Office for National Statistics

Statistical bulletin

Low carbon and renewable energy economy, UK: 2020

Estimates of the size of the UK's green economy from the Low Carbon and Renewable Energy Economy Survey, including turnover and employment.

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1 . Main points

- Turnover in the UK low carbon and renewable energy economy (LCREE) was estimated to be £41.2 billion in 2020, with no significant change since 2014 when the survey began.
- Employment in the UK LCREE was estimated to be 207,800 full-time equivalent (FTE) in 2020, with no significant change since 2014.
- Businesses with 250 or more employees saw a decrease of 6% turnover and 3% employment in their LCREE-related activities between 2019 and 2020; this was still 16% and 26% higher respectively than in 2015.
- Businesses classified within the manufacturing, energy supply and construction industries accounted for 84% of all UK LCREE turnover in 2020, and 77% of all LCREE employment.

2 . The UK’s low carbon and renewable energy economy in 2020

In 2020, businesses active in the UK low carbon and renewable energy economy (LCREE) generated £41.2 billion in turnover, with employment of 207,800 full-time equivalent (FTE) employees. The majority of this activity took place in businesses classified within the manufacturing, energy supply and construction industries (using Standard Industrial Classification 2007). Businesses within these industries accounted for 84% of total LCREE turnover and 77% of employment in 2020.

The LCREE accounted for around 1% of total UK non-financial employment in 2020 and around 1% of total UK non-financial turnover in 2019, the latest year for which a comparison is possible.

All estimates in this bulletin are given in current prices as provided by the LCREE survey respondents, with no adjustments made to account for the effects of inflation.

This bulletin discusses UK figures for turnover and employment. Full figures are available in the accompanying dataset, alongside figures on trade and investment.

Table 1: In 2020, businesses active in the UK low carbon and renewable energy economy (LCREE) generated £41.2 billion in turnover and employed 207,800 employees (full-time equivalent)
LCREE turnover and employment estimates (and confidence intervals), UK and constituent countries, 2020

	Turnover (£ billions)			**Employment (FTE)**		
	Estimate	**Lower CI**	**Upper CI**	**Estimate**	**Lower CI**	**Upper CI**
UK	41.2	38.6	43.9	207,800	189,000	226,700
England	32.6	30.0	35.1	171,100	153,200	189,000
Scotland	5.5	5.1	5.8	20,500	16,800	24,100
Wales	2.2	2.0	2.5	11,300	9,400	13,200
Northern Ireland	0.9	0.7	1.1	5,000	3,900	6,100

Source: Office for National Statistics - Low Carbon and Renewable Energy Economy Survey

Notes

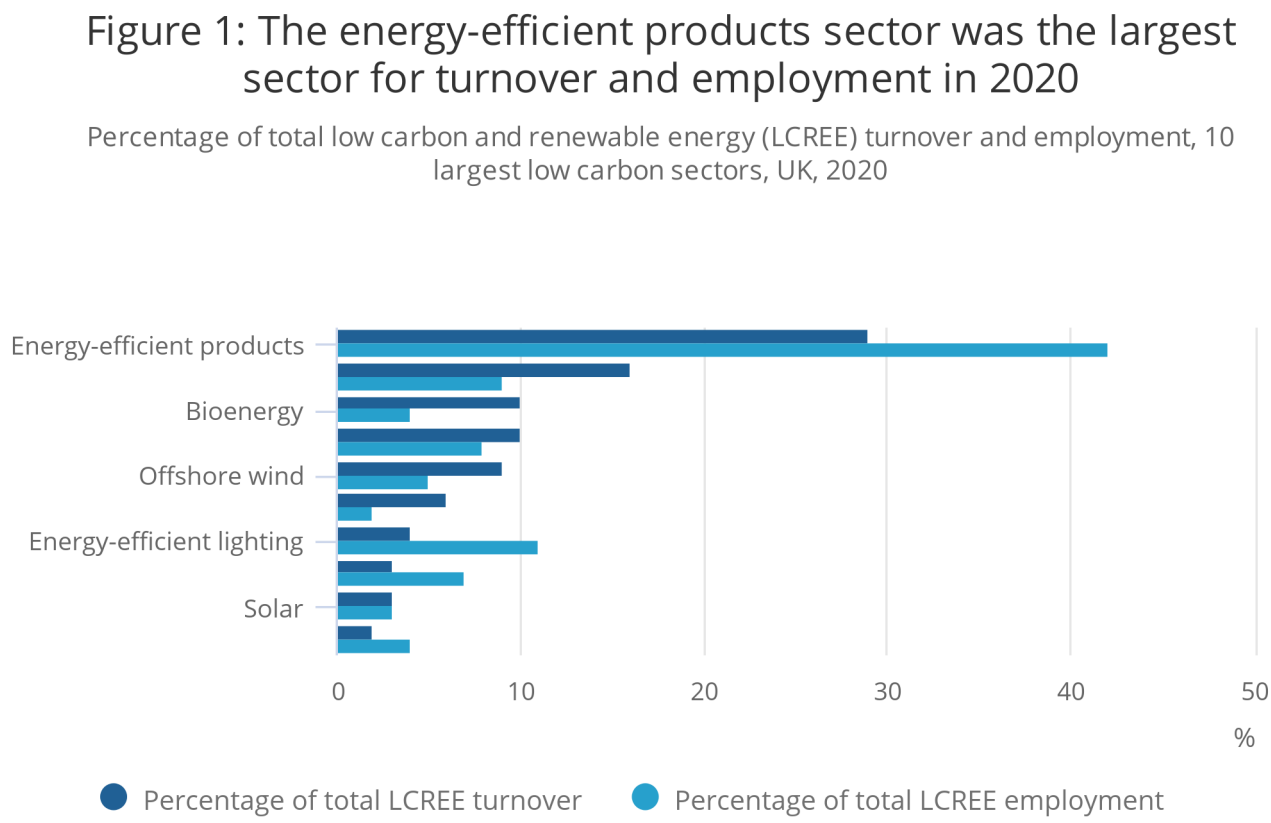
1. Figures may not sum because of rounding.

2. Confidence intervals (CI), are a standard way of expressing the statistical accuracy of a survey-based estimate.

Businesses are considered are part of the LCREE if they report activity in one of 17 defined sectors (see Glossary). The energy efficient products (excluding energy efficient lighting) and low emission vehicles sectors remained the largest sectors in the LCREE economy in 2020, accounting for £12.1 billion (29%) and £6.8 billion (16%) of turnover respectively. The energy efficient products sector is particularly important in terms of employment, accounting for 42% (87,000 FTE) of total LCREE employment. Activities within this sector tend to be more labour intensive compared with other sectors such as bioenergy, and onshore and offshore wind (Figure 1). Employment figures for 2020 include those on furlough, which may affect the ratio of turnover to employment when compared with other years in the LCREE dataset.

Figure 1: The energy-efficient products sector was the largest sector for turnover and employment in 2020

Percentage of total low carbon and renewable energy (LCREE) turnover and employment, 10 largest low carbon sectors, UK, 2020



Source: Office for National Statistics, Low carbon and Renewable Energy Economy Survey

Notes:

1. For full sector definitions of what is included in each LCREE sector, please see Table 2 of the Quality and Methodology Information Report.

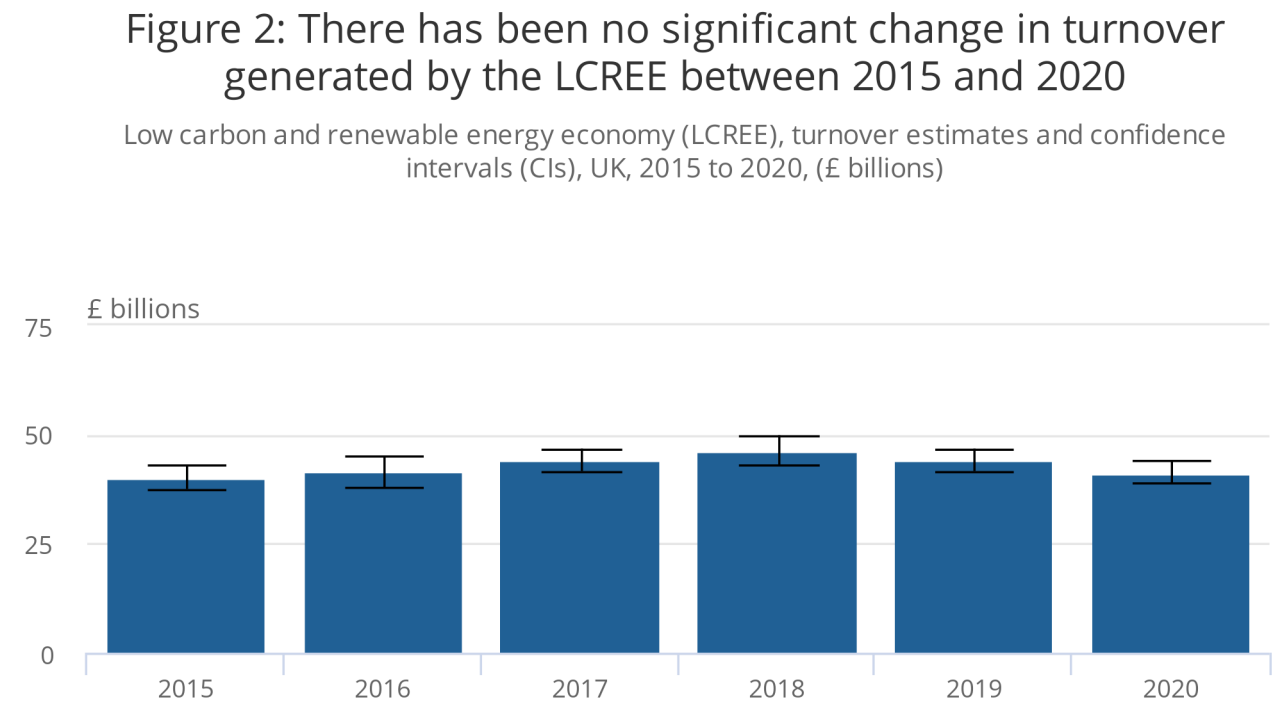
2. The level of uncertainty around the estimates means that rankings of the smaller sectors are indicative only. Data for other sectors are available in thedataset, along with confidence intervals and coefficients of variation (CVs) for all estimates.

3 . The low carbon and renewable energy economy over time

Activity in the low carbon and renewable energy economy (LCREE) is spread across a wide range of industries. Many LCREE sectors are small, and for many businesses LCREE activity is secondary rather than primary. This variability is reflected in the uncertainty around the estimates. Figures 2 and 3 show that there has been no significant change in the size of the LCREE between 2015 and 2020; any changes are less than the level that is explained by sampling variability.

Figure 2: There has been no significant change in turnover generated by the LCREE between 2015 and 2020

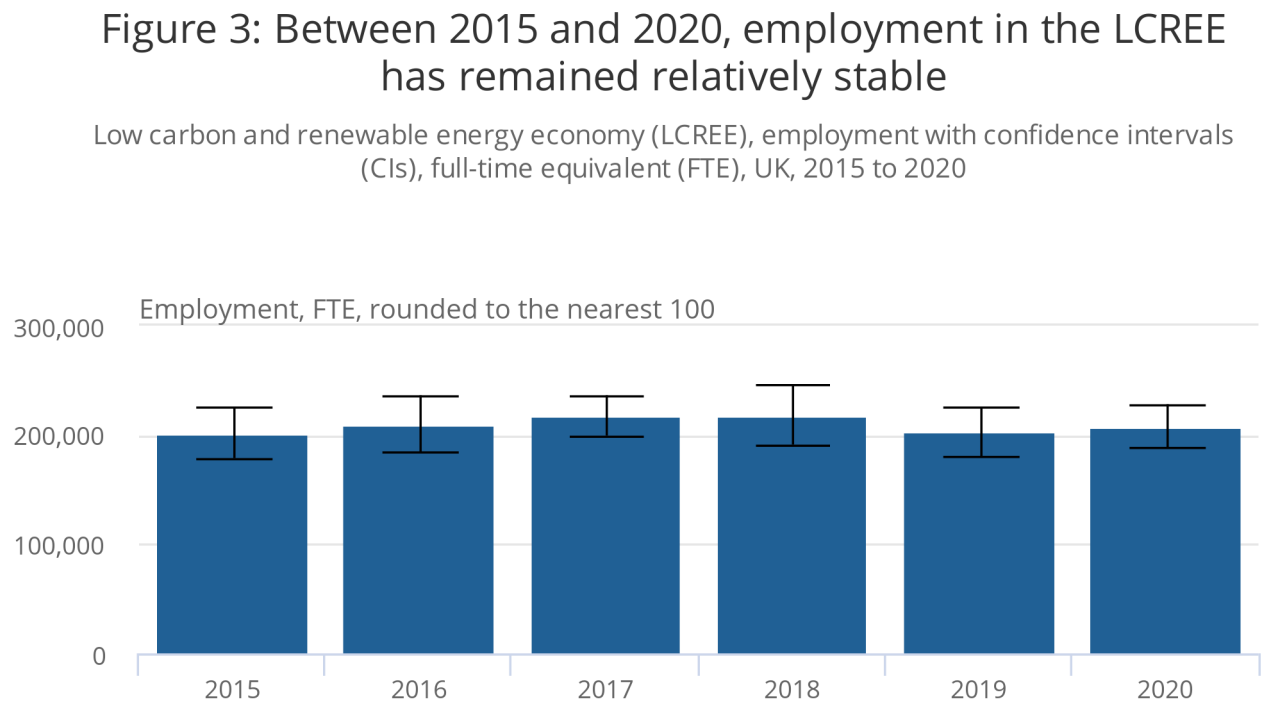
Low carbon and renewable energy economy (LCREE), turnover estimates and confidence intervals (CIs), UK, 2015 to 2020, (£ billions)



Source: Office for National Statistics, Low Carbon and Renewable Energy Economy Survey

Figure 3: Between 2015 and 2020, employment in the LCREE has remained relatively stable

Low carbon and renewable energy economy (LCREE), employment with confidence intervals (CIs), full-time equivalent (FTE), UK, 2015 to 2020



Source: Office for National Statistics, Low Carbon and Renewable Energy Economy Survey

4 . Low carbon and renewable energy economy activity in businesses with 250 or more employees

All businesses within the target population with 250 or more employees are selected every year for the Low Carbon and Renewable Energy Economy (LCREE) Survey. As all such businesses are surveyed, there is no sampling variability associated with the estimates relating to these businesses. These estimates can, therefore, be compared over time. These estimates may be subject to other errors, such as inaccurate reporting by businesses.

It is important to note that these businesses only make up a part of the LCREE and small and medium-size businesses are likely to act differently. In 2020, 59% of LCREE turnover and 36% of LCREE employment was from businesses with 250 or more employees. This is also not a static group: businesses may change size and so drop in or out of this category but remain in the wider LCREE. Consequently, movements by this group are indicative only and inferences about the whole economy cannot be made from these movements.

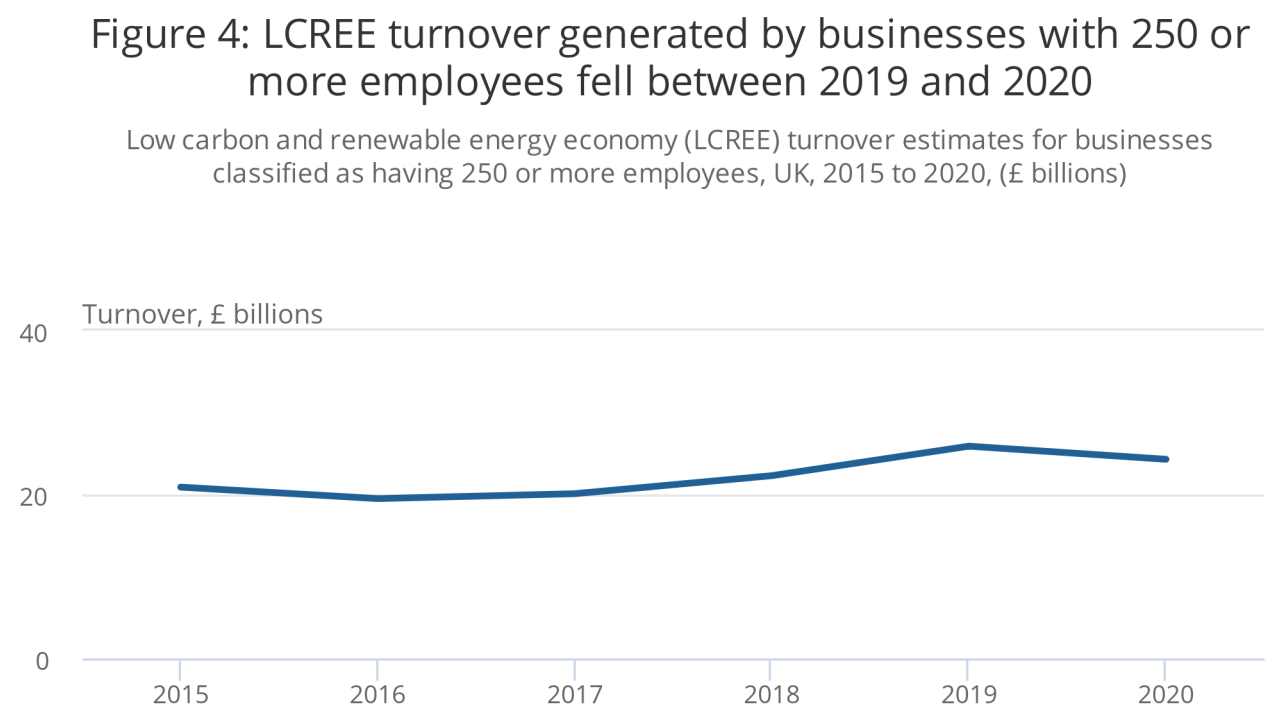
For businesses with 250 or more employees, LCREE turnover and employment both fell between 2019 and 2020, by 6% and 3% respectively (Figures 4 and 5). The fall in turnover is largely driven by the energy efficient products and low emissions vehicles sectors. The drop in employment is because of the low emission vehicles and energy monitoring, saving and controls sectors. The majority of activity in these LCREE sectors comes from businesses within the construction and manufacturing industries, both of which saw a downturn in 2020. This was largely because of the impact of the coronavirus (COVID-19) pandemic (as explored in Coronavirus and the impact on output in the UK economy). Employment will have been affected less than turnover, as these figures include employees on furlough.

Sectors that include the generation of electricity, such as onshore and offshore wind, were either stable or increased in size both in terms of turnover and employment between 2019 and 2020. Figures for all sectors can be found in the dataset accompanying this release.

Despite the year-on-year decrease, LCREE turnover and employment for businesses with 250 or more employees is still higher than in 2015, by 16% and 26% respectively. This was largely driven by growth in the low emissions vehicles sector, particularly between 2017 and 2019.

Figure 4: LCREE turnovergenerated by businesses with 250 or more employees fell between 2019 and 2020

Low carbon and renewable energy economy (LCREE) turnover estimates for businesses classified as having 250 or more employees, UK, 2015 to 2020, (£ billions)



Source: Office for National Statistics, Low Carbon and Renewable Energy Economy Survey

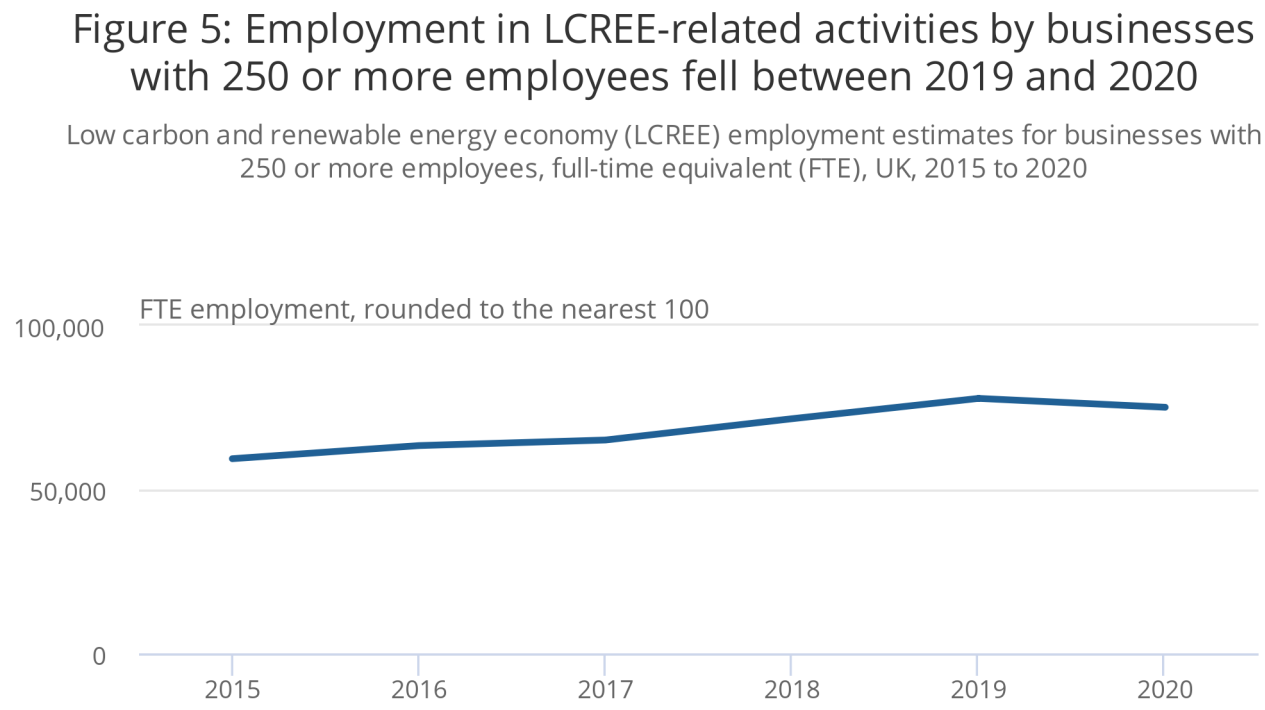
Notes:

1. All businesses in the target population classified as having 250 or more employees are selected for the LCREE survey, so these estimates are not subject to sampling variation. They may be subject to other survey error.

2. Businesses with 250 or more employees only make up part of the whole LCREE economy, so these movements should not be taken as representative of the whole LCREE.

Figure 5: Employment in LCREE-related activitiesby businesses with 250 or more employees fell between 2019 and 2020

Low carbon and renewable energy economy (LCREE) employment estimates for businesses with 250 or more employees, full-time equivalent (FTE), UK, 2015 to 2020



Source: Office for National Statistics - Low Carbon and Renewable Energy Economy Survey

Notes:

1. All businesses in the target population classified as having 250 or more employees are selected for the LCREE survey, so these estimates are not subject to sampling variation. They may be subject to other survey error.

2. Businesses with 250 or more employees only make up part of the whole LCREE economy, so these movements should not be taken as representative of the whole LCREE.

5 . Low carbon and renewable energy economy data

Low carbon and renewable energy economy estimates
Dataset | Released 17 February 2022
This release includes annual estimates of low carbon and renewable energy economy activity in the UK and constituent countries: turnover, employment, exports, imports, acquisitions, disposals and number of businesses.

Low carbon and renewable energy economy experimental indirect estimates
Dataset | Released 17 February 2022
Annual experimental estimates of low carbon and renewable energy economy (LCREE) indirect and total employment in the UK by LCREE group and sector.

6 . Glossary

Confidence interval

Confidence intervals (CI) are a standard way of expressing the statistical accuracy of survey-based estimates. A 95% confidence interval is the range within which the true population value would fall for 95% of the time, if the survey was repeated. If an estimate has a high error level, the corresponding confidence interval will be very wide.

Employment

Employment is measured in terms of full-time equivalent (FTE) employees, where one FTE employee may be thought of as one person working full-time for one year.

Industry

Businesses are classified into an industry using the current Standard Industrial Classification 2007 by the type of economic activity in which they are engaged.

Low carbon and renewable energy economy (LCREE)

Economic activities that deliver goods and services that are likely to help the UK generate lower emissions of greenhouse gases, predominantly carbon dioxide.

Low carbon and renewable energy sector

The LCREE Survey asks UK businesses to self-classify themselves into 17 low carbon and renewable energy sectors:

- offshore wind
- onshore wind
- solar photovoltaic
- hydropower
- other renewable electricity
- bioenergy
- alternative fuels
- renewable heat
- renewable combined heat and power
- energy efficient lighting
- other energy efficient products
- energy monitoring, saving or control systems
- low carbon financial and advisory services
- low emission vehicles and infrastructure
- carbon capture and storage
- nuclear
- fuel cells and energy storage

A business can be active in more than one sector.

Turnover

The amount received in sales from goods and services in a defined time period. It is a useful measure of the health of a business or an economy.

7 . Measuring the data

Data sources and collection

The survey was designed to provide greater detail on the low carbon and renewable energy economy in the UK.

The survey collects information on turnover, imports, exports, employment, and acquisitions and disposals of capital assets, for 17 low carbon sectors.

Coverage

Only the portion of economic activity of a business that directly relates to low carbon activities is included.

Revisions

This release contains revisions to estimates for the years 2018 to 2019 since they were last published in March 2021. Revisions can result from a variety of factors, including:

- the incorporation of additional data received from businesses who have been sampled in multiple years of the survey
- changes to data as a result of businesses revising their previous submissions - this was particularly the case for 2019 data as businesses were less available in 2020, when 2019 data collection initially took place
- developments in methodology

Quality and methodology

More quality and methodology information on the strengths, limitations, appropriate uses, and how the data were created is available in the Low Carbon and Renewable Energy Economy (LCREE) Survey QMI. This includes further detail on the methods used to calculate business counts for sectors within the LCREE.

8 . Strengths and limitations

Limitations

Activity in the low carbon and renewable energy economy (LCREE) is spread across a wide range of industries. Many sectors are small but growing, and for many businesses LCREE activity is secondary rather than primary. For this reason, estimates of the number of businesses are subject to volatility and, though provided in the datasets, are not directly considered within this statistical bulletin.

Uncertainty

The figures in this bulletin are survey-based estimates and gather information from a sample rather than the whole population. This means that they are subject to measurable sampling uncertainty, which has an effect on how changes in the estimates should be interpreted. Estimates of the level of uncertainty associated with all figures (coefficients of variation and confidence intervals) reported are presented in the datasets to aid interpretation. These uncertainty measures take into account both the variability in the estimate of the proportion of businesses active in the LCREE economy and the variability of the estimate of those active businesses. The former can be particularly variable because of sampling, as can be seen in the fluctuation in the estimates of the number of businesses and the higher level of uncertainty around them.

Sample size

The LCREE Survey was despatched for the seventh time in 2021, for the reporting year 2020, to a sample of 24,190 businesses. It achieved a response rate of 65% and of those responding, just over 2,300 businesses were operating in the LCREE sectors captured by the survey.

The response rates for 2019 and 2020 data were lower than usual because of the coronavirus (COVID-19) pandemic. In 2018, the response rate was 81%. This means that the estimates in this statistical bulletin may be subject to more uncertainty than usual because of fewer respondents on which to base the survey results. However, analysis of results by different groups, such as employment size band, region and Standard Industrial Classification, found non-response was spread fairly evenly across these groups so non-response bias is not thought to be an issue in the top-level estimates.

9 . Related links

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. Satellite accounts to the main UK National Accounts.

The challenges of defining a "green job"
Article | Released 7 April 2021
Reviews the options available to define "green jobs" and explores the challenges in doing so.

The UK's low emission vehicle sector
Article | Released 8 November 2021
Data and analysis on the low emission vehicle sector. Looks at employment and turnover for businesses in the UK, for the period 2015 to 2019.

Environmental protection expenditure, UK: 2018
Bulletin | Released 6 May 2020
Estimates of environmental protection expenditure by UK general government and industries for 2018.

Environmental goods and services sector (EGSS) estimates
Dataset | Released 3 June 2021
Estimates of the UK's environmental goods and services sector: output, gross value added, employment and exports, 2010 to 2018.