BEIS Public Attitudes Tracker: Energy Infrastructure and Energy Sources, Winter 2022, UK

9 MARCH 2023 **Official Statistics**

This report covers questions on energy infrastructure and energy sources asked in the BEIS Public Attitudes Tracker since Autumn 2021. The report includes Winter 2022 results from a quarterly question on support for renewable energy, and a series of annual questions on attitudes towards nuclear energy.

This report also includes biannual (Autumn and Spring) questions on support for different types of renewables, fusion energy and carbon capture and storage; and annual questions on attitudes towards renewable energy infrastructure, shale gas and small modular reactors, hydrogen and energy security, which were covered in previous quarters (see table below).

What you need to know about these statistics: These results from the BEIS Public Attitudes Tracker (PAT) were collected using the Address Based Online Surveying (ABOS) methodology introduced in Autumn 2021, which uses random probability sampling. The results should not be compared with previous PAT surveys, which used different data collection methods. For details, see the Technical Report.

The table below shows the topics covered in this report and when these questions were included in the BEIS Public Attitudes Tracker. Links are included to the findings for each topic within this report.

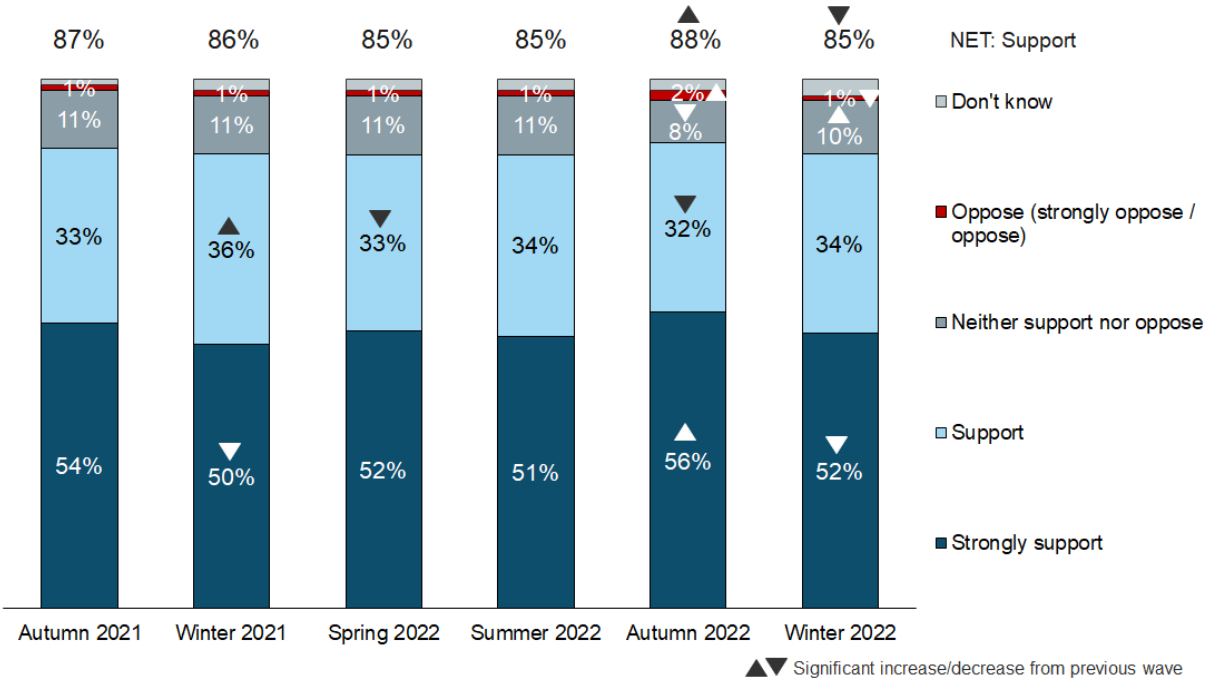
Topic	When included	Link to findings
Support for renewable energy	Quarterly	Link
Support for different types of renewables	Autumn 2021, Spring 2022, Autumn 2022	Link
Attitudes towards renewable energy and infrastructure	Spring 2022	Link
Awareness and support for fusion energy	Autumn 2021, Spring 2022, Autumn 2022	Link
Awareness and support for shale gas	Autumn 2021, Autumn 2022	Link
Awareness of small modular reactors	Autumn 2021, Autumn 2022	Link
Attitudes towards nuclear energy	Winter 2021, Winter 2022	Link
Awareness and support for carbon capture and storage	Spring 2022, Autumn 2022	Link
Awareness of hydrogen	Spring 2022	Link
Attitudes towards energy security	Summer 2022	Link

Support for renewable energy

In Winter 2022, 85% of people said that they supported the use of renewable energy such as wind power, solar energy and biomass to provide electricity, fuel and heat; this figure has fallen slightly since Autumn 2022 (88%). The proportion who strongly supported renewable energy also fell slightly between Autumn 2022 and Winter 2022 (from 56% to 52%, respectively) (Figure 1.1). This represents a return to a pattern similar to that seen in Summer 2022. Opposition to renewable energy remained very low, with just 1% of people reporting this.

Over the longer-term, levels of support for renewable energy have remained broadly consistent since Winter 2021.

Figure 1.1: Whether support use of renewable energy (based on all people), Autumn 2021 to Winter 2022



RENEWSUPPORT. The next question is about renewable energy. This includes a number of different forms of energy, such as wind power, solar energy and biomass. Do you support or oppose the use of renewable energy for providing our electricity, fuel and heat?
Base: All wave respondents – Autumn 2021 (5,558), Winter 2021 (3,705), Spring 2022 (4,373), Summer 2022 (4,489), Autumn 2022 (4,160), Winter 2022 (3,572) (Asked Quarterly)

As in all previous waves, the proportion who strongly supported renewable energy was higher for men (55% compared with 49% of women) and people educated to degree level (67%, compared with 48% of those with other qualifications and 35% of people with no qualifications). Also as in previous waves, people in managerial, administrative and professional occupations were more likely to strongly support renewables (60%) than those in all other socio-economic (NS-SEC[1]) categories (39% to 50%).

By geography strong support was highest in London (55%), the South West (55%), the North West (54%), Scotland (54%) and the South East (53%) and lowest in Wales (40%).

[1] National Statistics Socio-Economic Classification. The PAT survey uses the self-coded method of deriving NS-SEC which classifies people into six categories.

Support for different types of renewables

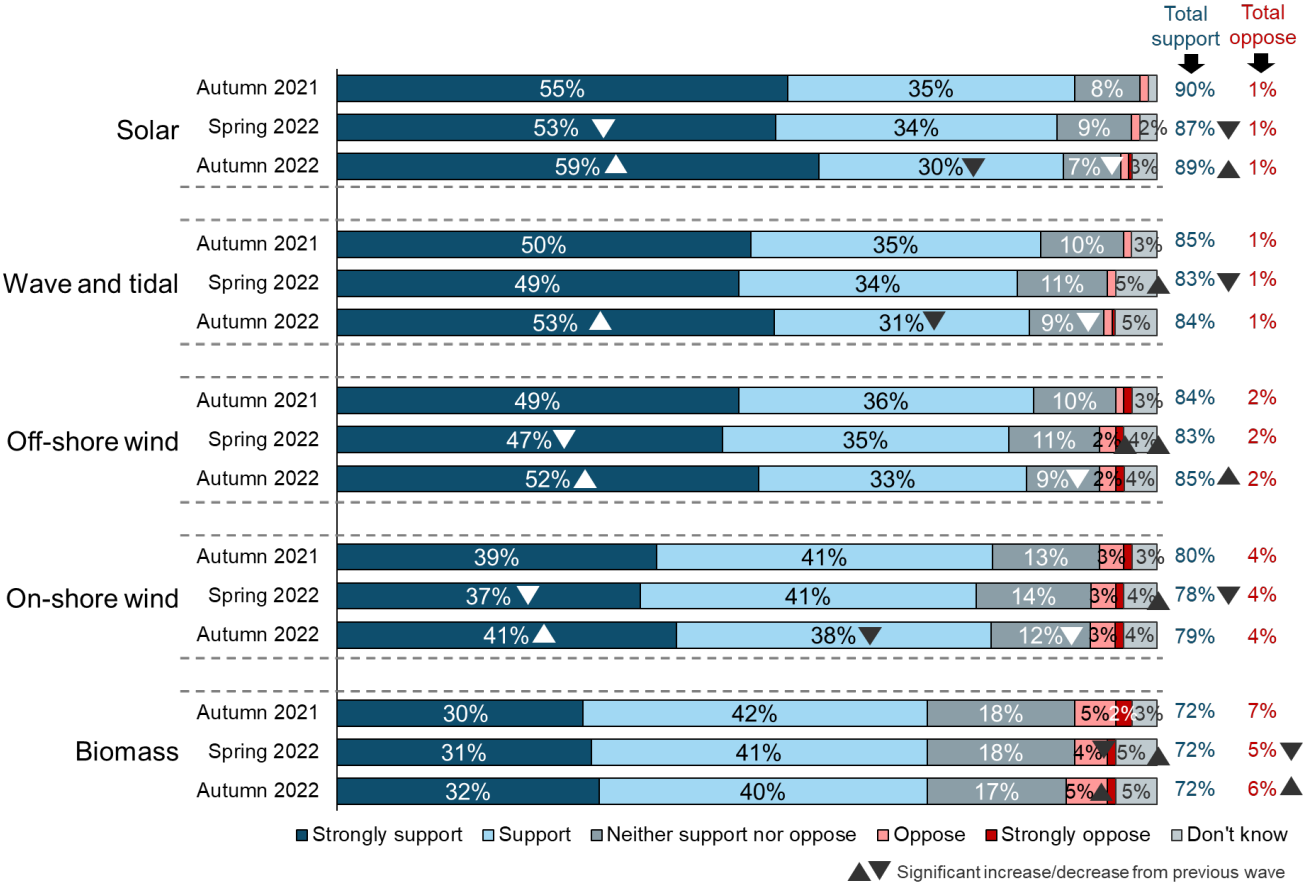
As noted in Figure 1.1, 88% of people in Autumn 2022 supported renewable energy as a general concept. A further question on the level of support for different types of renewable energy is asked bi-annually, and this was asked for the third time in Autumn 2022.

In Autumn 2022, level of support for different types of renewable energy developments varied by type of renewable energy. At least eight in ten were supportive of solar energy (89%, up from 87% in Spring 2022), wave and tidal energy (84%, no change), off-shore wind (85%, up from 83%), and on-shore wind (79%, no change). Support for biomass was slightly lower (72%, unchanged) although people were more likely to give a neutral opinion on this compared with other technologies (17% said they neither supported nor opposed this technology).

Between Spring 2022 and Autumn 2022 the level of strong support increased for solar energy (59%, up from 53% in Spring 2022), wave and tidal energy (53%, up from 49%), off-shore wind (52%, up from 47%) and on-shore wind (41%, up from 37%).

Opposition remained very low across all renewable energy technologies (between 1% and 6% in Autumn 2022) (Figure 2.1).

Figure 2.1: Whether support use of specific renewable energy developments (based on all people), Autumn 2021, Spring and Autumn 2022



RENEW2SUPPORTA-RENEW2SUPPORTE. Generally speaking, do you support or oppose the use of the following renewable energy developments …
*Biomass fuller wording: this refers to any plant or animal-based material (for example food waste, branches, sawdust) or purposely grown crops which can be burned to produce heat and electricity
Base: All wave respondents (Asked Biannually): Autumn 2021: Solar (5,498), wave and tidal (5,482), off-shore wind (5,490), on-shore wind (5,509), Biomass (5,470); Spring 2022: Solar (4,317), wave and tidal (4,311), off-

shore wind (4,320), on-shore wind (4,327), Biomass (4,296); Autumn 2022: Solar (4,130), wave and tidal (4,121), off-shore wind (4,126), on-shore wind (4,130), Biomass (4,113);

There were differences in levels of support for renewables by gender, age, education and socio-economic group although these differences were not always consistent across all technologies.

Men were more likely than women to strongly support off-shore wind energy (57% compared with 48%) and wave and tidal energy (58% compared with 48%). For all five types of renewable energy, people educated to degree level were more likely than those without a degree to express overall support; for example those with a degree were more likely to support wave and tidal energy (91% compared with 74% for those with no qualification) and off-shore wind (91% compared with 76%).

By NS-SEC, those in managerial, administrative and professional occupations were more likely than average to support most types of renewable energy (all types except biomass energy). For example, people in managerial and professional occupations were more likely than those in semi-routine and routine occupations to support off-shore wind (89% compared with 76%) and wave and tidal (89% compared with 74%). People in semi-routine and routine occupations were more likely to give a neutral response of ‘neither support nor oppose’ compared to managerial and professional occupations to the development of all renewable technologies, for example, on-shore wind (21% compared to 9%) and wave and tidal energy (18% compared to 7%).

Attitudes towards renewable energy and infrastructure

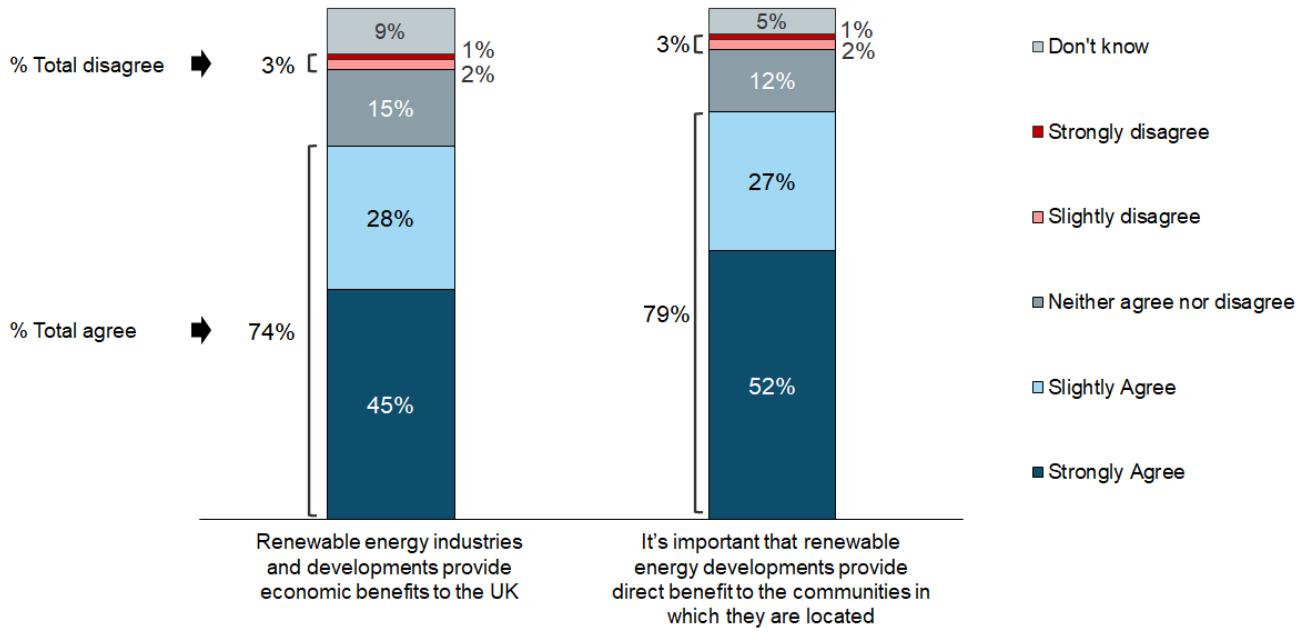
Attitudes towards renewable energy

In Spring 2022, attitudes towards renewable energy were further measured by asking people how much they agreed or disagreed with the following statements:

- 'Renewable energy industries and developments provide economic benefits to the UK'
- 'It's important that renewable energy developments provide direct benefit to the communities in which they are located'

At an overall level, people were positive that renewable energy provides benefits to the national economy (74% agreed with the first statement), and that it should also directly benefit communities where they are located (79% agreed with the second statement). Negative opinions about renewable energy were rare, with only 3% of people disagreeing with each of these statements. (Figure 3.1).

Figure 3.1: Attitudes towards renewable energy (based on all people), Spring 2022



RENEWATT. As mentioned, renewable energy covers a number of different forms, including wind power, solar energy and biomass. How much do you agree or disagree with each of the following statements?
Base: All wave respondents – Spring 2022: Renewable energy industries and developments provide economic benefits to the UK (4,344); It's important that renewable energy developments provide direct benefit to the communities in which they are located (4,328)

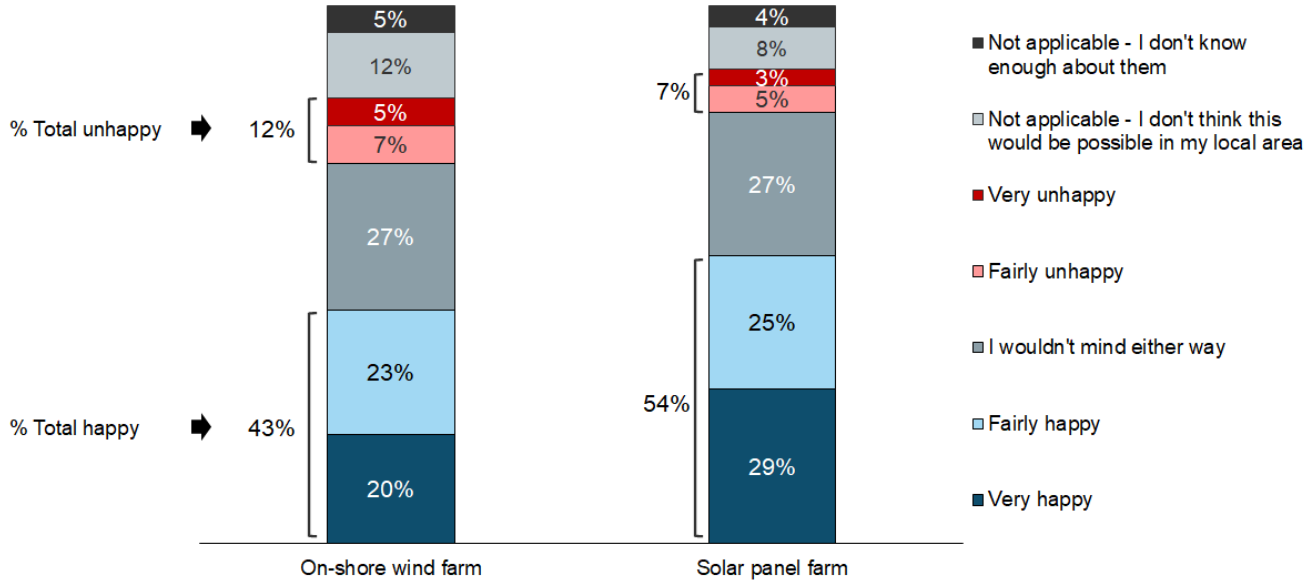
Men were more likely than women to agree that renewable energy industries and developments should provide economic benefits to the UK (78% compared with 70% of women); and those with a degree were also more likely to agree (83% compared with 74% of those with other qualifications and 62% of people with no qualifications).

Attitudes towards renewable energy infrastructure in the local area

In Spring 2022, people were asked how happy they would feel about renewable energy infrastructures being constructed in their local area; separate questions were asked about the construction of an on-shore wind farm and a solar panel farm.

People were happier for a solar panel farm to be built in their local area than an on-shore wind farm. Overall, 54% said that they would be happy about a solar panel farm being built in their local area, while 43% would be happy for an on-shore wind farm to be built in their local area (Figure 3.2). Just over a quarter (27%) said they didn't mind either way about each of these. Relatively few actively opposed either of these types of development: 12% said they would be unhappy about the local construction of an on-shore wind farm and 7% would be unhappy about the local construction of a solar panel farm. A further minority felt that such developments wouldn't be possible in their local area (12% for wind farms, 8% for solar panel farms).

Figure 3.2: Whether would be happy for an on-shore wind farm and solar panel farm to be constructed in their local area (based on all people), Spring 2022



WINDFARM. Now imagine that there are plans for an on-shore wind farm to be constructed in your local area. How happy or unhappy would you be about this? If you already have this in your local area, answer on the basis of how you feel about this now
SOLARFARM. Now imagine that there are plans for a solar panel farm to be constructed in your local area. How happy or unhappy would you be about this? If you already have this in your local area, answer on the basis of how you feel about this now
Base: All wave respondents – Spring 2022: Wind farm (4,361), Solar farm (4,369)

Men were more accepting of both types of renewable infrastructure, being more likely to be happy about a local on-shore wind farm (46% compared with 41% of women) and a local solar panel farm (58% compared with 51% of women).

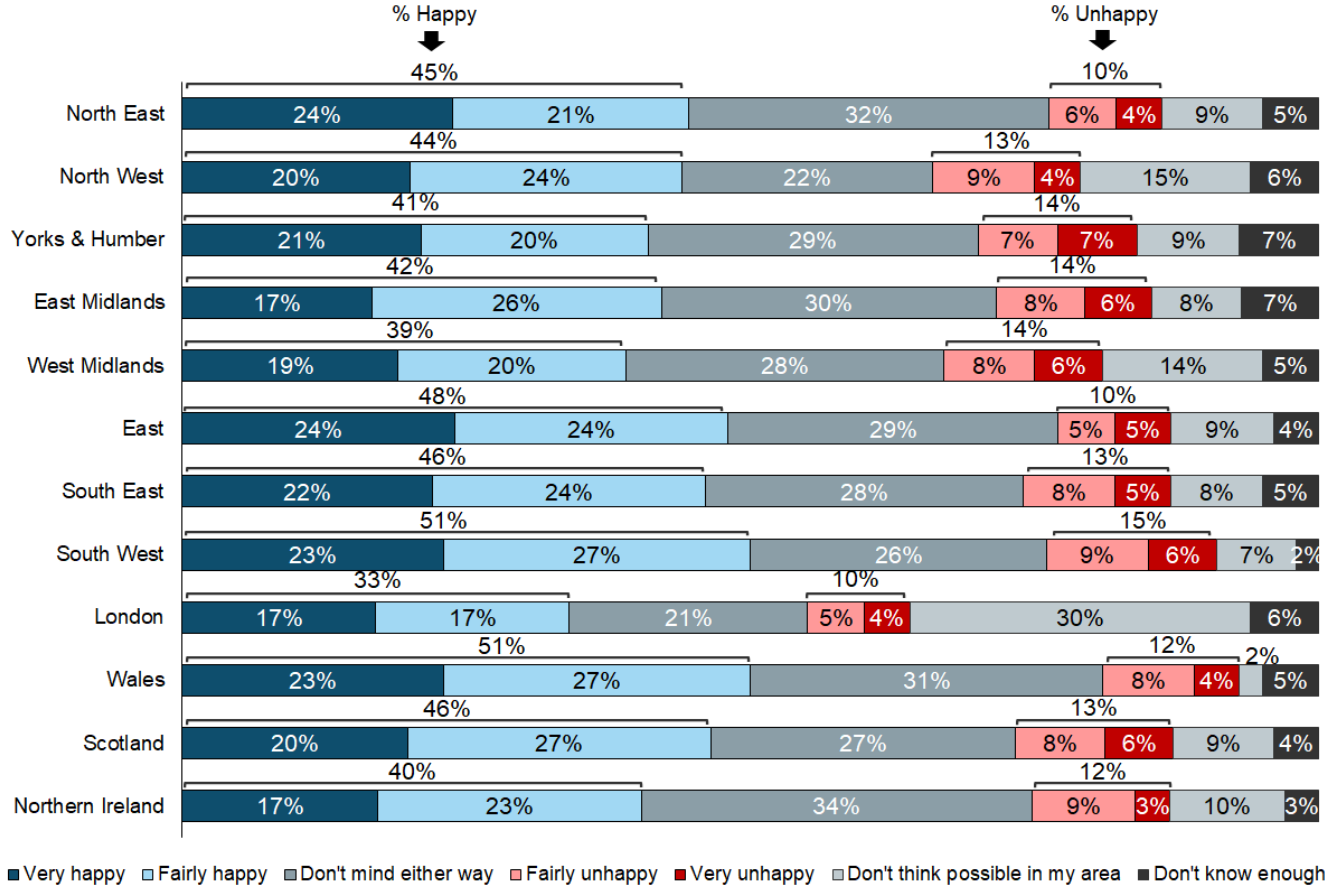
People educated to degree level were also more likely to be happy about a local on-shore wind farm (48% compared with 42% of people without a degree) and about a local solar panel farm (63% compared with 54% of those with another qualification and 43% of people with no qualifications).

While there was no difference in overall happiness by age in relation to on-shore wind farms, people aged under 45 were more likely to say they would be happy to have a local solar panel farm (59% compared with 54% of people aged 45 to 64 and 46% of those aged 65 and over).

People who were concerned about climate change were considerably more likely to be happy about local constructions of both a solar panel farm and an on-shore wind farm. Overall, 68% of people who were very concerned about climate change said they would be happy about a local solar panel farm being built in their local area compared with 50% who were fairly concerned and 31% who were not very or not all concerned about climate change. A similar pattern was observed for local on-shore wind farms with 57%, 39% and 24% of these groups respectively saying they would be happy about this.

Levels of approval for a local on-shore wind farm varied by geography (Figure 3.3). Happiness about having a local on-shore wind farm was higher than the UK average (43%) for people in the South West (51%) of England, Wales (51%), and the East of England (48%), while it was substantially lower in London (33%). However, the lower level of happiness for an on-shore wind farm in London was not due to a higher level of opposition, but instead because a larger percentage of people thought it wouldn't be possible to build a wind farm in their locality: 30% of Londoners felt that a wind farm would not be a viable option, considerably higher than every other locality in the UK.

Figure 3.3: Whether would be happy for an on-shore wind farm to be constructed in their local area by International Territorial Level (based on all people), Spring 2022



WINDFARM. Now imagine that there are plans for an on-shore wind farm to be constructed in your local area. How happy or unhappy would you be about this? If you already have this in your local area, answer on the basis of how you feel about this now

Base: All wave respondents – Spring 2022: North East (260), North West (431), Yorkshire & Humber (342), East Midlands (335), West Midlands (339), East of England (408), London (446), South East (600), South West (424), Wales (213), Scotland (390), Northern Ireland (173)

There was relatively little geographical variation in relation to happiness for a local solar panel farm, although, as with on-shore wind farms, people in London were more likely to think this wouldn't be possible in their local area (20% compared with an average of 6% of people outside of London).

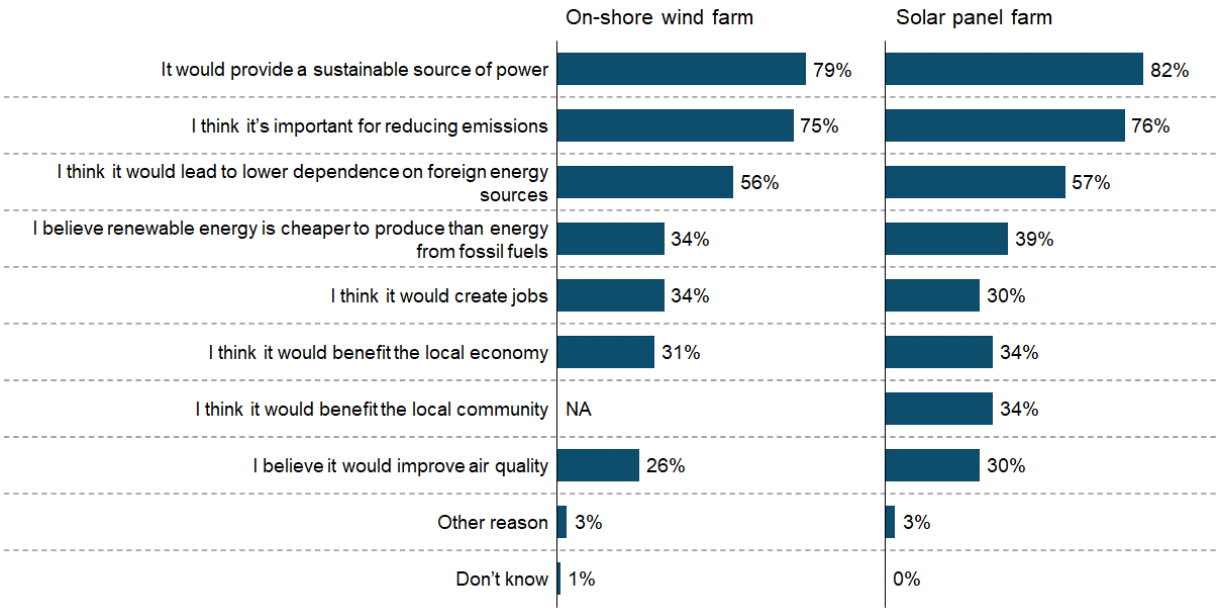
Reasons for being happy about energy infrastructure in local area

Overall in Spring 2022, 43% of people would be happy to have an on-shore wind farm, and 54% would be happy to have a solar panel farm, constructed in their local area. People who said they would be happy about each of these were asked why this was the case. People were prompted to choose from a list of possible reasons, or they could choose an 'other' reason. (Figure 3.4)

The main reasons for being happy about such constructions in their local area were similar for both types of renewable energy infrastructure. Among those who said they would be happy about each of these, a large majority said that it was because they would provide a sustainable source of power (79% wind, 82% solar) with around three quarters saying it was because they think it important for reducing emissions (75% wind, 76% solar). National energy security was also an important reason, with over half of those who were happy thinking that local construction would lower dependence on foreign energy sources (56% wind, 57% solar). It should be noted that the survey was fielded during the war in Ukraine when the potential impact of the war on foreign imports of energy, and on energy prices, was widely covered in the media. This may partly explain the prominence of this reason compared with some other items in the list.

Other reasons for being happy to have renewable energy infrastructures in their local area focussed on economic factors such as cheaper energy production (34% wind, 39% solar), creation of jobs (34% wind, 30% solar), and benefitting the local economy (31% wind, 34% solar). The potential for improved air quality (26% wind, 30% solar) was also mentioned. One in three (34%) of those happy about a local solar panel farm thought that this would benefit the local community (not included in the list of options for wind farms).

Figure 3.4: Reasons for being happy to have an on-shore wind farm or solar panel farm constructed in their local area (based on all who would be happy), Spring 2022



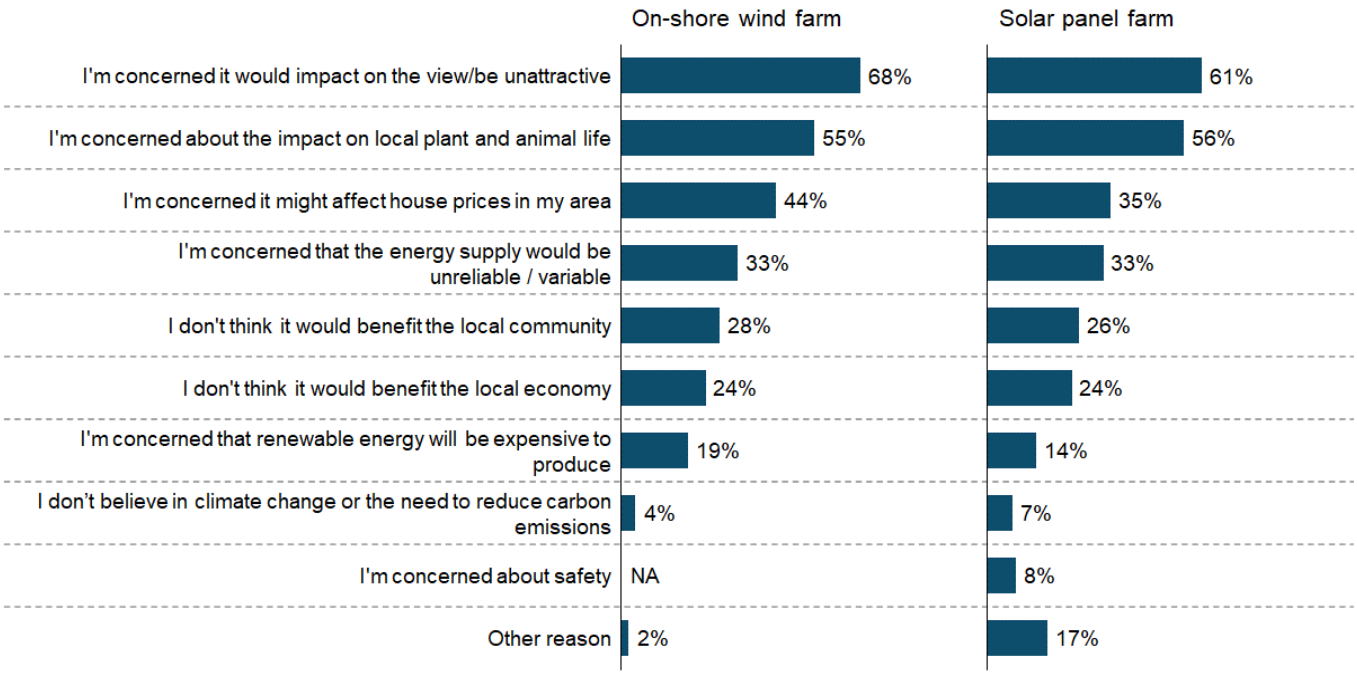
WINDWHYHAPP. You said you would be very or fairly happy for an on-shore wind farm to be built in your local area. Why is this? Please select all that apply
SOLWHYHAPP. You said you would be very or fairly happy for a solar panel farm to be built in your local area. Why is this? Please select all that apply
Base: All wave respondents who would be happy – Spring 2022: Wind farm (1,935), Solar farm (2,363)

Reasons for being unhappy about energy infrastructure in local area

Overall in Spring 2022, 12% of people would be unhappy to have an on-shore wind farm, and 7% would be unhappy to have a solar panel farm, constructed in their local area. People who said they would be unhappy about each of these were asked why this was the case. People were prompted to choose from a list of possible reasons, or they could choose an 'other' reason. (Figure 3.5).

The reasons provided for why people would object to these constructions was similar for both on-shore wind farms and solar panel farms. Within the subgroups of people feeling unhappy about these, the main reasons were concerns about it being unattractive or impacting the view (68% wind, 61% solar), impact on local plant and animal life (55% wind, 56% solar), and concerns about impact on house prices (44% wind, 35% solar). Between a quarter and third of each of these subgroups cited concerns about reliability of energy supply (33% for both), and possible negative impacts on the local community (28% wind, 26% solar) or local economy (24% for both). Smaller proportions were concerned about the cost of production (19% wind, 14% solar) and a relatively high proportion (17%) gave an 'other' response to why they wouldn't want a solar panel farm in the locality[2].

Figure 3.5: Reasons for being unhappy to have an on-shore wind farm or solar panel farm constructed in their local area (based on all who would be unhappy), Spring 2022



WINDWHYNO. You said you would be very or fairly unhappy for an on-shore wind farm to be built in your local area. Why is this? Please select all that apply
SOLWHYNO. You said you would be very or fairly unhappy for a solar panel farm to be built in your local area. Why is this? Please select all that apply
Base: All wave respondents who would not be happy – Spring 2022: Wind farm (573), Solar farm (361)

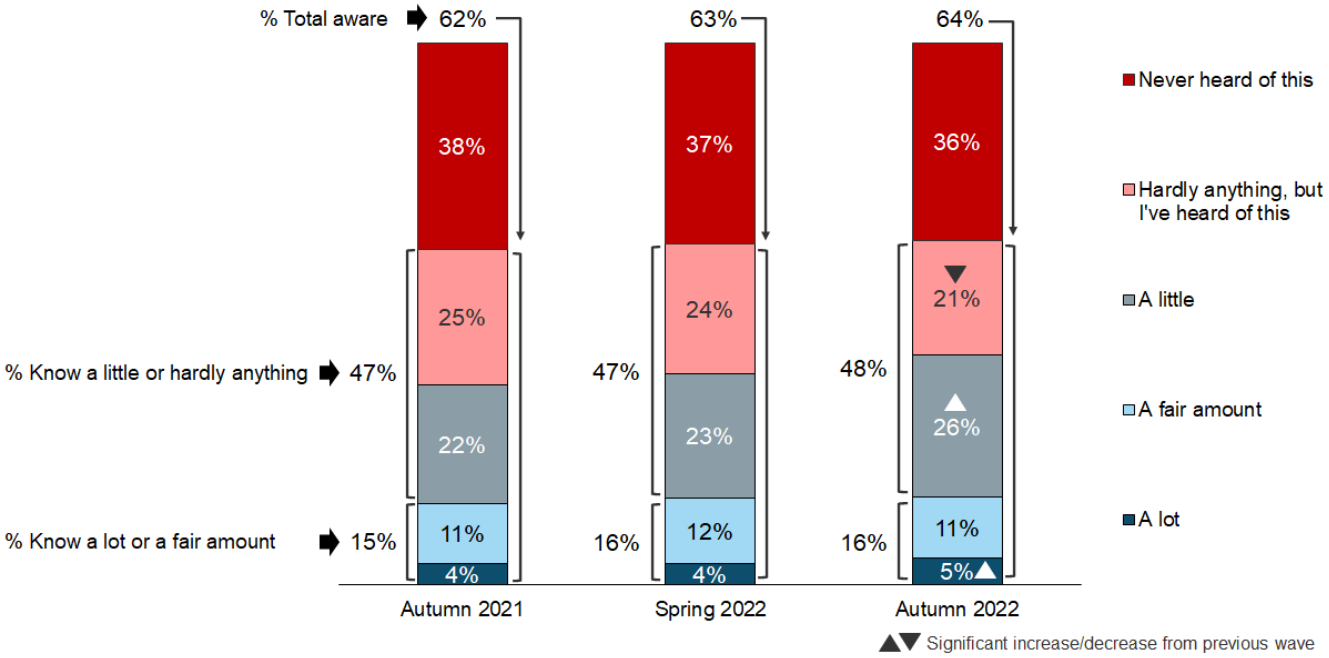
2 Other reasons included concerns that technology is ineffective or inefficient, or that they consider this to be an inappropriate use of land/better to locate in homes.

Awareness and support for fusion energy

Respondents were provided with the following explanation before being presented with some questions on this topic '*Fusion energy is an experimental technology that works by fusing together atoms in order to release energy. The UK is exploring whether this technology could be used to generate zero carbon electricity*'.

In Autumn 2022, 64% of people said they were aware of fusion energy (Figure 4.1), slightly higher than in Autumn 2021 (62%). Underlying this overall change, there has also been an increase between Autumn 2021 and Autumn 2022 in the proportion who knew a little about fusion energy (26% compared with 22%).

Figure 4.1: Awareness of fusion energy (based on all people), Autumn 2021, Spring and Autumn 2022



FUSIONKNOW. Fusion energy is an experimental technology that works by fusing together atoms in order to release energy. The UK is exploring whether this technology could be used to generate zero carbon electricity. Before today, how much, if anything, did you know about fusion energy?
Base: All wave respondents – Autumn 2021 (5,558), Spring 2022 (4,378), Autumn 2022 (4,158)

Men were much more likely to say they were aware of fusion energy (76% compared with 52% of women) and to say they knew at least a fair amount about it (26% compared with 7%).

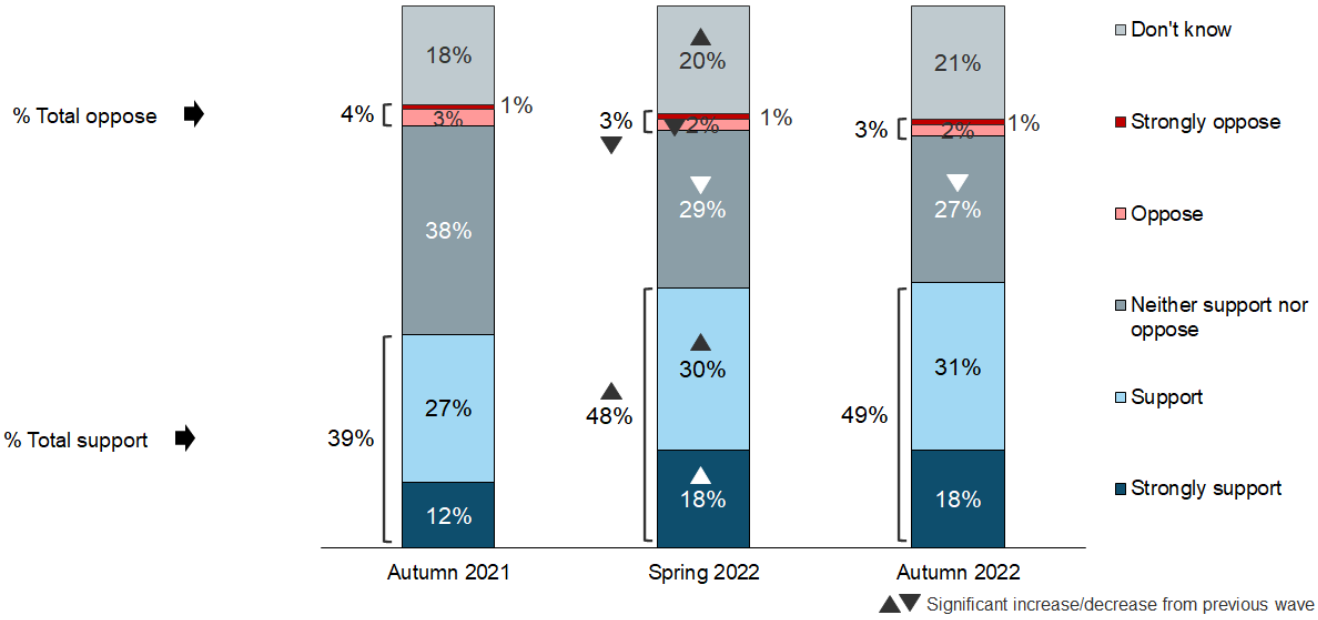
Younger people aged 16 to 24 (23%) and 25 to 34 (20%) were more likely to say they knew at least a fair amount about fusion compared with people aged 35 or over (14%).

As for other energy technologies, overall awareness of fusion energy was higher for those educated to degree level (78% compared with 61% of those with other qualifications and 45% of people with no qualifications) and there was a similar pattern in reported levels of knowledge: 27% of degree-educated people said they knew at least a fair amount, compared with 13% of those with other qualifications and 5% of people with no qualifications.

There was no change in levels of support for fusion energy between Spring 2022 and Autumn 2022 (Figure 4.2). Overall support for fusion energy (49%) remained above the level seen in

Autumn 2021 (39%)[3], as did strong support (18% compared with 12%). Opposition to fusion energy remained very low in Autumn 2022 (3%). However, reflecting the low overall level of awareness and knowledge seen in Figure 4.1, almost half (48%) said that they either didn't know (21%) or could not give an opinion either way (27%).

Figure 4.2: Whether support fusion energy (based on all people), Autumn 2021, Spring 2022 and Autumn 2022



FUSIONSUPPORT. From what you know, or have heard about fusion energy, do you support or oppose the UK developing this technology?
Base: All wave respondents – Autumn 2021 (5,555), Spring 2022 (4,368), Autumn 2022 (4,157)

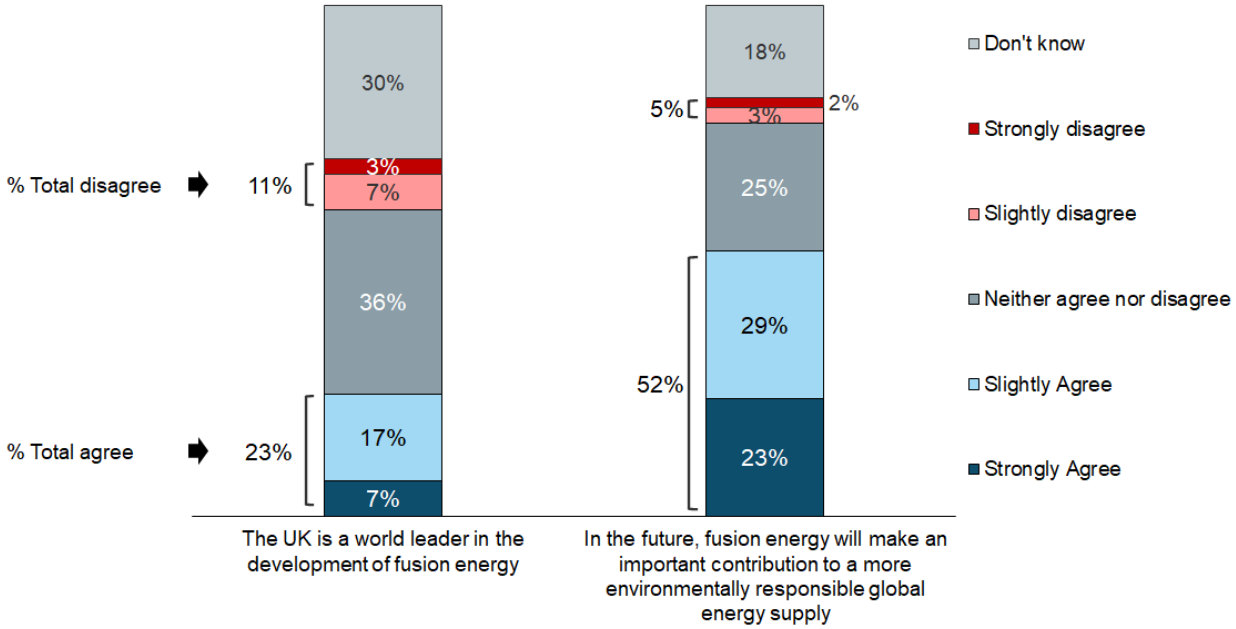
Overall support for fusion energy was higher for men (63%, compared with 35% of women) and degree educated people (59%, compared with 47% of those with another qualification and 37% of those with no qualifications).

[3] The large increase in support between Autumn 2021 and Spring 2022 is surprising given that there is not an associated increase in awareness of fusion energy. One possible cause of this change is that the fusion questions were asked in a different context in Autumn 2021 compared with later waves. In later waves, the questions immediately followed the quarterly and biannual questions on general environmental topics such as net zero, climate change and renewables, whereas in Spring 2021 there was a section on Artificial Intelligence (AI) between these two sections. It is possible therefore that this change is partly explained by question order effects.

Two new questions were added in Autumn 2022 to explore further attitudes towards fusion energy among those who had heard of it (Figure 4.3). Of those aware of fusion energy, over half (52%) agreed that "in the future, fusion energy will make an important contribution to a more environmentally responsible global energy supply", including 23% who agreed strongly. Only 5% disagreed with this statement.

Only about a quarter (23%) agreed that "the UK is a world leader in the development of fusion energy". However, disagreement was also low at 11%, with the majority of people who had heard of fusion energy unable to give an opinion either way (36% neither agreed nor disagreed, and 30% said they didn't know) (Figure 4.3).

Figure 4.3: Attitudes towards fusion energy (based on those aware of fusion energy), Autumn 2022



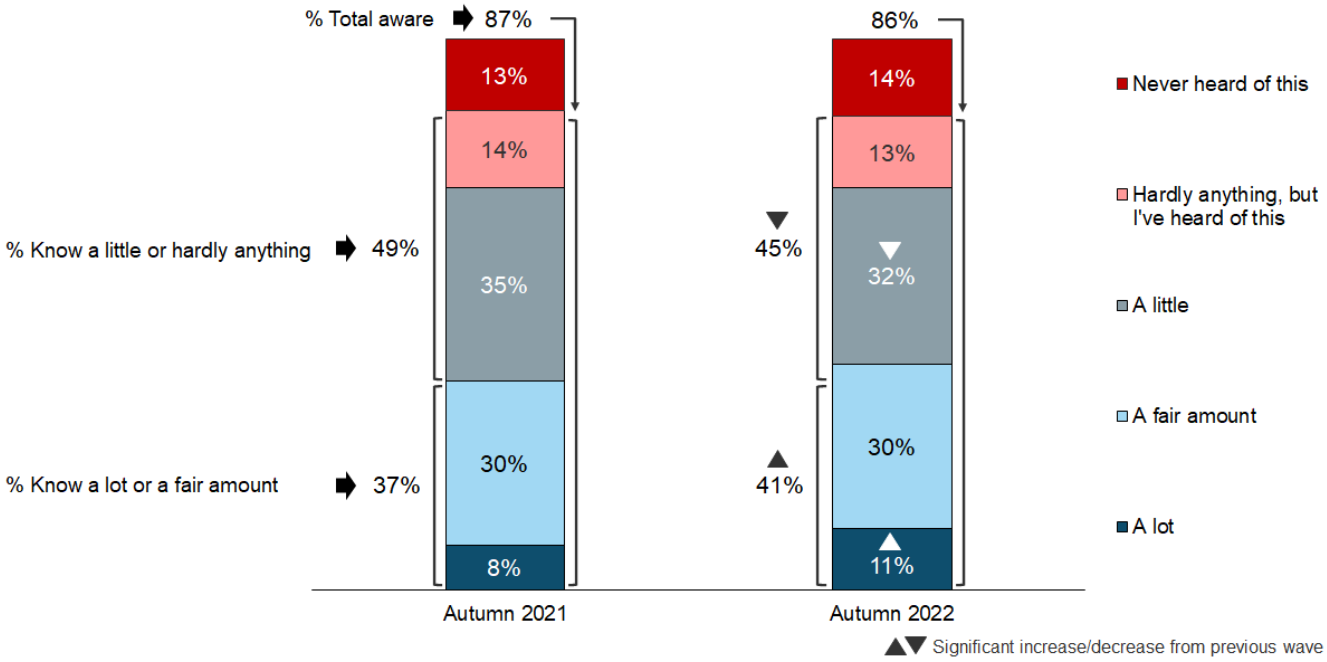
FUSIONATT1-2. From what you know, or have heard about fusion energy, how much do you agree or disagree with the following statements?
Base: All wave respondents who had heard of fusion energy – Autumn 2022: World leader (2,697), Future contribution (2,686)

Awareness and support for shale gas

Questions on awareness and attitudes towards shale gas have been asked on an annual basis. Respondents were provided with the following explanation before being presented with some questions on this topic '*Shale gas is natural gas found in shale, a type of rock which does not allow the gas to escape. Hydraulic fracturing or "fracking" is a process of pumping water at high pressure into shale to create narrow fractures which allow the gas to be released and captured. The gas can then be used for electricity and heating'.*

In Autumn 2022, 86% of people said they had at least some previous knowledge of hydraulic fracturing for shale gas otherwise known as 'fracking', similar to Autumn 2021 (Figure 5.1). However, although awareness remained stable, within this there has been a shift towards greater knowledge about fracking. People were more likely than in Autumn 2021 to say they knew a lot or a fair amount (41% compared with 37%) and there was an associated decline in the proportion saying they knew a little (32% compared with 35%).

Figure 5.1: Awareness of fracking (based on all people), Autumn 2021 and Autumn 2022



FRACKKNOW. Shale gas is natural gas found in shale, a type of rock which does not allow the gas to escape. Hydraulic fracturing or "fracking" is a process of pumping water at high pressure into shale to create narrow fractures which allow the gas to be released and captured. The gas can then be used for electricity and heating. Before today, how much, if anything, did you know about hydraulic fracturing for shale gas, otherwise known as 'fracking'?
Base: All wave respondents – Autumn 2021 (5,559), Autumn 2022 (4,157)

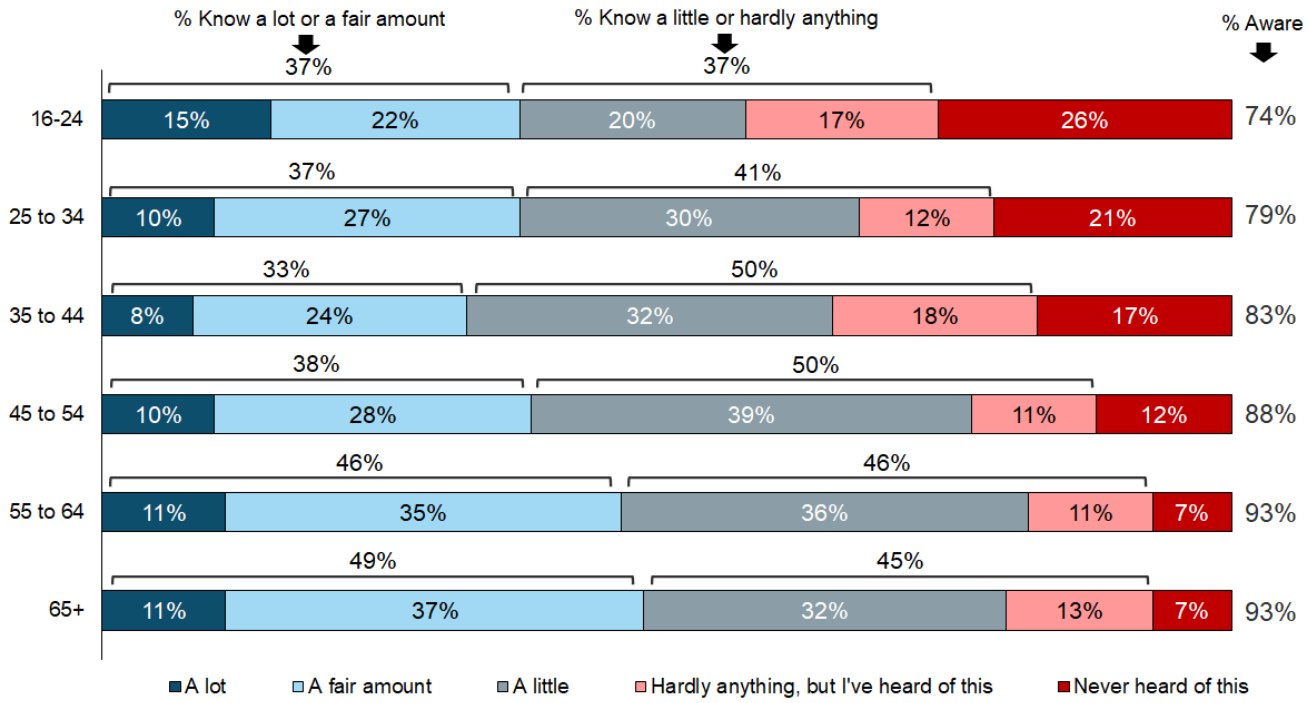
In Autumn 2022, men were more likely to say they were aware of fracking (91% compared with 81% of women) with a more marked difference in the proportion of men saying they knew at least a fair amount (51% compared with 31% of women).

People educated to degree level were more likely to be aware of fracking (91% compared with 86% of those with other qualifications and 80% of people with no qualifications), and to know at least a fair amount about it (53% compared with 37% and 30%).

Awareness of fracking was higher among older people (Figure 5.2): falling from 93% of those aged 55 or over to 74% of those aged 16 to 24.

Differences by age, gender and education were very similar to those seen in Autumn 2021.

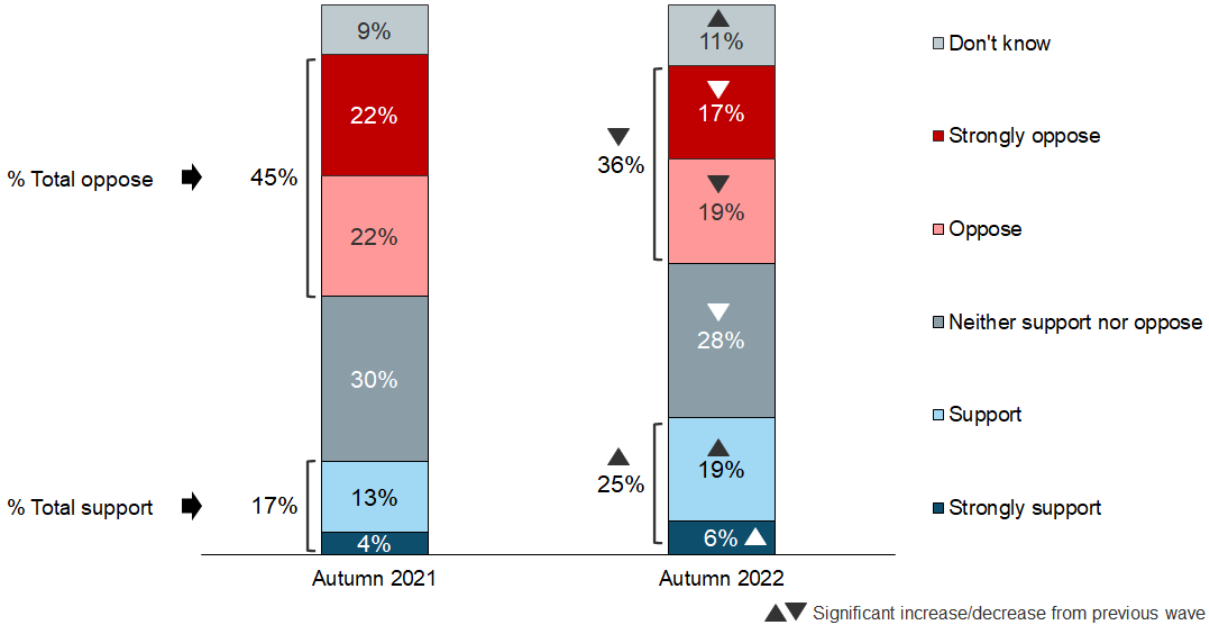
Figure 5.2: Awareness of fracking (based on all people), by age, Autumn 2022



FRACKNOW. Shale gas is natural gas found in shale, a type of rock which does not allow the gas to escape. Hydraulic fracturing or “fracking” is a process of pumping water at high pressure into shale to create narrow fractures which allow the gas to be released and captured. The gas can then be used for electricity and heating. Before today, how much, if anything, did you know about hydraulic fracturing for shale gas, otherwise known as 'fracking'?
Base: All wave respondents – Autumn 2022: 16 to 24 (267), 25 to 34 (542), 35 to 44 (608), 45 to 54 (670), 55 to 64 (761), 65 or over (1,252)

In Autumn 2022, opposition to fracking (36%) continued to outweigh support (25%) but support has increased since Autumn 2021 (17%) (Figure 5.3). Conversely, people were less likely to oppose fracking in Autumn 2022 (36% compared with 45% in Autumn 2021). However, levels of indecision remained high, with four in ten people (39%) saying they neither supported nor opposed fracking (28%) or didn't know (11%).

Figure 5.3: Whether support fracking (based on all people), Autumn 2021 and Autumn 2022



FRACKSUPPORT. From what you know, or have heard, about extracting shale gas to generate the UK's heat and electricity, do you support or oppose its use?
Base: All wave respondents – Autumn 2021 (5,556), Autumn 2022 (4,156)

In Autumn 2022, men were both more likely to support fracking than women (30% compared with 21%) and were more likely to oppose it than women (38% compared with 34%). Women were more likely to give a neutral 'neither support nor oppose' response or a 'don't know' response than men (46% compared to 32% of men).

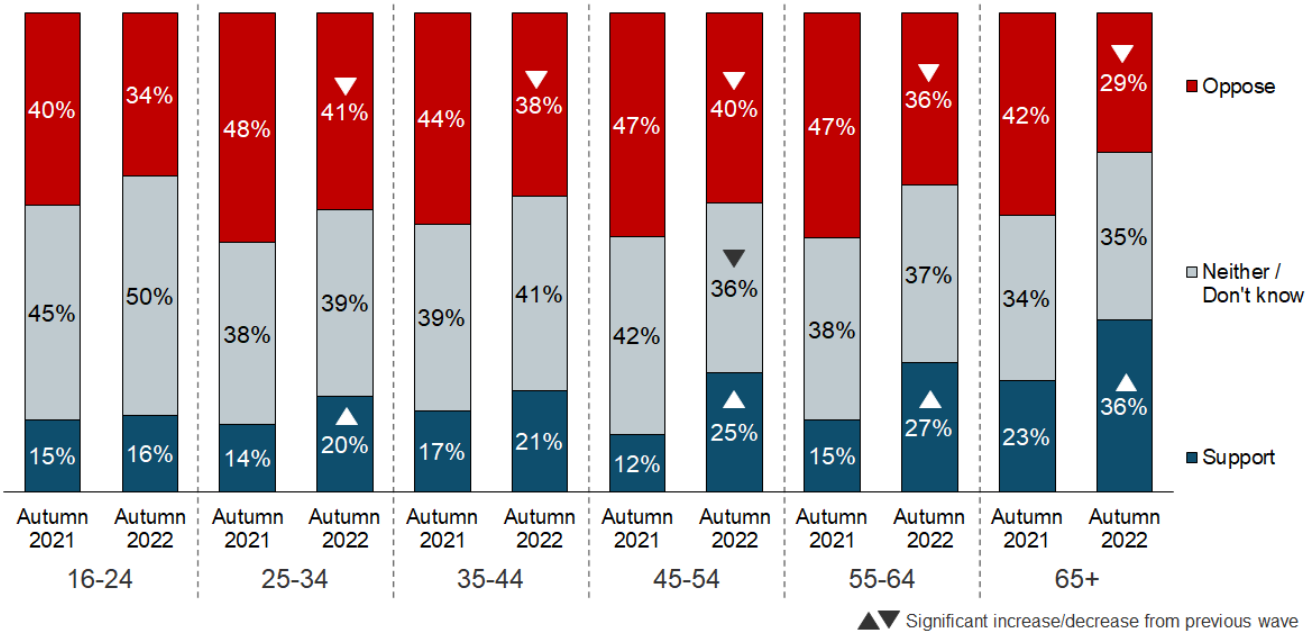
People educated to degree level were considerably more likely to oppose fracking (50%) compared to those with other qualifications (32%) and to those with no qualifications (22%).

People who were very concerned about climate change were both more likely to oppose fracking (51% compared to 19% of those who were not concerned), and less likely to support fracking than those who were not concerned (19% compared to 38%).

There was also a clear age gradient in support for fracking, with support increasing from 16% among people aged 16 to 24 to 36% of those aged 65 or over.

An analysis by age suggests that the overall increase in support for fracking since Autumn 2021 was mainly driven by older people aged 45 or over (Figure 5.4). Between Autumn 2021 and Autumn 2022 support increased from 12% to 25% among people aged 45 to 54, from 15% to 27% among people aged 55 to 64, and from 23% to 36% among people aged 65+. Among other age groups, levels of support remained more steady although there was also a small increase in support among those aged 25 to 34 (from 14% to 20%).

Figure 5.4: Whether support fracking (based on all people), Autumn 2021 and Autumn 2022



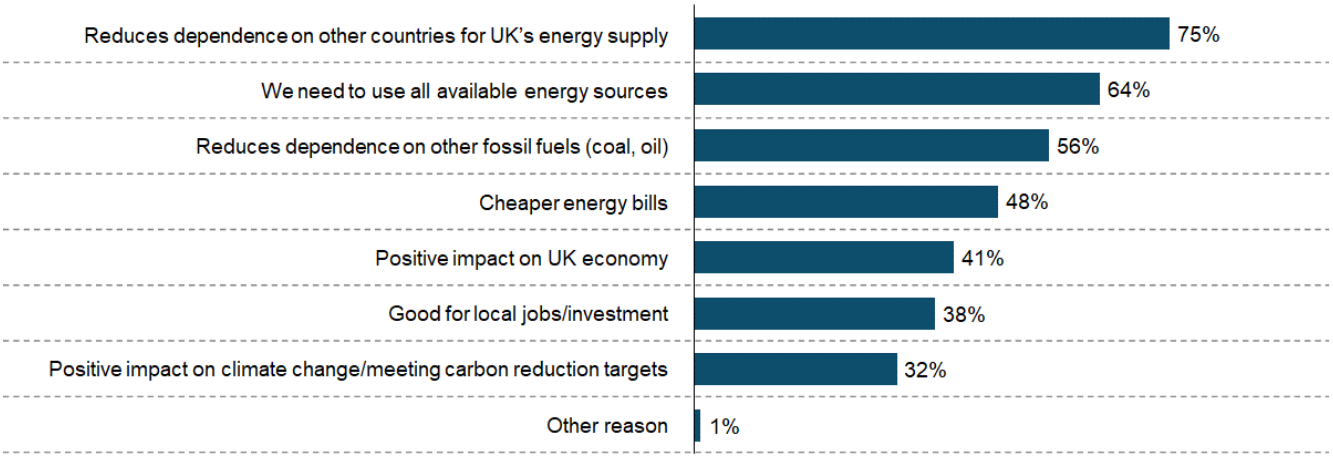
FRACKSUPPORT. From what you know, or have heard, about extracting shale gas to generate the UK's heat and electricity, do you support or oppose its use?
Base: All wave respondents – Autumn 2021/Autumn 2022 16 to 24 (332/267), 25 to 34 (686/543), 35 to 44 (654/608), 45 to 54 (774/671), 55 to 64 (905/762), 65 or over (2,168/1,248)

Reasons for supporting or opposing shale gas

In Autumn 2022, people were asked their reasons for either supporting or opposing fracking, based on a list of possible reasons (Figure 5.5). Among those who said they supported fracking, the main reasons were to reduce dependence on other countries for the UK's energy supply (75%) and needing to use all available sources of energy (64%). These responses might reflect the prevailing context of the war in Ukraine with the potential impact of this on energy prices and energy security being widely covered in the media during fieldwork.

Further reasons for supporting fracking included reduced dependence on other fossil fuels (56%), cheaper energy bills (48%), positive impact on the UK economy (41%) and being good for local jobs/investment (38%).

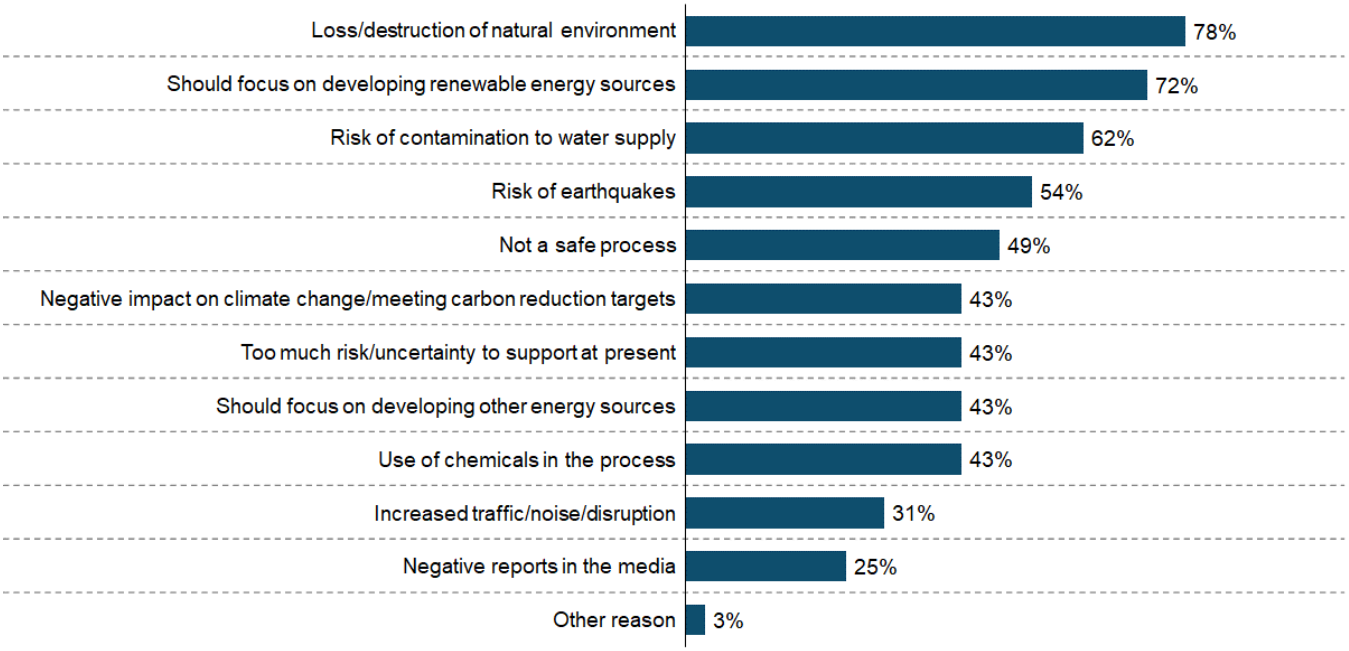
Figure 5.5: Why support fracking (based on those who support it), Autumn 2022



WHYSUPPFRACK. You said that you support hydraulic fracturing for shale gas, otherwise known as fracking. Why is this?
Base: All wave respondents who support fracking – Autumn 2022 (1,103)

Among those who opposed fracking, the most common reasons cited for this were concerns about loss/destruction of the natural environment (78%) and a belief that we should focus on developing renewable energy sources (72%) (Figure 5.6). These reasons were followed by safety concerns, including risk of contamination to the water supply (62%), risk of earthquakes (54%), and other general concerns about the safety of the process (49%).

Figure 5.6: Why oppose fracking (based on those who oppose it) Autumn 2022



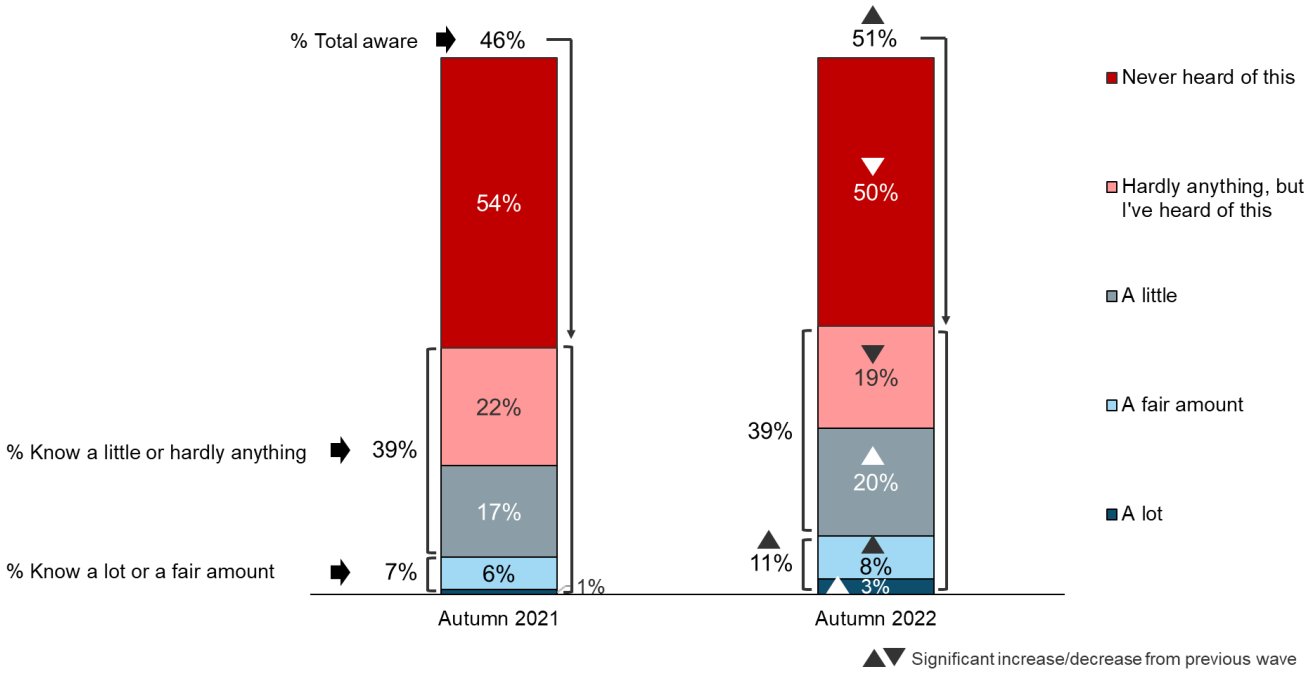
WHYOPPFRACK. You said that you oppose hydraulic fracturing for shale gas, otherwise known as fracking. Why is this?
Base: All wave respondents who oppose fracking – Autumn 2022 (1,570)

Awareness of small modular reactors

A question on awareness of small module reactors is asked annually. Respondents were provided with the following explanation before being presented with some questions on this topic: '*These are new types of nuclear reactors, similar to existing nuclear power stations, but on a smaller scale. They can be used for electricity generation, to provide industry with heat and power, or to provide energy to UK communities not connected to the national gas grid'*.

In Autumn 2022, 51% of people said they had heard of small modular reactors, up from Autumn 2021 (46%) (Figure 6.1). This overall increase in awareness was led by increased proportions who said they knew a lot or a fair amount about small modular reactors (11%, up from 7%) and a little (20%, up from 17%). There was a decline in the proportion who said they knew hardly anything (19%, down from 22%).

Figure 6.1: Awareness of small modular reactors (based on all people), Autumn 2021 and Autumn 2022



SMRKNOW. The next question is about Small Modular Reactors. These are new types of nuclear reactors, similar to existing nuclear power stations, but on a smaller scale. They can be used for electricity generation, to provide industry with heat and power, or to provide energy to UK communities not connected to the national gas grid. Before today, how much, if anything, did you know about Small Modular Reactors?
Base: All wave respondents – Autumn 2021 (5,548), Autumn 2022 (4,158)

In Autumn 2022, men were considerably more likely to say they were aware of small modular reactors than women (62% compared with 39%). Awareness was also higher for those educated to degree level (60% compared with 48% of those with other qualifications and 37% of people with no qualifications). In those who said they knew a lot or a fair amount, there were similar patterns of difference by gender and education.

Attitudes towards nuclear energy

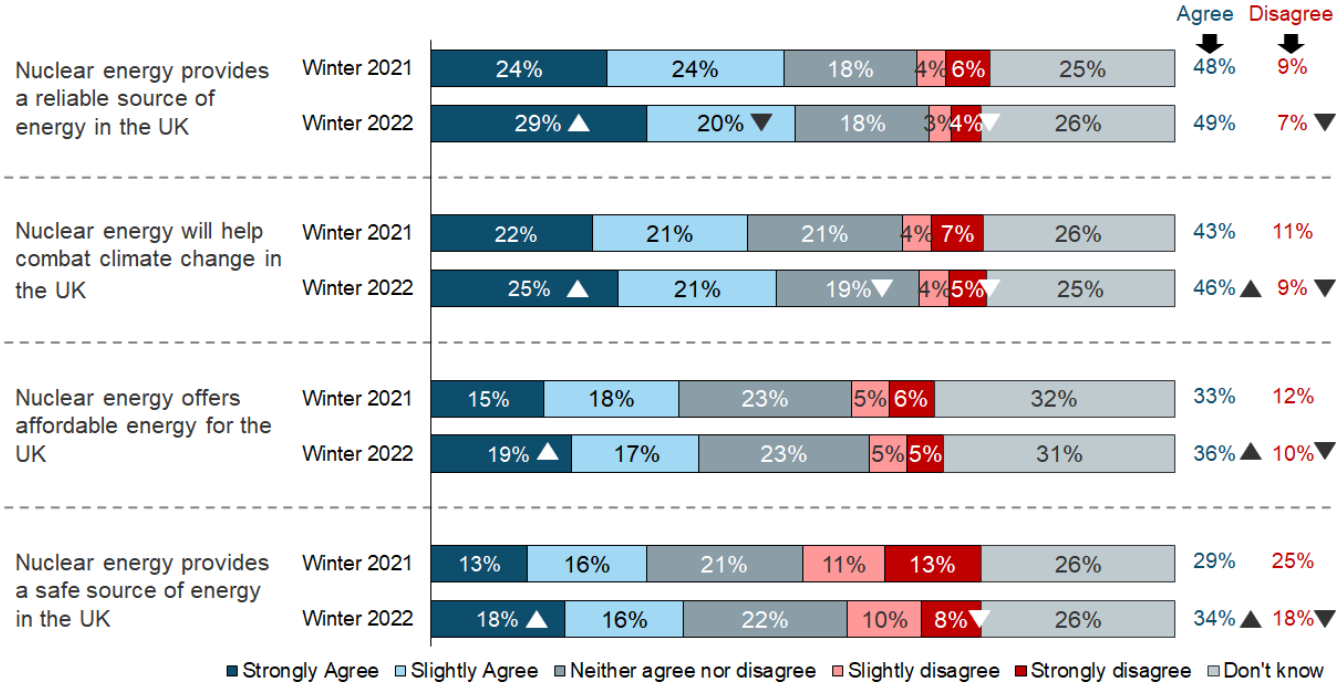
Questions on attitudes towards nuclear energy are asked annually in Winter waves of the Public Attitudes Tracker.

People were asked first whether they agreed or disagreed with four statements in relation to nuclear energy. In Winter 2022, for each of the four statements, the proportion of respondents who gave a non-opinion response (that is 'neither agree nor disagree' or 'don't know') ranged from 44% to 54%, pointing to a substantial degree of uncertainty in attitudes in relation to nuclear energy (Figure 7.1). Amongst those who gave an opinion for each statement, the public were on balance more positive than negative about nuclear energy. Overall in Winter 2022:

- 49% agreed (either strongly or slightly) that "nuclear energy provides a reliable source of energy in the UK" (compared with 7% who disagreed)
- 46% agreed that "nuclear energy will help combat climate change in the UK", up from 43% in Winter 2021 (9% disagreed)
- 36% agreed that "nuclear energy offers affordable energy for the UK", up from 33% (10% disagreed)
- 34% agreed that "nuclear energy provides a safe source of energy in the UK", up from 29% (18% disagreed)

When comparing results with Winter 2021, there were some small increases in the proportion of people who agreed with each of these statements (driven by increased levels of strong agreement), with corresponding decreases in the proportion who disagreed.

Figure 7.1: Attitudes towards nuclear energy (based on all people), Winter 2021 and Winter 2022



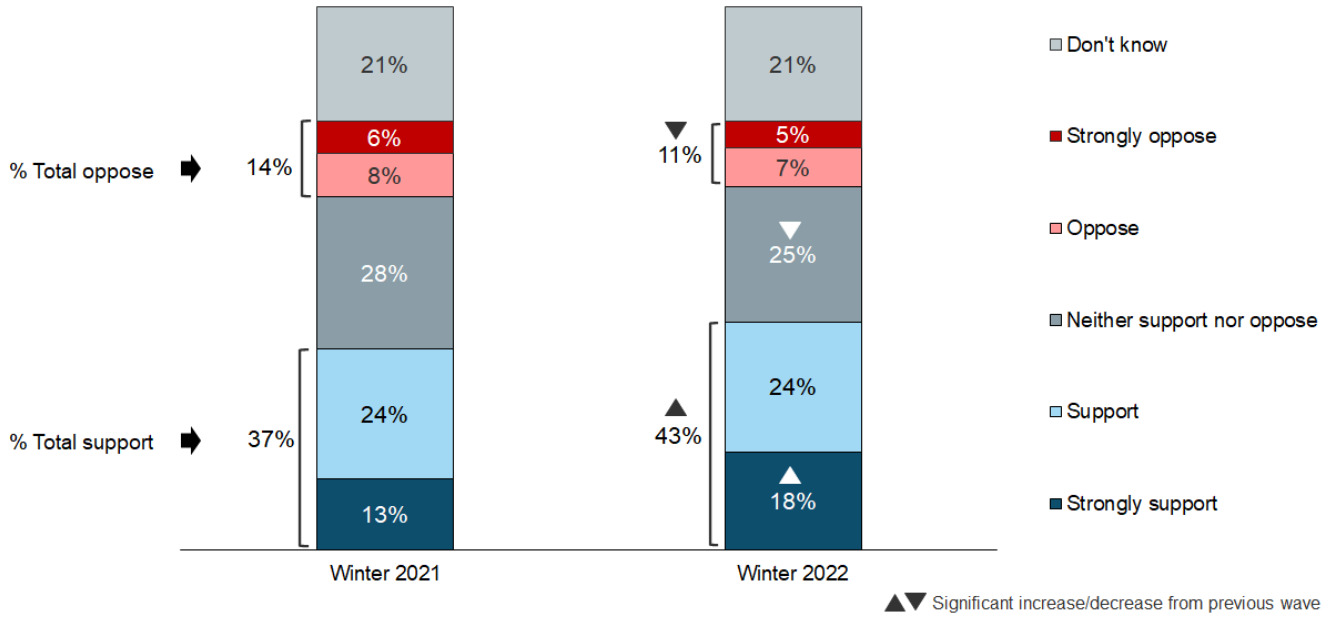
NUCATTA-NUCATTD. The next questions are about nuclear energy. How much do you agree or disagree with the following statements?
Base: All wave respondents – Winter 2021: Nuclear energy provides a reliable source of energy in the UK (3,669), Nuclear energy will help combat climate change in the UK (3,683), Nuclear energy offers affordable energy for the UK (3,668), Nuclear energy provides a safe source of energy in the UK (3,670); Winter 2022: Nuclear energy provides a reliable source of energy in the UK (3,546), Nuclear energy will help combat climate change in the UK (3,550), Nuclear energy offers affordable energy for the UK (3,540), Nuclear energy provides a safe source of energy in the UK (3,545).

Overall, 25% of people agreed with all four of these statements. Those most likely to agree with all four statements included men (34%, compared with 16% of women) and those educated to degree level (30%, compared with 23% of those with other qualifications and 21% of those with no qualifications).

In general, on all four statements, younger people aged 16-24 were less likely to agree with these statements than those in older age categories. However, this was largely explained by higher levels of 'don't know' among people in this youngest age group.

People were also asked about their level for support for nuclear energy. In Winter 2022, 43% of the public supported using nuclear energy for generating electricity in the UK, an increase from 37% in Winter 2021 (Figure 7.2). This rise was driven by an increase in strong support (18% up from 13%). Overall, 11% opposed the use of nuclear energy (down from 14% in Winter 2021) and 5% strongly opposed this (no change). Almost half did not give an opinion either way, again providing evidence of uncertainty on this topic: 25% said that they neither supported nor opposed the use of nuclear energy (down from 28% in Winter 2021), and 21% said that they did not know (no change).

Figure 7.2: Whether support nuclear energy (based on all people), Winter 2021 and Winter 2022



NUCSUPPORT. From what you know, or have heard about using nuclear energy for generating electricity in the UK, do you support or oppose its use?
Base: All wave respondents – Winter 2021 (3,703), Winter 2022 (3,570)

As in Winter 2021, in Winter 2022 support for nuclear energy was higher among men (57%, compared with 29% of women) while the level of opposition to nuclear energy was higher among woman (13%) than men (10%). It is worth noting that greater proportions of women answered 'don't know' (30%) compared with men (11%).

Support for nuclear energy was higher in older age groups. Those aged 55 and over had higher total support (47% of those aged 55 to 64 and 48% of those aged over 65), compared with those aged 16-34 (34% of those aged 16 to 24 and 40% of those aged 25 to 34). Total support was also higher for those educated to degree level (52%), compared with 40% of those with other qualifications and 34% of those with no qualifications.

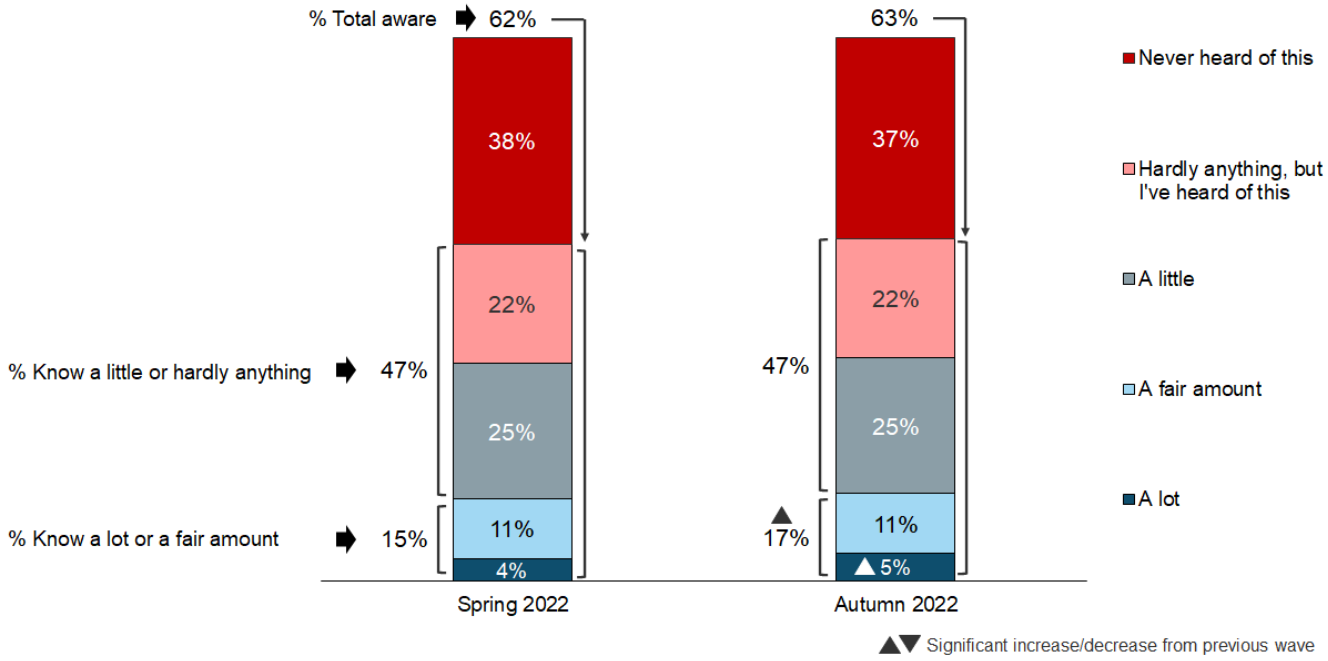
By geography, in Winter 2022 levels of strong support for nuclear energy were highest in the East of England (24%), South East (21%), and North West (21%) and lowest in Yorkshire and the Humber (13%), Scotland (13%) and Northern Ireland (12%).

Awareness and support for carbon capture and storage

Respondents were provided with the following explanation before being presented with some questions on this topic: *'Carbon capture and storage is a technology that stops greenhouse gases entering the atmosphere. It typically involves capturing carbon dioxide (CO2) emissions from power stations or industrial facilities where emissions are high. The CO2 is then piped to offshore underground storage sites, where it can be safely and permanently stored.'*

In Autumn 2022, 63% of the public said they were aware of carbon capture and storage, unchanged from Spring 2022 (Figure 8.1). This figure comprised 17% who said they knew a lot or a fair amount (up from 15% in Spring 2022), 25% who knew just a little and 22% who knew hardly anything.

Figure 8.1: Awareness of carbon capture and storage (based on all people), Spring 2022 and Autumn 2022



CCSKNOW. Carbon capture and storage is a technology that stops greenhouse gases entering the atmosphere. It typically involves capturing carbon dioxide (CO2) emissions from power stations or industrial facilities where emissions are high. The CO2 is then piped to offshore underground storage sites, where it can be safely and permanently stored. Before today, how much, if anything, did you know about carbon capture and storage?
Base: All wave respondents – Spring 2022 (4,375), Autumn 2022 (4,155)

In Autumn 2022, men were much more likely to be aware of carbon capture and storage (75% compared with 52% of women) and to say they knew at least a fair amount about it (24% compared with 9% of women). Despite there being little difference in overall awareness of carbon capture and storage by age, people aged 16 to 24 were more likely to say they knew a lot or a fair amount about carbon capture and storage (26%) compared with those aged 25 and over (15%).

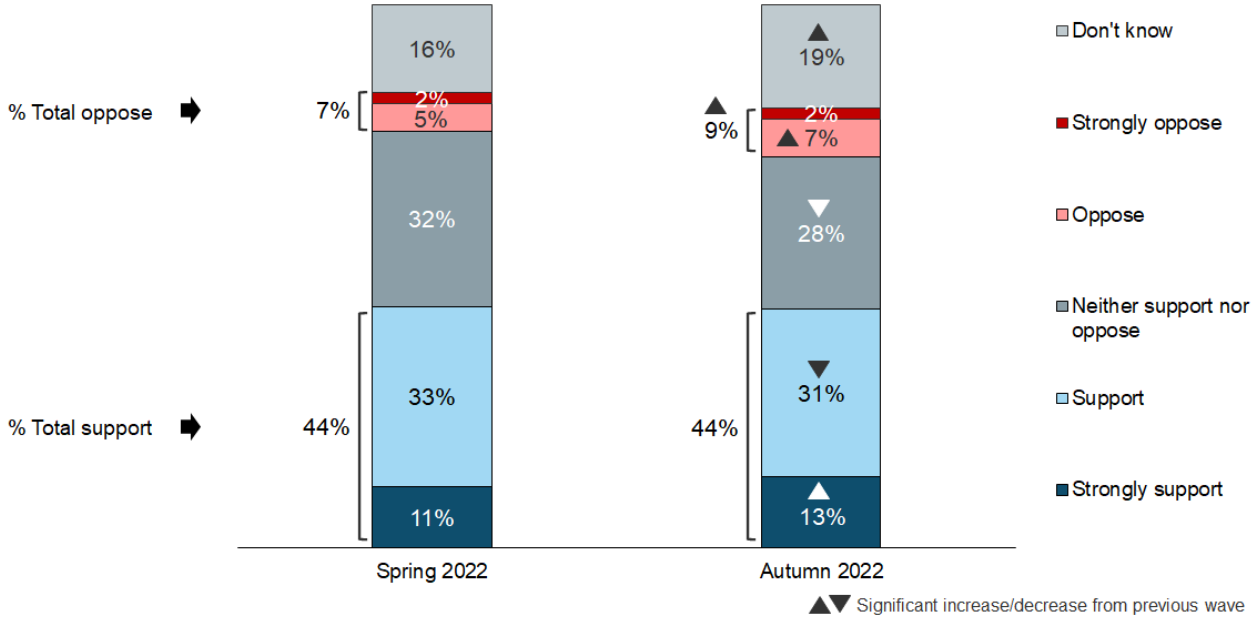
As for most energy technologies, awareness of carbon capture was higher among those educated to degree level (76% compared with 59% of those with other qualifications and 47%

of people with no qualifications), with a similar pattern of difference in the proportions knowing at least a fair amount.

In Autumn 2022, nearly half of people (47%) could not give an opinion on whether they supported or opposed carbon capture, with 28% saying they neither supported or opposed the technology and 19% stating that they didn't know (Figure 8.2). This reflects the low level of awareness and understanding of this technology shown in Figure 8.1.

Where people did give an opinion, they remained much more likely to support (44%) than oppose the technology (9%), although there was a small increase in opposition compared with Spring 2022 (7%).

Figure 8.2: Whether support or oppose carbon capture and storage (based on all people), Spring 2022 and Autumn 2022



CCSSUPPORT. From what you know, or have heard about it, do you support or oppose the use of carbon capture and storage to reduce greenhouse gas emissions?
Base: All wave respondents –Spring 2022 (4,366), Autumn 2022 (4,145)

In Autumn 2022 as in Spring 2022, support for carbon capture was higher among men (51%, compared with 38% of women) and degree educated people (53%, compared with 41% of those with another qualification and 36% of those with no qualifications). Support was considerably higher among those who were very concerned (53%) or fairly concerned (42%) about climate change than among those who were not very or not all concerned about it (25%).

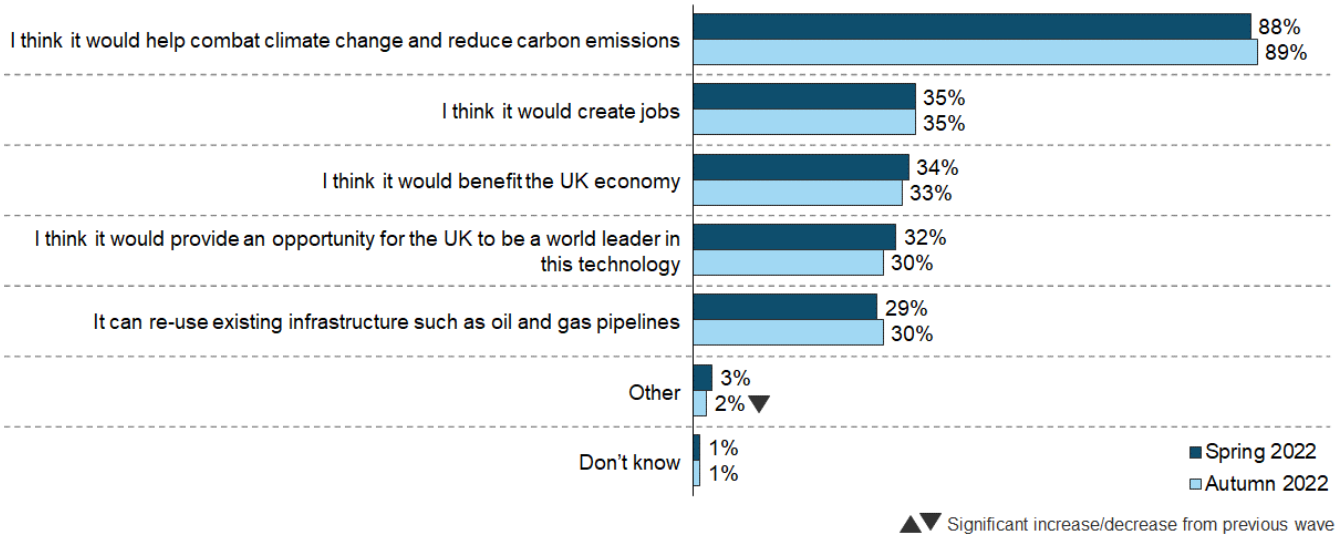
By age, support was higher among those aged 16 to 24 (54%) than among those aged 25 and over (43%).

Reasons for supporting or opposing carbon capture and storage

As shown in Figure 8.2, 44% of people supported the use of carbon capture and storage, and 9% opposed it in Autumn 2022. People were asked to select their reasons for support or opposition from a list of suggested possible reasons.

The reasons given by those who supported carbon capture were similar to Spring 2022. In Autumn 2022, the principal reason for supporting the use of carbon capture and storage was to help combat climate change and reduce carbon emissions (89%) (Figure 8.3). Further reasons, each cited by around one in three supporters of carbon capture and storage included job creation (35%), benefit to the UK economy (33%), an opportunity for the UK to be a world leader in this technology (30%), and the ability to re-use existing infrastructure (30%).

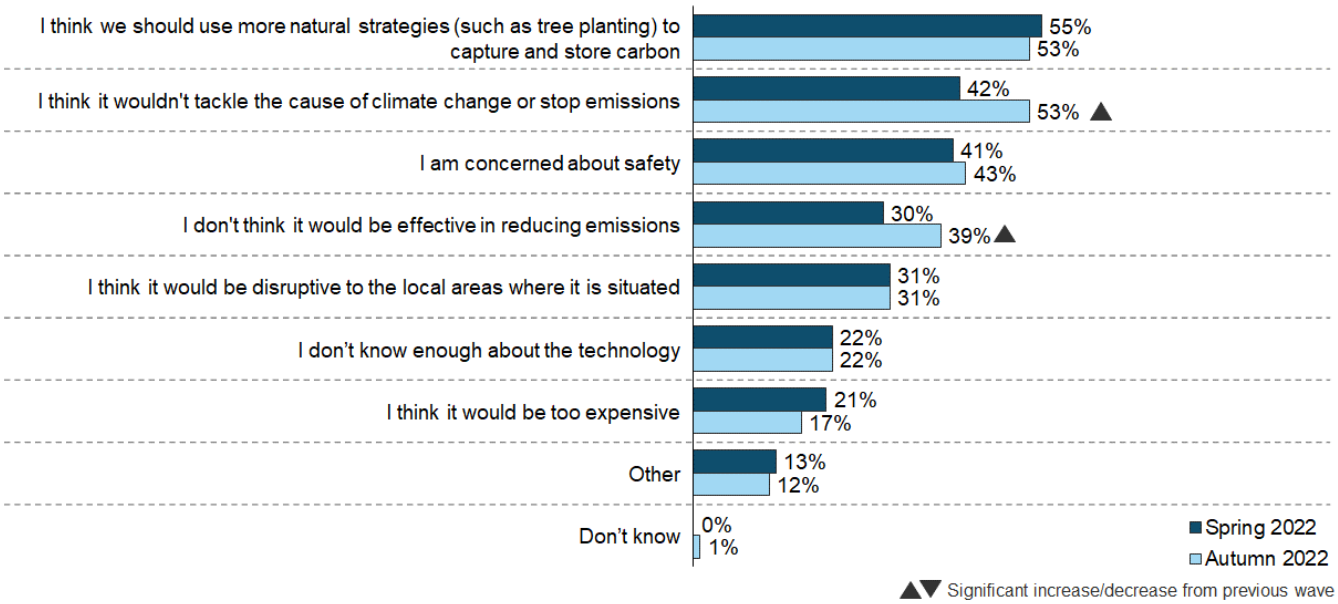
Figure 8.3: Reasons for supporting the use of carbon capture and storage (based on those who support this), Spring 2022 and Autumn 2022



WHYSUPPCCS. You said that you support the use of carbon capture and storage in the UK. Why is this?
Base: All wave respondents who support carbon capture & storage – Spring 2022 (1,992), Autumn 2022 (1,859)

In Autumn 2022, reasons given for opposing carbon capture and storage included a preference for more natural strategies such as tree planting (53%), a feeling that it wouldn't tackle the cause of climate change or stop emissions (53%), concerns about safety (43%), a belief that it would be ineffective in cutting emissions (39%), and disruption to the local area (31%) (Figure 9.4). Since Spring 2022, among those who oppose carbon capture and storage, there were increases in the proportions of people who have doubts about the effectiveness of this technology to tackle climate change or reduce emissions.

Figure 8.4: Reasons for opposing the use of carbon capture and storage (based on those who oppose this), Spring 2022 and Autumn 2022



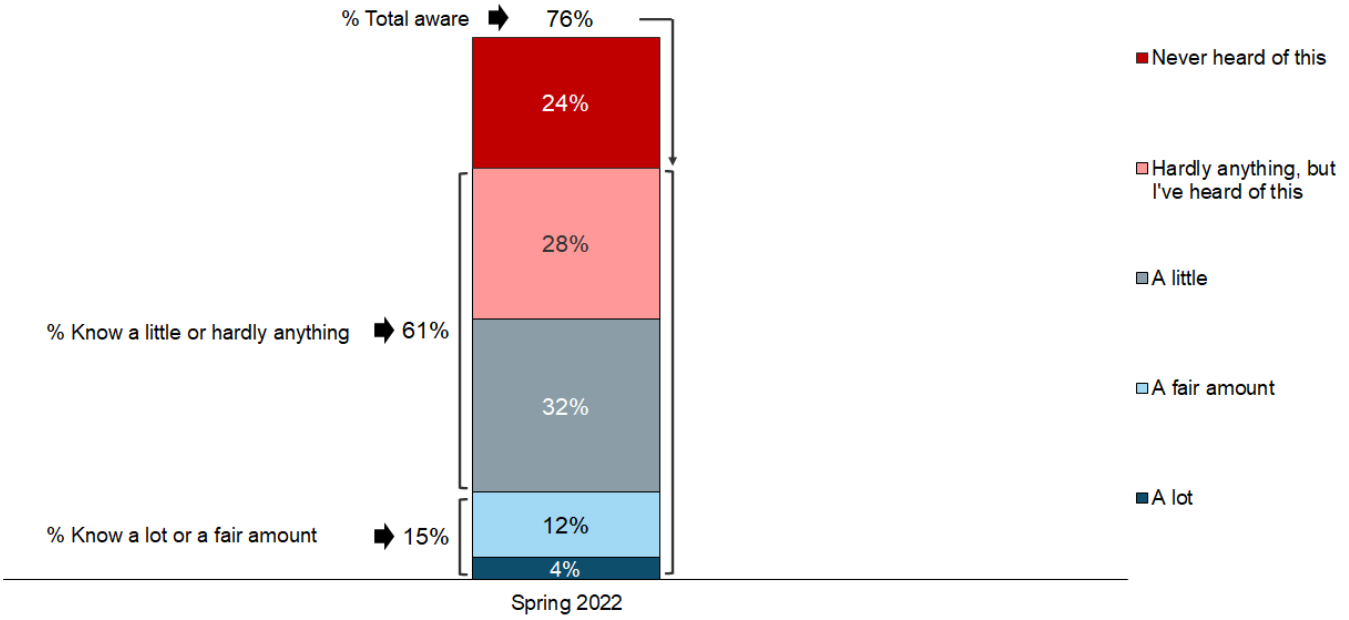
WHYOPPCCS. You said that you oppose the use of carbon capture and storage in the UK. Why is this?
Base: All wave respondents who oppose carbon capture & storage – Spring 2022 (357), Autumn 2022 (379)

Awareness of hydrogen

People were introduced to the concept of hydrogen by being provided with the following definition: *And now a question about hydrogen, which is used as a fuel in some industrial processes. Hydrogen is not naturally available. This means it needs to be produced from other sources to be used as a fuel. When produced in an environmentally friendly way, hydrogen can help reduce the carbon emissions in industries, power generation, lorries and shipping.*

Overall awareness of the use of hydrogen as fuel was relatively high at 76% in Spring 2022 although, as for other technologies, the level of knowledge was fairly low (Figure 9.1). Just 15% said they knew a fair amount (12%) or a lot (4%) about it, 61% knew a little or hardly anything, while 24% had never heard of it.

Figure 9.1: Awareness of hydrogen used as fuel (based on all people), Spring 2022



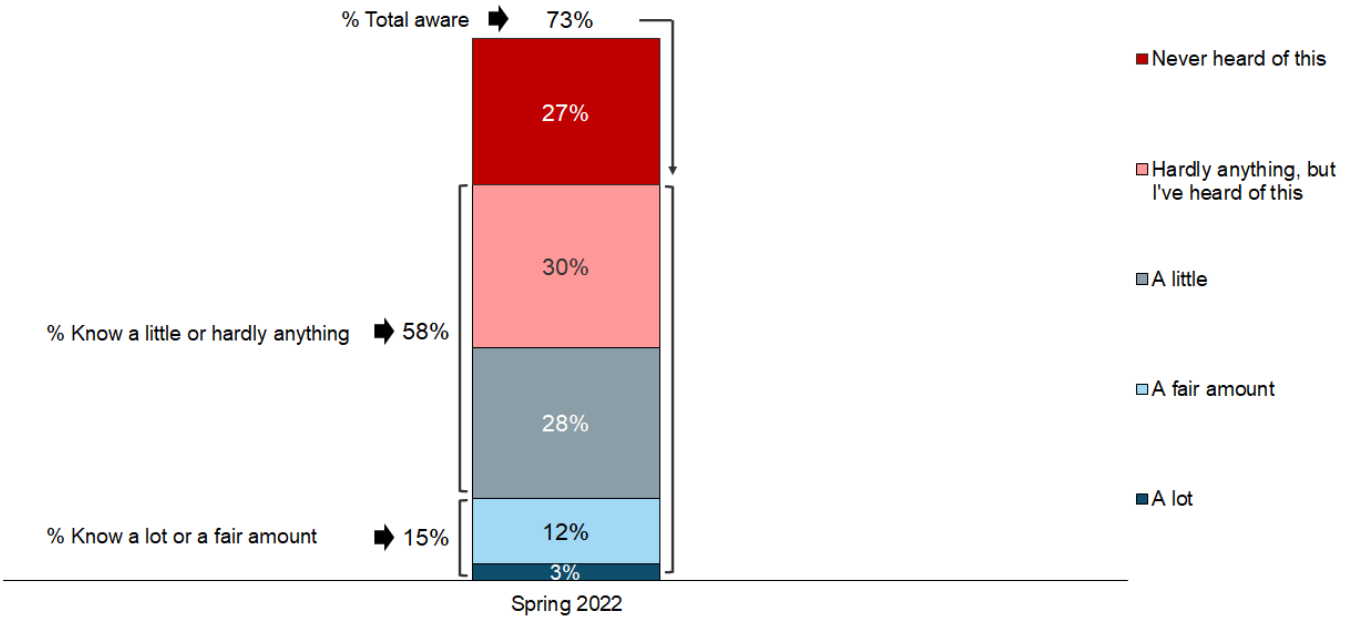
HYDKNOW. And now a question about hydrogen, which is used as a fuel in some industrial processes. Hydrogen is not naturally available. This means it needs to be produced from other sources to be used as a fuel. When produced in an environmentally friendly way, hydrogen can help reduce the carbon emissions in industries, power generation, lorries and shipping. Before today, how much would you say you knew about hydrogen already being used as a fuel in some industrial processes in the UK?
Base: All wave respondents – Spring 2022 (4,372)

In common with awareness and knowledge of other energy sources, men were much more likely to be aware of hydrogen as a fuel (87% compared with 66% of women) and to say they knew at least a fair amount about it (25% compared with 6% of women). People aged 16 to 24 were also more likely to say they knew at least a fair amount about hydrogen as a fuel (21% compared with 15% of people aged 25 or over).

Awareness of hydrogen as a fuel was also higher for those educated to degree level (86% compared with 76% of those with other qualifications and 57% of people with no qualifications) and there was a similar pattern in reported levels of knowledge (23% of degree-educated people saying they knew at least a fair amount, compared with 13% of those with other qualifications and 8% of people with no qualifications).

In Spring 2022, knowledge about the potential future uses of hydrogen to reduce emissions in some industries was at a similar level to broader knowledge about hydrogen as fuel (Figure 9.2). Almost three in four had heard of it (73%) but few said they knew a lot (3%) or a fair amount (12%) about it. Most said they knew just a little (28%) or hardly anything (30%).

Figure 9.2: Awareness of potential future uses of hydrogen (based on all people), Spring 2022



HYDREDKNOW. Before today, how much would you say you knew about the potential future uses of hydrogen to reduce emissions in some industries?
Base: All wave respondents – Spring 2022 (4,372)

Patterns of difference in awareness of the potential uses of hydrogen to reduce emissions in some industries by gender, age and education were similar to those observed for more general awareness of hydrogen as a fuel.

Concerns about energy security

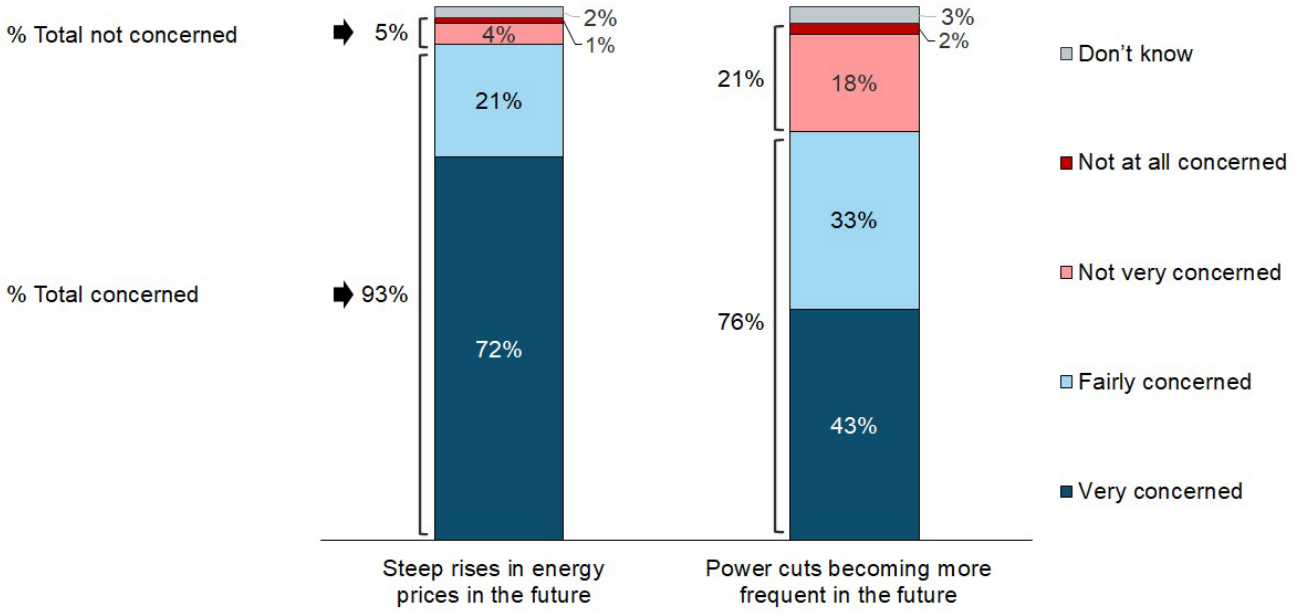
In Summer 2022, people were asked to what extent they were concerned about the following potential impact of problems relating to energy security in the next 10-20 years:

- Steep rises in energy prices in the future
- Power cuts becoming more frequent in the future

It is worth noting that these questions were asked in Summer 2022 in the context of significant media focus on this issue, given the impact of the war in Ukraine on foreign imports of energy, and the widely anticipated (at the time) further increase of the energy price cap associated with expected increases in energy prices.

In Summer 2022, almost all people were concerned about steep rises in energy prices in the future (93%), with 72% feeling very concerned (Figure 10.1). Concern about more frequent power cuts was also high at 76%, with 43% feeling very concerned. Very few (1-2%) said they were not at all concerned about either of these issues.

Figure 10.1: Concern about energy security in future (based on all people), Summer 2022



ENSECCONCERN1-2. Now some questions about how concerned you are about various things happening in the future. By 'the future' we mean the next 10-20 years. So, how concerned, if at all, are you about...
Base: All wave respondents – Summer 2022: Steep rises (4,487), Power cuts (4,462)

Overall concern about steep rises in energy prices was high across all subgroups, although women were more likely than men to say they were very concerned (77% compared with 69%) as were those aged 25 and over (74%) compared with those aged under 25 (60%).

Women were also more likely to express strong concern about future power cuts (47%) compared with men (39%). The proportion feeling very concerned also increases with age: from 35% of people aged under 35 to 44% of those aged 45 to 64 and 53% of those aged 65 or over. However, lower levels of concern among younger people are likely to be related to a reduced likelihood among this age group to pay energy bills: for example, 65% of those aged 16 to 24 say that someone else in the household pays the household bills.

All people interviewed in Summer 2022 were further asked about their level of concern with the following issues relating to energy security and supply in the next 10 to 20 years:

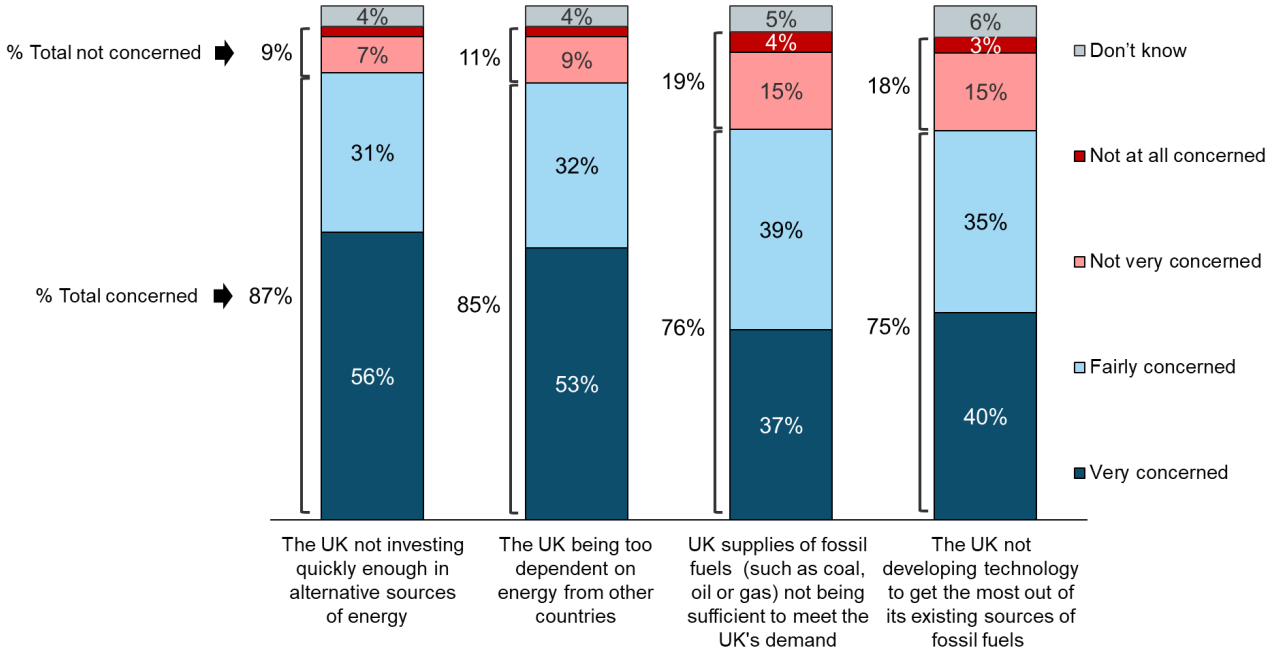
- UK supplies of fossil fuels (such as coal, oil or gas) not being sufficient to meet the UK's demand for them
- The UK not investing quickly enough in alternative sources of energy
- The UK not developing technology to get the most out of its existing sources of fossil fuels
- The UK being too dependent on energy from other countries

As also noted above, these questions should be considered in the context of considerable media focus on this issue during fieldwork.

In Summer 2022, a large majority were concerned that the UK is not investing quickly enough in alternative energy sources (87%) and that the UK is too dependent on energy from other countries (85%) with over half very concerned with each (56% and 53% respectively) (Figure 10.2).

Three in four were also concerned that UK supplies of fossil fuel will not be sufficient to meet demand in the future (76%) and that the UK is not developing technology to get the most out of existing sources of fossil fuel (75%), with relatively smaller proportions saying they were very concerned about these (37% and 40% respectively). Only a very small minority (between 2% and 4%) said they were not at all concerned about these issues.

Figure 10.2: Concern about energy supply in future (based on all people), Summer 2022



ENSECCONCERN3-6. And still thinking about the next 10-20 years, how concerned, if at all, are you about...
Base: All wave respondents – Summer 2022: Not investing (4,472), Too dependent (4,479), Supplies not being sufficient (4,469), Not developing technology (4,463)

Level of concern varied by age, with the youngest people aged 16 to 34 more likely to be unconcerned about more frequent power cuts (29% declining to 11% of the over 65s), the UK not developing technology to get the most out of existing fossil fuels (22% declining to 15%) and being too dependent on other countries for energy (16% declining to 6%).

Women were more likely to be very concerned that UK supplies of fossil fuels are not sufficient to meet demand (42% compared with 32% of men).

Those who were very or fairly concerned about the UK becoming too dependent on energy from other countries were asked to identify the specific sources of energy that they were thinking of here. Among those concerned about over-dependence of foreign energy supplies, people were most likely to be thinking here about gas (76%) or oil (70%) with 48% thinking about electricity in this context.

This publication is available from: https://www.gov.uk/government/collections/public-attitudes-tracking-survey

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