

Article

UK Environmental Accounts: UK onshore wind sector, 2014

Estimates of activity in the onshore wind sector in 2014 based on results from the 2015 Low Carbon and Renewable Energy (LCRE) Economy Survey.

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1 . Main points

In 2014, around 3,000 businesses operated in the UK onshore wind sector which accounted for 3.1% of the low carbon and renewable energy (LCRE) businesses.

They generated over £2.8 billion turnover and employed around 6,500 full-time equivalent (FTE) workers.

The onshore wind sector invested £1.4 billion in LCRE capital assets in 2014 which accounted for 15.5% of the overall LCRE acquisitions of capital assets.

Scotland generated £1.6 billion turnover from onshore wind activity; this accounted for over 55% of onshore wind sector turnover. In comparison, England generated 32.1% of onshore wind sector turnover. However, FTE employment within this sector was higher in England than in Scotland.

2 . Introduction

The Office for National Statistics (ONS) launched a new survey in 2015, collecting data on the low carbon and renewable energy (LCRE) economy. The [first high-level results](#) were published in December 2015. In order to produce timely estimates and be responsive to demand for greater detail, this is the third and final in a series of sector-specific articles prior to final results scheduled to publish in May 2016. The first article, published in March 2016, focused on the [UK solar photovoltaic sector](#). The second article, published in April 2016, was for [nuclear power](#).

In this article, comparisons are made between the nuclear power sector, solar photovoltaic sector and the onshore wind sector, all of which are part of the low carbon electricity group. Comparisons for additional sectors, such as offshore wind, will be made in the final bulletin.

In 2014, 19.1% of UK electricity generation came from renewable sources with 64.7 terawatt hours (TWh) generated. The onshore wind sector accounted for 28.7% of this, with 18.6 TWh of electricity generated¹. In comparison, the solar photovoltaic sector accounted for 6.3% of electricity generated from renewable sources, with 4.1 TWh of electricity generated.

The onshore wind sector includes businesses that are generating electricity, but also those supporting these activities through design, production and installation of infrastructure for this purpose. Research and development is out of scope for the LCRE economy².

The main statistics for 2014 are presented in Table 1.

Table 1: Main onshore wind sector statistics 2014, UK

	UK Onshore Wind Sector
Businesses	3,000
Turnover (£'000s)	2,820,500
Imports (£'000s)	141,000
Employees (FTEs)	6,500
Acquisitions of Capital Assets (£'000s)	1,352,500

Source: Office for National Statistics

Notes:

1. All numbers have been rounded to the nearest 500,000 except for full-time equivalents (FTE) employees and businesses which have been rounded to the nearest 500.
2. Accompanying coefficients of variation (CV) can be found in main onshore wind sector statistics. CVs can be used as a guide to the accuracy of the estimate. The lower the coefficient of variation, the greater the accuracy of the estimate. The ranges used for the purposes of the article are very good, good, acceptable, and treat with caution.
3. Estimates are of direct onshore wind sector only; indirect activities are not in scope of the publication.
4. Data for exports are not included in this article due to disclosure control.

There were 6,500 full-time equivalents³ (FTE) engaging in onshore wind activity in 2014. Of these 38.5% (2,500) were working in businesses where onshore wind activities were the primary activity. A business is defined as working primarily in onshore wind if more than 50% of employees were engaged in onshore wind activities. The primary businesses generated 35.8% of onshore wind sector turnover (£1 billion).

Primary onshore wind sector businesses were not largely dominated by a specific activity. Employees and turnover in both primary and secondary onshore wind businesses were generated from activities within: production of electricity, design, construction, engineering and installation. In comparison, primary solar photovoltaic businesses generated 51.2% (£1.3 billion) of sector turnover and employed 81.0% (7,700) of FTE employees. The majority of primary solar photovoltaic businesses were involved in installation activities, which require a greater number of employees than electricity generation. Primary nuclear power sector businesses generated 8.9% (£0.3 billion) of sector turnover and employed 30.3% (4,500) of sector FTE employees. The majority of primary nuclear power sector businesses were involved in engineering and consultancy activities. The majority of employees and turnover generated was in businesses operating in nuclear power in a secondary capacity; these businesses were predominantly involved in electricity generation but operated in multiple power-generating sectors rather than specialising in nuclear electricity generation.

Businesses that operated in the onshore wind sector, but not as their primary activity, employed 61.5% of onshore wind FTE workers and generated 64.2% of onshore wind turnover.

Notes for introduction

1. Further information for 2014 is available from the [Digest of United Kingdom Energy Statistics \(DUKES\) 2015](#).

Estimates for onshore wind generation in 2015 are available at [Digest of the United Kingdom Energy Statistics \(DUKES\) Energy Trends: Electricity](#).

2. Research and development from public organisations is out of scope of the LCRE survey. Also note that businesses that provide consultancy advice to the onshore wind sector, excluding design activities, will be captured by the low carbon services group. Estimates on the low carbon services group activity will be available in the Final Estimates statistical bulletin. However, consultancies that are providing advice on onshore wind sector design activities will be captured by these onshore wind sector estimates.
3. One FTE may be thought of as one person 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.

3 . Low carbon and renewable energy economy

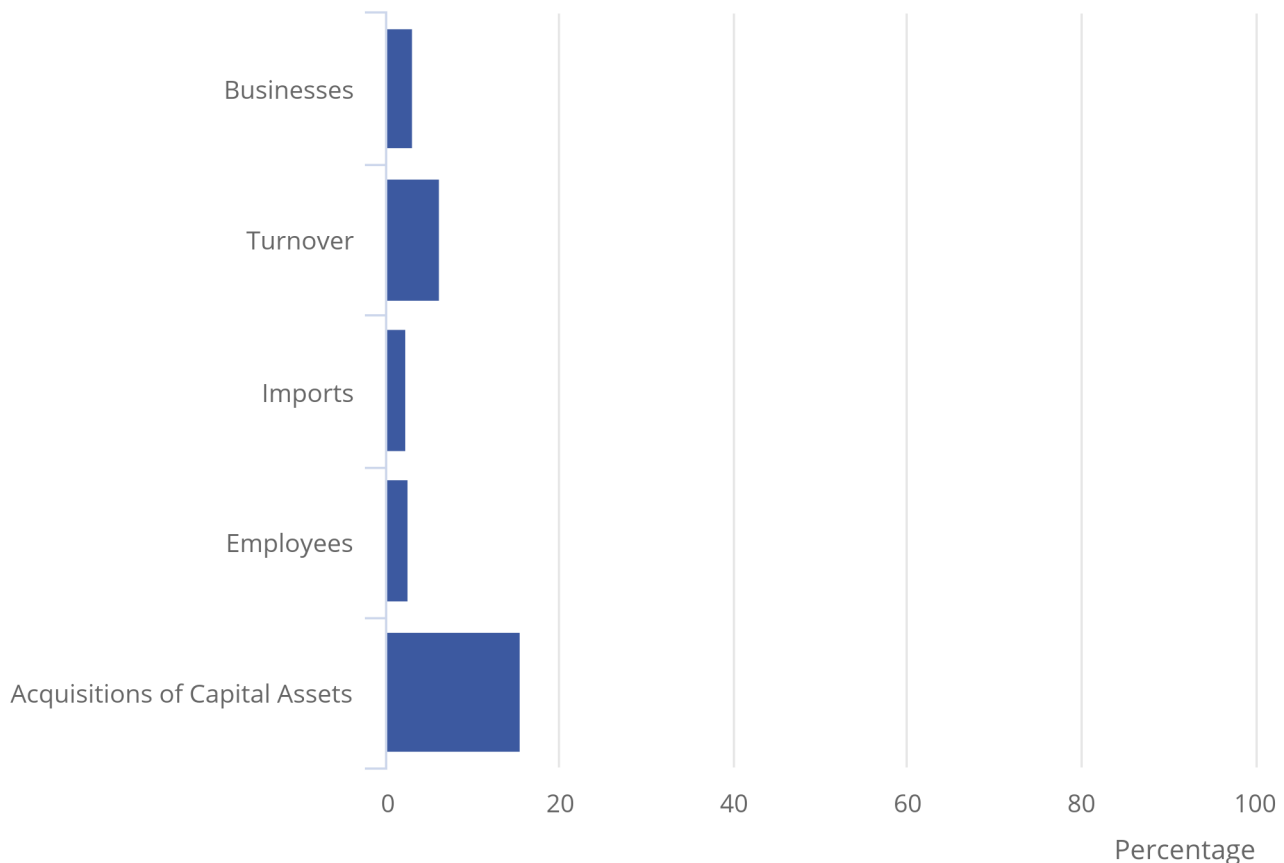
The Low Carbon and Renewable Energy Economy Survey (LCRE)¹ was designed to provide statistics on 17 low carbon sectors², including the onshore wind sector. Figure 1 shows the contribution that the onshore wind sector made to the LCRE economy. Comparisons can be made with our [first high level estimates](#).

Figure 1: Onshore wind contribution to the low carbon and renewable energy economy, 2014,

UK

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UK



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

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Notes:

1. All figures have been rounded to one decimal point.

Of all the UK businesses operating in the LCRE economy in 2014, only 3.1% of businesses were in the onshore wind sector in a primary or secondary capacity (Figure 1). This is a small amount of businesses when compared with the solar photovoltaic sector (19.7% of businesses). This is mainly because there were many businesses generating electricity from solar panels and receiving feed-in tariffs (FITs) whose main activity fell outside the scope of the LCRE economy. For example, farmers utilising land to generate income from solar panels.

Turnover generated in the onshore wind sector was £2.8 billion which was 6.1% of total LCRE turnover. Turnover was slightly higher within the onshore wind sector when compared with the solar sector (£2.5 billion). This is mainly due to more electricity being generated from the onshore wind sector compared with the solar photovoltaic sector³.

Full-time equivalent (FTE) employees in the onshore wind sector made up only 2.7% of total FTE employees in the LCRE economy. This is lower than FTE employees for the solar photovoltaic sector (4.0%). This is because more electricity was generated in the onshore wind sector, which is less labour intensive compared with other activities in the LCRE economy.

The onshore wind sector imported £141.0 million of goods and services in 2014, which accounted for 2.4% of total LCRE imports. Many of these imported goods were likely to have been components of wind turbines themselves and therefore also include acquisitions of capital assets estimates.

The onshore wind sector invested £1.4 billion in capital assets in 2014, which accounted for 15.5% of the overall LCRE acquisitions of capital assets.

Notes for low carbon and renewable energy economy

1. Information on the Low Carbon and Renewable Energy Economy Survey methodology and first estimates resulting from the survey can be found in: [Low Carbon Survey Methodology](#).
2. The 17 sectors reported in the Low Carbon and Renewable Energy Economy Survey are: offshore wind, onshore wind, solar photovoltaic, hydropower, other renewable electricity, bioenergy, alternative fuels, renewable heat, renewable combined heat and power, energy efficient lighting, 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 power, fuel cells and energy storage systems.
3. Further information for 2014 is available from the [Digest of United Kingdom Energy Statistics \(DUKES\) 2015](#).

4 . Low carbon electricity group

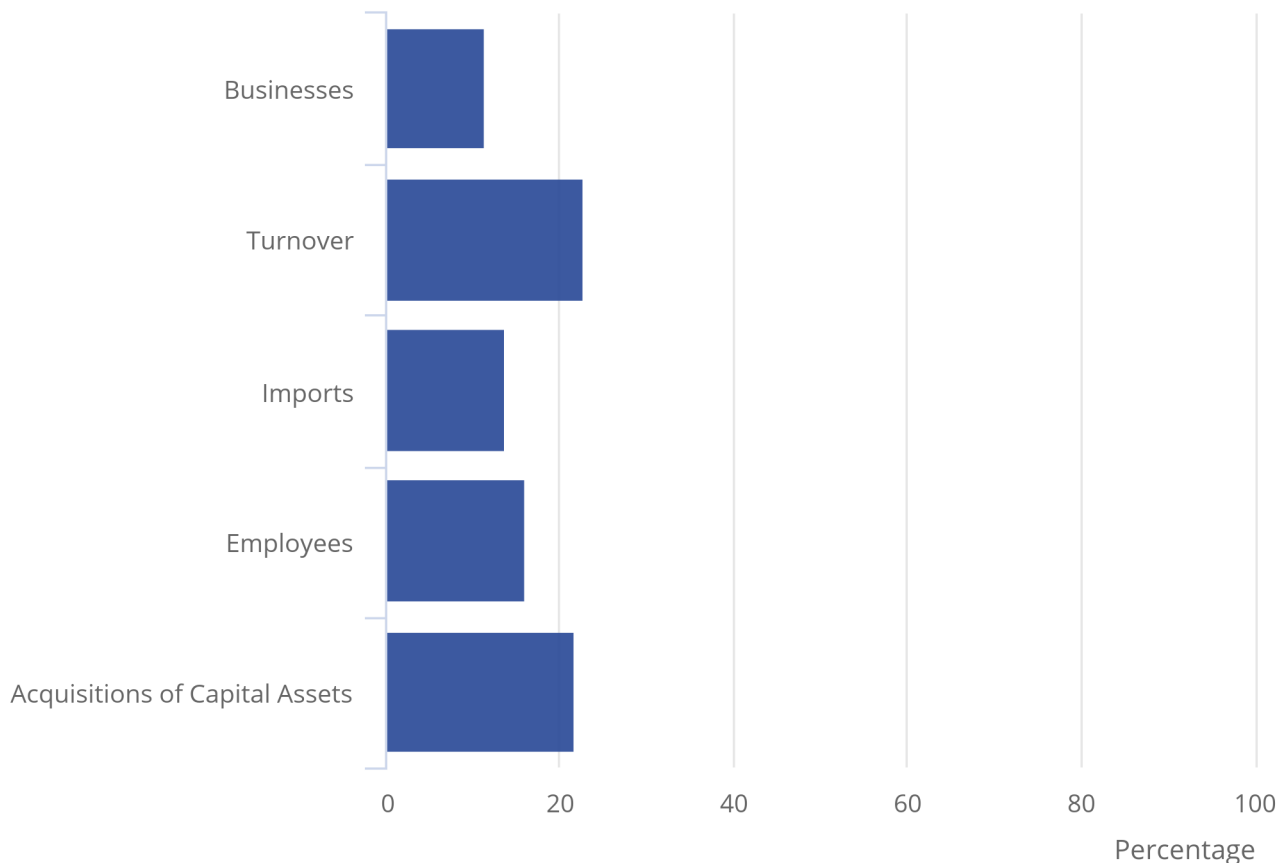
The low carbon and renewable energy economy (LCRE) can be divided into several groups that carry out similar activity. The onshore wind sector forms part of the low carbon electricity group, which includes other sectors producing electricity from renewable sources, namely offshore wind, solar photovoltaic, hydropower, nuclear power, other renewable, and carbon capture and storage.

Figure 2: Onshore wind contribution to low carbon electricity group, 2014

UK

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UK



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

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

Notes:

1. All figures have been rounded to one decimal point.

In 2014, 11.3% of businesses within the low carbon electricity group operated in the onshore wind sector. However, the turnover generated from this sector accounted for 22.7% of the low carbon electricity group.

Full-time equivalent (FTE) employees in the onshore wind sector accounted for 16.0% of low carbon electricity group employees which is lower than solar photovoltaic (23.5%) and nuclear (38.3%) sector estimates.

The onshore wind sector imported £141.0 million of goods and services in 2014, which accounted for 13.7% of low carbon electricity group imports. The imports in this sector were likely to be acquisitions of capital assets, which includes the purchase of wind turbines and parts. Onshore wind accounted for 21.8% of low carbon electricity acquisitions of capital assets.

Notes for low carbon electricity group

1. Further information for 2014 is available from the [Digest of United Kingdom Energy Statistics \(DUKES\) 2015](#).

5 . Regional breakdown

Table 2 presents the results for the 3 most robust indicators (based on CV values): turnover, employees and acquisitions of capital assets.

Table 2: Regional onshore wind sector statistics, 2014, UK

	Turnover (£'000s)	Employees (FTEs)	Acquisitions of Capital Assets (£'000s)
UK	2,820,500	6,500	1,352,500
England	905,000	3,000	395,500
Scotland	1,576,500	2,500	789,500
Wales	150,500	500	77,500
Northern Ireland	189,000	500	90,000

Source: Office for National Statistics

Notes:

1. All numbers have been rounded to the nearest 500,000 except for FTE Employees which has been rounded to the nearest 500.
2. The figures and accompanying CVs for all regional indicators can be found in main onshore wind sector statistics. CVs can be used as a guide to the accuracy of the estimate. The lower the coefficient of variation, the greater the accuracy of the estimate.
3. Number of businesses by region not included due to high CVs.
4. The estimates for Wales and Northern Ireland should be treated with caution due to high CVs.

The percentages contributed by each region to the indicators are presented in Figure 3. Scotland contributed to the majority of turnover (55.9%) within the onshore wind sector. This is likely to be due to comparatively high electricity generation in Scotland from onshore wind. England was the second biggest contributor, accounting for 32.1% of onshore wind turnover. Wales contributed 5.3% to turnover and Northern Ireland contributed 6.7%.

Even though onshore wind turnover was higher in Scotland than in England, the total full-time equivalent (FTEs) for Scotland (38.5%) was lower than England (46.2%). This is mainly due to the high amount of electricity generation from onshore wind in Scotland, which requires fewer employees. In comparison, onshore wind sector activity in England included more manufacturing and design activities which are more labour intensive. Scotland and England together contributed to the majority of total employment.

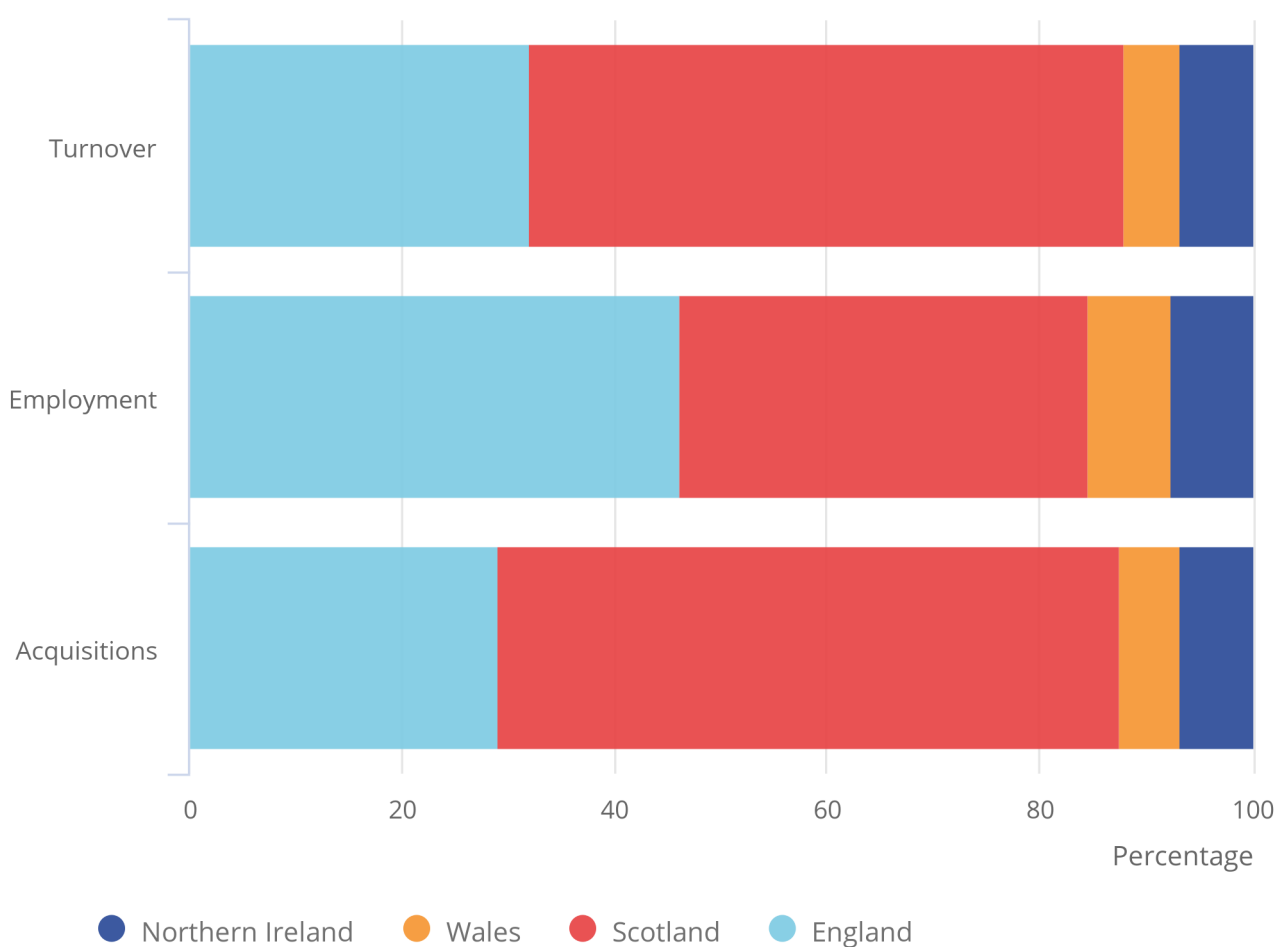
The total capital acquisitions, for the onshore wind sector reflects similar proportions as the regional turnover split, with Scotland being the highest contributor (58.4%). England was the second biggest contributor, accounting for 29.2% of acquisitions for onshore wind activity. Wales contributed 5.7% and Northern Ireland contributed 6.7%.

Figure 3: Regional contribution to the turnover, employees and capital acquisitions of the onshore wind sector, 2014.

UK Country

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UK Country



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

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

Notes:

1. All figures have been rounded to one decimal point.

Notes for regional breakdown

1. Further information is available from the [Digest of United Kingdom Energy Statistics \(DUKES\) 2015 chart 6.7](#).