions by subjecting the questionnaire to testing, which explores respondent comprehension, retrieval of information, judgment or estimation, and selection of a response to a given question.

Cognitive interviewing[9] is a widely used pre-testing tool, in which respondents are asked to report directly on the internal cognitive processes employed to answer survey questions. Interviewers probe the meaning of specific terms or the intent of specific questions throughout the interview. A small number of purposively chosen respondents are interviewed to ensure thoughts are gathered from a range of respondents based on area, age, gender and education level and the results are not generalisable to a larger population.

For this study, the draft questionnaire was tested in 10 verbal cognitive interviews.

Interviews were conducted via Microsoft Teams in June 2023. Cognitive interview participants completed the interviews via video call and were shown a copy of the questionnaire via screensharing during the interview.

Interviews were conducted with a broad demographic and regional mix of participants.

Interviews followed a verbal probe approach using a semi-concurrent probing technique. This means that participants were asked to complete the survey in sections and following each section, participants were asked about their experiences when answering each of the questions in the previous section. Many probes were tailored to be question specific, but typical probes included:

- How did you find answering this question?

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[9] Examining the complex psychological processes involved in answering different types of survey questions https://www.researchgate.net/publication/261815491_The_Psychology_of_Survey_Response_by_Roger_Tourangeau_Lance_J_Rips_Kenneth_Rasinski

- Can you tell me in your own words what the question was asking?

- How easy or difficult did you find this question to answer?

- What did [insert question or response term] mean to you?

The changes recommended were mostly nuances to question wording to enable greater audience comprehension. However, some more substantive changes were made to questions which tested respondents' desired value of direct payment or community fund. It was found that respondents were mostly unable to answer these without being prompted with a possible value first, therefore the decision was made to use a question with pre-coded responses.

Once the final scripted questionnaire was signed-off and the survey was launched, the early survey completes were extracted and reviewed to 'sense-check' the data. These checks included ensuring that the number of valid responses were being correctly recorded and checking the survey logic and routing was working as intended.

Two issues were flagged at this stage. The first was to do with the length of the survey. It was found to be running at 27 minutes, 7 minutes over the target length of 20 minutes. As a result, several questions were selected to be cut from the survey.

Once the questions to be removed had been agreed with DESNZ, the survey was cleared for full launch.

The second issue was the proportion of responses from younger age groups. From this point onwards BMG and DESNZ discussed options for rectifying this balance, the result of which was the supplementary methodology discussed at length in this report.

2.6 Reporting

Throughout the data tables, significant differences are signified between sub-groups and the total result. Differences to the total are signified by a + or – symbol next to the percentage figure. Differences to other groups within the crossbreak set (e.g. region) are signified by letters below the percentage figure – these letters applied to each column appear below the crossbreak name. Differences are considered to be significant at the 95% confidence level, meaning that there is only a 5% possibility that the difference occurred by chance rather than by being a real difference. This is a commonly accepted level of confidence.

The data used in reporting the findings of this research are rounded up or down to the nearest whole percentage. It is for this reason that, on occasion, tables or charts may add up to 99% or 101%. Results that do differ in this way should not have a sum-total deviance that is larger than around 1% to 2%.

In the tables and charts contained in this report, a * symbol denotes a proportion that is less than 0.5%, but greater than zero.

Because of the nature of the sample construction, quotas, and weighting used, when reporting it is necessary to state that the data represents the percentage of adults rather than the percentage of households.

3.1 Qualitative Approach

To allow for further exploration of some of the key themes that emerged through the quantitative phase, 3 half-day workshops were held, one in each of the 3 areas sampled in the quantitative phase.

These workshops consisted of 12 community members in each of Inverness/Keith and Lincolnshire County, and 11 in East Suffolk/Dover/Thanet, sampled from a mixture of those who had taken part in the quantitative phase, and those recruited specifically for the workshop itself. The original aim was to have these groups represent 50% each, however, difficulties in recruiting respondents from the quantitative phase meant that two of the groups were primarily made up of those who had not taken part in the survey. The proportion of those recruited from the survey and those who were not is detailed overleaf in Table 9.

Table 9: Breakdown of workshop participants recruited via survey vs directly

Case study	Recruited via the survey (target 50%)	Recruited directly (target 50%)
East Suffolk/Thanet/Dover	33%	66%
Lincolnshire County	25%	75%
Inverness/Keith	50%	50%

Part of the reason for difficulties in recruiting an even split of participants from the survey directly was that quotas had been set to ensure that there was a balance of participants based on age, gender, education, and their views of infrastructure. These factors were considered more important than the source from which they were recruited.

The factors were selected to ensure a range of views were represented within the workshops. While most were balanced based on local demographic representation (using the same approach as the quant), participants' views of infrastructure being built in their local area was considered particularly important. Here those with neutral views were prioritised over those with strong positive or negative views. This allowed for greater exploration of what factors increased and decreased acceptability for infrastructure amongst those undecided about it. Table 10 overleaf details the target quotas for the workshops (this was the same for each group).

Table 10: Workshop target quotas per group

Demographic	Quota set	Quota set (count)
Age - 16-34	25%	3
Age - 35-54	33%	4
Age - 55+	42%	5
Gender - Male	50%	6
Gender - Female	50%	6
Education - Degree or above	42%	5
Education - Below degree qualification	42%	5
Education - No qualification	17%	2
View of Infrastructure - Very acceptable	8%	1
View of Infrastructure - Somewhat acceptable	17%	2
View of Infrastructure - Neither	50%	6
View of Infrastructure - Somewhat unacceptable	17%	2
View of Infrastructure - Very unacceptable	8%	1

These quotas were achieved across all workshops.

Workshops were conducted face-to-face in a community venue at a convenient location within each area. The workshop discussions were structured to combine whole-group sessions and breakout groups.

The workshop format allowed for the inclusion of visual stimulus materials to explain the schemes to participants, informing their discussions and idea generation. Spontaneous responses were collected before probing questions were used to elicit deeper exploration and intra-group discussion. Ranking and trade off tasks were used as deliberative methods to explore areas of consensus and diverging opinions.

All groups in the sessions were moderated by an experienced BMG qualitative researcher. All participants received a £100 incentive payment, to thank them for their time and insights.

The workshops were recorded with participants' consent, responses to the tasks were collected by moderators on flipcharts, and moderators wrote up detailed notes after each workshop. BMG moderators met after each workshop to discuss the topic guide and priority areas to cover in the next workshop, to ensure all objectives were explored in sufficient detail. The BMG qualitative research team had an analysis meeting and findings were written up by the lead qualitative researcher in answer to the project objectives. Both the moderators' notes and the recordings were used to inform and check the written analysis. Verbatim quotes were transcribed from the recordings by the lead researcher to illustrate participants' responses, where appropriate.

4.1 Interpretation and Limitations

This project used a case study approach to provide illustrative examples of communities that may host transmission network infrastructure projects in the future. It was not designed to provide nationally representative data. It is possible that different areas would have responded differently to the survey. However, high-level conclusions were consistent across the three case studies. Therefore, data should be interpreted as representative of the three case study areas only and providing indicative insights more broadly.

It was not possible to achieve sufficient responses from younger groups without the introduction of the online panel and river sampled participants. Whilst this introduced a non-probability sampling[10] element to the sample, the majority of respondents (86%) were recruited via the random probability sample. Without this there would not have been enough responses from younger age groups to conduct meaningful analysis; this was felt more important than the purity of the sample.

Semi-quantification has been used when reporting qualitative findings to highlight patterns and to provide an indication of frequency. In order of frequency: 'Most' can be interpreted as over half; 'many' refers to a frequent finding/ view; and 'some' reports a less frequent finding/ view.

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[10] Non-random sampling approach where not all addresses in a population have a chance of being selected to participate in the survey.