Office for National Statistics

Article

UK business action on net zero and historical energy use

Data analysis exploring questions on net zero within the Business Insights and Conditions Survey and business input choices.

Contact:
Rachel Mullis
Integrated.Data.Analysis@ons.gov.uk
+44 1633 455539

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1 . Main points

- In late June 2021, 38% of businesses reported that they are taking at least one action to reduce their greenhouse gas emissions, while 24% reported that they are intending to act in the next 12 months.
- Nearly half of businesses who are currently taking actions to reduce emissions are more likely to take action in the coming year (46%), also in late June, compared with those that are not yet taking action (11%).
- The most recent data on businesses net zero actions in early October says ‘implementing change being costly’ was the main barrier preventing businesses from acting (20%), while over 1 in 10 (13%) of those not taking action were ‘unsure of how to measure their emissions’.
- Over a quarter of businesses (28%) also reported producing no emissions in October 2021.
- Businesses’ spending on energy as a proportion of total purchases varied between 3% and 25% across industries on average in 2018; the transport and storage sector had the highest average proportion, at 25%.

2 . The UK greenhouse gas emissions target

The UK Government has committed to reaching net zero by 2050, as part of a commitment to the global 2015 Paris Agreement to keep rises in average global temperatures to below 2°C and as close to 1.5°C as possible.

The UK Government has urged businesses to take action to reduce emissions to contribute to the UK-wide net zero by 2050 target. In 2020, businesses accounted for 18% of all UK greenhouse gas emissions, based on provisional BEIS territorial emissions data (see the UK climate change statistics portal for an explanation of the main UK emissions measures).

As part of the United Nations’ race to zero campaign, large companies are encouraged to register and pledge to the business ambition of 1.5°C. As of May 2021, over 106 large UK companies had done so. The UK Government’s Climate Change Business hub supports small and medium-sized enterprise (SME) to commit to halving their greenhouse gas emissions by 2030 and achieve net zero emissions by 2050. SMEs made up 99.9% of the UK’s private businesses in 2019, accounting for over half of employment and turnover.

This article looks at:

- businesses actions and intentions to act to reduce their emissions in the next 12 months and what actions they may be taking, using the Office for National Statistics’ (ONS) rapid-response Business Insights and Conditions Survey (BICS); and
- patterns of energy use across industries using existing data from other ONS business surveys.

3 . Business action to reduce emissions

The following section includes analysis of two waves of the Business Insights and Conditions Survey (BICS). These results have been created using the BICS microdata. Due to a lack of imputed data, these estimates may differ from published estimates. A detailed description of the weighting methodology can be found in the recently published Quality and Methodology information report.

Questions on net zero appear every 4 waves in BICS. During 14 to 27 June 2021 (Wave 33) businesses were asked about current actions and future intentions to reduce emissions. Between 4 to 17 October 2021 (Wave 41) businesses were asked about current actions that prevented further action. Due to changes in response options on the net zero questions we did not compare results across waves or use earlier waves of BICS which included these questions.

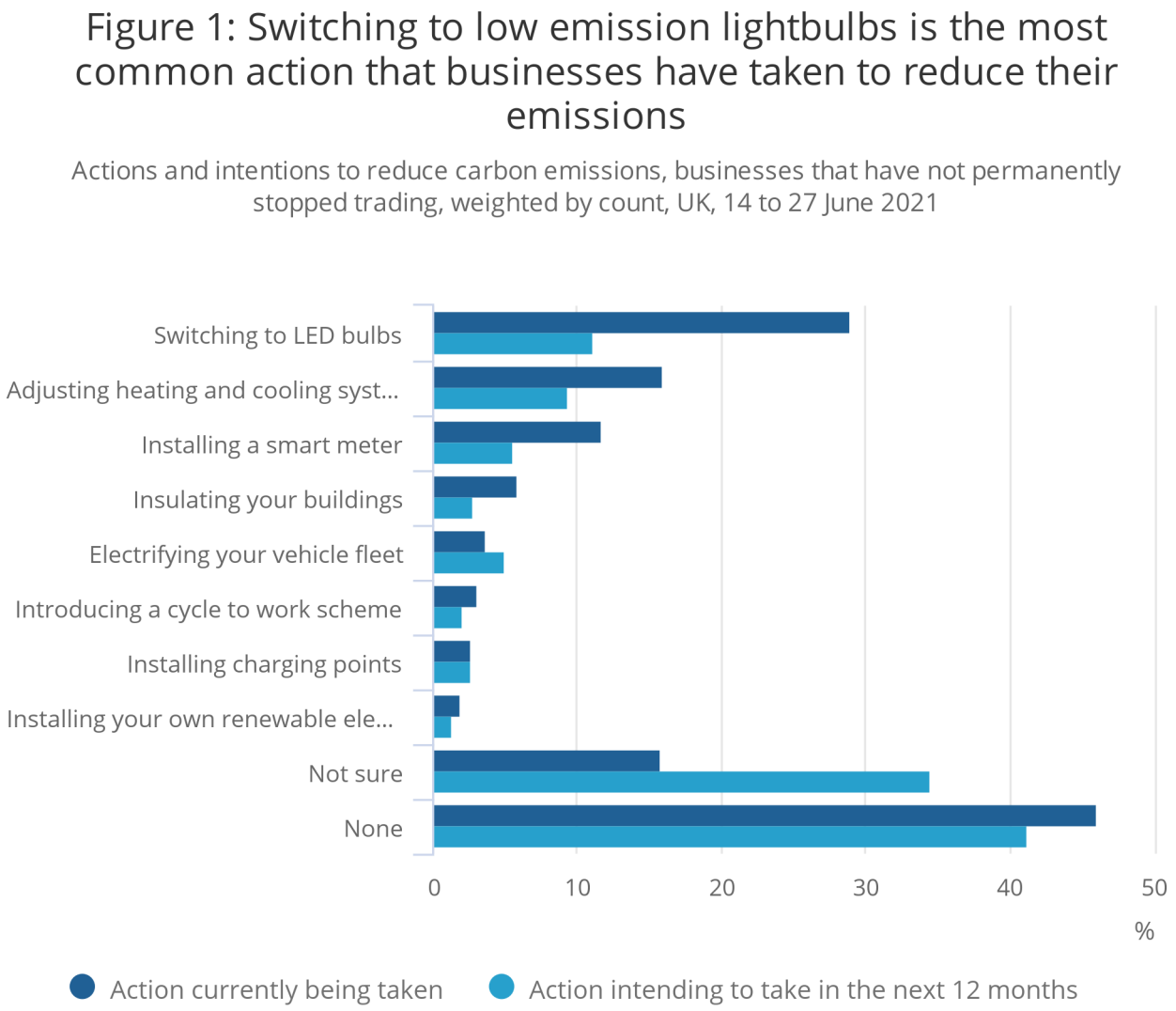
Actions and intentions

The most common action to reduce emissions currently being taken by businesses is switching to low emission lightbulbs (29%). The least likely actions that businesses reported are installation of own renewable electricity or heating (2%) and installation of charging points (3%).

The most planned action by businesses in the year ahead is switching to low emission lightbulbs (11%), while installation of their own renewable electricity or heating sources remains the option reported the least (1%).

Figure 1: Switching to low emission lightbulbs is the most common action that businesses have taken to reduce their emissions

Actions and intentions to reduce carbon emissions, businesses that have not permanently stopped trading, weighted by count, UK, 14 to 27 June 2021



Source: Office for National Statistics – Business Insights and Conditions Survey, [Wave 33]

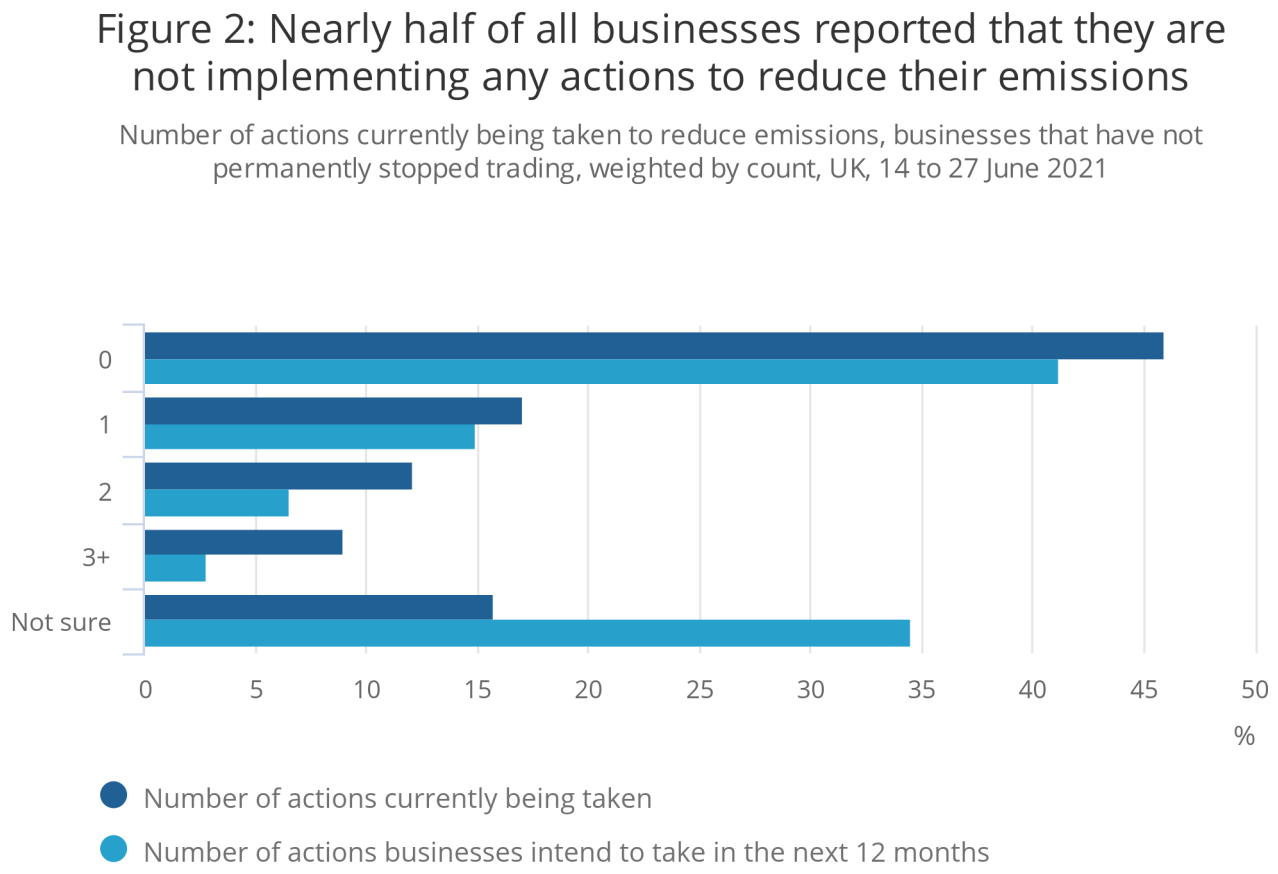
Notes:

1. Table will not sum to 100% because businesses could select multiple options.

Among those businesses acting, 17% reported currently taking one action with 15% intending to take one action in the next 12 months. Some 9% of businesses acting are currently taking three or more actions, and 3% are planning to take three or more actions in future.

Figure 2: Nearly half of all businesses reported that they are not implementing any actions to reduce their emissions

Number of actions currently being taken to reduce emissions, businesses that have not permanently stopped trading, weighted by count, UK, 14 to 27 June 2021



Source: Office for National Statistics – Business Insights and Conditions Survey, [Wave 33]

Notes:

1. All percentages are rounded to one decimal place and totals may not sum to 100.

Nearly half of all businesses reported they are taking no current action to reduce their emissions (46%), and a further 16% reported they are ‘not sure’. Some 41% are not planning any future action, and 34% are unsure about whether they may act in the future.

Of the 46% of businesses taking no current action, 70% are not intending to take any action in the next 12 months, and 11% intend to act in the next 12 months. For the 38% of businesses that are currently taking 1 or more action, 46% reported their intention to continue to act in the coming year.

Figure 3: Of businesses not currently taking action, over two thirds do not intend to take any action in the next 12 months

Number of actions businesses are intending to take in the next 12 months to reduce emissions, by whether businesses are currently taking action, businesses not permanently stopped trading, weighted by count, UK, 14 to 27 June 2021

Source: Office for National Statistics – Business Insights and Conditions Survey, [Wave 33]

Notes:

1. Totals may not sum to 100% because of rounding.
2. 3 or more for 'not currently taking action to reduce emissions' has been removed for disclosure purposes.

Action by industry

In early October 2021, businesses were given the option to report that they 'did not produce any emissions' when asked about their actions taken to reduce emissions. Businesses self-reporting that they produce no emissions does not mean that the business produced no emissions or that they are 'net zero' businesses (for example reducing emissions to close to zero and offsetting any residual emissions). It may mean that some businesses are not aware of the emissions that they produce.

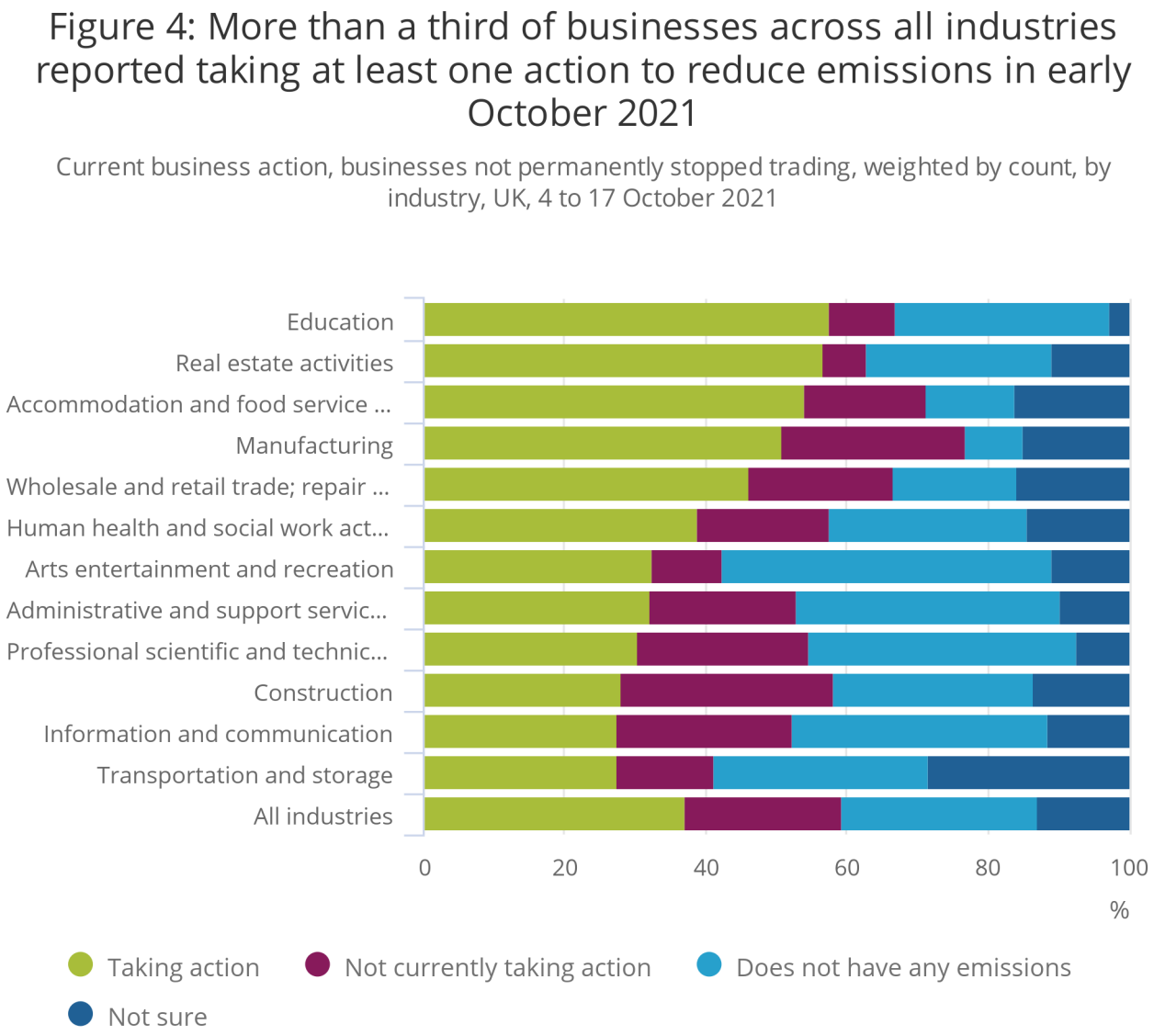
Responses in October varied widely across different industrial sectors, with more than a quarter of businesses (28%) reporting producing no emissions and over a third of businesses (37%) reporting taking at least one action to reduce emissions across all industries.

In the manufacturing industry, 8% of businesses reported producing no emissions – this is the lowest proportion, followed by the accommodation and food service activities at 13%. Almost half (47%) of businesses in the arts, entertainment and recreation industry and 37% of those in administrative and support service activities industry reported producing no emissions.

Over half of businesses in the real estate (57%), accommodation and food service activities (54%), education (58%) and manufacturing industries (51%) reporting taking at least one action to reduce their emissions. By comparison, over a quarter of businesses in the construction (30%) and manufacturing (26%) industries reported not currently acting.

Figure 4: More than a third of businesses across all industries reported taking at least one action to reduce emissions in early October 2021

Current business action, businesses not permanently stopped trading, weighted by count, by industry, UK, 4 to 17 October 2021



Source: Office for National Statistics – Business Insights and Conditions Survey [Wave 41]

Notes:

1. All percentages are rounded to one decimal place and totals may not sum to 100%.

2. Mining and Quarrying, Water Supply, Sewerage, Waste Management and Remediation Activities and Other Service Activities have been removed for disclosure purposes but are included in the All industries breakdown

Additionally, in early October 2021 businesses were asked what prevented them from taking action. The following section explores the challenges that businesses mentioned.

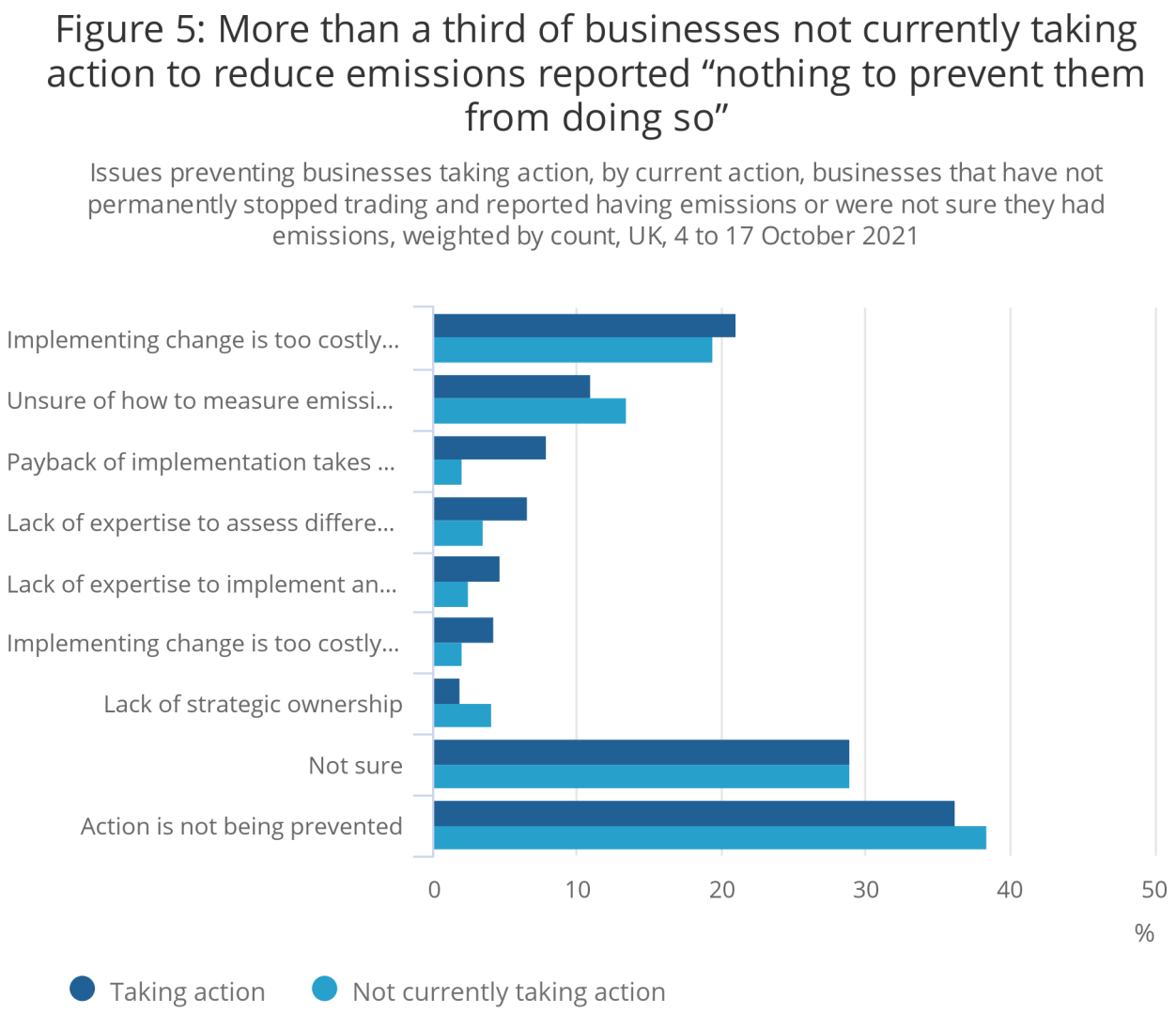
Challenges facing businesses in reducing emissions

For businesses that reported not acting to reduce their emissions, more than a third (39%) reported that ‘nothing was preventing them from taking action’. Uncertainty around measuring emissions’ was reported by 13% of businesses not taking action, while 29% were ‘unsure’. The most reported issue preventing action being taken by businesses not currently acting was the ‘cost of implementation’ (20%).

‘Cost of implementation’ was also the most common issue preventing further action being taken for those already acting (21%). A similar number of those taking action were also ‘unsure’ of issues preventing further action (29%).

Figure 5: More than a third of businesses not currently taking action to reduce emissions reported “nothing to prevent them from doing so”

Issues preventing businesses taking action, by current action, businesses that have not permanently stopped trading and reported having emissions or were not sure they had emissions, weighted by count, UK, 4 to 17 October 2021



Source: Office for National Statistics – Business Insights and Conditions Survey [Wave 41]

Notes:

1. Table will not sum to 100% because businesses could select multiple options.

Energy use by businesses is a major source of their emissions. Analysing businesses' spending on energy relative to other inputs can help us understand how different types of businesses and sectors might be affected by requirements to reduce emissions.

4 . Business spending on energy inputs in recent years

Data from the Office for National Statistics' (ONS) Annual Business Survey (ABS) provides historical context for the more recent business actions and intentions on emissions from the Business Insights and Conditions Survey (BICS).

The ABS covers the non-financial business economy, which is approximately two-thirds of the UK economy. Quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in the ABS Quality and Methodology Information report and ABS technical report, published on the ABS methodology page.

We find that businesses in the energy sector spend the most on energy on average, followed by the mining and quarrying sector. The average proportion of businesses' total purchases spent on energy changes slowly over time, and industry averages mask substantial variation within industries.

Overall energy expenditure

The business level data in the ABS allows average spending on energy used for running the business to be calculated across all sampled businesses in each industry. This does not include purchases of energy for resale and distribution without further processing. For example, it would capture the energy used by a fuel wholesaler to operate and distribute the fuel, but not the cost of the wholesaler's purchase of the fuel itself, which is sold on directly to customers.

Businesses in the electricity, gas, steam and air conditioning supply industry spent the most on energy in 2018: £494,000 per business on average. This likely reflects the importance of energy inputs for producing energy outputs, and that businesses in this sector tend to be larger than average.

Figure 6: Firms in the electricity and gas sector spend the largest amount on average on energy inputs

Mean business expenditure on energy by industry, UK, 2018

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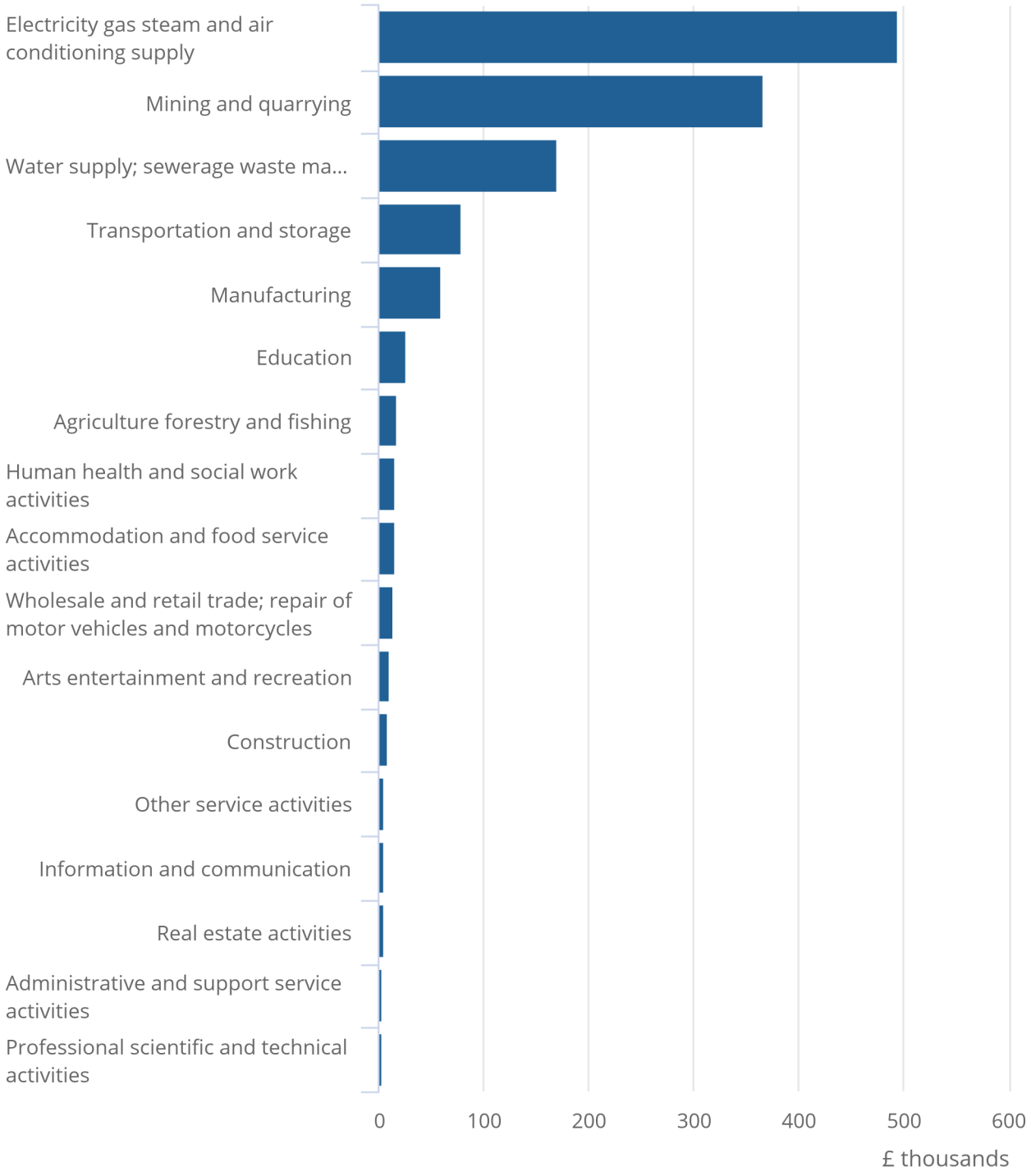

Source: Office for National Statistics – Annual Business Survey (ABS)

Notes:

1. Coverage reflects the Annual Business Survey (ABS), which excludes the financial and insurance sector, public sector organisations and part of the agriculture sector. More details can be found in the ABS Quality and Methodology.

2. Design weights and turnover calibration weights have been applied to reflect the business population and make corrections for any imbalance in the sample.

Spending on energy used for running the business can be divided by total purchases of energy, goods, materials and services to calculate the share of a business' total purchases, which are spent on energy. The industry sectors with the lowest average expenditure on energy were professional, scientific and technical activities (£3,000 per business) and administrative and support service activities (£4,000 per business).

In 2018, businesses in the transportation and storage sector had the largest share of purchases spent on energy, on average (25%), followed by mining and quarrying (14%) and agriculture, forestry and fishing (13%). Businesses in the wholesale and retail trade, repair of motor vehicles and motorcycles sector had the lowest average proportion of purchases on energy (3%).

Figure 7: Transportation and storage firms spend the largest share of material inputs on energy

Mean share of business expenditure on energy by industry, UK, 2018

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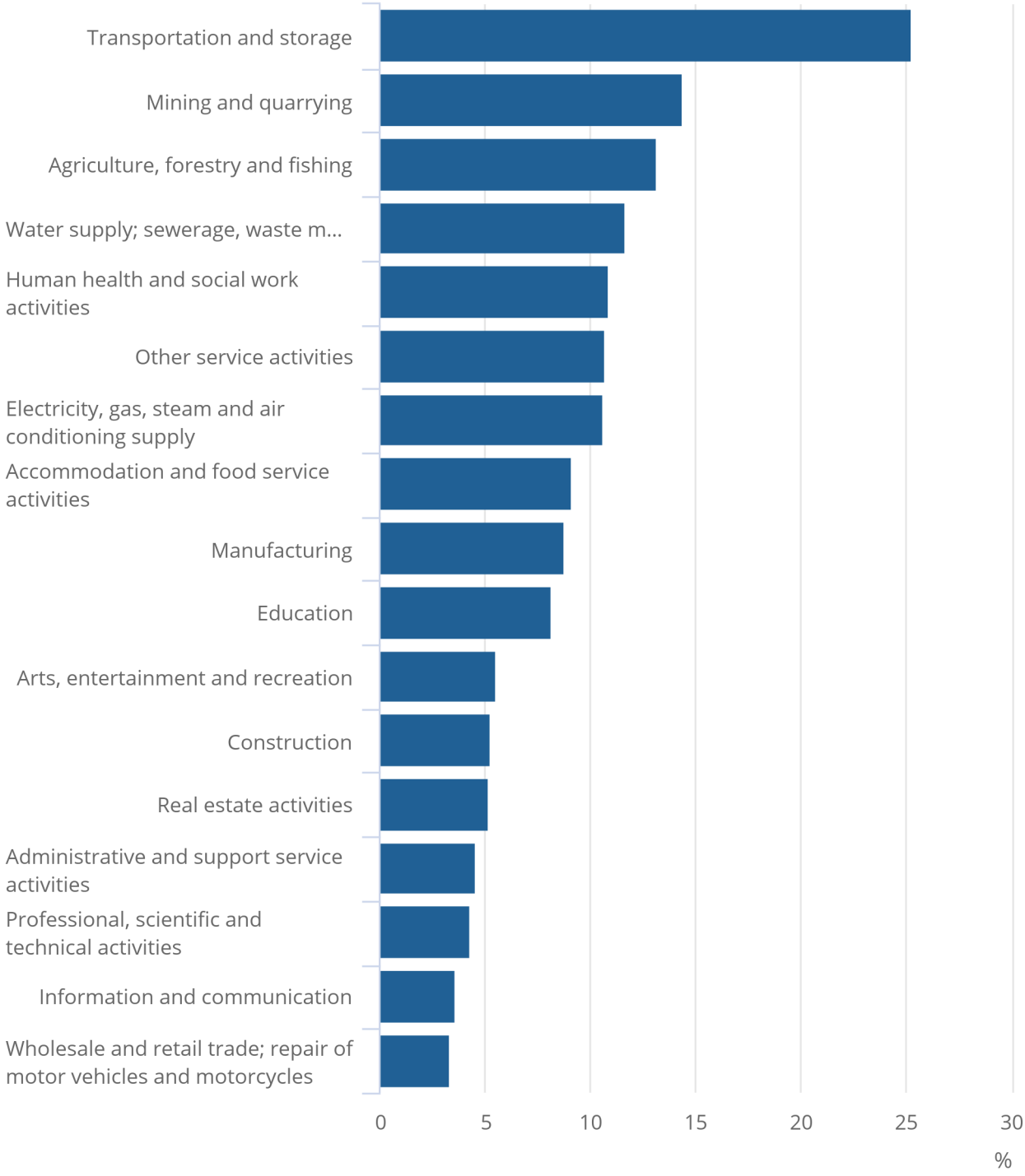
Mean share of business expenditure on energy by industry, UK, 2018



Source: Office for National Statistics – Annual Business Survey (ABS)

Notes:

1. Coverage reflects the Annual Business Survey (ABS), which excludes the financial and insurance sector, public sector organisations and part of the agriculture sector. More details can be found in the ABS Quality and Methodology.

2. Design weights and turnover calibration weights have been applied to reflect the business population and make corrections for any imbalance in the sample.

Energy expenditure also varies widely across firms within industry sectors, especially in those sectors with the highest proportion of overall expenditure on energy. In transportation and storage, a thicker upper tail of the distribution (capturing firms spending proportionally more on energy) brings up the average proportion of spending on energy. A similar proportion of firms with a high-energy input mix can also be seen in the agriculture, forestry and fishing industry, while industries that use a smaller share of their overall expenditure on energy, such as wholesale and retail, information and communication, and administrative and support service activities, tend to be more similar across firms. In the histograms in Figure 8, this can be seen by the higher peaks at the left side of the charts.

Figure 8: There is substantial variation of energy shares within industries

Industry-level histograms of energy input shares, UK, 2006 to 2018

Notes:

1. Coverage reflects the Annual Business Survey (ABS), which excludes the financial and insurance sector, public sector organisations and part of the agriculture sector. More details can be found in the ABS Quality and Methodology Information. Histograms capture the distribution of energy shares across broad industry groups, pooled across 2006 to 2018.

2. In these industry-level histograms, bins containing less than ten firms have been suppressed to zero to prevent disclosure.

Download the data

.xlsx

There was no overall trend across industries' average share of business expenditure on energy between 2006 and 2018. The mining and quarrying sector saw the largest increases in the share of spending on energy over the period; water supply, sewerage, waste management and remediation activities and agriculture, forestry and fishing saw the largest decline.

Figure 9: Firms in Mining and quarrying have increased their energy inputs the most on average

Change in the mean share of business expenditure on energy by industry, between 2006 to 2008 and 2016 to 2018 (percentage points), UK

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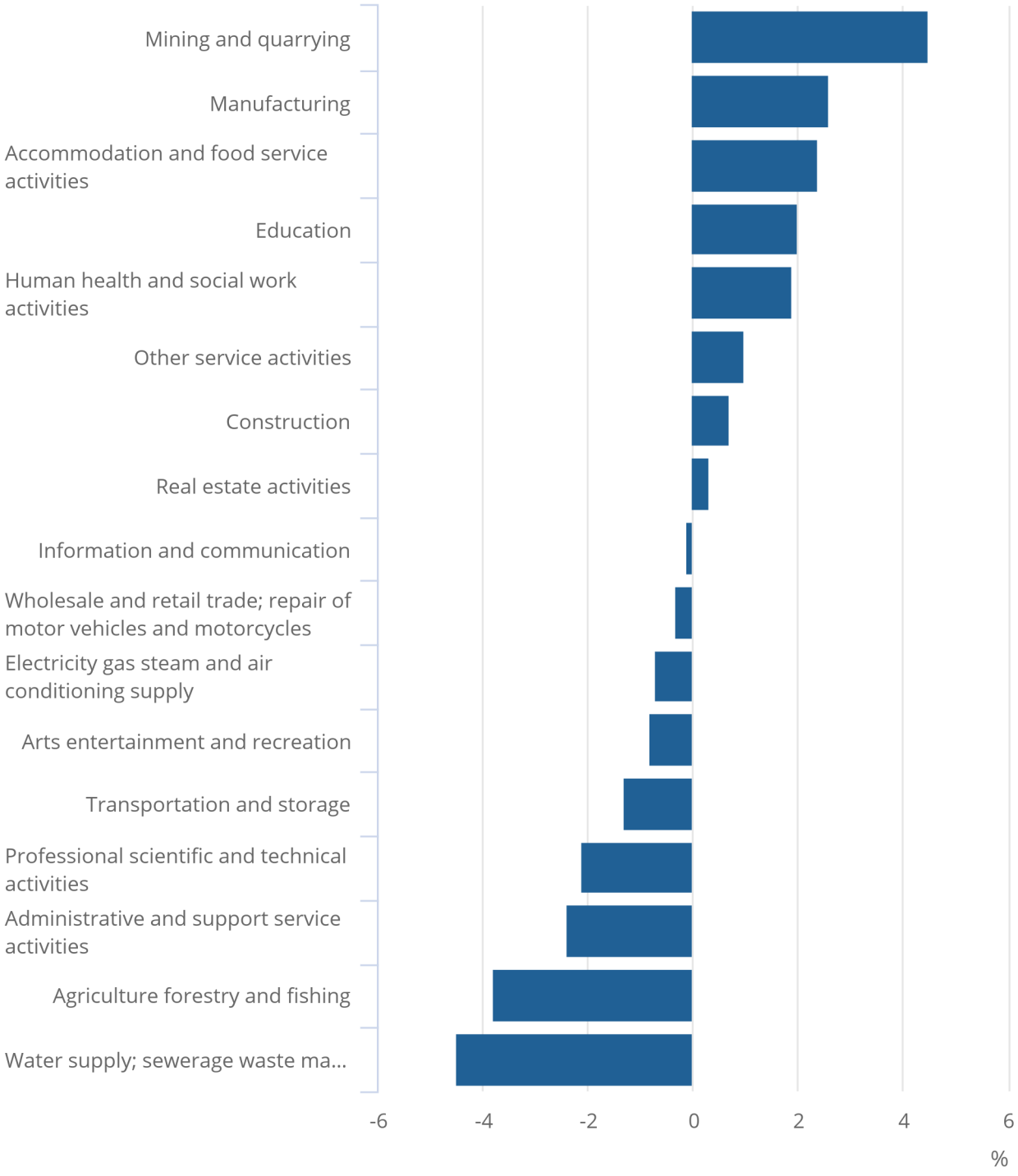
Change in the mean share of business expenditure on energy by industry, between 2006 to 2008 and 2016 to 2018 (percentage points), UK



Source: Office for National Statistics – Annual Business Survey (ABS)

Notes:

1. Three year averages are taken at either end of the period to reduce the impact of year-to-year volatility.

2. Coverage reflects the Annual Business Survey (ABS), which excludes the financial and insurance sector, public sector organisations and part of the agriculture sector. More details can be found in the ABS Quality and Methodology.

3. Design weights and turnover calibration weights have been applied to reflect the business population and make corrections for any imbalance in the sample.

5 . UK business action on net zero data

Business insights and impact on the UK economy
Dataset | Released 4 November 2021
Weighted estimates from the voluntary fortnightly Business Insights and Conditions Survey (BICS) about financial performance, workforce, prices, trade, and business resilience.

6 . Data sources and quality

This article makes use of the following data sources:

- Business Insights and Conditions Survey (BICS) 2021 (two waves)
- Annual Business Survey (ABS) 2006 to 2018
- Annual Purchases Survey (APS) 2015 to 2018

Analysis of businesses' current and intended actions to reduce emissions, as well as the challenges preventing them from reducing emissions, uses the Business Insights and Conditions Survey (BICS). The survey is voluntary, and the results are experimental. Businesses could also provide "other" responses detailing ways they were reducing their carbon emissions, which are not captured in the BICS microdata. Businesses could select multiple responses for questions on actions to, and challenges on, reducing emissions. Not all responses may be relevant to all businesses, for example "electrifying your vehicle fleet" will not be applicable for businesses that do not have business vehicles. Analysis has been done for businesses that are currently trading, temporarily closed or paused trading. Businesses that have permanently stopped trading have not been included.

Weighting and Imputation

All results are weighted by count to ensure businesses between 0 and 249 employees are representative of the UK business population. Figures may not match published Business Insight and Conditions (BICS) results as the microdata used does not include imputations.

More information on the imputation and weighting methodology is available in the Business Impact of Coronavirus (COVID-19) Survey (BICS): preliminary weighted results.

Changes to the relevant questions in the Business Insights and Conditions Survey (BICS)

The Business Insights and Conditions Survey (BICS) rotates questions on net zero every four waves.

The first wave of questions used here are from Wave 33 and included these questions:

- which of the following actions, if any, have you taken to reduce your business' emissions?
- which of the following actions, if any, does your business intend to take in the next 12 months to reduce emissions?

The second round of net zero questions used (Wave 41) the following questions:

- which of the following actions, if any, have you taken to reduce your business' emissions?
- do any of the following prevent action being taken by your business to reduce its carbon emissions?

The next set of net zero questions is due to appear in Wave 45 (29 November to 12 December 2021).

7 . Future developments

We are working on further analysis to investigate within-sector variation in energy use and the responses of UK firms to energy price changes.

We will explore how data on businesses’ energy spending compares across the Annual Business Survey (ABS), the Low Carbon and Renewable Energy Economy survey and the Annual Purchases Survey, alongside other sources on energy prices, use and expenditure. Using firm-level and industry-level data from these surveys, we will investigate how firms have adjusted to rising fuel costs in their production processes and input choices, and the impact this could have on the UK’s transition to net zero.

8 . Related links

Net zero and the different official measures of the UK's greenhouse gas emissions
Article | Released 24 July 2021
The UK government has announced a target of net zero for UK greenhouse gas (GHG) emissions by 2050. This article explains what net zero means, how progress towards it is measured and the differences between official measures of UK GHG emissions.

UK Environmental Accounts: 2021
Bulletin | Released 3 June 2021
Measuring the contribution of the environment to the economy, the impact of economic activity on the environment, and society's response to environmental issues.

Business Impact of Coronavirus (COVID-19) Survey: preliminary weighted results
Article | Released 14 September 2020
Early estimates of weighted responses from the voluntary fortnightly business survey, focusing on businesses' responses on how turnover, workforce and trading status have been affected in two-week reference periods, from Wave 7 (1 to 14 June 2020) to Wave 12 (10 to 23 August 2020).

The UK’s Low Emissions Vehicle Sector
Article | Released 8 November 2021
Data analysis on the Low Emission Vehicle Sector. Looks at employment and turnover for businesses in the UK, for the period 2015 to 2019.