Annex
A6.05 – Interactive Online tool research report

December 2019

As a part of the NGET Business Plan Submission

nationalgrid

explain
market research

National Grid

Service Valuation 2021-2026

August 2019

Executive summary

Background

National Grid are undertaking a programme of stakeholder research to inform the 2021-2026 business plan. Explain Market Research was commissioned to carry out independent research to solicit the views of the household consumer on key areas of the business plan:

- Reliability
- Innovation
- Moving to a greener economy
- The environment
- Supporting communities
- Visual impact of infrastructure (electricity network only)

The objective of the research was to inform decision making by understanding the value consumers place upon each of these service areas, their priorities within each and the level of investment considered.

Approach

A bespoke, interactive tool was designed by Proctor + Stevenson to offer an engaging and informative survey experience that allowed respondents to see in real time the impact of their choices on their annual bill.

A combination of online and face-to-face interviewing was undertaken to reach a nationally representative sample of bill payers across England, Wales and Scotland. This mixed sampling technique was chosen to secure a statistically robust sample size whilst ensuring that responses were obtained from a diverse range of respondents, including vulnerable consumers and those who may not be found online.

Summary of findings

This research showed that, on average, consumers were willing to accept an increase in bills to support investment in delivering their priorities.

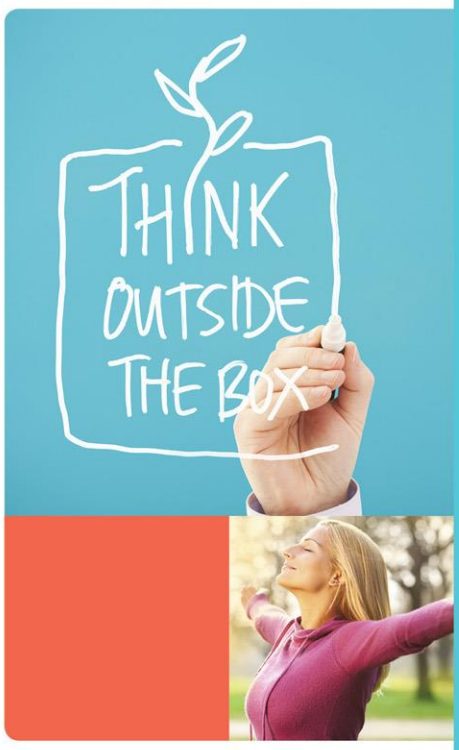
Throughout, there was significant support for the potential areas of investment previously identified by stakeholders and few respondents prioritised cost cuts over service maintenance or improvement.

On average, respondents were willing to pay £1.44 more on their electricity bill and 10p more on their gas bill to see their desired options implemented. These figures were based upon previously assigned costs. It should be noted that a higher number of service options presented to respondents on the electricity survey had an associated cost than on the gas survey. This, and differences in investment costs, account for much of the disparity in these figures

The findings from this research should be triangulated with those from the collaborative willingness to pay and acceptability research projects to inform the 2021-2026 business plan.

Content page

1.0 Introduction



Background

National Grid are undertaking a programme of stakeholder research to inform the 2021-2026 business plan. Explain Market Research was commissioned to carry out independent research to solicit the views of the household consumer on key areas of the business plan:

- Reliability
- Innovation
- Moving to a greener economy
- The environment
- Supporting communities
- Visual impact of infrastructure (electricity network only)

The objective of the research was to inform decision making by understanding:

- the value consumers place upon each of these service areas
- their priorities, including at times the balancing of competing priorities such as cost and service level
- the acceptability of investment in each key area and the level of investment deemed desirable.

This research was delivered in collaboration with software developers Proctor + Stevenson.

Methodology

A combination of online and face-to-face interviewing was undertaken to reach a nationally representative sample of bill payers across England, Wales and Scotland. This mixed sampling technique was chosen to secure a statistically robust sample size whilst ensuring that responses were obtained from a diverse range of respondents, including vulnerable consumers and those who may not be found online.

Each survey route, gas or electricity, took approximately 20 minutes to complete and respondents were incentivised for their participation.

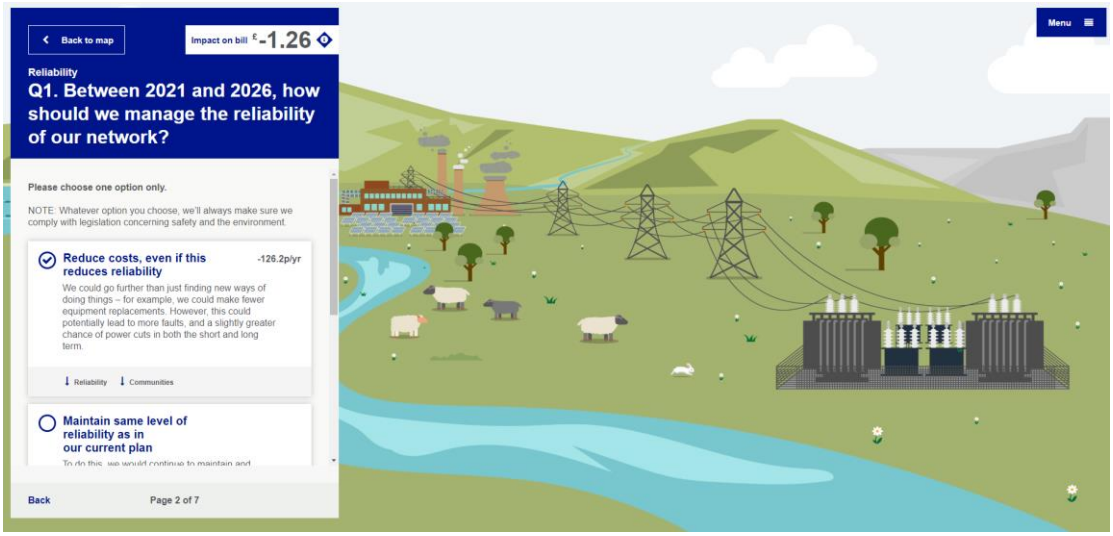
Face-to-face interviews were conducted by experienced, MRS trained interviewers with participants recruited on street or through door knocking.

Invitations to participate online were issued through Panelbase, a specialist research panel which employs participant profiling and quality controls to ensure the suitability of respondents and quality of the research.

A bespoke, interactive tool was designed by Proctor + Stevenson to offer an engaging and informative survey experience.

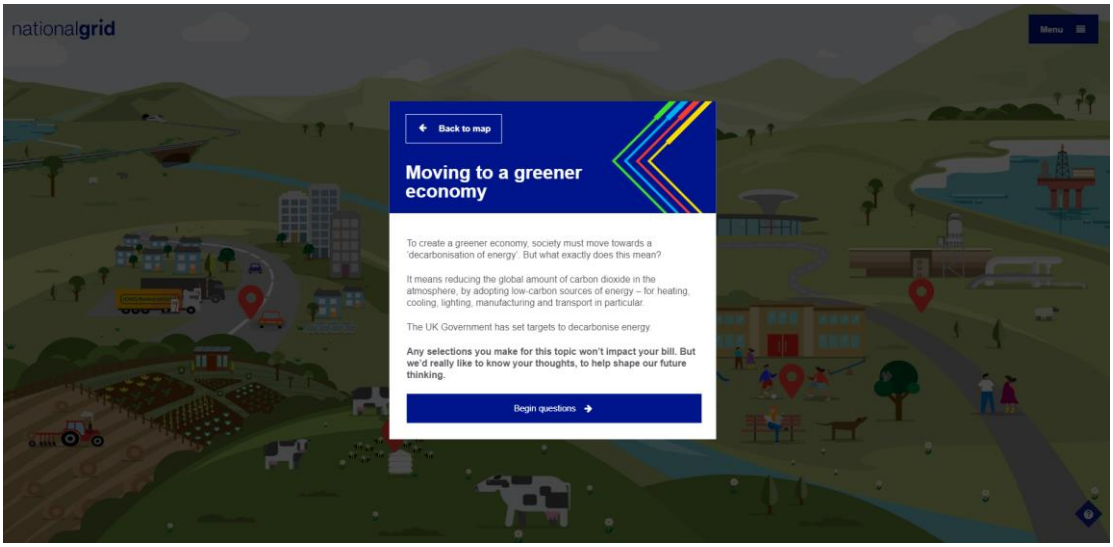
Tool and survey design

The bespoke tool was designed to guide respondents through a series of explanations and questions on each key service area. To mirror the real-world impact of National Grid investment decisions, the choices that a respondent made could result in an increase or decrease in the annual consumer bill. This was illustrated by a virtual bill on each survey page. This was cumulative and responded to each answer selection in real time allowing the respondent to experiment with options before committing to an answer.



This ensured that decision making remained grounded and National Grid could be sure that respondents had fully considered the financial impact of their choices.

Given the subject matter it was deemed appropriate to include a short video introduction to National Grid so that respondents may understand its role and responsibilities within the energy network. The survey was broken down into sections for each of the key areas listed above. Each section and question included a brief introduction to the topic and, where required, an explanation of answer options. This could include examples, implications or optional drop downs for further information. Some of the questions required respondents, who may have had no prior knowledge of the energy sector, to carefully weigh up alternatives outside of their daily experience. Offering background information was therefore deemed necessary to allow respondents to make informed decisions.



To minimise order impacts, the tool was designed to allow respondents to complete the sections in any order. To encourage this, section markers were placed at random points in the map without a clear pathway between them. Randomisation was also employed within questions except where this would have been confusing to respondents, for example where answers were numerical.

The decision to use a bespoke tool was taken to encourage respondents of all backgrounds to engage with a topic that might not be top of mind for them and to allow for the real time bill impact to be shown. This means that throughout the project, the survey content and tool were designed with two complementary objectives in mind: obtaining valid, robust insight while offering a positive user experience. Consequently, careful consideration was given to

- ensuring that the language used was as accessible as possible without compromising on accuracy and detail
- ensuring that the level of detail provided was sufficient for informed decision making but not so much as to cause respondent fatigue
- clarity, where appropriate, on the implications and bill impact of option
- the presentation of the tool to maximise engagement and enjoyment

Content was also continuously reviewed to ensure that it was informative but not leading.

As part of this process, Explain undertook two rounds of cognitive testing prior to fieldwork. The first early stage testing focussed on the survey content. 10 participants took part in face-to-face tests and

fed back on content in real time, resulting in amends to streamline the survey, aid understanding and eliminate suggestions of bias. The second round focussed primarily on the functionality and usability of the tool. 6 participants were asked to complete the survey on the tool when it was in the final stages of development. They did so under the observation of the researcher but without explicit instructions to ensure that the survey could be completed independently. Feedback from this stage led to changes to aid usability, such as increasing the visibility of the question markers on the map and changes to aid understanding, including the presentation of figures in the virtual bill to address the presumption that the impact shown was in pounds not pence.

The tool was designed to be accessible across devices to maximise accessibility.

Respondent profile

All respondents were UK residents and bill payers for the appropriate service. Quotas were applied for respondent gender, age, socio-economic grouping and region.

A light weighting was applied to ensure that the final sample was nationally representative.

Combining face-to-face and online interviewing, 1047 responses were received on the electricity survey and, after weighting, 1,000 on the gas survey.

Additional sampling information may be found in appendix one.

3.0 Results

Gas and electricity survey results

Research findings

The gas and electricity surveys both asked respondents to consider how National Grid should address the following key areas of service provision:

- Reliability
- Innovation
- Moving to a greener economy
- The environment
- Supporting communities

The electricity survey also sought feedback upon the visual impact of infrastructure.

The results have been presented in the order above for consistency, however respondents were able to complete the sections in an order of their choosing.

Please note that throughout the report the use of the words significant and significantly refer to statistically significant differences.

Gas service priorities

Reliability

National Grid currently work to a target of 100% reliability on the gas network. Consumers are consequently unaccustomed to network disruption.

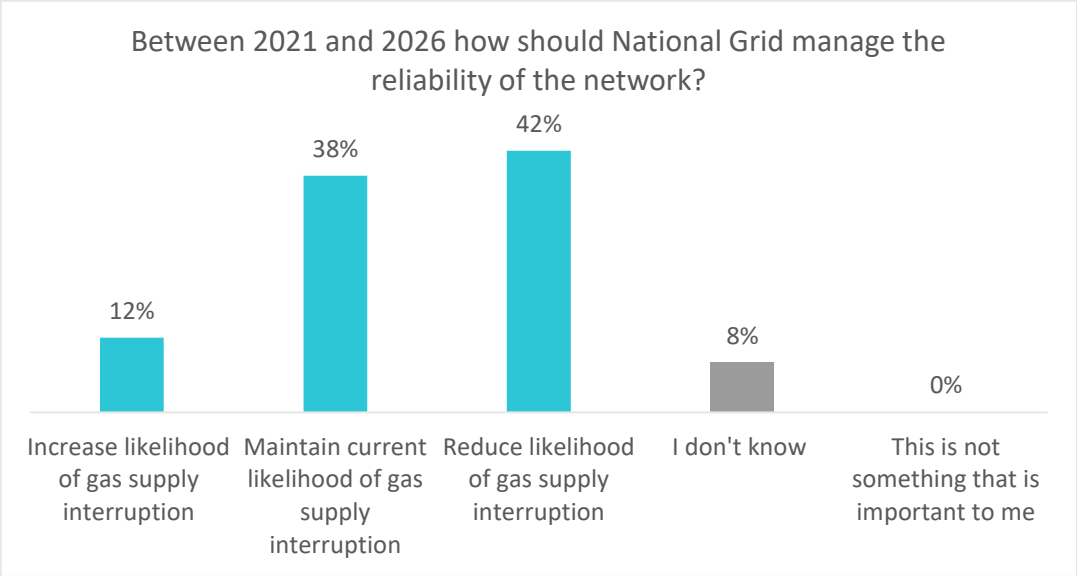
Respondents were invited to consider the value they placed upon the reliability of the gas network, where investment should be focussed and what level of protection was appropriate.

Managing the reliability of the network

The first question required respondents to choose the level of investment they would like to see in reliability between 2021 and 2026. The choices presented were to:

- increase the likelihood of disruption at a saving of 83p per year
- maintain the current likelihood of disruption
- or reduce the likelihood of disruption at an additional cost of 42p per year.

8 in 10 respondents supported continued or increased investment to ensure reliability, with 38% looking to maintain the current likelihood of gas supply interruption and 42% preferring to increase the cost to the consumer from 7p to 23p per year in exchange for a reduced likelihood of gas supply interruption. Only 12% would prefer to cut costs and accept an increased risk of gas supply interruption.



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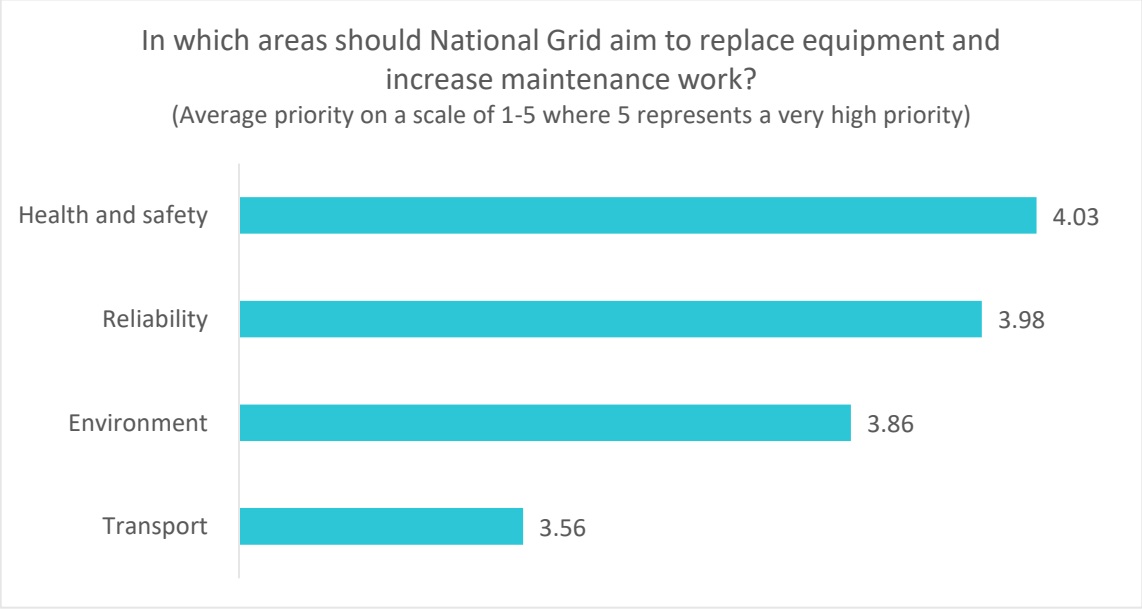
A number of statistically significant differences were observed between sub-groups.

- 18-24 years olds were significantly less likely than average to wish to increase investment to reduce risk (32%).
- 19% of C1 SEG respondents and 33% of Scottish respondents favoured a reduction in costs at increased risk to supply, both significantly higher than the average.
- However, those aged 65 or over and those resident in the North East of England were significantly less likely than the average to feel that National Grid should cut costs and increase risk (5% and 1% respectively).

Priorities for investment

National Grid undertake a rolling programme of investment to maintain its infrastructure and replace equipment. This can be targeted to business priorities. Consequently, respondents were asked to identify such priorities by assigning priority to each area on a scale of 1 to 5 where 1 was a very low priority and 5 was a very high priority. Their choices on this question has no impact upon their virtual bill. **Reliability came a close second to health and safety** in this instance.



Base size: 913. 9% (87 respondents) selected I don't know.

The level of priority placed on investment in each area is shown in detail below. Respondents were significantly less likely to feel that investment in transport was a very high priority compared to the other areas.

	Health and safety	Reliability	Environment	Transport
5- a very high priority	48%	43%	41%	22%
4	23%	30%	25%	31%
3	18%	15%	20%	32%
2	8%	7%	6%	12%
1 – a very low priority	4%	5%	7%	3%

- Again, an age differential was observed with 18-24 years olds significantly less likely than the average to rank the following as very high priorities: health and safety (32%), reliability (20%) and transport (9%). However, 40% of this age group placed very high priority on investment in the environment, in line with the 41% average.

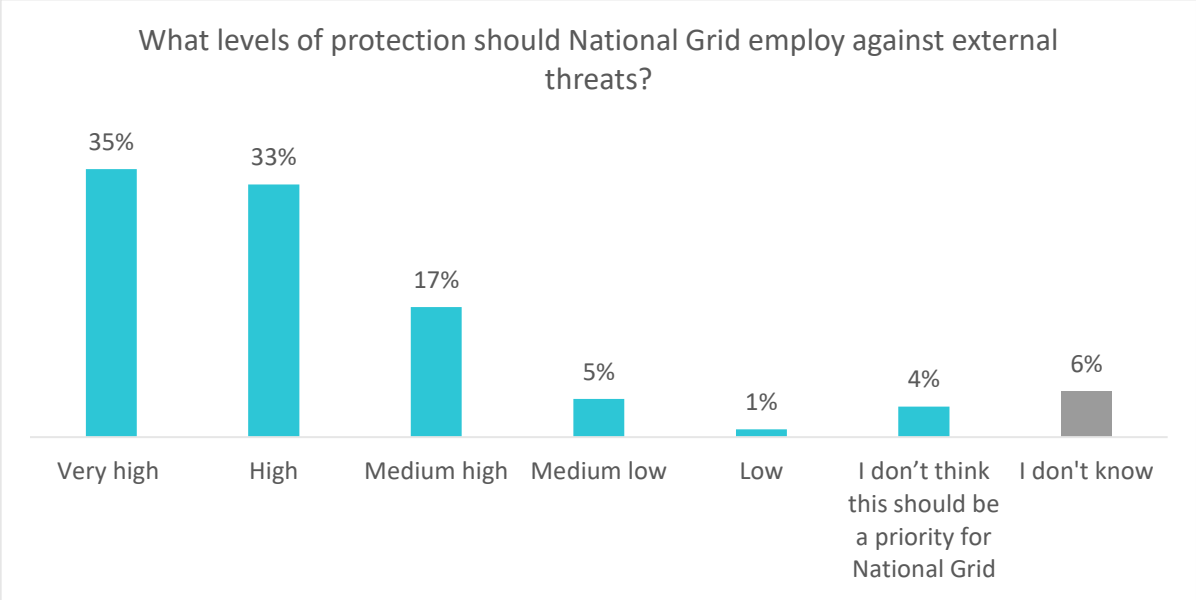
There was regional variation in responses.

- Respondents in Scotland were significantly more likely than average to place the highest level of priority on investment in reliability (71%) and health and safety (66%) and respondents in London and the North East on investment in transport (33% and 36%).
- Respondents in the South West were significantly more likely than average to feel that investment in reliability and the environment should be a very low priority (12% and 15% respectively).

Network protection

In addition to day-to-day upkeep, National Grid must also consider how the gas network should be protected against external threats, such as cyber-attacks, physical attacks on equipment, and natural dangers such as extreme flooding. Respondents were asked to consider what level of protection would be appropriate to combat such threats. No direct impact on bill was shown for this question but respondents were informed that the higher the level of protection the higher the anticipated cost. To aid comparison, examples were given of an industry with each level of protection from the defence industry for very high levels to the agricultural industry for low levels.

A**lmost 7 in 10 respondents favoured high or very high levels of protection** for the gas network.



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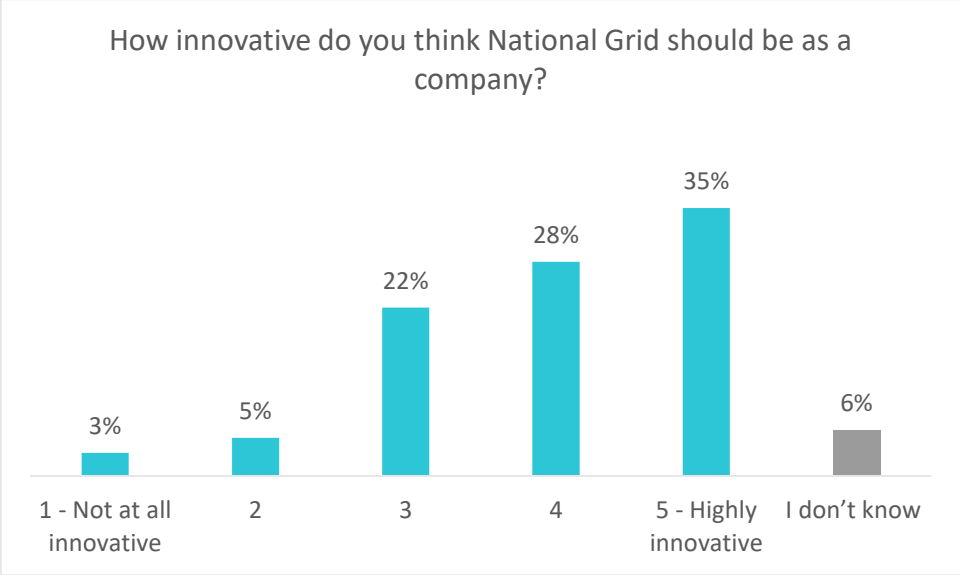
- Those aged 65 or over and respondents from Scotland were significantly more likely than average to favour a very high level of protection (43% and 64% respectively) and 18-24s significantly less likely to do so (26%).
- Respondents from London were more relaxed about external threats with only 57% favouring high to very high levels of protection and 28% feeling that medium-high levels were sufficient.

Innovation

Currently National Grid invest in innovation projects where they anticipate operational efficiencies, service improvements, cutting costs to consumers or environmental benefits. However, the very nature of innovation means that all such investments carry an element of financial risk. Respondents were therefore presented with the advantages and potential risks of varying levels of innovation and asked how innovative they felt that National Grid should be as a company. No direct impacts on consumer bills were specified.

Desired levels of innovation

There was **strong support for innovation with 63% in favour** and 35% supporting the highest level of innovation.



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There was significant difference in responses between age groups.

– Support for the highest level of innovation rose to 43% amongst 45-54 year olds and those aged 65 or over but dropped to 20% amongst 18-24s. The latter were significantly more likely to favour the mid-point on the scale (32%).

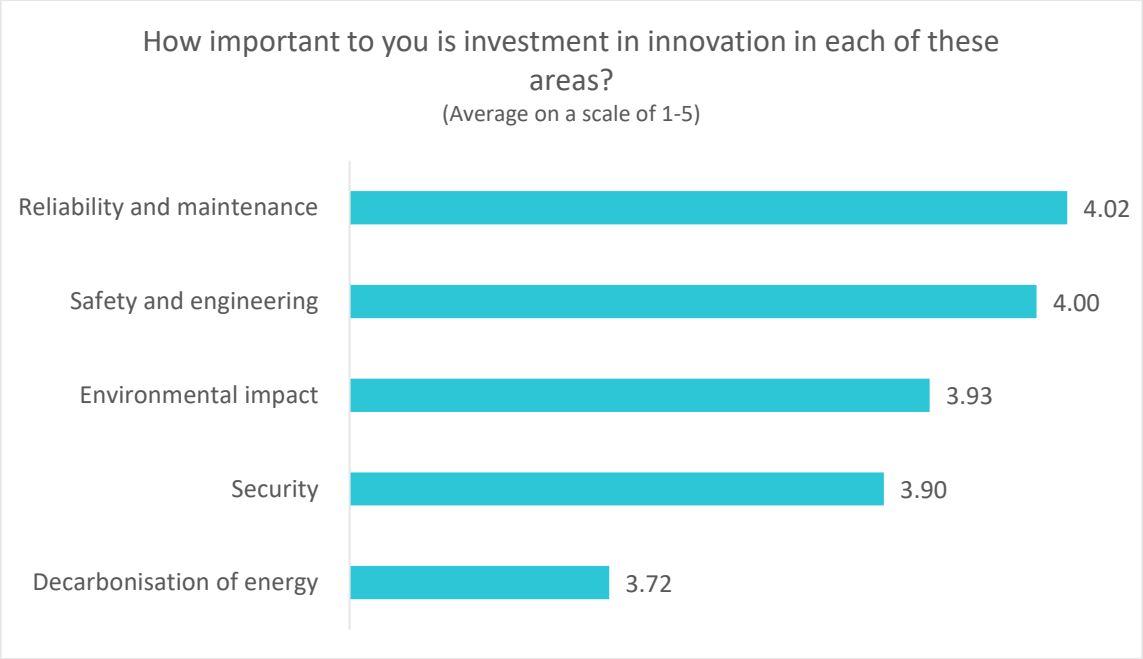
Significant regional differences were also observed.

– Support for the highest level of innovation ranging from 25% in London and the East Midlands (26%) to 64% in the North East of England.

Despite such sub-group differences, there was universally very little desire to see a National Grid that was 'not at all innovative'.

Priorities for investment in innovation

Through stakeholder consultation National Grid identified potential areas of innovation in which to invest. Respondents were asked to rate the importance that they would place on each on a scale of 1 to 5 where 1 is not at all important and 5 is extremely important.



Base size: 936. 6% (64 respondents) selected I don't know.

	Reliability and maintenance	Safety and engineering	Environmental impact	Security	Decarbonisation of energy
5- extremely important	48%	44%	45%	41%	34%
4	25%	28%	24%	27%	29%
3	14%	18%	18%	19%	22%
2	7%	6%	8%	7%	9%
1 - not at all important	6%	5%	6%	6%	7%

Reinforcing the earlier views of stakeholders, respondents placed importance on all areas. However, they were significantly less likely to say that decarbonisation of energy was extremely important compared to other areas. This trend was led by respondents in London, only 21% of whom felt that it was extremely important to invest in decarbonisation compared to 50% in Scotland. Indeed, respondents in Scotland were significantly more likely than average to feel that investment was extremely important in all areas except for environmental impact where they were only slightly above average.

Age trends were again seen on this question.

- Those aged 65 or over were significantly more likely than average to place the highest level of importance on investment in safety and engineering (52%) and decarbonisation (44%).
- 18-24 year olds were significantly less likely than average to place the highest level of importance on safety and engineering (32%), reliability and maintenance (32%) and security (20%). The environmental impact of work was the area of greatest concern to this age group (44%)

Moving to a greener economy

This section addressed the challenges that society faces in moving towards the decarbonisation of energy. Specifically, reducing the global amount of carbon dioxide in the atmosphere by adopting low-carbon sources of energy. The UK Government has set the target of carbon neutrality by 2050.

To achieve this target will require change at both the infrastructural and individual level. Respondents were therefore asked both to consider how National Grid should approach the decarbonisation of energy and about their own decision-making processes when choosing a new heating system. Their choices in this section did not impact upon their virtual bill but the implications of each option was explained as follows:

– Invest now to meet potential demand

Innovate and invest now to avoid any disruption and speed up progress, even if this means consumers pay for something that may later no longer be needed.

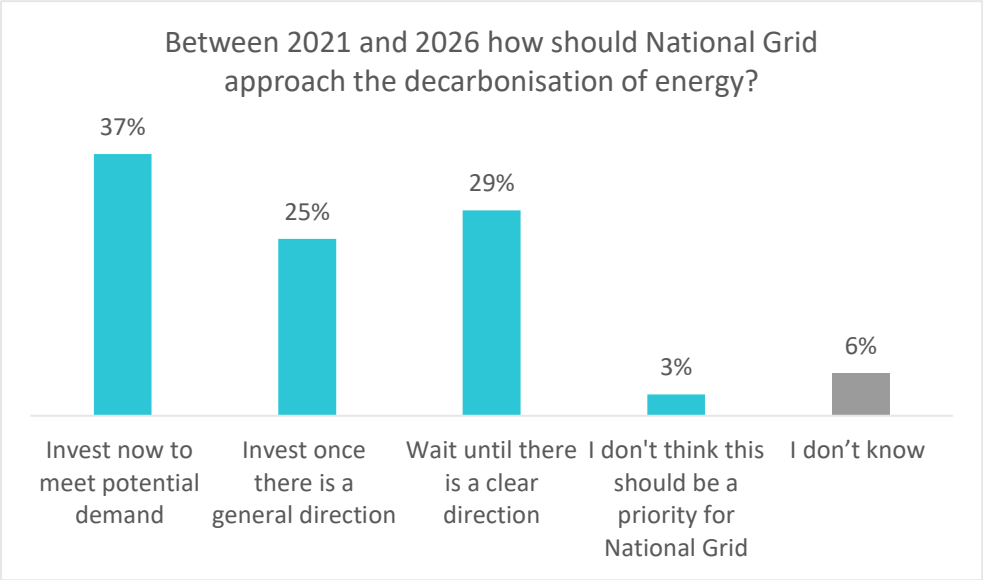
– Invest once there is a general direction

Invest when there is a general direction for decarbonisation (e.g. hydrogen/biogas etc.), even if this means consumers pay for something that may later no longer be needed.

– Wait until there is a clear direction

Wait until a clear signal or policy decision is made before investing, so that there's no chance of consumers paying for something that's not needed, even if this means slower progress towards decarbonisation.

Preferred approach to decarbonisation



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Respondents were divided on the best approach to decarbonisation of energy. 37% favoured immediate investment on the understanding that this could avoid disruption and speed up the process but may run the risk of investment in solutions that later developments prove obsolete. 25% preferred to wait until there was a general direction for decarbonisation, such as a likely move to hydrogen or biogas, a medium risk strategy. 29% preferred to hold off investment until there was a clear decision made on future direction, prioritising a low level of financial risk over faster progress towards decarbonisation. In this context investment was defined as the undertaking of rigorous testing and analysis to ensure the right type of equipment is in the right place, and all is safe to carry different types of low-carbon gas (such as biomethane and hydrogen).

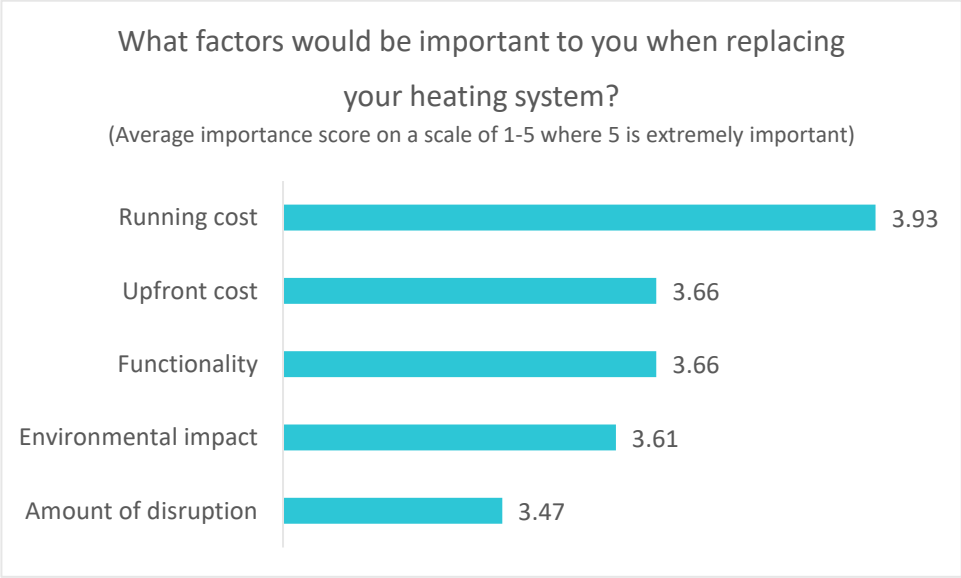
A number of significant sub-group differences were observed.

- Males were significantly more likely than females to favour immediate investment (41% vs 34%).
- 54% of respondents in Scotland also opted for prompt action, significantly higher than average.
- C2 respondents were significantly more likely than average to favour waiting for a clear policy direction (38%).

Choosing a new heating system

Moving on to the individual level, respondents were asked to imagine they needed a new heating system. Who and what would influence their choices and what systems may they consider? A brief video explanation was offered of each unfamiliar heating system to aid understanding.

Cost and functionality were the primary concerns for the average respondent.



Base size: 917. 8% (83 respondents) selected I don't know or other.

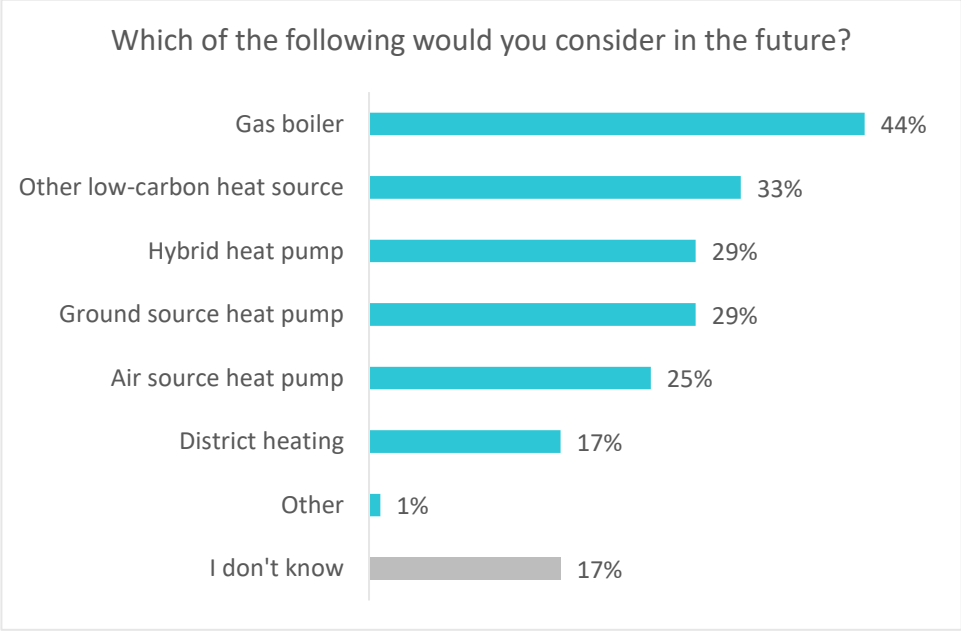
	Running cost	Upfront cost	Functionality	Environmental impact	Amount of disruption
5- extremely important	49%	36%	31%	31%	24%
4	21%	23%	29%	26%	26%
3	14%	22%	22%	24%	31%
2	8%	12%	9%	11%	12%
1 - not at all important	9%	8%	8%	8%	8%

– 18-24 years olds were the least price conscious, significantly less likely than other age groups to rate upfront and running costs as extremely important.

- Concerns over running cost were significantly higher in Scotland (64%) and the East of England (61%) than in the country as whole.
- Respondents in Scotland were also significantly more concerned over upfront costs (52%), function (52%), disruption (49%) and environmental impact (47%).
- Respondents in London and the East Midlands were typically the most relaxed in their decision making, less likely than other regions to place high importance on all factors.

Respondents leaned towards conservatism when considering future heating systems. **44% would consider a gas boiler**. 29% would consider a hybrid or ground source heat pump, the next most widely considered of the specified options.

Nationally fewer than 1 in 5 would currently consider district heating, an option that requires community wide rather than individual changes. However, respondents in the South West and North East of England were significantly more likely than the average to do so.



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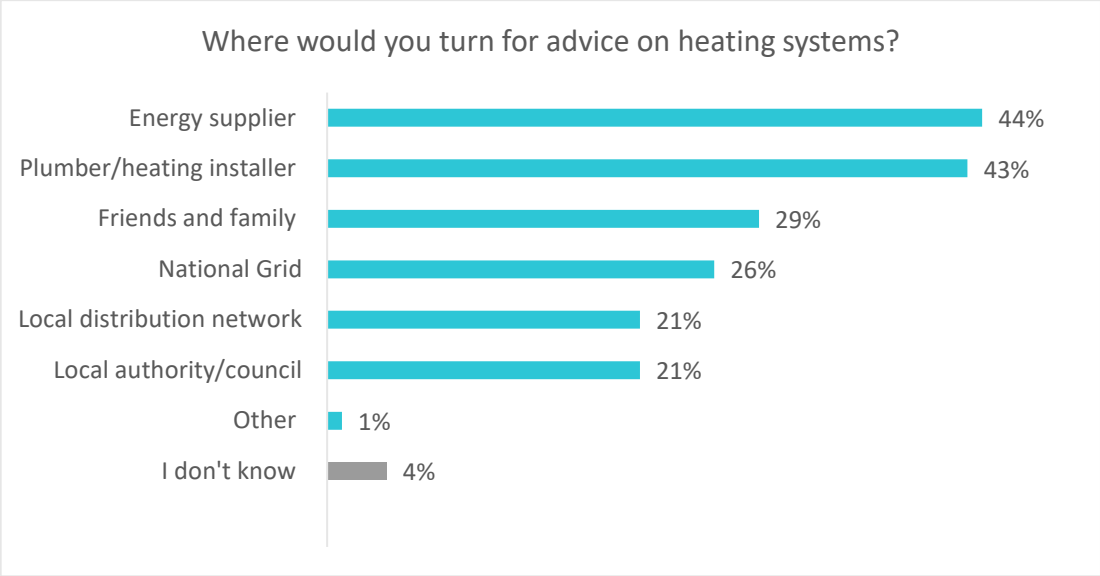
Respondents found this question harder to answer than most with 17% opting for 'I don't know', this rose to 21% of women. Moreover, findings suggest that environmental impact is a consideration with a third saying that they would consider a different, unspecified low-carbon heat source, more than are opting for any one specified low carbon option. The comparatively high response to these indeterminate options may reflect the challenge of moving from a familiar option, the gas boiler, to as yet unfamiliar alternatives.

- 18-24 year olds were significantly less likely than average to opt for a gas boiler (32%) and 39% said they would opt for an unspecified low carbon heat source suggesting that as a new generation enters the market they may be open to alternatives.
- Responses from different socio-economic groups varied with AB respondents significantly more likely than other groups to consider all types of heat pump and other low carbon heat sources. With little difference observed between groups on previous questions of environmental concern, this willingness to consider alternatives may reflect a higher level of disposable income.

Half of respondents would search online for advice on heating systems with energy suppliers and plumbing or heating professionals close behind as popular information sources. Just over a quarter (26%) would consult National Grid, dropping to 19% of those aged 65 or over.



Base size: 1,000.

- Respondents in Scotland showed significant variation from the average with only 15% carrying out online research, 14% consulting friends and family and 26% a plumbing or heating professional. They were significantly more likely than average to turn to their local authority or council for advice (38%).

The environment

Respondents were asked to consider National Grid's broader impact on the environment from greenhouse gases to land usage.

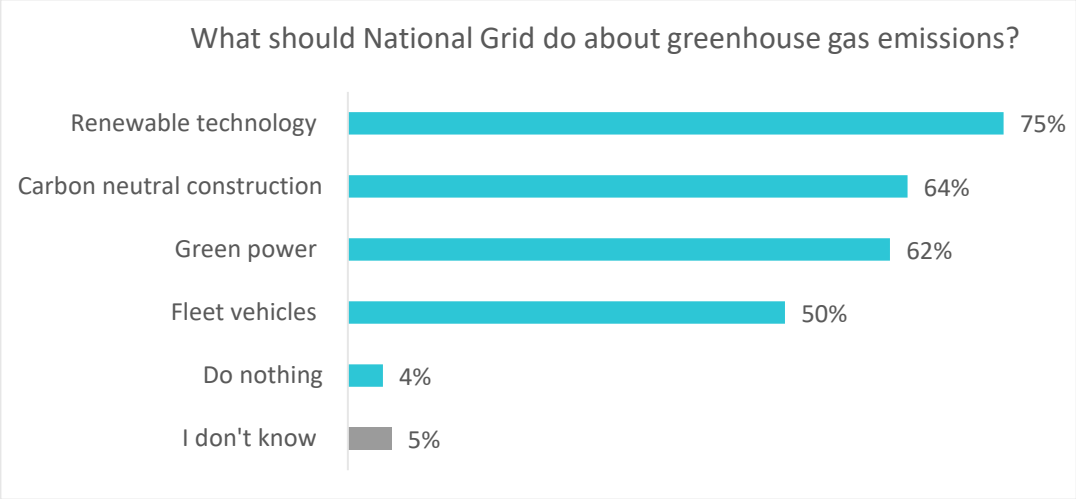
Tackling greenhouse gas emissions

To encourage informed decision making, respondents were offered a brief explanation of greenhouse gases and how National Grid's work contributes to their release. They were then asked what National Grid should do to reduce its emissions. Where there was an associated cost, this was highlighted on their virtual bill.

Ideas presented were:

- Renewable technology- for example, install solar panels and heat pumps on National Grid sites (bill impact +1p).
- Minimise emissions and fund projects that help remove carbon dioxide from the atmosphere (planting trees for example), so that the overall impact of construction work is neutral (bill impact +1p).
- Replacing fleet vehicles with more eco-friendly alternatives (bill impact +1p)
- Only buy energy from renewable sources (bill impact +1p).

There was strong support for action with fewer than 1 in 10 believing that National Grid should do nothing or unsure of what should be done. **Three quarters supported the installation of renewable technology,** such as solar panels and heat pumps, on National Grid sites. This was closely followed by carbon neutral construction (64%) and the use of green energy to power operations.



Base size: 1,000.

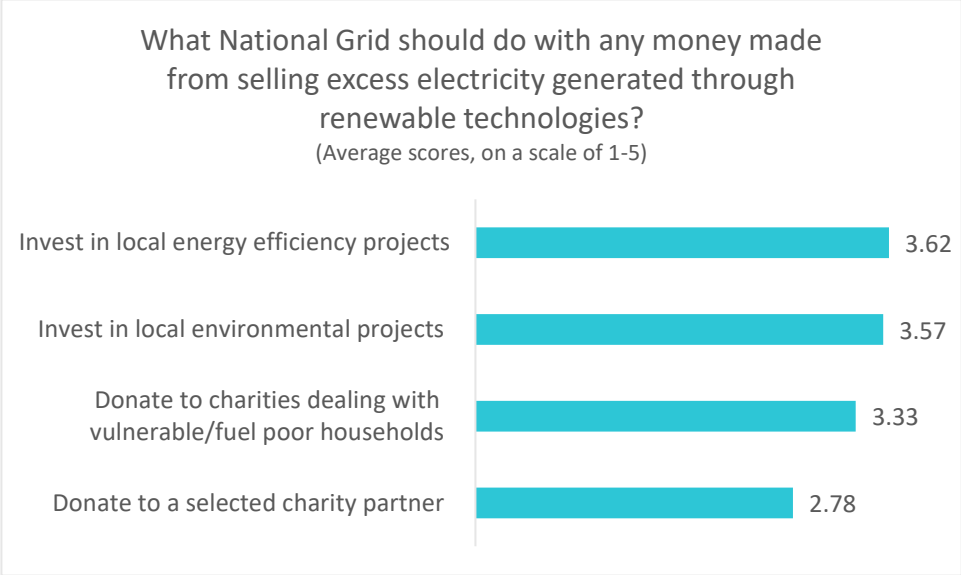
A number of sub-group differences were observed.

- Women were significantly more likely than men to support carbon neutral construction (66% vs 60%) and green power (64% vs 58%).
- AB SEG respondents were significantly more likely than other socio-economic groups to support eco-friendly fleet vehicles (58%) and a little more likely to support renewable technologies (80%) and carbon neutral construction (69%).
- There was strong support for green power in Scotland (80%) and for carbon neutral construction in Yorkshire and Humber (77%), while respondents from London were significantly less likely than average to select each one of the interventions.

Excess energy from on-site renewables

If National Grid were to install renewable technologies on sites, there's a possibility that more electricity may be created than needed and any excess could be sold. The funds raised would not be of sufficient magnitude to be deducted from consumer bills and consequently National Grid would look to invest it for the greater good but what would this look like? Respondents were asked to rate four options on a scale of 1 to 5 with 5 signifying a very high priority. Responses to this question had no impact upon the virtual bill.

A strong preference was shown for projects with a clearly specified focus. **Local projects focussed on energy efficiency or the environment were the most popular options**, followed by donations to the charities dealing with vulnerable or fuel poor households. Donating to one selected, but unspecified, charity partner was the least popular option.



Base size: 893. 11% (107 respondents) selected I don't know or other.

	Energy efficiency projects	Environmental projects	Charities for fuel poor/vulnerable	Selected charity partner
5- a very high priority	29%	29%	25%	13%
4	29%	28%	21%	17%
3	25%	24%	27%	27%
2	11%	11%	13%	23%
1 – a very low priority	7%	8%	13%	21%

Regional variations were observed.

- Respondents in Scotland were significantly more likely than the national average to feel that each option should be a very high priority.
- Support for donations to charities dealing with fuel poor or vulnerable households was also significantly higher in the North East of England (44%) but lower in the South East of England (only 15% felt it was extremely important) and in the West Midlands (17%)
- Respondents from the East of England were significantly less likely than the average to assign the highest level of priority to local energy efficiency projects (18%)

- 32% of respondents in the South East were very unsupportive of the idea of donating to a selected charity partner and only 5% would strongly support it in the same region. The ambiguity of this answer option may have contributed to the sizeable regional variations here as respondents could not know if the charity or cause would be one that aligned with their personal views or not.

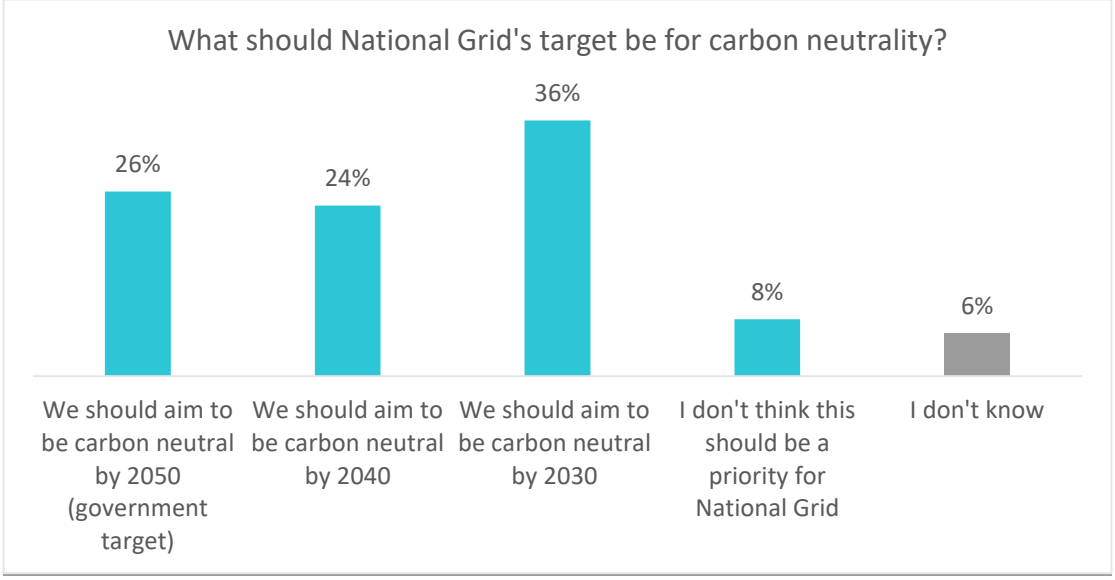
Demographic differences were also observed.

- C1 SEG respondents were significantly more likely to place the highest level of priority on investment in local environmental projects (36%) then donations to a selected charity partner (18%).
- Respondents aged 65 or over were split over the importance of supporting vulnerable and fuel poor households with 21% feeling that this should be a very low priority and 22% a very high priority. The 55-64 year olds were significantly more likely than average to place a very high level of priority on investment in local energy efficiency projects.
- Women were significantly more likely to place the highest level of priority on support for vulnerable or fuel poor households (30% vs 21% of men) but significantly less likely to strongly support energy efficiency projects (26% vs 32% of men).

Becoming carbon neutral

Between 1990 and 2018 National Grid reduced greenhouse gas emissions by 65%. However, with a government target of carbon neutrality by 2050 National Grid must also revise its targets. Respondents were asked what target they would like to see. No costs were specified on this question, but respondents were alerted to the fact that the sooner National Grid aims to be carbon neutral the more it is likely to cost.

There was **strong support for action on the carbon footprint with 6 in 10 favouring a more ambitious target than that set by the Government**. 36% would like to see carbon neutrality by 2030 and 24% by 2040. Only 8% did not feel like this should be a priority, although this rose to 13% amongst over 55s.



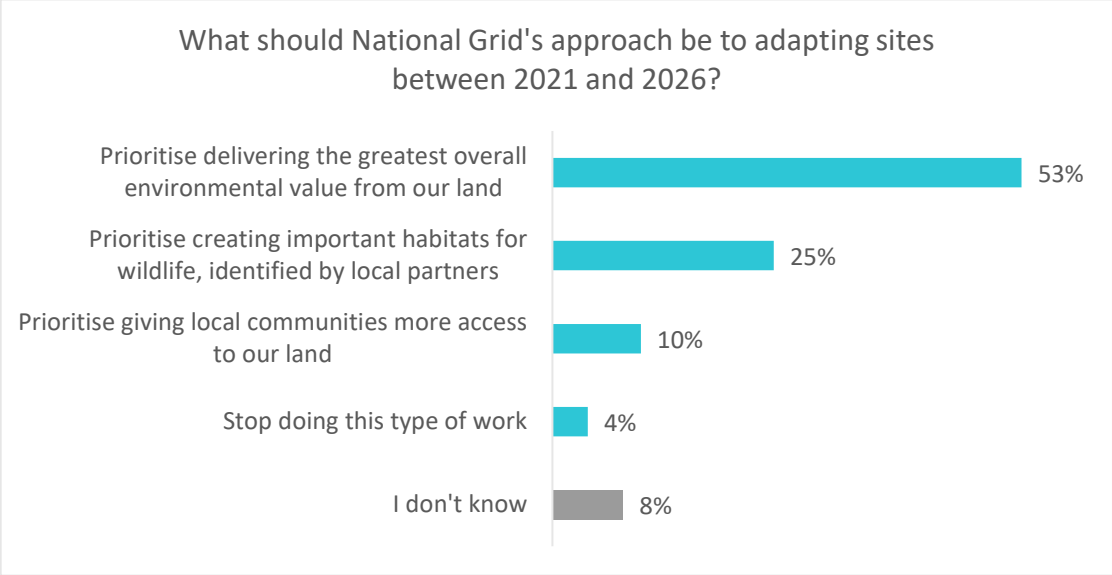
Base size: 1,000.

Respondents from the North East of England were significantly more likely than the average to support a 2030 target (56%).

Priorities for land usage

National Grid owns the land surrounding many of its sites in England, Scotland and Wales. This may be developed into wildlife habitats or local community spaces. Respondents were asked what type of improvement they would prioritise with examples given for each project type. No impact was shown on the virtual bill as this work would be cost neutral.

Over half would like National Grid to decide on a case-by-case basis and focus obtaining the greatest overall environmental value from each site. A quarter would favour habitat creation and 1 in 10 community access. Only 4% felt that National Grid should not undertake such projects and opposition declined with age from 9% amongst 18-24 year olds to 2% in over 55s.



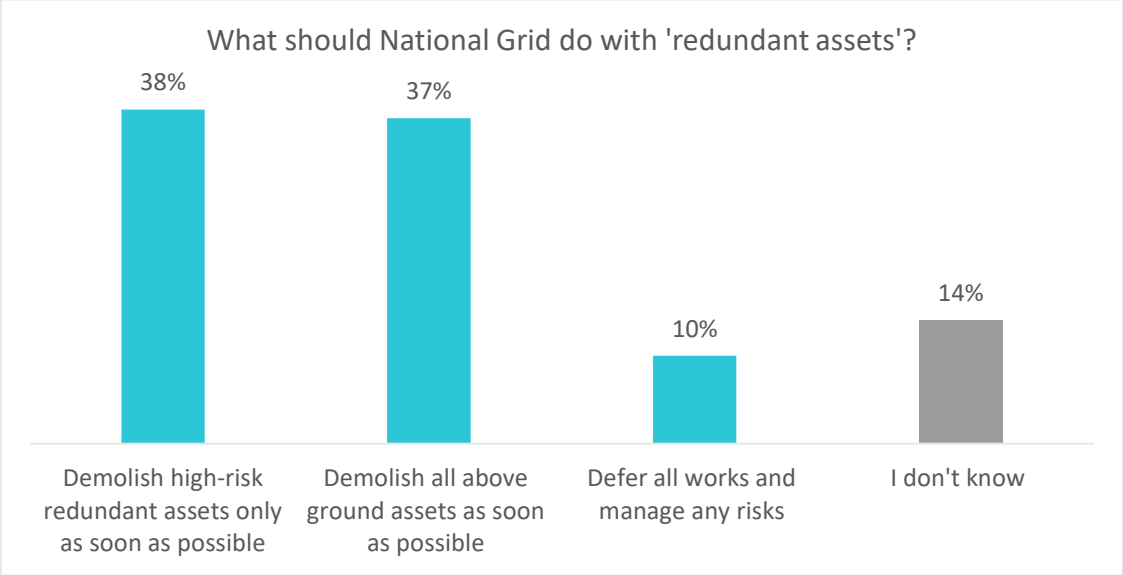
Base size: 1,000.

- The 65 or overs were the age group most likely to prioritise the overall environmental value (64%).
- There was a gender split with women significantly more likely than men to prioritise wildlife habitats (28% vs 22%) and men to prioritise community access (13% vs 7% of women).

Managing redundant assets

In addition to its land holdings and operation assets, National Grid must care for small sections of network that are either no longer required or need attention for safety reasons. These are known as redundant assets. These assets don't pose an immediate risk but must be addressed in the long term. This may mean that they are demolished, decommissioned or maintained. Respondents were presented with an explanation of each option, its implications and associated costs. Demolishing high risk assets only would have no impact on the bill, demolishing all above ground assets or deferring such works and managing risk would add 1p to the virtual bill.

Respondents were strongly in favour of demolition but almost equally split between whether demolition should be of all above ground assets or of high-risk assets only. Only 10% were in favour of deferring action. 14% were unsure of the best course of action.



Base size: 1,000.

- Respondents aged 65 or over were significantly less likely than the average to wish to defer all works (5%).
- Regionally, respondents in London were significantly more likely than average to wish to defer all works (17%) and respondents in the South East of England to wish to demolish all above ground assets (48%).

Supporting communities

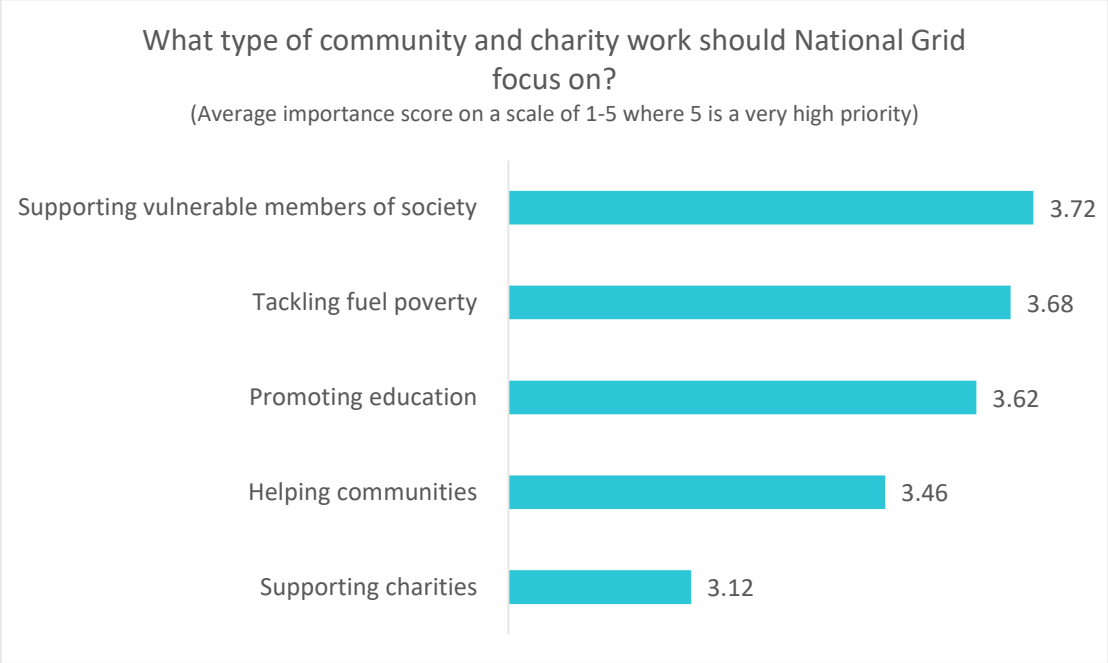
National Grid currently supports a number of community initiatives, including:

- City Year UK (Supporting education and mentoring within schools for disadvantaged communities.).
- Skills for Good (Providing business and tech skills to not-for-profit organisations.)
- Step Up to Serve (Promoting youth social action.)
- This is Engineering (Promoting science, technology, engineering and mathematics (STEM) subjects. Encouraging children to take up engineering as a career.)
- National Grid's Community Grant Programme (Over £1 million of grants awarded since 2015, funding charity and community-group projects that meet local community needs by providing a range of social, economic and environmental benefits.)

Some of these projects are paid for by National Grid and some by consumers. Respondents were asked to what extent they felt that National Grid should focus on each type of work and how it should be paid for. These questions had no impact on the virtual bill as the real impact of any choice would be at most a fraction of a pence per household.

Priorities in community and charity work

First respondents were asked to assign a level of priority from one to five to each of five project types where one signified a very low priority and five a very high priority. There was endorsement for National Grid's ongoing involvement in community and charity work with all project types receiving a positive score. **Support was strongest for work that supported vulnerable members of society,** closely followed by tackling fuel poverty. Promoting STEM education came third. Again, the generic goal of supporting charities lagged behind the more specific targets.



Base size: 914. 9% (86 respondents) selected I don't know or other.

	Supporting vulnerable people	Tackling fuel poverty	Promoting education	Helping communities	Supporting charities
5- a very high priority	36%	38%	32%	24%	21%
4	26%	23%	25%	26%	18%
3	20%	20%	25%	30%	29%
2	11%	10%	11%	13%	16%
1 – a very low priority	7%	10%	7%	8%	16%

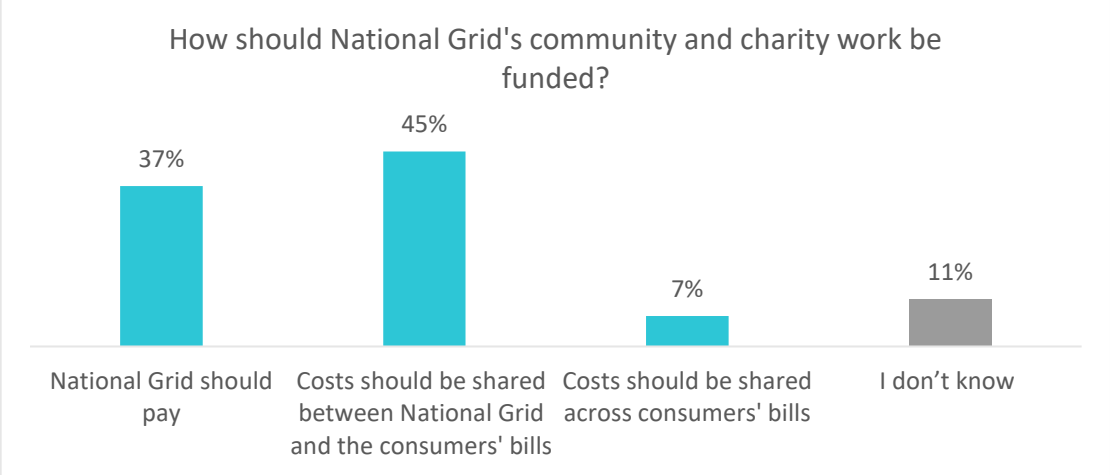
A number of demographic and regional differences were observed.

- Women were significantly more likely than men to place the highest level of priority on supporting vulnerable members of society, tackling fuel poverty, helping communities and supporting charities (39% vs 32%, 42% vs 33%, 27% vs 21% and 24% vs 18% respectively).
- 25-34 year olds were significantly more likely than the average to feel that promoting STEM education should be a very high priority (40%) and 45-54 year olds to feel that supporting vulnerable members of society and the fuel poor should be (45% and 48% respectively).

- C1 SEG professionals were the most charitably inclined socio-economic group significantly more likely than the average to place the highest level of priority on tackling fuel poverty (48%), supporting the vulnerable (46%), helping communities (34%) and supporting charities (29%).
- Respondents in Scotland were significantly more likely than the average to place the highest level of priority on all charity and community work, namely: promoting education (63%), supporting the vulnerable (61%), tackling fuel poverty (61%), helping communities (60%) and supporting charities (47%).
- Respondents in Wales were also were significantly more likely than the average to place the highest level of priority on tackling fuel poverty (54%) and respondents in the North East of England on supporting charities (37%).
- 28% of respondents in the South East felt that supporting charities should be a very low priority, significantly higher than the national average.

Funding community and charity work

37% of respondents felt that the costs of such work should be borne by National Grid alone and a further 45% that they should be shared between National Grid and consumers. There was little appetite for consumers bearing all costs (7%).



Base size: 1,000.

- 45-54 year olds were significantly more likely than the average to expect National Grid to cover all costs (48%).

Bill impact

On average, the choices respondents made on the gas survey would translate into an increase in their annual gas bill of 10p.

There were substantial average differences between different age groups and regions.

The youngest age groups were the most cautious in their spending with their choices adding on average 1p (18-24 year olds) and 4p (25-34 year olds) to the annual bill. Respondents aged 65 or over were the most willing to invest, adding an average of 18p to the annual bill.

Regionally, the average bill ranged from -10p in Scotland to +21p in the North East of England.

With limited options impacting on the bill in the gas survey, the decision on whether or not to invest to maintain or increase the reliability of the network was a key driver of these differences.

	Bill impact
All	10.46

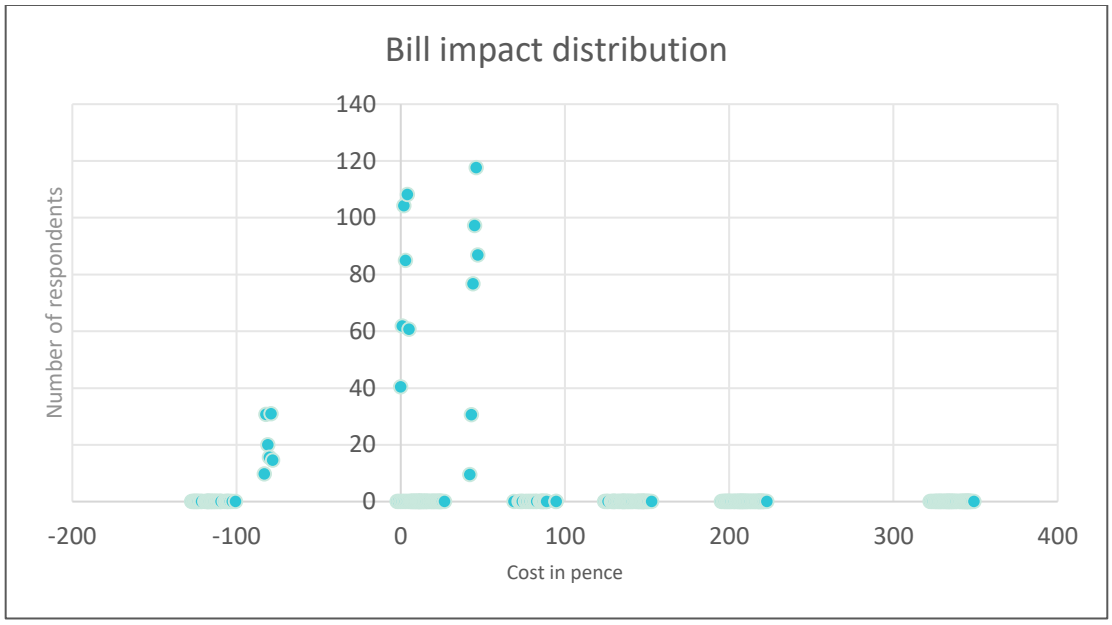
Gender	Bill impact
Male	11.53
Female	9.31

Age	Bill impact
18-24	1.19
25-34	3.83
35-44	10.11
45-54	15.48
55-64	9.27
65+	18.33

Region	Bill impact
East Midlands	8.85
East of England	14.20
London	11.13
North East	20.54
North West	10.57
Scotland	-9.86
South East	19.55
South West	3.59
Wales	15.37
West Midlands	11.72
Yorkshire & Humber	10.99

SEG	AB	C1	C2	DE
Bill impact	18.22	2.35	12.96	11.43

The range and distribution of bill impact based upon individual survey choices is shown below, showing **the majority in favour of a bill increase to fund service improvements**.

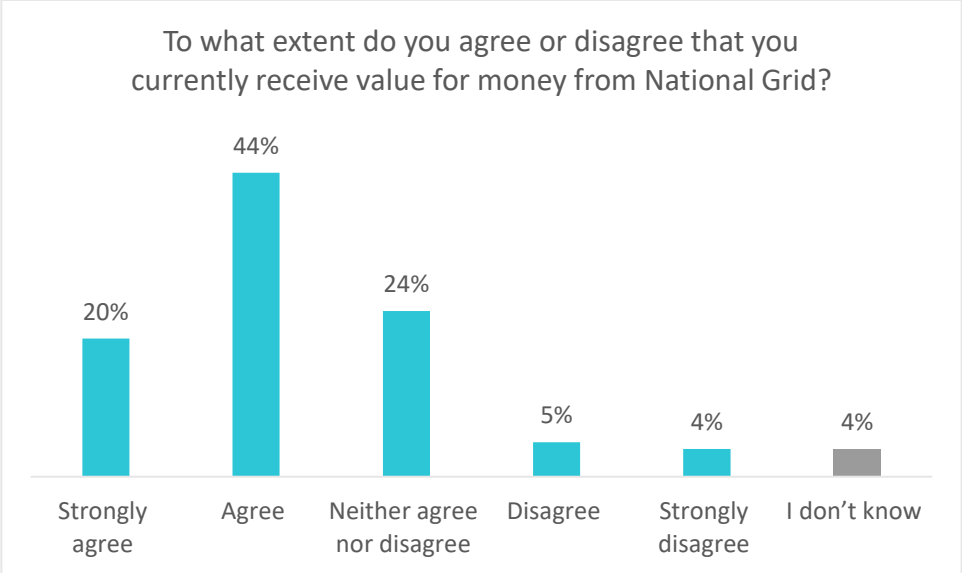


Value for money

Having completed all survey sections, respondents had a good overview of National Grid's work. They had created their own business plan based upon the options presented and understood what the impact of their choices on their annual bill would be. They were then asked firstly, to what extent they felt that they currently receive value for money from National Grid and to what extent they felt that they would under their tailor-made plan.

Two thirds of respondents agreed that they currently receive value for money from National Grid, with 20% strongly agreeing. Just under a quarter were unsure and 9% disagreed. When asked to consider their tailor-made plan, respondents showed a little uncertainty with strong agreement dropping slightly to 18% and 'don't know' increasing to 7%. However, overall agreement was at 65% (1% down from under the current plan) and disagreement dropped from 9% to 6%.

- Respondents aged 65 or over were the most satisfied consumers significantly more likely than the average to strongly agree that they currently receive value for money (27%).
- Respondents in the South West of England were significantly less likely than the nation as a whole to strongly agree that they currently receive value for money (10%) and were also significantly more likely to say that they didn't know (11%).



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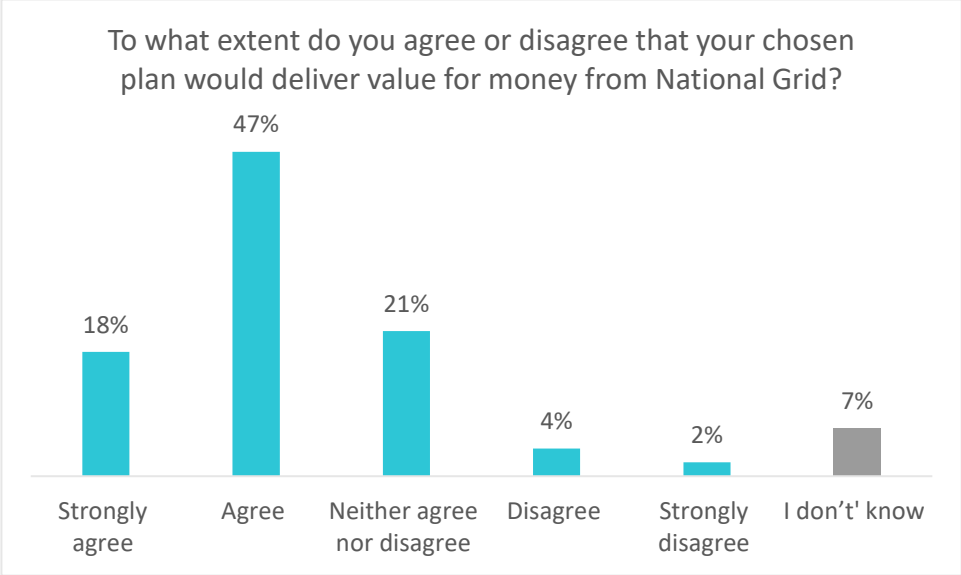


Base size: 1,000.

Electricity service priorities

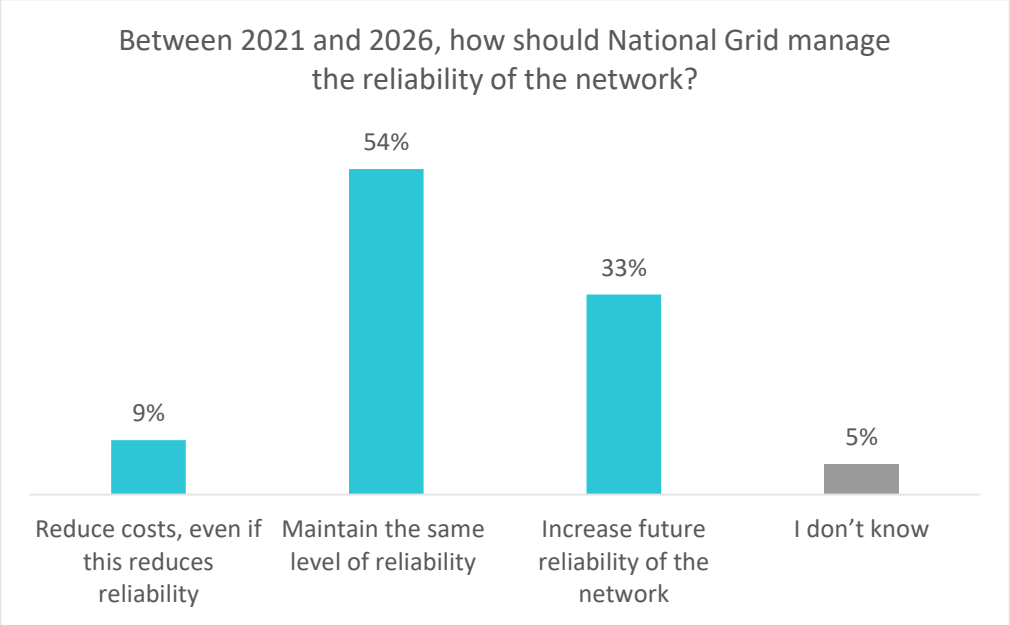
Reliability

Managing the reliability of the network

With demand for electricity expected to increase significantly in coming years, National Grid is faced with the challenge of ensuring the reliability of the network. Carrying out maintenance works promptly and frequently minimises the risk of network failure, however, there are cost implications of doing so and there are limits to how much work can be carried out at any one time without disruption to the network.

Respondents were therefore asked to consider how National Grid should balance these competing priorities. This question had an associated annual cost of £1.26 should respondents opt to increase future reliability and an annual saving of £1.26 should they wish to reduce costs even if doing so would reduce reliability. Respondents were reassured that whatever option they chose National Grid would comply with all safety and environmental legislation.

Just over half of respondents (54%) opted to maintain the current level of reliability and a third to pay extra to increase future reliability. Fewer than 1 in 10 prioritised cost savings over reliability.



Base size: 1,047.

There were generational differences observed on this question.

– 18-34s were significantly more likely to favour cost cutting than over 45s (15% vs 6%).

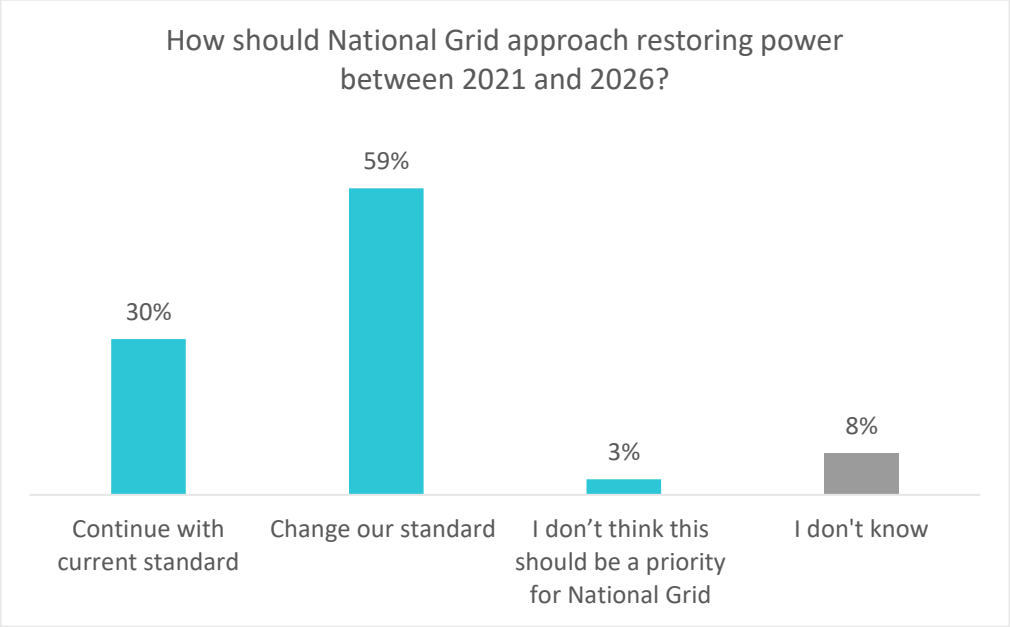
– 41% of those aged 65 or over would opt to pay for increased reliability, significantly higher than amongst the overall sample.

Regionally, the South West was the region most likely to favour a reduction in cost, significantly more likely to do so than average (15%).

Restoring power

In the event of a blackout, it currently takes National Grid up to 7 days to restore power to 100% of people. Respondents were asked to choose whether National Grid should maintain this standard or set a new standard, namely power to be restored to all within 5 days. Maintaining the current standard would result in a cost saving of 2p per householder per year, compared to the 5 day standard proposed in National Grid's draft plan.

Almost 6 in 10 respondents opted to pay extra for a shorter reconnection period while 3 in 10 preferred to maintain the current standard.



Base size: 1,047.

– Respondents in London (46%) and Scotland (51%) were significantly more likely than the national average to opt for the current standard and respondents in the South East of England to favour a change in standard.

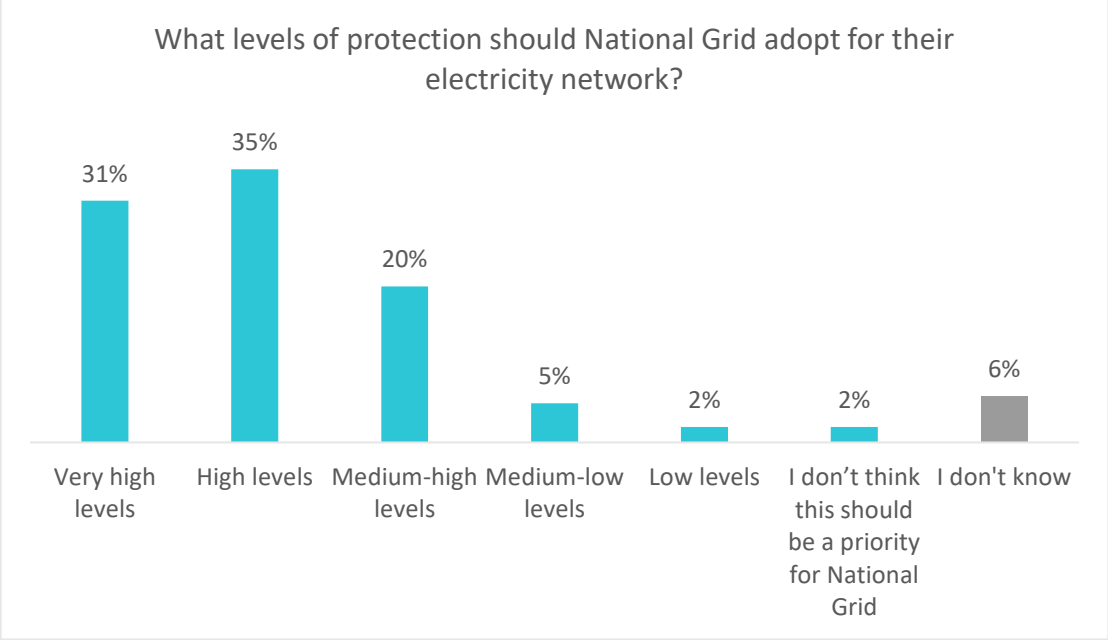
There were also demographic differences.

- Men were significantly more likely than women to opt for the current standard (35% vs 26%).
- Only 18% of the youngest cohort, aged 18-24, favoured the current standard significantly below the average.

Network protection

The electricity supply can face a diverse range of external threats, from natural disasters and climate change to physical and cyber-attacks. As on the gas survey, respondents were asked what levels of protection they felt that National Grid should adopt for the electricity network. No direct impact on bill was shown for this question but respondents were informed that the higher the level of protection the higher the anticipated cost. To aid comparison, examples were given of an industry with each level of protection from the defence industry for very high levels to the agricultural industry for low levels.

Two thirds of respondents favoured high or very high levels of protection. The percentage favouring very high levels was slightly below that seen on the gas survey (31% vs 35%).



Base size: 1,047.

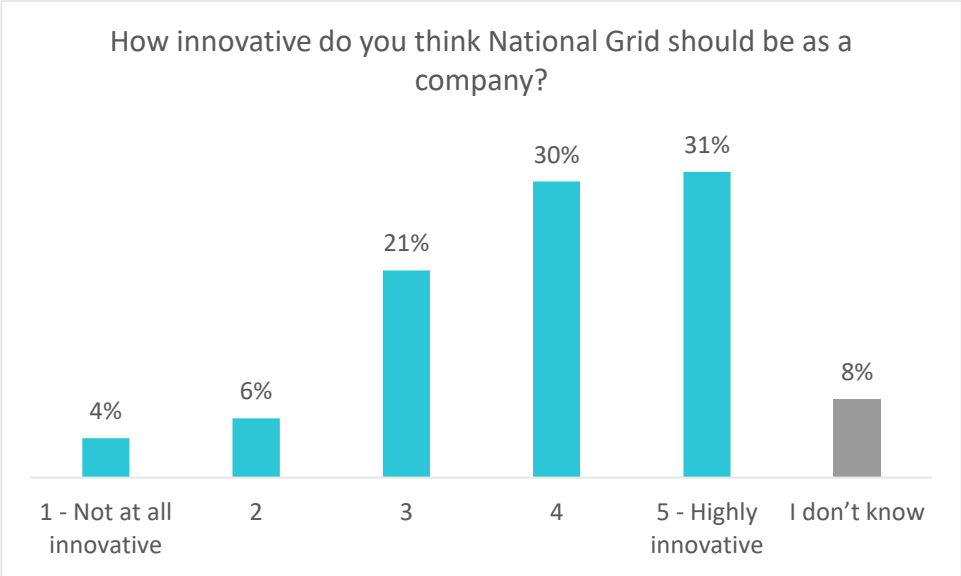
- 62% of respondents in Scotland wanted to see very high levels of protection, significantly higher than in the nation as a whole. This finding was mirrored in the gas survey.

Innovation

As with gas, National Grid currently invest in innovation projects on their electricity network where they anticipate gaining operational efficiencies, service improvements, cutting costs to consumers or environmental benefits. However, all innovation carries with it a degree of financial risk. Respondents were therefore presented with the implications of varying levels of innovation and asked how innovative they felt that National Grid should be as a company. No direct impacts on consumer bills were specified.

Desired levels of innovation

6 in 10 respondents felt that National Grid should be innovative, 31% highly so. By contrast only 4% felt that it should not be at all innovative.



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– While there was little statistically significant difference in regional responses, the West Midlands stood out with only 19% of respondents in the region supporting the highest level of innovation, significantly below the national average.

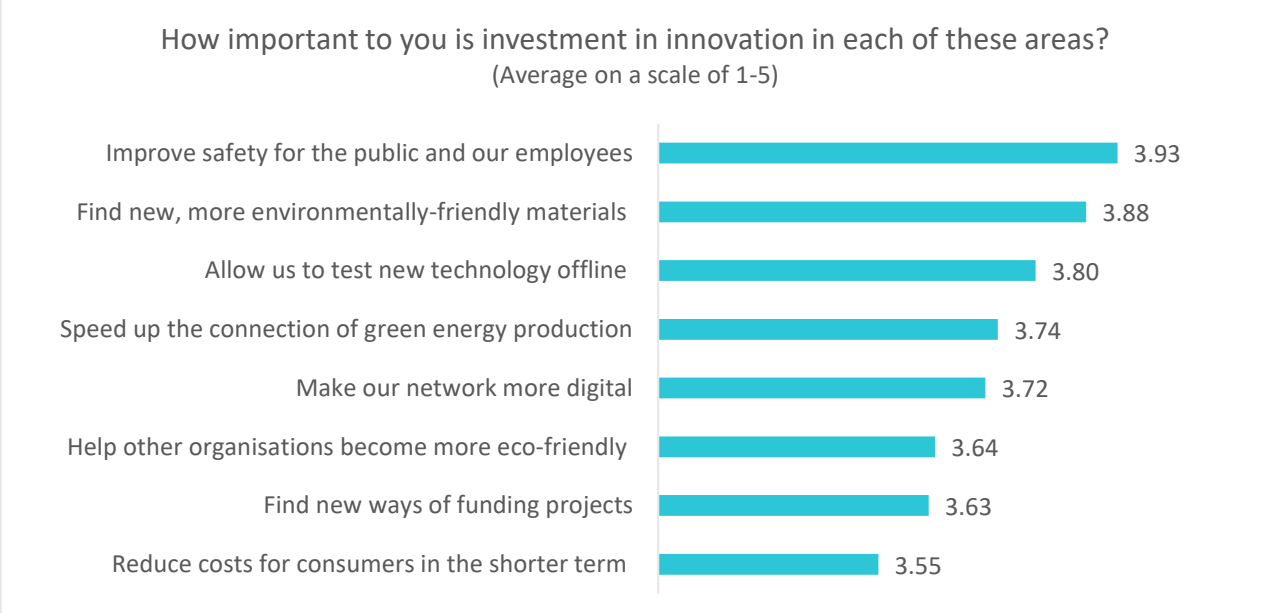
Priorities for investment in innovation

Prior stakeholder discussions identified 8 potential areas that could benefit through investment in innovation in 2021-2026. These are outlined below. Respondents were asked to feedback on these,

rating each on a scale of one to five, where one was not at all important and five was extremely important. As this question focused on establishing priorities for future investment, no bill impact was shown.

- Reduce costs for consumers in the shorter term (2021-2026)
- Improve the performance of our network and minimise costs for everyone by making our network more digital
- Allow us to test new technology offline without any risk to network reliability and safety, or to the environment
- Help other organisations become more environmentally friendly to support the country's move to a low-carbon economy
- Improve the service we offer to our direct consumers, to speed up the connection of green energy production
- Reduce our own carbon footprint by finding new, more environmentally friendly materials to use
- Improve safety for the public and our employees
- Reduce the long-term costs of innovation by finding new ways of funding projects

Respondents prioritised those investments that would improve National Grid's service, making it safer, more efficient or greener. Those primarily focussed on cost cutting were given the lowest priority.



Base size: 954. 9% (93 respondents) selected I don't know.

The detailed breakdown of responses is shown below.

	Improve safety	New, more environmentally friendly materials	Test new technology offline	Speed up the connection of green energy production
5- extremely important	43%	39%	34%	33%
4	26%	31%	30%	30%
3	18%	15%	23%	23%
2	7%	7%	8%	8%
1 - not at all important	6%	8%	**5%**	6%

	Make the network more digital	Help other companies become more eco-friendly	Find new ways of funding projects	Reduce costs for consumers in the shorter term
5- extremely important	31%	31%	27%	30%
4	28%	29%	30%	24%
3	26%	21%	28%	26%
2	9%	10%	10%	11%
1 - not at all important	5%	9%	6%	9%

Regional differences were observed.

- Respondents in Scotland were significantly more likely than average to say that it was extremely important to make investments that would improve safety (69%), reduce National Grid's carbon footprint (55%), find new ways of funding projects (54%), make the network more digital (49%), help other organisations become more environmentally friendly (49%), speed up the connection of green energy production (49%), and reduce costs for consumers (45%).
- Respondents in Wales showed concern for environmental matters, significantly more likely than the national average to feel that it was extremely important to invest in new materials

to help reduce National Grid's carbon footprint (62%) and in helping other organisations become more environmentally friendly (55%)

The question of reducing costs for consumers while a low priority overall did split opinion demographically.

- Women were significantly more likely than men to prioritise reduced costs for consumers (35% vs 25%) and C1 and C2 SEG respondents more likely to do so than AB or DE SEG respondents (34% and 37% vs 23% and 25% respectively).
- The oldest cohort, 65 or over, were looking to technological solutions, significantly more likely than others to feel that it was extremely important to invest in making the network more digital (41%) and to testing new technology offline (44%) as well as to improve safety (52%).

Moving to a greener economy

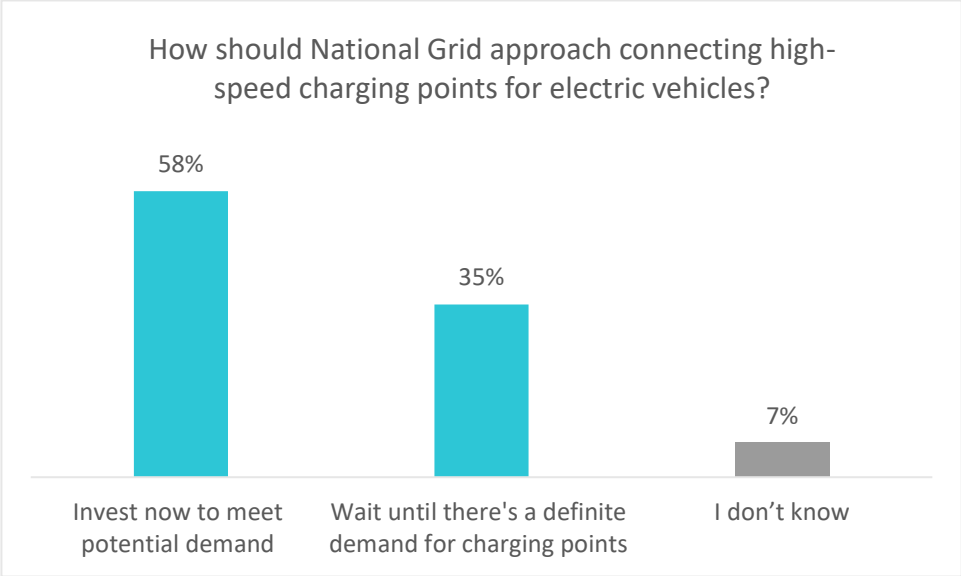
The need to move to a greener economy and the impact this may have on the electricity network has increasingly been a matter of public conversation in recent years. The importance of the issue reinforced by Government targets including carbon neutrality by 2050 and a ban on the sale of petrol and diesel cars by 2040.

As transmission owners, National Grid will be at the forefront of such changes responsible for ensuring that growing demand for electricity can be met in an ever more environmentally friendly way. Investing in the relevant infrastructure now could prevent delays but may run the risk of investing in solutions that soon prove obsolete. Waiting until demand is confirmed eliminates this risk but may delay the move to a greener economy.

Investment in high speed charging points

Respondents were asked to feedback on these alternative approaches with particular reference to two challenges, the anticipated increase in electric vehicles and the connection of renewable energy sources to the network. No impact was shown on the virtual bill.

Almost 6 in 10 favoured immediate investment in high speed charging points for electric vehicles.



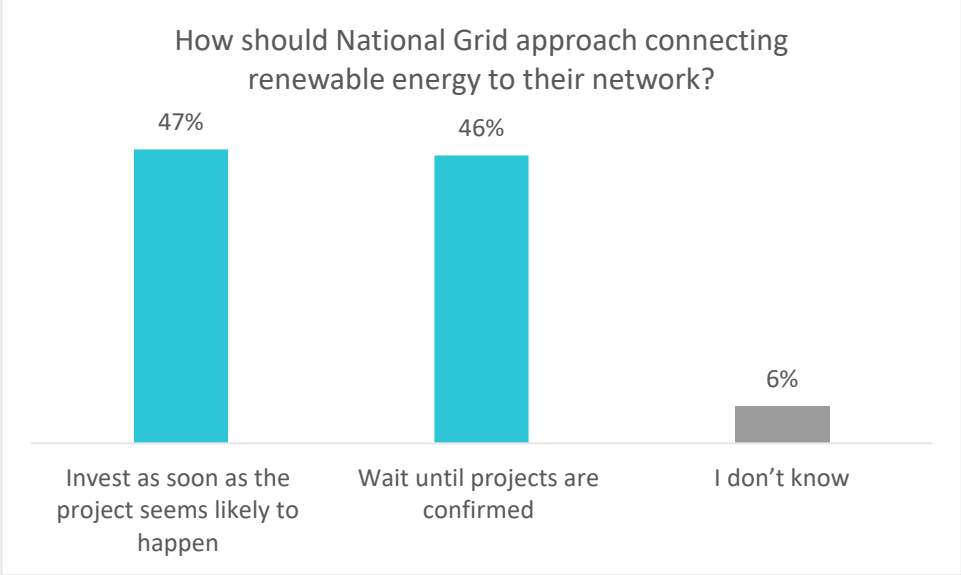
Base size: 1,047.

A number of differences were observed between sub-groups.

- Over 45s were significantly more likely than under 45s to support immediate investment (62% vs 52%).
- Men were also significantly more likely to do so than women (61% vs 54%) with women more likely to say that they didn't know (5% v 9%)
- Demand for immediate investment was also significantly higher than average in Wales (76%).
- Respondents in the West Midlands and the North East of England were significantly less likely than the average to support immediate investment, with 21% of North Eastern respondents opting for 'don't know'.

Connecting renewable energy

Overall, the **question of when National Grid should invest in infrastructure to connect renewable energy to the network proved more divisive, with almost an even split between those favouring immediate action and those preferring to wait.**



Base size: 1,047.

- Again, respondents in Wales led the call for immediate investment (78%), followed by London (58%), both significantly higher than average.
- Respondents in Scotland were significantly more likely to want to wait for project confirmation.

The environment

In addition to the steps taken to support the wider community move to a carbon neutral economy, respondents were asked to consider the steps that National Grid should take to minimise its own environmental impact.

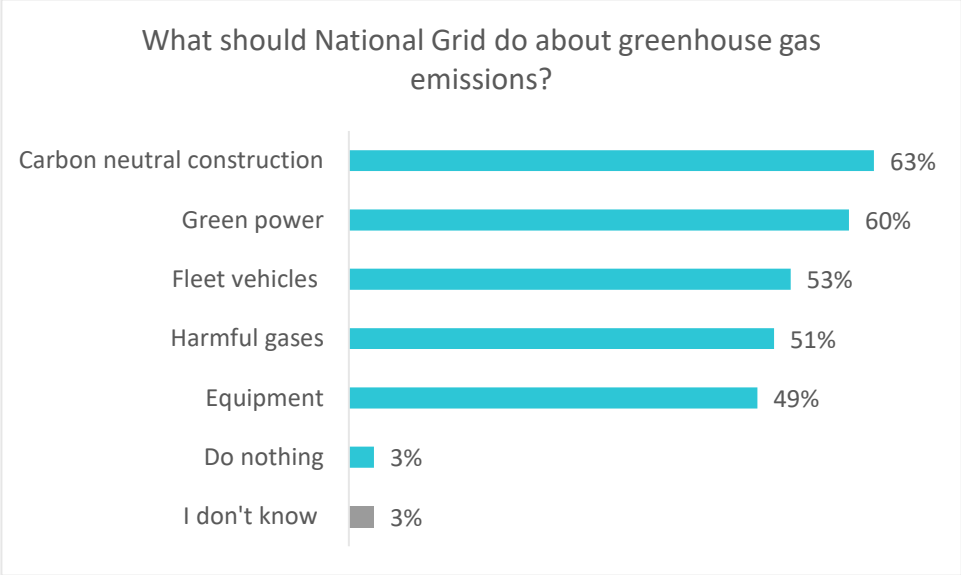
Tackling greenhouse gas emissions

The first impact under consideration was greenhouse gas emissions. To aid understanding, respondents were offered a brief explanation of greenhouse gases and how National Grid's work contributes to their release. They were then asked what steps they felt National Grid should take to address this. Where there was an associated cost, this was highlighted on their virtual bill.

Ideas presented were:

- Replacing fleet vehicles with more eco-friendly alternatives (bill impact +1p)
- Selecting equipment based on environmental impact – not just cost.
- Replacing equipment containing harmful gases with more eco-friendly alternatives and reducing leaks from existing equipment (bill impact +£1.96).
- Minimise emissions and fund projects that help remove carbon dioxide from the atmosphere (planting trees for example), so that the overall impact of construction work is neutral (bill impact +1p).
- Only buy energy from renewable sources (bill impact +1p).

There was widespread support for action with only 3% believing that National Grid should do nothing. **63% would like to see carbon neutral construction and 60% the use of green energy to power operations.**



Base size: 1,047.

- Support for green power rose to 71% amongst 35-44 year olds and support for environmentally friendly fleet vehicles to 61% amongst those aged 65 or over.
- 18-24 year olds were more cautious about investing in fleet vehicles (42%) and the reduction of harmful gases (40%) both significantly below average.
- C2 SEG respondents were significantly less likely than average to support investment in environmentally friendly fleet vehicles (44%) or equipment (40%).

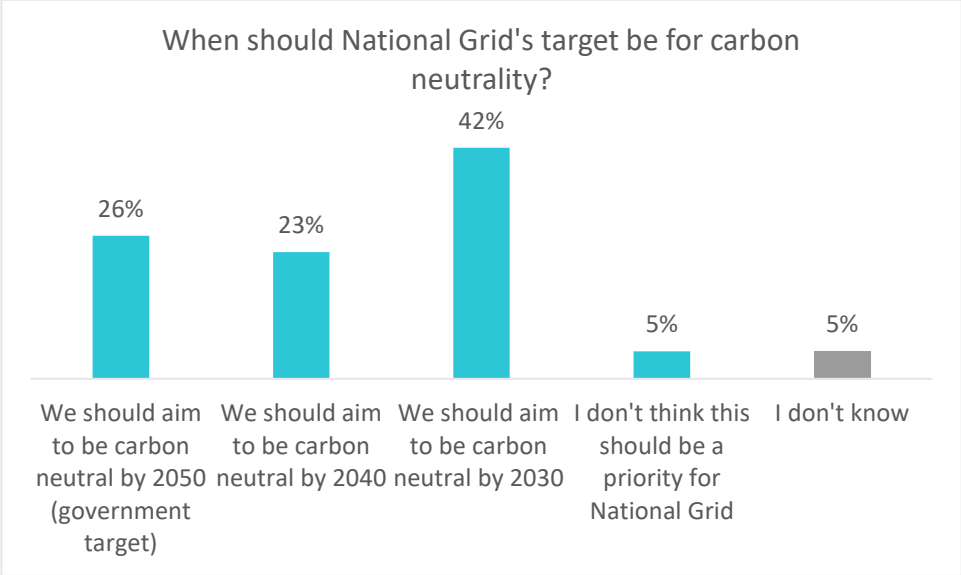
Regional variations were also observed.

- Respondents in Wales and Scotland were the most enthusiastic. In both countries, respondents were significantly more likely than average to promote investment in green power, more environmentally friendly fleet vehicles and a reduction in harmful gases. Respondents from Wales were also significantly more likely to support carbon neutral construction and those in Scotland to prioritise environmentally friendly equipment.
- In contrast, respondents in London were significantly less likely to wish to see investment in environmentally friendly fleet vehicles or equipment, a reduction in harmful gases or carbon neutral construction. Enthusiasm was also significantly lower for environmentally friendly fleet vehicles in the West Midlands and for carbon neutral construction in Yorkshire and Humber.

Becoming carbon neutral

The Government has recently proposed a target for the country to become carbon neutral by 2050. National Grid will be obliged to meet this target but is it ambitious enough or would respondents like to see faster progress? No specific bill impact was included for this question, but it was brought to respondents' attention that the more ambitious the target the higher the probable cost.

Respondents were keen to see action in this area with **42% feeling that National Grid should be aiming for carbon neutrality by 2030, 23% favouring a 2040 deadline and 26% agreeing with the Government target.** Only 5% did not feel that this should be a priority.



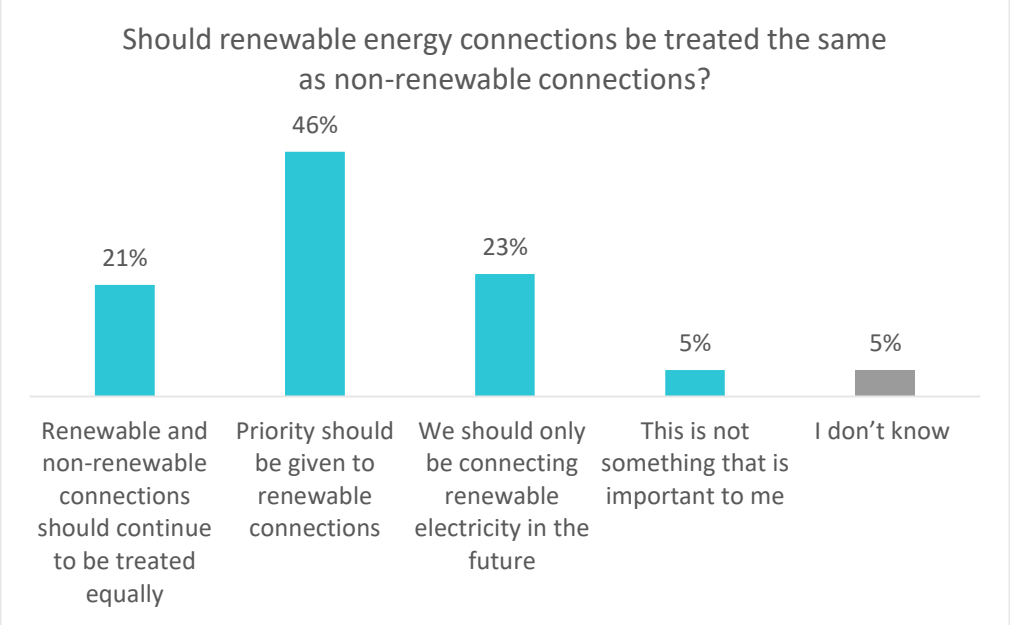
Base size: 1,047.

- Geographically, respondents in Wales led the call for carbon neutrality by 2030, significantly higher than average at 68%.
- In contrast only 30% of those in West Midlands felt that this was the right timeframe.

The treatment of renewable and non-renewable energy sources

It is anticipated that renewable energy connections will play a key role in the drive to carbon neutrality. At present National Grid is obliged to treat connections to renewable and non-renewable energy sources equally. So, one may not be connected more quickly or cheaply than the other. Respondents were asked for their feedback on this regulation. Their preferences did not impact upon their virtual

bill. There was strong support for renewable energy. 23% wished National Grid to connect only renewable energy sources in the future and a further 46% felt that renewables should be prioritised. 21% favoured the current system.



Base size: 1,047.

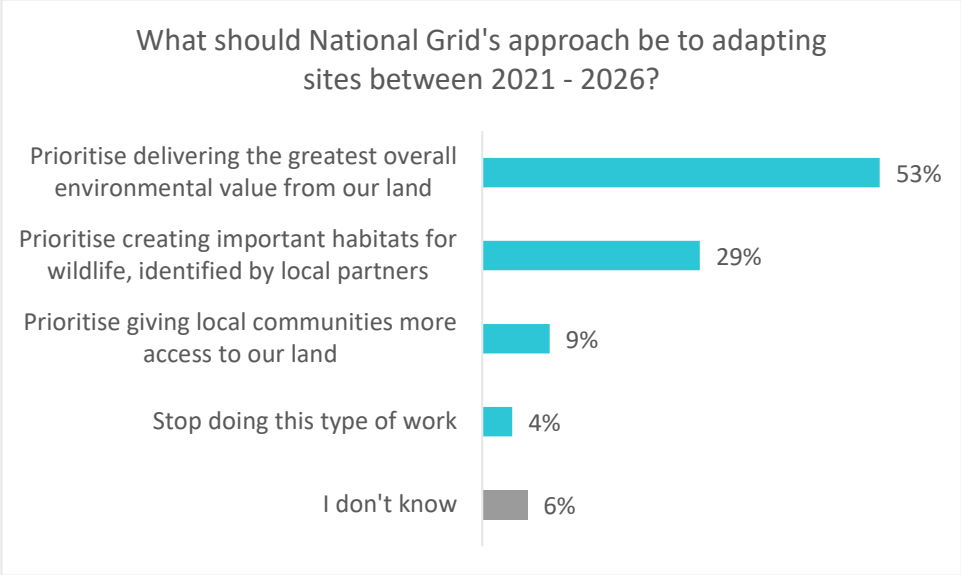
– Echoing their ambitions for carbon neutrality, respondents in Wales were significantly more likely than the national average to favour a move to renewable only connections (45%).

However, in every region the majority was in favour of new renewable connections either as the priority or sole option.

Priorities for land usage

The final question in this section concerned land usage. National Grid owns approximately 4,000 hectares of land surrounding its sites. Current usage includes wildlife habitats and community spaces such as forest schools. Respondents were asked to feedback on the land usage options below with examples given for each. Each option would add 1p to the annual bill.

Just over half of respondents wished National Grid to work with local partners to identify the most appropriate approach on a site-by-site basis. 3 in 10 would prioritise wildlife habitats and almost 1 in 10 community access. Only 4% felt that National Grid should not undertake such projects.



Base size: 1,047.

- Respondents aged 65 or over were significantly more likely than average to prioritise overall environmental value (66%) and 18-24s to prioritise wildlife habitats (37%).
- Support for local community access was significantly higher in Scotland than the national average (20%).

Supporting communities

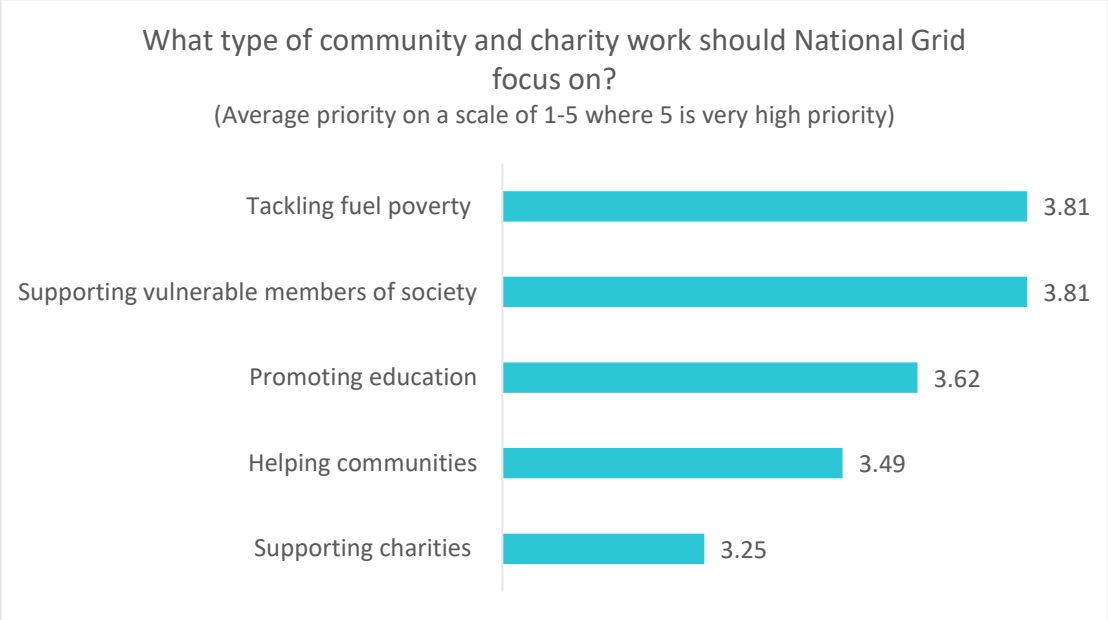
National Grid currently supports a number of community initiatives, including:

- City Year UK (Supporting education and mentoring within schools for disadvantaged communities.).
- Skills for Good (Providing business and tech skills to not-for-profit organisations.)
- Step Up to Serve (Promoting youth social action.)
- This is Engineering (Promoting science, technology, engineering and mathematics (STEM) subjects. Encouraging children to take up engineering as a career.)
- National Grid's Community Grant Programme (Over £1 million of grants awarded since 2015, funding charity and community-group projects that meet local community needs by providing a range of social, economic and environmental benefits.)

Funding for some of these projects comes directly from National Grid while others are supported through consumer bills. Respondents were asked to what extent they felt that National Grid should focus on each type of work and how it should be paid for. These questions had no impact on the virtual bill as the real impact of any choice would be at most a fraction of a pence per household.

Priorities in community and charity work

All project types were endorsed by respondents. However, **support was particularly strong for work that tackles fuel poverty or supports vulnerable members of society.** Promoting STEM education came third. These findings suggest that consumers feel it is particularly appropriate for National Grid's philanthropic work to be linked to their role within the energy network. Supporting charities received a more cautious response, possibly reflecting respondent uncertainty over the specific cause or charity that would be chosen.



Base size: 936. 11% (111 respondents) selected I don't know or other

	Tackling fuel poverty	Supporting vulnerable people	Promoting education	Helping communities	Supporting charities
5- very high priority	40%	39%	31%	25%	20%
4	25%	27%	26%	27%	21%
3	19%	17%	24%	28%	33%
2	9%	9%	10%	13%	16%
1 – a very low priority	8%	8%	8%	8%	11%

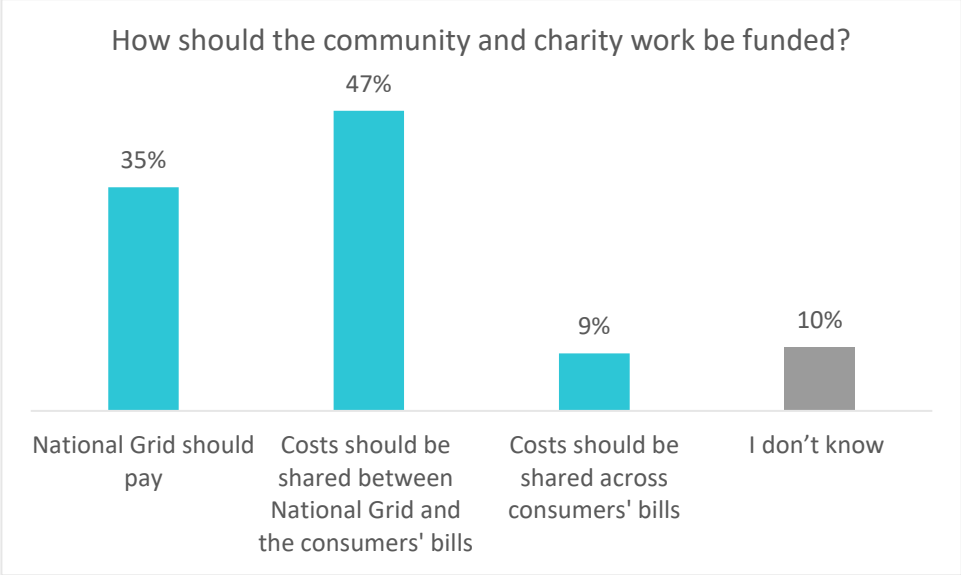
- Women were significantly more likely than men to place a very high priority on supporting vulnerable members of the community (45% vs 33%), tackling fuel poverty (43% vs 36%), helping communities (30% vs 20%) and supporting charities (26% vs 14%).
- The over 55s were significantly less likely than average to place a very high priority on supporting charities (15%).

A number of regional variations were also observed.

- Respondents in London were significantly less likely than average to feel that tackling fuel poverty should be a very high priority (23%).
- Respondents in Scotland were the most community focussed, significantly more likely than average to place the highest level of priority on all projects, namely promoting STEM education (67%), tackling fuel poverty (57%), supporting vulnerable people (57%) helping communities (51%) and supporting charity (42%).

Funding community and charity work

Almost half of respondents felt that the cost of such work should be shared between National Grid and consumers and just over a third believed that only National Grid should pay. Fewer than 1 in 10 felt that consumers should cover all costs.



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There were statistically significant differences between regions.

- Reflecting the charitable spirit shown at the previous question, respondents in Scotland were the most willing to share the cost between consumers and National Grid (61%).
- However, 46% of respondents from London felt that National Grid should pay the full cost.

Demographically those aged 65 or over and C2 SEG respondents were the most willing for consumers to cover the full cost (15% and 14% respectively).

Visual impact

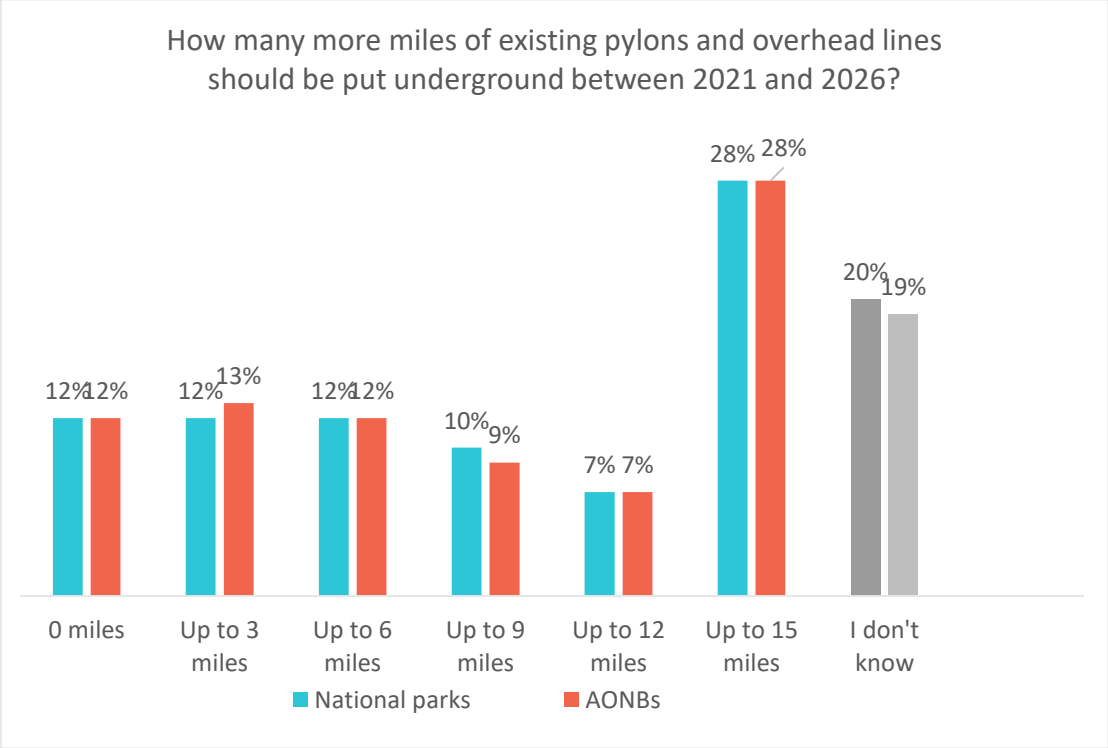
Elements of National Grid's electricity network, such as pylons and overhead lines, can be highly visible, including in some national parks and areas of outstanding natural beauty (AONBs).

There are over 350 miles of overhead lines and approximately 1,800 pylons in National Parks and AONB in England and Wales.

Following a stakeholder consultation work is underway to put 10 miles of these underground in Snowdonia, The Peak District and Dorset AONB. Respondents were asked to feedback on such work. Would they like to see more of it and if so, how many miles should be moved underground between 2021 and 2026? Carrying out such work would impact upon the virtual consumer bill as follows:

- Up to 3 miles: 2p/yr
- Up to 6 miles 3.9p/yr
- Up to 9 miles: 5.9p/yr
- Up to 12 miles: 7.9p/yr
- Up to 15 miles: 9.8p/yr

Respondents were consistent in their approach to National Parks and AONBS. **The most popular option was the most extensive with 28% wishing to see up to 15 miles placed underground.** Overall 7 out of 10 felt that National Grid should be carrying out such work. 12% did not support the work and 19% were unsure of the most appropriate option.



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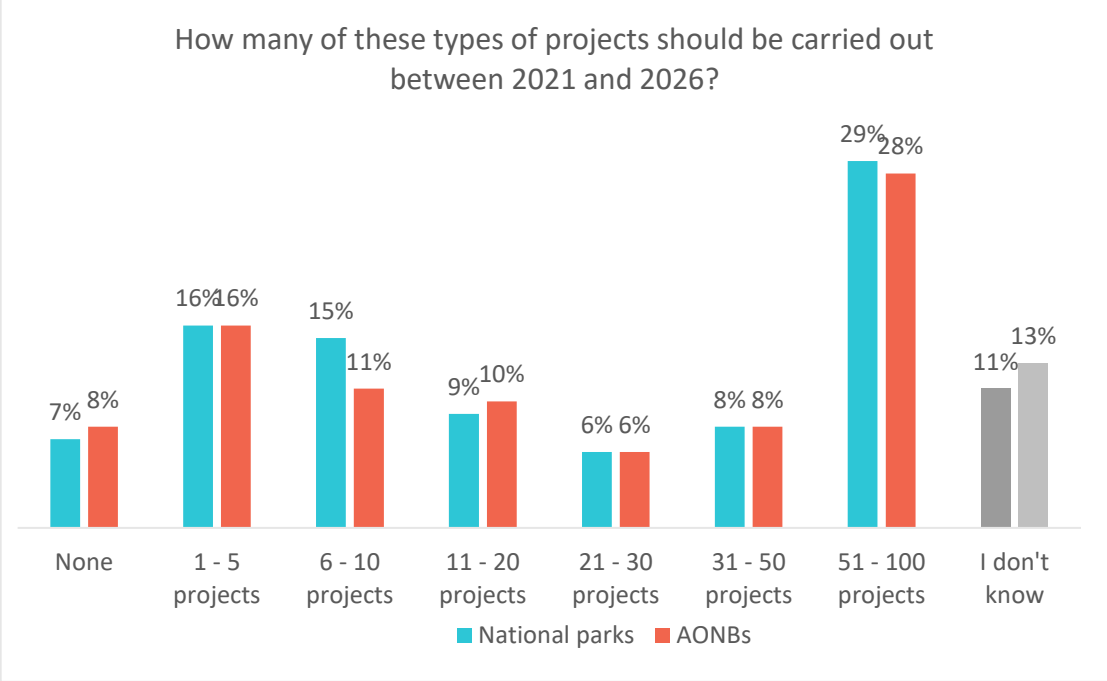
- AB SEG respondents were significantly more likely than average to wish to see up to 15 miles of work in National Parks (32%) and men were more likely to do so than women (32% vs 23%). Women were more likely to say they didn't know (22% vs 16%).
- There was a significant generational gap with 37% of over 55s wishing to see up to 15 miles of work compared to only 18% of 18-34s. The figures for AONB were similar at 36% and 20% respectively.
- Support for such projects in National Parks was highest in the South West of England, with 38% wanting to see National Grid undertake up to 15 miles of work, significantly higher than the national average.
- Support was weakest in Wales where 23% of respondents wanted no more projects undertaken in 2021 to 2026.

There are other projects that National Grid can undertake that, while leaving pylons and lines above ground, minimise their visual impact. Examples of such projects include planting trees or re-routing footpaths. As in the previous question, respondents were asked how many of these projects they believed National Grid should undertake. Carrying out such work would increase costs on the virtual bill by 1p.

Again, the most extensive work was the most popular and there was little differentiation between findings for National Parks and AONB. Overall 8 in 10 respondents were supportive. 29% would support 51-100 projects in National Parks and 28% in AONB.



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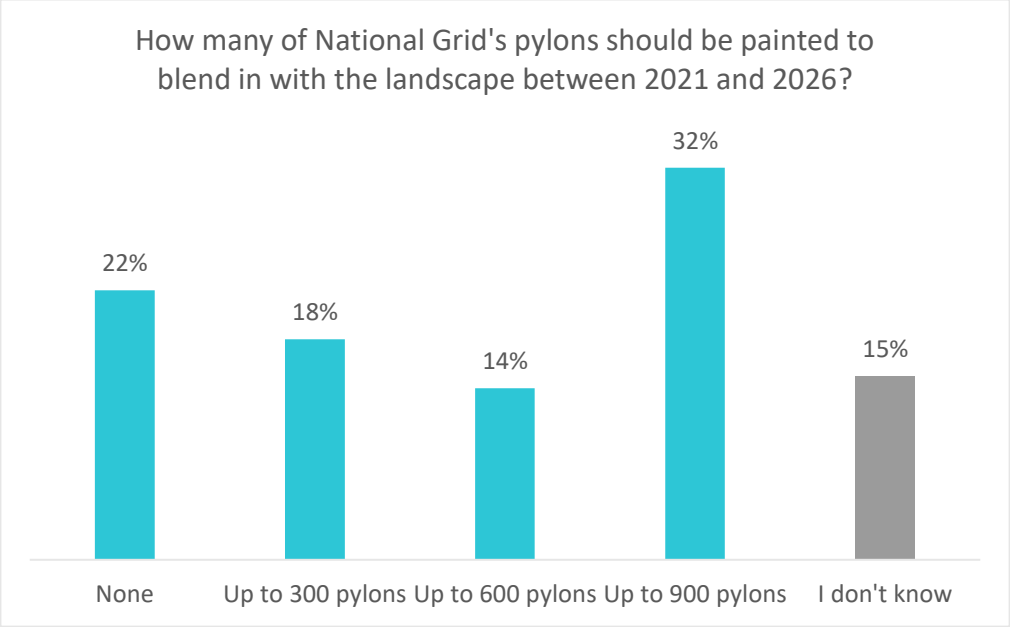
A number of sub-group differences were observed.

- Respondents in Wales were particularly split on this question, they were the most likely to oppose such projects in National Parks (18%). However, they were also the most likely to support 51-100 projects in National Parks (45%) and in AONBs (44%).
- Respondents in the East of England were also significantly more likely to support 51-100 projects in National Parks (40%) and AONBs (42%).
- Respondents in the North East showed a high level of uncertainty on both questions (36% opted for don't know on National Parks and 31% on AONBs).
- Opposition was significantly more likely to come from men than women (10% vs 5% in National Parks and 11% vs 4% in AONBs).
- 18-24s were also significantly less likely to support 51-100 projects in National Parks but were within the national average for AONBs.

Finally, National Grid are considering painting pylons a colour that lets them blend in with the landscape, a solution that has proved successful with mobile phone masts. Again, carrying out such work would add 1p to the virtual bill.

64% of respondents would support such projects with 32% hoping to see it carried out on up to 900 pylons. However, this was the most controversial of the visual impact propositions and 22% would oppose it and 15% were unsure of the appropriate option.



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- AB SEG respondents and those aged 65 or over were significantly more likely than the average to support the painting of up to 900 pylons (39% and 40% respectively)
- Regional responses echoed those on previous questions with the South West most strongly in favour (46% hoping to see up to 900 painted) and the East of England also significantly more supportive than the average (42% in favour of up to 900 pylons painted).
- Again, opinion in Wales was split with respondents there significantly more likely than average to oppose (36%). 29% of respondents in the North East of England and London were uncertain.

Bill impact

On average, the choices respondents made for the electricity network would translate into an increase in their annual electricity bill of £1.44.

All subgroups saw an increase in their annual bill. Respondents aged 18-24 were the most cautious spenders with an average increase of £1.05 compared to £1.72 in respondents aged 65 or over. Regionally average bill increases ranged from £1.15 in London to £1.96 in Wales.

A respondent's choices on two questions made a substantial difference to their final bill. These were whether National Grid should invest to increase the future reliability of the network (+£1.26 if in agreement) and whether equipment containing harmful gases should be replaced with more eco-friendly alternatives and leaks reduced from existing equipment (+£1.96 if in agreement).

	Bill impact
All	143.89

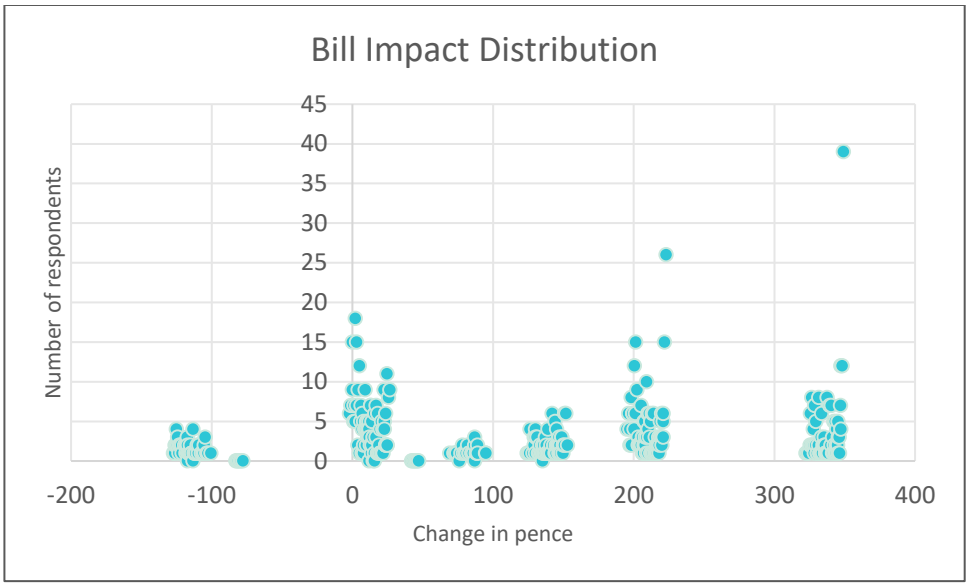
Gender	Bill impact
Male	143.28
Female	143.67

Age	Bill impact
18-24	104.61
25-34	120.75
35-44	147.89
45-54	156.66
55-64	142.97
65+	171.59

Region	Bill impact
East Midlands	143.96
East of England	134.50
London	115.10
North East	140.58
North West	145.53
Scotland	180.49
South East	169.87
South West	127.71
Wales	196.46
West Midlands	112.12
Yorkshire & Humber	134.36

SEG	AB	C1	C2	DE
Bill impact	146.47	146.36	134.20	145.69

The range and distribution of bill impact based upon individual survey choices is shown below, showing the **majority of customers supported a bill increase to fund service improvements**.

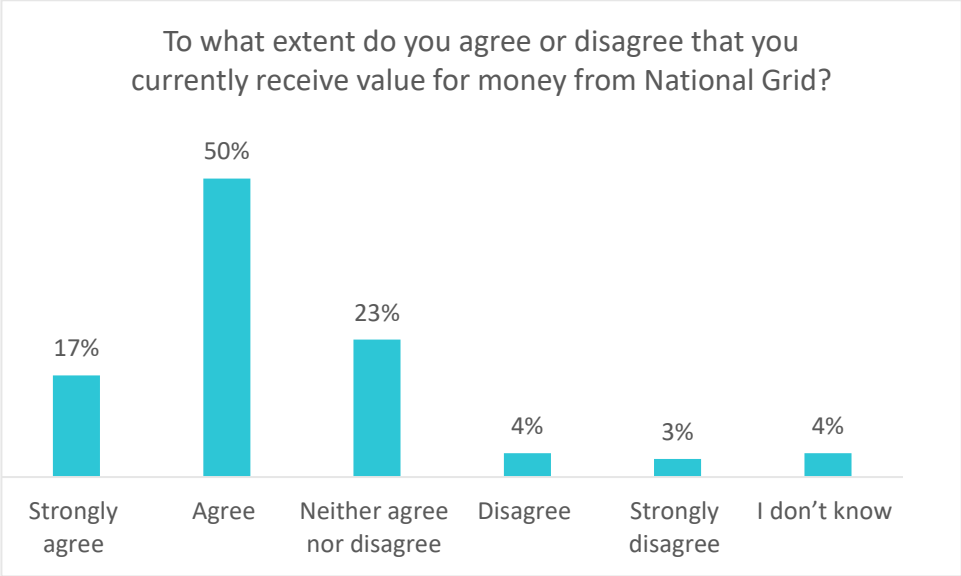


Value for money

Having completed all survey sections, respondents had the opportunity to consider multiple aspects of National Grid's role in the electricity network. They had created their own business plan based upon the options presented and understood what the impact of their choices on their annual bill would be. They were then asked firstly, to what extent they felt that they currently receive value for money from National Grid and secondly, to what extent they felt that they would under their tailor-made plan.

Two thirds of respondents agreed that they currently receive value for money from National Grid, with 17% strongly agreeing. Just under a quarter were neutral and 7% disagreed. When asked to consider their tailor-made plan, overall agreement rose slightly to 70% and disagreement dropped to 3%. The number of respondents who didn't know increased slightly to 6%.

- Respondents aged 65 or over were the most satisfied consumers significantly more likely than the average to strongly agree that they currently receive value for money (25%).
- Men were significantly more likely than women to strongly agree that they currently receive value for money (19% vs 14%).



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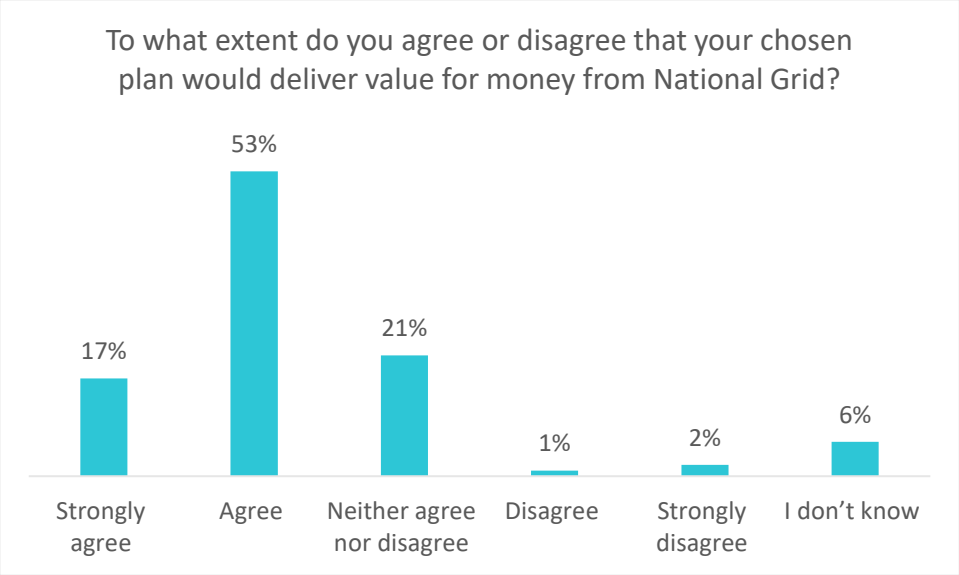

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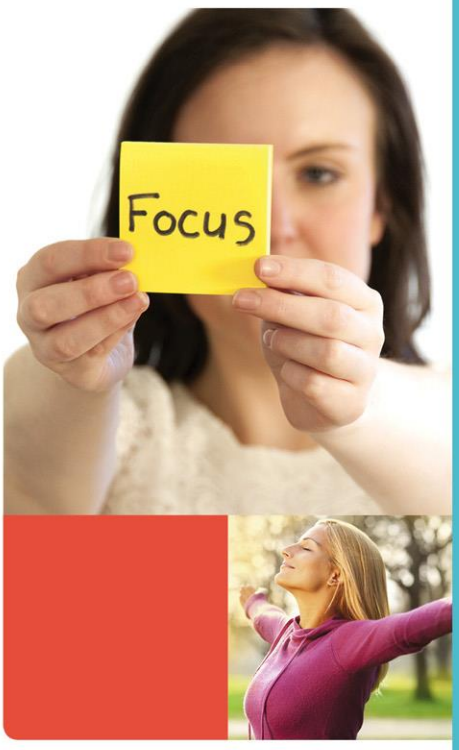
4.0 Conclusions and next steps



Conclusions

Overall, there was substantial support for investment in the gas and electricity networks. Few respondents prioritised cost cuts over service maintenance or improvement.

On average, respondents were willing to pay £1.44 more on their electricity bill and 10p more on their gas bill to see their desired options implemented. It should be noted that a higher number of service options presented to respondents on the electricity survey had an associated cost than on the gas survey. This, and differences in investment costs, account for much of the disparity in these figures.

On both surveys, respondents aged 18-24 were the most hesitant to spend and respondents aged 65 or over the most likely to favour investment.

On the gas survey, there were noticeable regional differences in the average bill impact, however, these were driven by responses to one question, namely whether or not to invest to secure network reliability.

Reliability

Respondents placed high value on the reliability of the gas and electricity networks. 42% of gas respondents and 33% of electricity respondents would be willing to pay extra to ensure reliability and fewer than 1 in 10 favoured a reduction in investment in this area.

As well as ongoing investment in infrastructure, respondents felt that it would be appropriate to establish high or very high levels of protections against external threats. This is equivalent to the protection levels currently offered to the defence industry (very high) or the retail banking industry (high).

Innovation

For more than 6 in 10 respondents, there was an expectation that National Grid should be an innovative company. Fewer than 1 in 20 felt that it should not be at all innovative.

Respondents supported investment in the areas of innovation previously identified by stakeholders, with particular emphasis on those that would improve National Grid's service, making it more reliable, efficient, safer or greener. On the electricity survey, respondents were given the opportunity to focus investment on reducing costs for consumers but again this was of the lowest priority to them.

Moving to a greener economy and environmental impact

Respondents favoured ambitious targets for the decarbonisation of the economy with more than 6 in 10 hoping to see a carbon neutral National Grid by 2040 or earlier. Investment in carbon neutral construction, renewable technologies and green power to reduce emissions from National Grid sites all received majority support. Two thirds also felt that National Grid should be prioritising or solely connecting renewable electricity sources to the grid in the future.

However, respondents were divided over the comparative merit of investing in new technologies and infrastructure now to avoid delays along the road to a greener economy or waiting until there was a clearer direction to minimise risk. Further consumer communication and research may therefore be beneficial to inform decision making in this area.

On a more local level, more than 9 in 10 respondents believed that National Grid should invest in site improvements that would benefit the local environment or community. The majority wished National Grid to work with local partners on a site-by-site basis to identify the approach that would deliver the greatest environmental impact.

At the individual level, respondents were open to considering low carbon heat sources for their home. However, costs remained a key consideration and further communication of benefits may be required if there is to be widespread take up.

Supporting communities

National Grid's commitment to community and charity work was endorsed by respondents with projects that tackled fuel poverty or supported vulnerable members of society particularly valued.

Respondents were willing for the cost of such work to be divided between National Grid and consumers or covered by National Grid alone. There was reluctance to see the full cost fall upon consumers.

Visual impact

The majority of respondents wished to see National Grid invest in work that would minimise the visual impact of infrastructure in National Parks and Areas of Outstanding Natural Beauty. Respondents favoured a consistent approach across both types of protected landscapes.

However, on all visual impact projects they were divided as to the number that should be undertaken and further education may be required to allow consumers to make an informed recommendation.

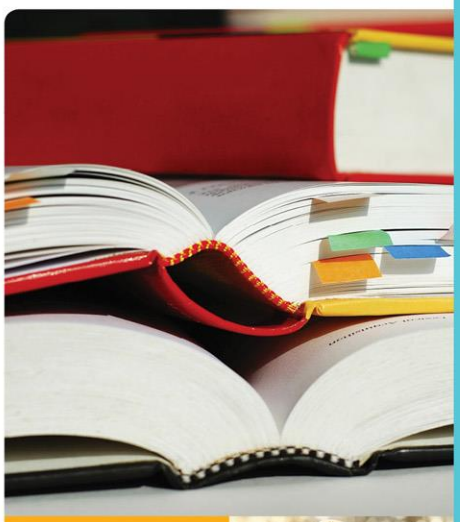
Next steps

The findings from this research will be triangulated with those from the collaborative willingness to pay and acceptability research projects to inform the 2021-2026 business plan.

This research obtained responses from a statistically robust and nationally representative sample of the general public. It has recommended a bill increase to permit investment in consumer priorities.

Further research may be beneficial should National Grid wish to obtain further insight from sub-groups of particular interest, such as vulnerable consumers and future consumers, before implementing such changes.

5.0 Appendices



Appendix 1: Sampling

Face-to-face interviewing was completed in the following locations:

Location	Gas survey completions	Electricity survey completions
Scotland	59	46
North East	24	16
Yorkshire and Humber	11	25
Wales	1	23
West Midlands	22	29
East of England	20	26
London	25	28
South West	27	14

These regions were selected to ensure that interviewing reached a diverse and geographically dispersed sample of the population.

Face-to-face respondents were invited to take part on street and door-to-door. There was a £10 incentive to do so.

The face-to-face interviewing was complemented by online survey completions both in the regions above, where additional completions were required to reach nationally representative numbers, and in all remaining regions of the United Kingdom, except Northern Ireland. All online responses were obtained through the Panelbase online panel.

In total there were 1,047 survey completions on the electricity survey and 954 weighted to 1,000 on the gas survey.

The survey tool employed quotas on gender, age, socio-economic grouping and region to target a diverse and representative sample. When face-to-face and online responses were combined, each survey reached a satisfactory number of respondents for each demographic group and region. However, survey length and time constraints on interviewing meant that it was not possible to obtain a 100% nationally representative sample. Consequently, findings were lightly weighted by gender, age, socio-economic grouping and region to ensure they would be both robust and nationally representative.

Appendix 2: Comprehension

Feedback suggests that respondent comprehension was high.

At the end of each survey, **respondents were asked firstly if they felt they understood the services offered by National Grid. 97% said that they had done so,** only 3% said they had not.

Those who were not confident that they had understood were asked what we could have done differently to help them do so. Three felt that the survey was too hard: "*didn't get it"* and two found the visual presentation distracting*: "the presentation, although nice was confusing", "graphics too complicated".*

Secondly respondents were asked if they felt they had been able to make comparisons between the choices that were presented to them. 95% said that they had been able to do so, 5% disagreed.

The 5% who had struggled to draw these comparisons were asked what we could have done differently to help them make comparisons.

A small number of respondents had found the subject matter, amount of reading or choices challenging: *"it was quite hard to make a decision", "there were too many words"*

However, a few others would have liked more information: *"add some detail and explain the maths"*

"Perhaps recast the whole survey as a case study, where the real effects of different options (on carbon emissions, community cohesion, biodiversity, as well as costs) would have made it easier to grasp".

A couple felt that the average consumer was not sufficiently informed to make recommendations:

"Intelligently how can we say how many pylons should be installed or how much of a threat cyber-crime is to National Grid? If this is a problem then money should be invested, however as consumers we do not have this knowledge so this should not even be something we can have a say in."

A few made suggestions regarding the survey presentation*: "some of the answers were very leading, as you had to scroll to see all options and it was easier to just click the first thing you see."* [Researcher note: responses were randomised to avoid such an order effect]

"*Stop using dropdown boxes and present the questions in a straightforward manner."*

Finally, three commented on National Grid itself: "*publicise [National Grid] more to ordinary people", "not sure of the company", "no alternatives competing with National Grid for comparison"* [Researcher note: misunderstanding of the question].

Respondents were invited to add any additional comments. The majority of these were positive. Most frequently they focused on **enjoyment of the survey**, the amount they had learnt from it, **appreciation of National Grid's services** and a desire to see National Grid lead on **environmental protection** and the transition to a greener economy. A small selection of positive and negative comments may be found below.

"Very interesting survey and well done to National Grid for taking the time to ask consumers what they think, thank you."

"If a one-off payment from consumers who could afford it could make so much difference then it should be made. Great survey experience. The most innovative survey I have done in years."

"Enjoyable and opened my eyes into what you guys are looking to do going forward."

"I think it would be good to have these matters explained in a forum to have more knowledge about it. If it saves me money but service is made better. i.e. you look after the old tools fine."

"I can remember a time where we always had to be prepared for a power cut my daughter is 21 and has only ever experienced one power cut (that she noticed) in her life and my 13-year-old has never been aware of any! Just got to check our environmental impacts now :-) Keep up the good work!"

"I think for what the National Grid has to do in the coming years the cost to the consumer is very minimal."

"The only thing I would suggest is I think National Grid should be the sole provider of ALL bills and energy supplies instead of having several different companies. That way it's easy to manage because…I think if you spend money on upgrades etc then the cost [that] the consumer is being charged by a supplier needs to be taken into consideration."

"National Grid has a clear remit - it shouldn't attempt to solve welfare and community problems but stick to managing and maintaining the power transmission system."

"I think National Grid should do most of these improvements out of their profits don't see why we should have to pay more for these services."

"To keep increasing costs to the consumer is never an easy option so the increase should be sustainable for all and spent in the correct areas where consumers can see as the majority of consumers are struggling financially and not just vulnerable, elderly etc."

"If my bill went up, even by £5 a year this would ensure that the network would benefit. If we give to something of which is essential to ensure a link between production and consumer, then why wouldn't us consumers want to ensure that there is a constant, robust plan in place to ensure that this continues? As a company I don't believe the National Grid should be giving to charities but ensure areas around where they have sites is helped to promote wildlife. If they have a direct impact on something then as a company, they could help but essentially surely ensuring that their network is working as efficiently as it can should be their main priority."

"Some answers to questions are/will be age related e.g. installation of heat pumps. Will you live long enough to reap the benefit of initial outlay? Similarly, if you are younger but move frequently. There therefore may need to be a general uplift to all bills to a fund which eventually could be used for installation purposes and all new developments should have them installed by the developer."

"There should be discounts for older and disabled people and people in poverty."

"That was very interesting and I'm amazed at how little my good (!) choices and eco decisions affected the yearly bill"

"Because National Grid is classed as a natural monopoly it has a special status and a privileged position in our economy. It should use this position to be more strongly a force for moral good generally and for environmental improvement in particular. I think most people would be surprised at how small a component National Grid's costs are of their total energy bill. And I do not think there would be much resistance to this rising quite significantly if the company was seen as taking a stronger line on green issues and providing leadership to the rest of the industry."

"Insulation and more efficient appliances should be encouraged. Education will be required."

"Help and advice with insulation of properties should be given priority by all companies involved with energy. Finite resources should not be squandered."

"Amazing to hear that there is consideration to abolish some things that are impacting our environment massively".

"The question that I had with moving pylons is a tough one to make as I think while they are above ground they damage wildlife but I think underground would damage the environment too."

"We need energy companies to lead the way in reducing carbon emissions. If they lead the way then other companies will follow. I work for a large pottery company and it would be major if we could use renewable or less polluting energy."

"I would like to see homes near coasts getting energy from natural like water."

"I know that the government has laid down targets for the reduction of carbon dioxide, however, this is based on false science and political propaganda. National Grid should not kowtow to this propaganda. The whole idea of becoming "carbon neutral" will not achieve a greener plane, as CO2 does not drive the weather or climate - the sun does."

"The part on the renewable side. I would like to see more involvement with renewable sources, especially solar and battery being installed on new builds of both houses and businesses. Even in new build housing estates, the national grid could install solar pavements, solar on bus stops, so many projects could be done when it's easy to add it on a development then later. Even in play parks, add water features, with ability to generate its own electric using solar during the day and hydro during the evening. You could create green housing estates. The money generated can then be used to convert existing housing estates which will obviously cost more. This would lead to national grid have mini power stations that are part of the landscape in every housing estate. "

"In places where there are pylons already existing, they should not be replaced by larger pylons."

"Digging up the ground to hide pylons is absurd! The environmental impact is not worth the risks just to hide something that has been a part of the UK landscape for years."

"No further pylons should be built, instead cables should be buried where possible. In addition to not having a visual impact, buried cables cannot be brought down by bad weather."

"Painting pylons is a complete waste of time and money."

"Reduce compensation for top level management"

"Get rid of shareholders and nationalise the whole system and get back to human values instead of capitalism."

"I would strongly oppose nationalisation of National Grid."

Please note the comprehension figures are based on unweighted data.

Appendix 3: Survey

Introduction

At National Grid, we create business plans each year to help us continue delivering energy to people across the country. Every five years, we need to submit our plans to Ofgem, our regulator, which then sets the amount we charge our consumers for the following period.

We want to know what you would like to see in our plans. And this is why we need your help.

Your input will help inform our final 2021-2026 business plans.

Learn more-

When we create these plans, we ask stakeholders what they'd like us to include. Our stakeholders are anyone who has an interest in what we do, or who we have an impact on. So, households across the country are one of our most important stakeholder groups.

We're talking to bill payers, like you, directly about what you'd like us to include (or not include) in our plans. We're using different ways to gather these opinions, and we're making sure we talk to all types of households across the country, so we capture any differences in views. We've developed this survey as a way of collecting these views. We want to know what you'd like to see in our plans.

How it works

As you click through the different screens, you'll see the various topics that make up our business plans. We'll explain a little about what these are, and the choices we can offer. We'll ask you questions about what you'd like us to focus on, and when you choose an option, we'll immediately show you the potential impact on your bill in the top-right corner of each pop-up.

Depending on the topic, we'll show you the possible environmental, reliability, or community impacts too.

There are no right or wrong answers, and different people will have different views on what's important to them.

National Grid has designed this survey to get your views on their future investments. The survey tool has been built by Proctor + Stevenson and the survey responses will be processed by independent research agency Explain Market Research.

The research is being conducted under the terms of the Market Research Society (MRS) code of conduct. Participation is voluntary. Your answers are completely confidential and will be reported anonymously. If you would like to confirm Explain's credentials, please call the MRS free on 0800 975 9596.

Please follow these links if you would like to know more about our privacy policy or terms and conditions.

Are you happy to continue?

Yes, continue with electricity survey

Yes, continue with gas survey

No

Screen out questions

We want to capture what matters most to energy consumers, and we don't want to waste anyone's time. So, we need to make sure our survey asks the right questions to the relevant people.

What is your age?

- Under 18
- 18 to 24
- 25 to 34
- 35 to 44
- 45 to 54
- 55 to 64
- 65 plus

What is your gender?

- Male
- Female
- I prefer to identify in another way

Where do you live:

- Scotland
- North East
- North West
- Yorkshire and the Humber
- East Midlands
- Wales
- West Midlands

How would you describe your role in paying your [gas/electricity] bill?

- I am solely responsible for paying the bill
- I am jointly responsible for paying the bill
- I do not pay the bill

How would you describe the occupation of the main income earner in your household?

If you or they are retired, please describe the occupation they had before you/they retired.

- Higher managerial / professional / administrative
- Intermediate managerial / professional / administrative
- Supervisory or clerical / junior managerial / professional / administrative
- Student
- Skilled manual worker
- Semi or unskilled manual work
- None of the above (e.g. casual worker, not currently working, homemaker etc)

Is your home connected to the natural gas network? (For example, do you use gas in your home? You might have gas heating or a gas cooker) **GAS ONLY**

- Yes
- No

Gas

Maintaining your gas supply is our priority, so we work hard to keep our equipment running throughout the year.

In fact, in the UK there has never been a significant gas interruption to domestic consumers caused by the Gas National Transmission System (NTS).

However, due to the increasing age of our equipment and changing use of the network, we need to increase maintenance operations to maintain the current low risk of interruption.

So, we need to make some important investment decisions for our 2021-2026 business plans.

But before we do, we want to understand your thoughts.

Reliability

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But before we do, we want to understand your thoughts.

The traditional model

Most of our Gas National Transmission System (NTS) was built in the 1950s and consists of pipes (mostly below ground) and valves and compressors (above ground).

It was originally designed to transport gas in a simple, linear fashion, from north to south.

Changing times

These days however, our equipment is being used in different ways, to move gas in all directions.

Also, while most of our deep-buried pipelines are well protected, our exposed valves and compressors are more susceptible to wear and tear. Many of the skills and parts needed to keep this equipment working are no longer available.

Add to this changing legislation, and we'll need to make choices around how we manage our system.

Keeping gas flowing

For example, the sooner we replace old equipment and the more often we maintain it, the less risk there is of our network failing in the future, and therefore, the less risk of disruption to your gas supply.

But these actions can have cost implications. Currently, you pay 7p of your £9 bill per year for maintenance /replacement of equipment – as previously agreed with Ofgem.

Question

Q1. Between 2021 and 2026, how should we manage the reliability of our network?

Please choose one option only.

NOTE: Whatever option you choose, you can rest assured we'll always ensure we comply with legislation concerning safety and the environment.

- **Increase likelihood of gas supply interruption**
  -Advantages

  Reduction in cost to you of 83p per year.

  -Impact

  Increased likelihood of an interruption to your gas supply.

  Due to the age and changing use of equipment, we need to do more work to maintain the same level of service. Therefore, should no extra investment be made in order to increase service levels, the risk of disruption increases.

  (1 household in 5,750 will experience possible disruption to their gas supply per year. Current disruption risk levels are 1 household in 12,500 per year.)

- **Maintain current likelihood of gas supply interruption**
  -Advantages

  Same likelihood of an interruption to your gas supply.

  (Current disruption risk levels of 1 household in 12,500 per year will be maintained.)

  -Impact

  This option is included in your bill, so you won't see a change in your bill impact.

- **Reduce likelihood of gas supply interruption**
  -Advantages

  A reduction in likelihood of a gas supply interruption.

  (1 household in 13,750 will experience possible disruption to their gas supply per year. Current disruption risk levels are 1 household in 12,500.)

  -Impact

  Your annual bill will increase by 42p per year.

- **I don’t know**

Exploring what matters to you

In question 1, we asked what level of investment you’d like us to make to manage the likelihood of an interruption to your gas supply.

Within that spend, we have an opportunity to focus on specific areas that matter most to you.

Q2. In what areas do you think we should aim to replace equipment and increase maintenance work?

Please mark on a scale of 1 to 5, where 1 represents a very low priority and 5 represents a very high priority.

- **Environment**

Examples of actions

•Replacement of polluting equipment

•Addition of filters/catalytic converters

Possible benefits of actions

•Reduction in the release of greenhouse gas emissions

•Reduction in local air pollutants

- **Health & safety**

Examples of actions

•Replacement of fire suppression and gas detection equipment

•Targeting areas with high population or where workers spend lots of time

Possible benefits of actions

•Reduced risk of injuries to employees and public

- **Reliability**

Examples of actions

•Replacement of unreliable equipment, focusing on pushing the gas from where it comes in to where it's needed

•Targeting older/more critical areas of the network

Possible benefits of actions

•Reduced likelihood of interruption of gas supply to power stations and distribution networks (thus reducing potential interruption to consumers' gas supply)

- **Transport**

Examples of action

•Targeting work along pipelines that run close to transport routes

•Targeting work on assets to prevent fires, explosions and leaks near roads and railway lines

Possible benefits of actions

•Reduction in disruption to transport on major roads and railway lines

- **I don't know**

Resilience

One of the ways we make sure there's a reliable gas supply is by protecting our network against external threats.

These could include cyber-attacks, physical attacks on our equipment, or natural dangers such as extreme flooding.

Safeguarding the system

The Government and other national bodies set minimum standards that we must meet for protecting against external threats.

But we do have some choice around what (if any) extra levels of protection and additional actions we take between 2021 and 2026.

NOTE: Going beyond minimum levels can increase costs.

Q3. What levels of protection (cyber, physical and flood) should we adopt for our gas network?

Please choose one option only.

And please note, the higher the protection, the higher the cost.

NOTE: For the purpose of this question, your choices will not affect the bill impact shown in this tool. More work on our plans will be needed, based on your opinions given here, to determine actual costs.

- **Very high levels of protection against external threats**
  Protection levels equivalent to those in the defence industry
- **High levels of protection against external threats**
  Protection levels equivalent to those in the retail banking industry.
- **Medium-high levels of protection against external threats**
  Protection levels equivalent to those in the telecoms industry.
- **Medium-low levels of protection against external threats**
  Protection levels equivalent to those in the transport industry.
- **Low levels of protection against external threats**
  Protection levels equivalent to those in the agriculture industry
- **I don't know**
- **I don't think this should be a priority for National Grid**

Innovation

Innovation can be described as a new idea or a better way of doing something.

At National Grid, we invest in innovation projects to find new and efficient ways of running our network, saving money for consumers, and helping the environment.

We'd love to hear your views on how we should approach innovation in the future.

Fresh thinking

Any future National Grid innovation projects will potentially reduce costs, improve levels of service, or create environmental benefits.

However, innovation projects are all about trying new things, so no project is actually guaranteed to deliver a benefit.

By talking to our stakeholders, we've identified potential areas of innovation in which to invest.

Q1. How important to you is each of these areas?

Please mark on a scale of 1 to 5, where 1 is not at all important and 5 is extremely important.

NOTE: For the purpose of this question, your choices won't affect your bill. It's just your opinion we'd like for now.

- Decarbonisation of energy
- Safety and engineering
- Reliability and maintenance
- Environmental impact
- Security
- I don't know

Innovative approaches

Some organisations are well known for their new ideas, whereas others have less of a focus on innovation.

Q2. How innovative do you think National Grid should be as a company?

Please choose one option only.

- **1 Not at all innovative**
  People rely on these types of companies during their day-to-day life. Any disruption could have wide-ranging impacts. Any spending tends to be cautious and well justified because often these types of companies are funded by public money.

  -Advantages

  Reliable and solid.

  -Potential risks

Limited innovation can mean that companies are less efficient and may not provide the right solutions for their consumers.

- **2**
- **3**
- **4**
- **5 Highly innovative**
  These types of companies not only shape markets, they create entirely new ones. They must be five steps ahead to stay in business.

  -Advantages

  Consumer focused, agile, and potentially more efficient.

  -Potential risks

  Innovation can result in failures before success is achieved.
- **I don't know**

Supporting communities

We want to support the communities we work in, and there are many ways in which we can do this.

For example, the cost of National Grid's Gas network adds around £9 a year to the average household gas bill. We could help people who might struggle to pay these bills.

We could also help more vulnerable members of the community, and work with young people to promote gas safety and engineering in general, among other things.

In this section, we want to know what you think we should do, and how you think we should pay for these types of activities.

Helping important causes

We currently support communities in the areas we work in through a range of different activities, from volunteering, to providing grants, to working with local charities.

Here are some of the ways that National Grid supports community initiatives.

•City Year UK

(Supporting education and mentoring within schools for disadvantaged communities.)

•Skills for Good

(Providing business and tech skills to not-for-profit organisations.)

•Step Up to Serve

(Promoting youth social action.)

•This is Engineering

(Promoting science, technology, engineering and mathematics (STEM) subjects. Encouraging children to take up engineering as a career.)

•National Grid's Community Grant Programme

(Over £1 million of grants awarded since 2015, funding charity and community-group projects that meet local community needs by providing a range of social, economic and environmental benefits.)

Choosing our priorities

Some of these activities are paid for by National Grid; others are paid for by consumers across Great Britain.

We want to continue to support the communities we work in, but we'd like your opinion on how we should do this, and how it should be funded.

Q1. What type of community and charity work should we focus on?

Please mark on a scale of 1 to 5, where 1 represents a very low priority and 5 represents a very high priority.

NOTE: For the purpose of this question, your choices won't affect the bill impact shown in this tool. It's just your opinion we'd like for now

- **Tackling fuel poverty**
  Initiatives helping consumers reduce their bills and deploying energy-efficiency measures in homes.
- **Helping communities**
  Working with and supporting local communities through a variety of social projects and grants.
- **Supporting charities**
  Working with and supporting a range of charities and good causes.
- **Promoting education**

Raising awareness among young people of the opportunities available in science, technology, engineering and mathematics (STEM) subjects – through apprenticeships, workshops and collaboration with schools.

- **Supporting vulnerable members of society**
  Working with other organisations to help the most vulnerable members of society, including those with disabilities, older members of the community and the unemployed.
- **I don't know**

Q2. How should our community and charity work be funded?

Please choose one option only.

- National Grid should pay
- Costs should be shared between National Grid and consumers' bills
- Costs should be shared across consumers' bills
- I don't know

A greener economy

To create a greener economy, society must move towards a 'decarbonisation of energy'. But what exactly does this mean?

It means reducing the global amount of carbon dioxide in the atmosphere, by adopting low-carbon sources of energy – for heating, cooling, lighting, manufacturing and transport in particular.

The UK Government has set targets to decarbonise energy.

Any selections you make for this topic won't impact your bill. But we'd really like to know your thoughts, to help shape our future thinking.

Q1. Between 2021 and 2026, how should National Grid approach the decarbonisation of energy?

Please choose one option only.

NOTE: By 'investment' we mean the undertaking of rigorous testing and analysis to ensure the right type of equipment is in the right place, and all is safe to carry different types of low-carbon gas (such as biomethane and hydrogen).

- **Invest now to meet potential demand**

Innovate and invest now to avoid any disruption and speed up progress, even if this means consumers pay for something that may later no longer be needed.

- **Invest once there is a general direction**
  Invest when there is a general direction for decarbonisation (e.g. hydrogen/biogas etc.), even if this means consumers pay for something that may later no longer be needed.
- **Wait until there is a clear direction**
  Wait until a clear signal or policy decision is made before investing, so that there's no chance of consumers paying for something that's not needed, even if this means slower progress towards decarbonisation.
- **I don't know**
- **I don't think this should be a priority for National Grid**

Decarbonisation of heat

The decarbonisation of heat is especially challenging, due to the potential disruption it can cause, particularly to consumers.

Replacing your warm-up act

Should you need a new heating system in the future, (perhaps if your current one breaks), there are many things that might influence your choice of replacement.

Q2. What factors would be important to you when replacing your heating system?

Please mark on a scale of 1 to 5, where 1 is not at all important and 5 is extremely important.

NOTE: For the purpose of this question, your choices will not affect the bill impact shown in this tool. It's just your opinion we'd like for now.

- Amount of disruption
  Due to household building/installation works, for example
- Upfront cost
- Running cost
- Environmental impact
- Functionality
  (E.g. The ability of your heating option to talk to your smart meter and home system. Another functional consideration might be how responsive it is – how long it takes to warm up or cool down.)
- Other (please specify)
- I don't know

Q3. Which of the following would you consider in the future?

You can choose as many options as you like.

NOTE: For the purpose of this question, your choices will not affect the bill impact shown in this tool. It's just your opinion we'd like for now.

- Ground source heat pump
- Air source heat pump
- Hybrid heat pump
- Gas boiler
- District heating
- Another low-carbon heat source
- Other (please specify)
- I don't know

Q4. Where would you turn for advice on heating systems?

You can choose as many options as you like.

- Energy supplier
- Plumber/heating installer
- Local distribution network
  (The network that delivers gas directly to your door. Should you have a meter problem or a gas leak, these are the people you would call.)
- Local Authority/Council
- National Grid
- Online research
- Friends and family
- Other, please specify
- I don't know

The environment

Our gas network has an impact on the environment. And we have a choice around what actions we take (or don't take) in this area.

Some of our activities produce greenhouse gases. We'd like to know what you think we should do about this.

We also own the land surrounding many of our sites in England, Scotland and Wales, and we'd like to know how you think we should use this land.

Let's talk about emissions

So, what exactly are greenhouse gas emissions?

They're gases capable of trapping and holding heat in the atmosphere.

Such gases include Carbon Dioxide and Methane.

By increasing the heat in the atmosphere, greenhouse gases are responsible for the 'greenhouse effect', which ultimately leads to global warming.

Tackling greenhouse gases

Some of our current activities release greenhouse gases into the atmosphere.

Learn more-

- We use large jet engines (called compressors) to push gas through the network. These are powered by either gas or electricity.
- We also use energy to heat and light our buildings.
- The methane gas we transport across the country can leak from some of our older valves and above-ground equipment.
- Building or replacing the equipment in our network can involve a lot of steel and concrete, and the transportation of equipment from abroad.
- Our fleet of cars, vans and lorries is mostly powered by petrol or diesel.

There are actions we can take between 2021 and 2026* to reduce our emissions.

Some are quicker. Others are longer-term. Some cost less. Others cost more.

* Our next regulatory period

And this is why we need your help!

Q1. What should we do about these emissions?

Please select everything you'd like us to do.

NOTE: You'll instantly see any bill impact when you choose an option.

- **Fleet vehicles**
  Replace with more eco-friendly alternatives (electric or hydrogen-powered for example).
- **Renewable technology**

Install solar panels and heat pumps on our sites, for example.

- **Carbon neutral construction**
  Minimise our emissions and fund projects that help remove carbon dioxide from the atmosphere (planting trees for example), so that the overall impact of any of our construction work on the environment is neutral.
- **Green power**
  Only buy energy from renewable sources.
- **Do nothing**
  Make no further investments in this area.
- **I don't know**

Powering projects

If we were to install renewable technologies on our sites, there's a possibility we might create more electricity than we need.

We'd therefore sell this excess electricity.

NOTE: It would be very unlikely that we'd make enough money from selling renewable energy to make a difference to consumer bills. For example, we'd need to make many millions of pounds to make a 1p difference to each consumer's bill. So, we would like to invest any money made in the local community.

Q2. What should we do with any money made?

Please mark on a scale of 1 to 5, where 1 represents a very low priority and 5 represents a very high priority.

- Invest in local energy efficiency projects
- Invest in local environmental projects
- Donate to a selected charity partner
- Donate to charities dealing with vulnerable/fuel poor households
- Other
- I don't know

Becoming carbon neutral

Between 1990 and 2018 we reduced our greenhouse gas emissions by 65%.

Recently, the Government proposed a UK-wide target for the country to become carbon neutral by 2050.

So, we're reviewing our own targets to align with this.

Becoming carbon neutral means taking action to remove as much carbon dioxide from the atmosphere as is put into it. The overall goal being to achieve a zero-carbon footprint.

But we'd like to know your thoughts on the subject.

Q3. What should our target be?

Please choose one option only.

NOTE: For the purpose of this question, your choices won't affect the bill impact shown in this tool. It's just your opinion we'd like for now. But as a general rule, the sooner we aim to be carbon neutral, the more it is likely to cost.

- We should aim to be carbon neutral by 2050 (Government target)
- We should aim to be carbon neutral by 2040
- We should aim to be carbon neutral by 2030
- I don't know
- I don't think this should be a priority for National Grid

Nature and nurture

National Grid owns the land surrounding a lot of its sites in England, Scotland and Wales. And sometimes we're able to use this land to help wildlife or create spaces for local communities to use.

Learn more-

- National Grid owns about 4,000 hectares of land around its sites. The equivalent of 2,500 football pitches.
- We work with local partners like The Wildlife Trusts to create new habitats such as wildflower meadows with this land.
- And we also provide spaces for forest schools, to be used by local children.

We can't adapt all National Grid sites, and any work depends on the type of land at each location. But there are sites where we could create improvements in the future.

Q4. What should our approach be to adapting National Grid sites between 2021 and 2026?

Please choose one option only.

- Stop doing this type of work
- Prioritise creating important habitats for wildlife, identified by local partners
- Prioritise giving local communities more access to our land
- Prioritise delivering the greatest overall environmental value from our land (for both wildlife and communities)
- I don't know

Time for a review

Some parts of National Grid's Gas Transmission Network (NTS) were installed around 50 years ago.

Since then, we've seen gradual changes in the way consumers use the network.

And naturally, some of our equipment has aged.

So, small sections of our network are either no longer required, or need attention for safety reasons.

We call these our 'redundant assets'.

Redundant assets

While these redundant assets don't pose an immediate risk, we need to think carefully about what work we carry out on them between 2021 and 2026.

This could be demolishing, decommissioning or maintaining them. But costs and impacts vary for each.

Q5. What do you think we should do?

NOTE: This type of work is regulated, and we will ensure we meet or exceed any legislative requirements set out by the Health and Safety Executive and the Environmental Regulators.

Please choose one option only.

- **Demolish high-risk redundant assets only, as soon as possible**
  (Prioritise high-risk projects and maintain the remaining equipment to keep it safe and secure.)
- **Demolish all above ground assets as soon as possible (and decommission below-ground assets)**
  (In other words, keeping the redundant assets in place rather than removing them entirely. But effectively 'turning them off'.)
- **Defer all works and manage any risk**

(In other words, take no additional 'non-critical' demolition or decommissioning action, but maintain the safety and security of equipment.)

- **I don't know**

Electricity

We want to support the communities we work in, and there are many ways in which we can do this.

For example, the cost of National Grid's electricity network adds around £25 a year to the average household electricity bill. We could help people who might struggle to pay these bills.

We could also help more vulnerable members of the community, and work with young people to promote electrical safety and engineering in general, among other things.

In this section, we want to know what you think we should do, and how you think we should pay for these types of activities.

Supporting communities

We currently support communities in the areas we work in through a range of different activities, from volunteering, to providing grants, to working with local charities.

Here are some of the ways that National Grid supports community initiatives.

•City Year UK

(Supporting education and mentoring within schools for disadvantaged communities.)

•Skills for Good

(Providing business and tech skills to not-for-profit organisations.)

•Step Up to Serve

(Promoting youth social action.)

•This is Engineering

(Promoting science, technology, engineering and mathematics (STEM) subjects. Encouraging children to take up engineering as a career.)

•National Grid's Community Grant Programme

(Over £1 million of grants awarded since 2015, funding charity and community-group projects that meet local community needs by providing a range of social, economic and environmental benefits.)

Choosing our priorities

Some of these activities are paid for by National Grid; others are paid for by consumers across Great Britain.

We want to continue to support the communities we work in, but we'd like your opinion on how we should do this, and how it should be funded.

Q1. What type of community and charity work should we focus on?

Please mark on a scale of 1 to 5, where 1 represents a very low priority and 5 represents a very high priority.

NOTE: For the purpose of this question, your choices won't affect the bill impact shown in this tool. It's just your opinion we'd like for now

- **Tackling fuel poverty**
  Initiatives helping consumers reduce their bills and deploying energy-efficiency measures in homes.
- **Helping communities**
  Working with and supporting local communities through a variety of social projects and grants.
- **Supporting charities**
  Working with and supporting a range of charities and good causes.
- **Promoting education**
  Raising awareness among young people of the opportunities available in science, technology, engineering and mathematics (STEM) subjects – through apprenticeships, workshops and collaboration with schools.
- **Supporting vulnerable members of society**
  Working with other organisations to help the most vulnerable members of society, including those with disabilities, older members of the community and the unemployed.
- **Other**
- **I don't know**

Q2. How should our community and charity work be funded?

Please choose one option only.

- National Grid should pay
- Costs should be shared between National Grid and consumers' bills
- Costs should be shared across consumers' bills

- I don't know

The environment

Our gas network has an impact on the environment. And we have a choice around what actions we take (or don't take) in this area.

Some of our activities produce greenhouse gases. We'd like to know what you think we should do about this.

We also own the land surrounding many of our sites in England, Scotland and Wales, and we'd like to know how you think we should use this land.

Let's talk about emissions

So, what exactly are greenhouse gas emissions?

They're gases capable of trapping and holding heat in the atmosphere.

Such gases include Carbon Dioxide and Methane.

By increasing the heat in the atmosphere, greenhouse gases are responsible for the 'greenhouse effect', which ultimately leads to global warming.

Tackling greenhouse gases

Some of our current activities release greenhouse gases into the atmosphere.

Learn more-

- Building or replacing the equipment in our network can involve a lot of steel and concrete, and the transportation of equipment from abroad.
- Our fleet of cars, vans and lorries is mostly powered by petrol or diesel.
- We use energy to heat and light our buildings.
- We use insulating gas to help keep our equipment safe, but if this leaks it's bad for global warming.

There are actions we can take between 2021 and 2026* to reduce our emissions.

Some are quicker. Others are longer-term. Some cost less. Others cost more.

* Our next regulatory period

And this is why we need your help!

Q1. What should we do about these emissions?

Please select everything you'd like us to do.

NOTE: You'll instantly see any bill impact when you choose an option.

- **Fleet vehicles**
  Replace with more eco-friendly alternatives (electric or hydrogen-powered for example).
- **Equipment**
  Select based on environmental impact – not just cost.
- **Harmful gases**
  Replace equipment containing harmful gases with more eco-friendly alternatives. We could also reduce leaks from existing equipment.
- **Carbon neutral construction**
  Minimise our emissions and fund projects that help remove carbon dioxide from the atmosphere (planting trees for example), so that the overall impact of our construction work on the environment is neutral.
- **Green power**
  Only buy energy from renewable sources.
- **Do nothing**
  Make no further investments in this area.
- I don't know

Becoming carbon neutral

Between 1990 and 2018 we reduced our greenhouse gas emissions by 65%.

Recently, the Government set a UK-wide target for the country to become carbon neutral by 2050.

So, we're reviewing our own targets to align with this.

Becoming carbon neutral means taking action to remove as much carbon dioxide from the atmosphere as is put into it. The overall goal being to achieve a zero-carbon footprint.

We'd like to know your thoughts on the subject.

Q2. What should our target be?

Please choose one option only.

NOTE: For the purpose of this question, your choices won't affect the bill impact shown in this tool. It's just your opinion we'd like for now. But as a general rule, the sooner we aim to be carbon neutral, the more it is likely to cost.

- We should aim to be carbon neutral by 2050 (Government target)
- We should aim to be carbon neutral by 2040
- We should aim to be carbon neutral by 2030
- I don't know
- I don't think this should be a priority for National Grid

Renewables and non-renewables

Part of our role is to connect energy sources to our network.

These can include 'non-renewable' sources, including fossil fuels such as gas-fired power stations and nuclear power, or 'renewable' sources such as wind and large solar farms.

Currently, the terms of our licence from Ofgem mean that we're not allowed to treat renewable connections any differently to non-renewable connections. So, we can't make them quicker or cheaper for consumers.

Q3. What do you think about this?

Please choose one option only.

Note: For the purpose of this exercise, your choices will not affect your bill. It's just your opinion we'd like for now.

- Renewable and non-renewable connections should continue to be treated equally in future
- Priority should be given to renewable connections in future
- We should only be connecting renewable electricity in future
- I don't know
- This isn't something that's important to me

Nature and nurture

National Grid owns the land surrounding a lot of its sites in England and Wales. And sometimes we're able to use this land to help wildlife or create spaces for local communities to use.

Learn more-

- National Grid owns about 4,000 hectares of land around its sites. The equivalent of 2,500 football pitches.

- We work with local partners like The Wildlife Trusts to create new habitats such as wildflower meadows with this land.
- And we also provide spaces for forest schools, to be used by local children.

We can't adapt all National Grid sites, and any work depends on the type of land at each location. But there are sites where we could create improvements in the future.

Q4. What should our approach be to adapting National Grid sites between 2021 and 2026?

- Stop doing this type of work
- Prioritise creating important habitats for wildlife, identified by local partners
- Prioritise giving local communities more access to our land
- Prioritise delivering the greatest overall environmental value from our land (for both wildlife and communities)
- I don't know

Visual Impact

Most of National Grid's electricity network was built around 50 years ago, when planning laws were very different to nowadays.

Some of our network is very visible in particular parts of England and Wales*, including in some National Parks and Areas of Outstanding Natural Beauty (AONBs).

Yes, we mean pylons and overhead lines.

There are things we can do to decrease the visual impact of our network in these areas, and we'd like to know your views on this topic.

* We don't have an electricity network in Scotland.

Let's talk pylons!

We have over 350 miles of overhead lines and pylons in National Parks and AONBs in England and Wales. That's around 1,800 pylons. (We don't operate in Scotland.)

We're currently in the process of removing around 10 miles of these, and putting them underground, in order to reduce their visual impact.

This is happening in 3 areas (as chosen by an independent group of stakeholders):

- Snowdonia
- The Peak District
- Dorset AONB

Q1. How many more miles of existing pylons and overhead lines should we put underground between 2021 and 2026 in national parks?

Please choose one option only.

NOTE: We may not be able to do so in all areas because of the type of landscape, or because of the disruption it would cause to local habitats.

- 0 miles
- Up to 3 miles
- Up to 6 miles
- Up to 9 miles
- Up to 12 miles
- Up to 15 miles
- I don't know

Q2. How many more miles of existing pylons and overhead lines should we put underground between 2021 and 2026 in AONBs?

- 0 miles
- Up to 3 miles
- Up to 6 miles
- Up to 9 miles
- Up to 12 miles
- Up to 15 miles
- I don't know

Planting trees. Moving footpaths.

These are two of the actions we can take to improve the look of areas where there are existing pylons and overhead lines in English and Welsh national parks and Areas of Outstanding Natural Beauty (AONBs).

And while it does mean that pylons and overhead lines remain above ground, it costs less than putting them underground.

We're already planting trees and moving footpaths in certain areas.

Q3. How many of these types of projects do you think we should carry out between 2021 and 2026 in national parks?

- None
- 1 - 5 projects
- 6 - 10 projects
- 11 - 20 projects
- 21 - 30 projects
- 31 - 50 projects
- 51 - 100 projects
- I don't know

Q4. How many of these types of projects do you think we should carry out between 2021 and 2026 in AONBs?

- None
- 1 - 5 projects
- 6 - 10 projects
- 11 - 20 projects
- 21 - 30 projects
- 31 - 50 projects
- 51 - 100 projects
- I don't know

Blending in

Another way we can improve the look of our 1,800 pylons, is to paint them an appropriate colour, so they blend in with the landscape better.

While National Grid doesn't do this yet, this sort of thing has already proven successful with mobile phone masts.

Q5. How many of our pylons should we paint in this way between 2021 and 2026?

NOTE: We may not be able to do so in all areas for safety reasons. (For example, in those where aircraft fly low.)

Please choose one option only.

- None
- Up to 300 pylons
- Up to 600 pylons
- Up to 900 pylons
- I don't know

Reliability

We invest in our network to make sure electricity is there when you need it.

This includes maintaining and repairing existing equipment and replacing old equipment when it reaches the end of its life.

It also includes protecting against things like cyber-attacks and extreme weather events.

To help set the right level of investment, we'd like to know what you need from the network.

Managing the risk of disruption

We have choices around how we manage the equipment in our network.

For example, the sooner we replace old equipment and the more often we maintain it, the less risk there is of the network failing in the future.

But these actions can have cost implications.

And we must balance maintaining or replacing equipment with the need to continue to provide a constant supply of electricity, so there are limits on how much we can do at any one time.

To help us decide how we manage our network, we'd like to know what is most important to you.

Q1. Between 2021 and 2026, how should we manage the reliability of our network?

Please choose one option only.

NOTE: Whatever option you choose, we'll always make sure we comply with legislation concerning safety and the environment.

- Reduce costs, even if this reduces reliability
- Maintain same level of reliability as currently
- Increase future reliability of network
- I don't know

Keeping electricity flowing

Even though we manage our network to make sure everyone receives a reliable supply of electricity, there's still a very small chance of a blackout occurring.

This is very unlikely, but if it were to happen, we have plans in place to restore power as quickly as possible.

The Government and other national bodies set minimum standards that we must meet, but we do have some options around exactly what we could do.

Q2. How should we approach restoring power between 2021 and 2026?

Please choose one option only.

- Continue with our current standard
- Change our standard
- I don't know
- I don't think this should be a priority for National Grid

Resilience

One of the ways we make sure there's a reliable electricity supply is by protecting our network against external threats.

These could include cyber-attacks, physical attacks on our equipment, or natural dangers such as extreme flooding.

Safeguarding the system

The Government and other national bodies set minimum standards that we must meet for protecting against external threats.

But we do have some choice around what (if any) extra levels of protection and additional actions we take between 2021 and 2026.

NOTE: Going beyond minimum levels can increase costs.

Q3. What levels of protection (cyber, physical and flood) should we adopt for our electricity network?

Please choose one option only.

And please note, the higher the protection, the higher the cost.

NOTE: For the purpose of this question, your choices won't affect the bill impact shown in this tool. More work on our plans will be needed, based on your opinions given here, to determine actual costs.

- **Very high levels of protection against external threats**
  Protection levels equivalent to those in the defence industry
- **High levels of protection against external threats**

Protection levels equivalent to those in the retail banking industry.

- **Medium-high levels of protection against external threats**
  Protection levels equivalent to those in the telecoms industry.
- **Medium-low levels of protection against external threats**
  Protection levels equivalent to those in the transport industry.
- **Low levels of protection against external threats**
  Protection levels equivalent to those in the agriculture industry
- I don't know
- I don't think this should be a priority for National Grid

Innovation

Innovation can be described as a new idea or a better way of doing something.

At National Grid, we invest in innovation projects to find new and efficient ways of running our network, saving money for consumers, and helping the environment.

We'd love to hear your views on how we should approach innovation in the future.

Fresh thinking

Any future National Grid innovation projects will potentially reduce costs, improve levels of service, or create environmental benefits.

However, innovation projects are all about trying new things, so no project is actually guaranteed to deliver a benefit.

By talking to our stakeholders, we've identified potential areas of innovation in which to invest.

Q1. How important to you is each of these areas?

Please mark on a scale of 1 to 5, where 1 is not at all important and 5 is extremely important.

NOTE: For the purpose of this question, your choices won't affect your bill. It's just your opinion we'd like for now.

- Reduce costs for consumers in the shorter term (2021-2026)
- Improve the performance of our network and minimise costs for everyone by making our network more digital
- Allow us to test new technology offline without any risk to network reliability and safety, or to the environment

- Help other organisations become more environmentally friendly to support the country's move to a low-carbon economy
- Improve the service we offer to our direct consumers, to speed up the connection of green energy production
- Reduce our own carbon footprint by finding new, more environmentally friendly materials to use
- Improve safety for the public and our employees
- Reduce the long-term costs of innovation by finding new ways of funding projects
- I don't know

Innovative approaches

Some organisations are well known for their fresh ideas, whereas others have less of a focus on innovation.

Q2. How innovative do you think National Grid should be as a company?

Please choose one option only.

- **1 Not at all innovative**
  People rely on these types of companies during their day-to-day life. Any disruption could have wide-ranging impacts. Any spending tends to be cautious and well justified because often these types of companies are funded by public money.

  -Advantages

  Reliable and solid.

  -Potential risks

  Limited innovation can mean that companies are less efficient and may not provide the right solutions for their consumers.
- 2
- 3
- 4
- **5 Highly innovative**
  These types of companies not only shape markets, they create entirely new ones. They must be five steps ahead to stay in business.

  -Advantages

  Consumer focused, agile, and potentially more efficient.

  -Potential risks

  Innovation can result in failures before success is achieved.
- **I don't know**

A greener economy

To create a greener economy, society must move towards a 'decarbonisation of energy'. But what exactly does this mean?

It means reducing the global amount of carbon dioxide in the atmosphere by adopting low-carbon sources of energy – for heating, cooling, lighting, manufacturing and transport in particular.

National Grid's role in transporting electricity means we can affect how quickly the country becomes greener.

For example, we could invest to make sure our network is ready for a big growth in the future number of electric vehicles. And we could invest to make it quicker and easier to connect to greener energy sources – known as 'renewables.

What do you think we should do between 2021 and 2026?

Any selections you make for this topic won't show as an impact on your bill. But we'd really like to know your thoughts, to help shape our future thinking

Making connections

Electricity generators (gas, nuclear, wind and solar), battery and storage providers, and distribution networks across England and Wales connect to our network. And more and more connections – particularly to green energy – will be made in the future.

Playing our part

Sometimes when we build new connections, we also have to strengthen our existing network to make sure it's ready (because more power will be flowing through the network).

And this can take several years.

We currently only begin this process once our consumers officially confirm they want to go ahead.

All of this means a potential delay to connections of renewable energy, and to the country's overall aim of becoming carbon neutral.

We'd like to know your thoughts on how we should approach this topic between 2021 and 2026.

Q1. How should we approach connecting high-speed charging points for electric vehicles?

- **Invest now to meet potential demand**

We should invest now so that charging points are ready for when more people start to drive electric vehicles.

- **Wait until there's a definite demand for charging points**
  We should wait until there is a definite demand for electric vehicle charging points before we start building or strengthening the network.
- I don't know

Q2. How should we approach connecting 'renewable' energy to our network?

Please choose one option only.

- **Invest as soon as projects seem likely to happen**
  We should build or strengthen the network as soon as new renewable connection projects look likely to happen (before they're confirmed).
- **Wait until projects are confirmed**
  We should wait until renewable connection projects are confirmed before we start building or strengthening the network.
- I don't know

Final questions

To what extent do you agree or disagree that you currently receive value for money from National Grid?

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- I don't know

To what extent do you agree or disagree that your chosen plan would deliver value for money from National Grid?

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree
- I don't know

Committed to
creating insightful and
dynamic partnerships
that deliver powerful and
intelligent results.

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