

Statistical bulletin

UK Environmental Accounts: Low Carbon and Renewable Energy Economy Survey: 2015 first estimates of direct activity

Preliminary results of direct activity from the UK Low Carbon and Renewable Energy Economy Survey (UK LCRE) for the reporting year 2015. The survey provides details of the low carbon and renewable energy economy in the UK.

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1 . Main points

In 2015, an estimated 233,000 full-equivalent¹ (FTE) employees were working directly in low carbon and renewable energy (LCRE) activities in the UK, accounting for 1.0% of total UK FTE non-financial employees.

LCRE activities generated £42.2 billion turnover in 2015, accounting for 1.3% of total UK non-financial turnover.

The low carbon electricity group accounted for 57.2% of turnover generated by the LCRE economy in Scotland whilst the energy efficient products group was the largest group in England (50.1%).

Exports in LCRE groups in 2015 accounted for 0.8% of total non-financial exports in the UK, with £3.8 billion exported. The vast majority of LCRE exports occurred in the low emissions vehicles² group, accounting for 66.3% of total LCRE exports in 2015.

LCRE businesses spent £5.3 billion on LCRE acquisitions of capital assets in 2015, with acquisitions in the low carbon electricity group accounting for 77.0%.

Notes for Main points

1. One FTE may be thought of as one person per year. For example, a person who normally spends 30% of their time in one sector and the rest in other sectors should be considered as 0.3 FTE.
2. The low emissions vehicles group includes the “low emission vehicles and infrastructure” and “fuel cells and every storage” sectors.

2 . Introduction

This bulletin presents provisional estimates from the UK Low Carbon and Renewable Energy (LCRE) Economy Survey for 2015. UK LCRE activity estimates are given for turnover, employment, imports, exports and acquisitions of capital assets. Estimates for England, Scotland, Wales and Northern Ireland are also provided for LCRE turnover and employment. Estimates are also presented for low carbon groups¹, both at the UK and country level.

The figures in this bulletin are survey-based estimates. This means that they are subject to a margin of error, which can have an impact on how changes in the estimates should be interpreted. Estimates of the margins of error (“confidence intervals”) around the 2014 and 2015 figures are presented in the datasets to aid interpretation.

It is not possible to directly assess whether or not the observed differences between the 2014 and 2015 estimates are likely to represent statistically significant change. Given the margin of error around the 2 sets of estimates, the size and potential causes of observed year-on-year change are therefore not directly reported within the text of this bulletin or in the datasets. A more complete picture of how the LCRE economy is changing over time will be possible once longer-term trends are available. More information on how to interpret these estimates is available in Section 7: Accuracy of the Statistics.

Data on the number of businesses and more detailed analysis will be presented alongside revised figures for 2014 in the final 2015 estimates bulletin, to be published in March 2017.

Notes for Introduction

1. Please see the [LCRE economy survey quality and methodology information](#) for detailed information on the low carbon groups.

3 . UK low carbon activity

In 2015, businesses active in the low carbon and renewable energy (LCRE) economy generated £42.2 billion in turnover, accounting for 1.3% of total UK non-financial turnover in 2015. LCRE activities resulted in the employment of 233,000 full-time equivalent (FTE) employees, accounting for 1.0% of UK FTE employees in the non-financial business economy, compared with 238,500 FTE employees in 2014 (Table 1).

In total, LCRE activities in 2015 resulted in £4.7 billion in imports (0.9% of total UK non-financial imports) and £3.8 billion in exports (0.8% of total UK non-financial exports). In terms of capital assets ¹, LCRE activity resulted in £5.3 billion in acquisitions (2.9% of total UK non-financial acquisitions) in 2015, compared with £8.7 billion in 2014. The decreases in acquisitions were mainly caused by the low carbon electricity group while the decrease in imports was mainly caused by the low emission vehicles group.

Table 1: Main statistics: low carbon and renewable energy economy, UK, 2014 and 2015

	Low carbon and renewable energy economy		Percentage of total UK non-financial business economy activity
	2014	2015	2015
Turnover (£ thousands)	46,193,500	42,201,000	1.3
Employees (FTE)	238,500	233,000	1.0
Imports (£ thousands)	5,890,000	4,676,000	0.9
Exports (£ thousands)	4,755,000	3,839,500	0.8
Acquisitions (£ thousands)	8,731,500	5,303,500	2.9

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

Table notes:

1. The difference between the 2014 and 2015 estimates should be interpreted with caution due to the precision of the survey-based estimates.
2. Estimates for disposals have not been included here due to the risk of disclosure.
3. See Section 9: Background Notes for details on how the percentage of total UK non-financial business economy activity has been calculated.

Notes for UK low carbon activity

1. Defined as capital assets that are used repeatedly to facilitate production, or provide services, for more than one year. It includes non-produced assets such as patents, contracts and domain names. Existing buildings and structures for own use or where the respondent is responsible for maintenance are also included. Further information on what is included in the capital assets definition can be found in the [survey](#).

4 . UK country estimates

In 2015, the turnover generated by low carbon and renewable energy (LCRE) activities in England accounted for 80.6% of total LCRE turnover with £34.0 billion, compared with £37.6 billion in 2014. LCRE activities in Scotland generated £5.3 billion in 2015, accounting for 12.7% of total LCRE turnover, compared with £5.6 billion in 2014. LCRE activities in Wales accounted for 4.2% of total LCRE activity in 2015 with £1.8 billion and Northern Ireland accounted for the remaining 2.6% of total LCRE activity (£1.1 billion).

LCRE activity in England contributed the majority of full-time equivalent (FTE) employees to the total LCRE economy (79.6%) with 185,500 in 2015, compared with 201,000 FTE employees in 2014. For 2015, the FTEs employed in LCRE activities in England accounted for 0.9% of the total non-financial employees in England whilst the LCRE employment in Scotland accounted for 1.6% of the total non-financial employees in Scotland. A total of 31,000 FTE employees were employed in LCRE sectors in Scotland in 2015, compared with an estimated 21,500 FTE employees in 2014. This change should be interpreted with caution due to the large variance around the 2015 estimate, particularly for the estimate of FTE employees in the low carbon electricity group.

LCRE activity in Wales employed an estimated 11,000 FTE workers in 2015 compared with an estimated 9,500 FTE in 2014. LCRE businesses with activity in Northern Ireland employed an estimated 5,500 FTE workers in 2015, compared with an estimated 6,500 in 2014.

Table 2: Main statistics: low carbon and renewable energy economy, UK countries, 2014 and 2015

	Low carbon and renewable energy economy		Percentage of UK LCRE total
	2014	2015	2015
Turnover (£ thousands)			
UK	46,193,500	42,201,000	
England	37,558,500	33,993,000	80.6
Scotland	5,613,500	5,342,500	12.7
Wales	1,977,500	1,780,500	4.2
Northern Ireland	1,044,000	1,094,000	2.6
Employment (FTE)			
UK	238,500	233,000	
England	201,000	185,500	79.6
Scotland	21,500	31,000	13.3
Wales	9,500	11,000	4.7
Northern Ireland	6,500	5,500	2.4

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

Table notes:

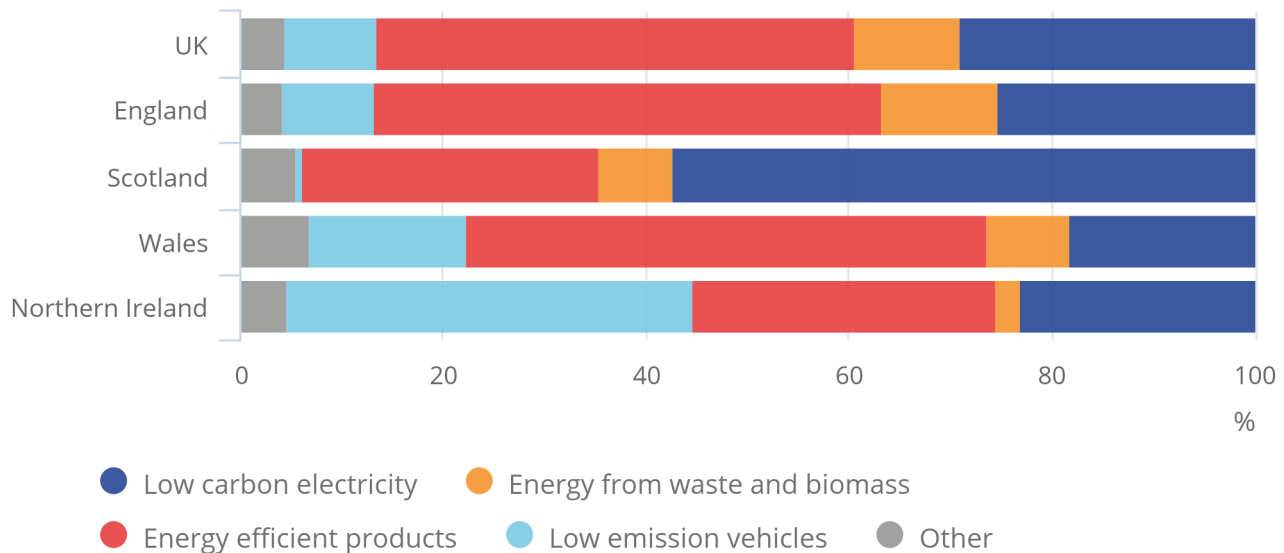
1. Figures may not sum due to rounding.
2. The difference between the 2014 and 2015 estimates should be interpreted with caution due to the precision of the survey-based estimates.

5 . Low carbon group results

Turnover

Figure 1: Low carbon group activity 2015, turnover, UK and countries

Figure 1: Low carbon group activity 2015, turnover, UK and countries



Source: Office for National Statistics, low carbon and renewable energy survey

Notes:

1. Low emission vehicles group includes low emission vehicles and infrastructure, and fuel cells and energy storage sectors.
2. Other includes low carbon heat and low carbon services.

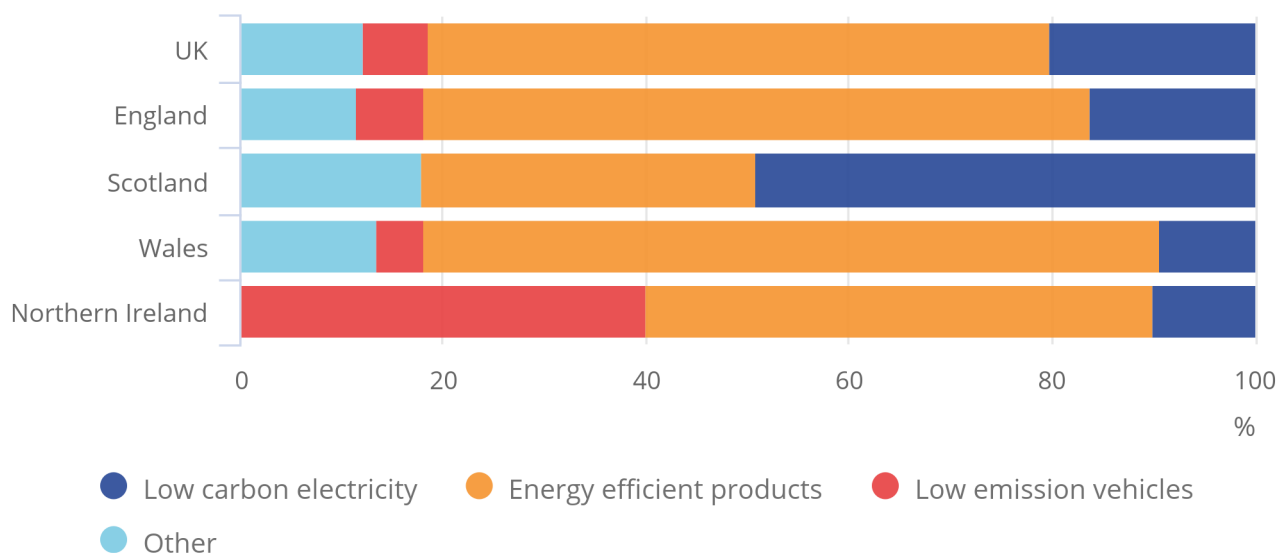
Low carbon and renewable energy (LCRE) activity in the UK generated £42.2 billion turnover in 2015 compared with £46.2 billion in 2014. Of the 2015 UK turnover, 47.1% of this was in the energy efficient products group (Figure 1).

There is considerable variation in turnover by LCRE group between countries. The greatest percentage of LCRE turnover generated by activity in Scotland was in the low carbon electricity group (57.2%). However, for activity in England and Wales the greatest proportion of LCRE turnover generated was in the energy efficient products group, accounting for 50.1% and 51.4% respectively. The energy efficient products group accounted for just 29.4% of LCRE turnover generated in Scotland and a similar proportion (29.9%) in Northern Ireland. In Northern Ireland the low emissions vehicles group accounted for the largest proportion of LCRE turnover with 39.9%.

Employees

Figure 2: Low carbon group activity 2015, full-time equivalent employees, UK and countries

Figure 2: Low carbon group activity 2015, full-time equivalent employees, UK and countries



Source: Office for National Statistics, low carbon and renewable energy survey

Notes:

1. Low emission vehicles group includes low emission vehicles and infrastructure, and fuel cells and energy storage sectors.
2. Other includes low carbon heat group, energy from waste and biomass and low carbon services.

Businesses operating in the energy efficient products group employed 61.2% of low carbon and renewable energy (LCRE) full-time equivalent (FTE) employees in the UK (Figure 2) in 2015. This group is also the largest in terms of LCRE turnover and a greater number of employees are required for this group's activity, which includes installation of energy efficient lighting and energy efficient products.

The low carbon electricity group employed 20.2% of LCRE workers in the UK in 2015 but generated a higher proportion of turnover (28.9%). This is because the low carbon electricity group includes electricity generation, which requires fewer employees compared with many of the other LCRE activities.

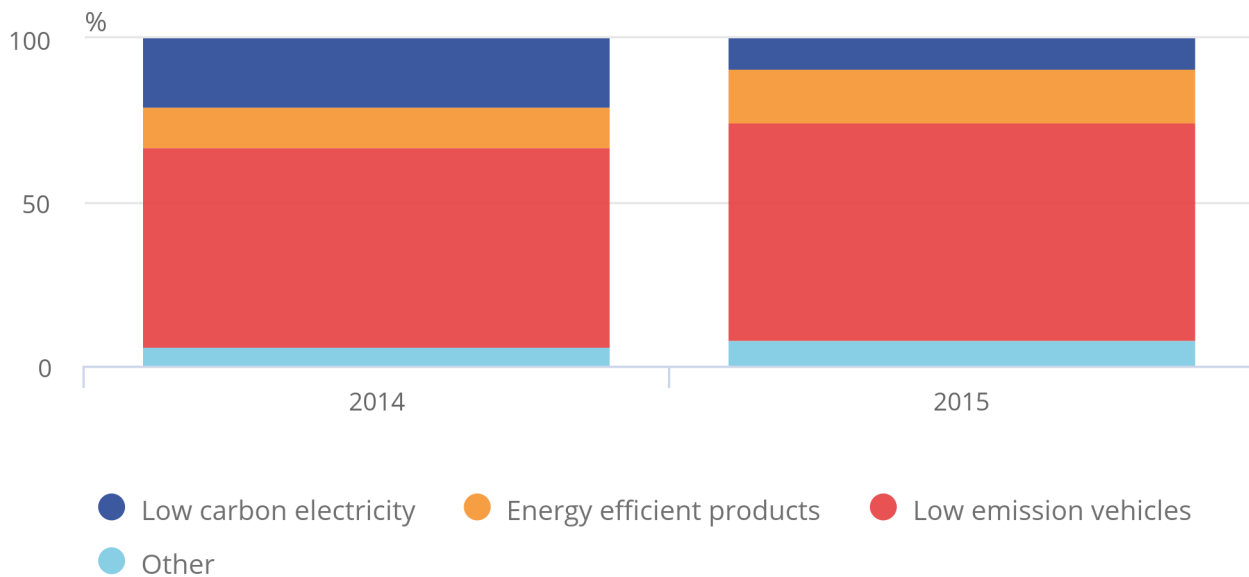
Low carbon electricity was the largest LCRE group in Scotland in terms of turnover (57.2%) and employees (49.2%) in 2015; in 2014, employees in Scotland were mainly within the energy efficient products group (52.3% compared with an estimated 32.8% in 2015). This change should be interpreted with caution due to the large variance around the 2015 estimate of FTE employees in the low carbon electricity group in Scotland. The proportion of employees for all other countries was highest in the energy efficient products group (England 65.8%, Wales 72.7% and Northern Ireland 50.0%).

6 . Further results

Exports

Figure 3. Exports by group, UK

Figure 3. Exports by group, UK



Source: Office for National Statistics, low carbon and renewable energy survey

Notes:

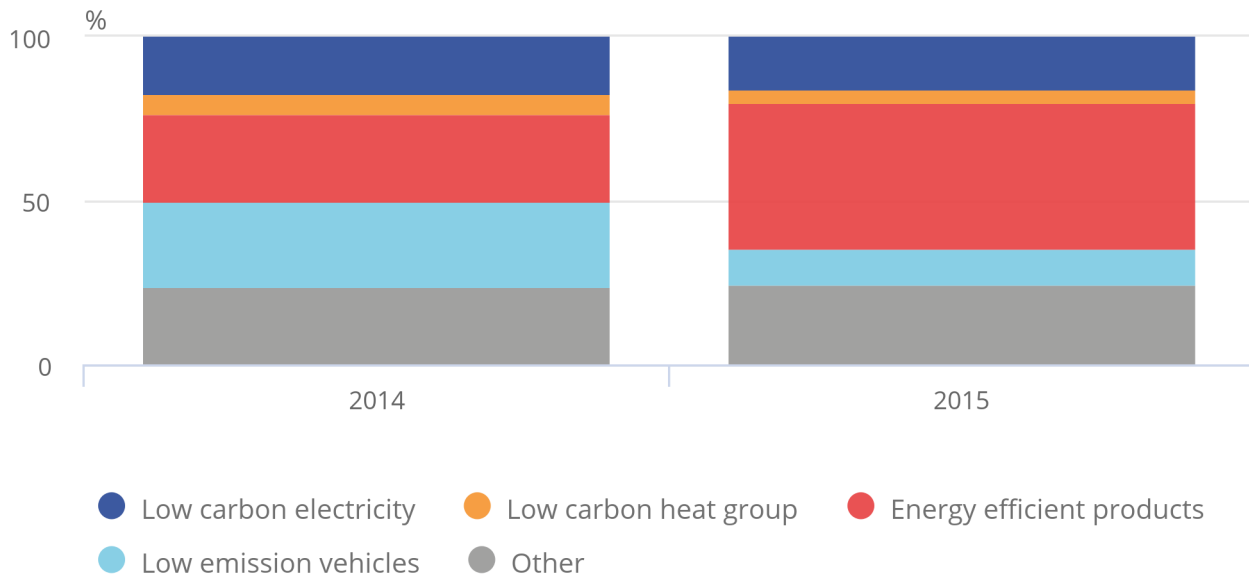
1. The difference between the 2014 and 2015 estimates should be interpreted with caution due to the precision of the survey-based estimates.
2. Low emission vehicles group includes low emission vehicles and infrastructure, and fuel cells and energy storage sectors.
3. Other includes low carbon heat, energy from waste and biomass, and low carbon services.

In total, LCRE businesses' exports were worth £3.8 billion in 2015. Exports in the low emission vehicles group accounted for an estimated 66.3% of total LCRE exports in 2015, equivalent to £2.5 billion (Figure 3). This group was one of the smallest in terms of turnover in 2015, generating just 9.1% of LCRE turnover.

Imports

Figure 4. Imports by group, UK

Figure 4. Imports by group, UK



Source: Office for National Statistics, low carbon and renewable energy survey

Notes:

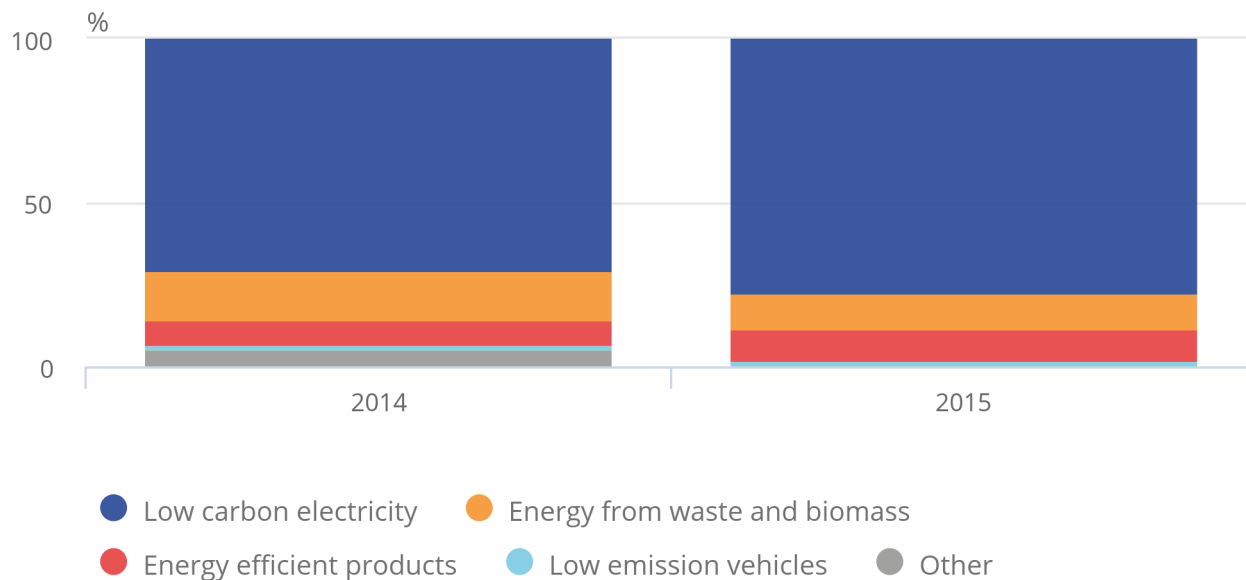
1. The difference between the 2014 and 2015 estimates should be interpreted with caution due to the precision of the survey-based estimates.
2. Low emission vehicles group includes low emission vehicles and infrastructure, and fuel cells and energy storage sectors.
3. Other includes energy from waste and biomass and low carbon services.

In total, LCRE businesses' imports were worth £4.7 billion in 2015, compared with £5.9 billion in 2014 (Figure 4). The energy efficient products group accounted for the majority of LCRE economy imports in 2015 with £2.1 billion. This group also accounted for the greatest percentage of LCRE turnover (47.1%) in 2015; this is due to businesses in this sector importing equipment to install and parts for the manufacture of energy efficient lighting and products.

Acquisitions of capital assets

Figure 5: Acquisitions of capital assets by group, UK

Figure 5: Acquisitions of capital assets by group, UK



Source: Office for National Statistics, low carbon and renewable energy survey

Notes:

1. The difference between the 2014 and 2015 estimates should be interpreted with caution due to the precision of the survey-based estimates.
2. Low emission vehicles group includes low emission vehicles and infrastructure, and fuel cells and energy storage sectors.
3. Other includes low carbon heat and low carbon services.

LCRE businesses spent an estimated £5.3 billion on LCRE acquisitions in 2015 compared with £8.7 billion in 2014 (Figure 5). The low carbon electricity group accounted for the largest proportion of capital assets in both 2014 and 2015 with 70.9% (£6.2 billion) and 77.0% (£4.1 billion) respectively. This decrease reflects the fact that these acquisitions are likely to have been one-off large purchases such as wind turbines or solar panels. For the UK overall, the energy efficient products group accounted for the largest amount of LCRE turnover and employment in 2015. However, this group only accounted for 9.9% of LCRE acquisitions of capital assets. Acquisitions of capital assets dropped for energy from waste and biomass from £1.3 billion in 2014 to £0.6 billion in 2015. Acquisitions in this group will also have been large purchases of equipment for electricity generation.

7 . Accuracy of the statistics: estimating and reporting uncertainty

The figures in this bulletin come from a survey of businesses. Surveys gather information from a sample rather than the whole population. The sample is designed to allow for this and to be as accurate as possible given practical limitations such as time and cost constraints, but results from sample surveys are always estimates, not precise figures. This means that they are subject to a margin of error, which can have an impact on how changes in the estimates should be interpreted.

We can calculate the level of uncertainty (also called “sampling variability”) around a survey estimate by exploring how that estimate would change if we were to draw many survey samples for the same time period instead of just one. This allows us to define a range around the estimate (known as a “confidence interval”) and to state how likely it is in practice that the real value that the survey is trying to measure lies within that range. Confidence intervals are typically set up so that we can be 95% sure that the true value lies within the range – in which case we refer to a “95% confidence interval”. The confidence intervals for each estimate are presented in the [datasets](#).

The large confidence intervals are primarily a result of the reduction in sample size between 2014 and 2015; there is greater variability in the data that the 2015 estimates are based on, which reduces the confidence around them. It is not possible to directly assess whether or not the observed differences between the 2014 and 2015 estimates are likely to represent statistically significant change.

8 . Quality and methodology

The [Low Carbon and Renewable Energy Economy Survey Quality and Methodology Information](#) document contains important information on:

- the strengths and limitations of the data and how it compares with related data
- users and uses of the data
- how the output was created
- the quality of the output including the accuracy of the data

9. Background notes

1. The 2015 Low Carbon and Renewable Energy Economy Survey

The Low Carbon and Renewable Energy (LCRE) Economy Survey was despatched for the second time in 2016, for the reporting year 2015, to a sample of 13,913 businesses. It achieved a response rate of 84.0% and of those responding, 1,597 businesses were operating in the LCRE sectors captured by the survey. We designed the survey to provide greater detail on the low carbon and renewable energy economy in the UK. Results from the survey can be used to show business activity in 6 low carbon groups which can be further subdivided into 17 low carbon sectors ([Quality and Methodology](#) Information).

This report presents direct sector activity at low carbon group level. [Estimates of total activity for 2014](#) were published recently and total estimates for 2015 will be available in the 2015 final estimates bulletin, to be published in March 2017.

The survey sample size was reduced from around 40,000 in 2014 to around 14,000 in 2015. In order to enhance the sample for 2015, a number of businesses that were known to have activity in the low carbon and renewable energy (LCRE) economy were selected to be included in the sample. Because these businesses were not

selected through random sampling for the 2015 sample, the weight applied to them to estimate for non-response is lower than it was in 2014. This partially explains why the estimates for the LCRE economy are generally lower in 2015 compared with 2014.

2. UK non-financial business economy

Total turnover in the UK non-financial business economy is derived from [Annual Business Survey, UK non-financial business economy, 2015 provisional results](#) (released 10 November 2016). The Annual Business Survey (ABS) excludes the following agricultural industries: 01.1 growing of non-perennial crops, 01.2 growing of perennial crops, 01.3 plant production, 01.4 animal production and 01.5 mixed farming, which were included in the Low Carbon and Renewable Energy Economy Survey. These industries are included in the low carbon survey results. This should be considered when making comparisons. At the time of writing, regional ABS results for 2015 were not available. Therefore, 2014 ABS regional data have been used to derive proportions which have then been applied to the UK 2015 total.

Regional full-time equivalent (FTE) non-financial business economy estimates are derived from the Business Register Employment Survey (BRES) and the Northern Ireland Quarterly Employment Survey (QES). Figures for Great Britain derived from BRES exclude employees in all industries that are excluded from the low carbon survey. However, figures for Northern Ireland derived from the QES do include employees in these industries: 63 information service activities and 95 repair of computers and personal and household goods. This should be considered when making comparisons.