

Article

The UK's low emission vehicle sector

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.

Contact:
Tara McNeill and Johanna
Pollard
integrated.data.analysis@ons.
gov.uk
+44 1633 651796

Release date:
8 November 2021

Next release:
To be announced

Table of contents

1. [Main points](#)
2. [The expansion of low emission vehicles](#)
3. [The UK's 2050 net zero target and transport](#)
4. [The Low Carbon and Renewable Energy Economy survey and the low emission vehicle sector](#)
5. [Low carbon activity in the low emission vehicle sector](#)
6. [Vocational training and skills for the transition to low emission vehicles](#)
7. [Low emission vehicles data](#)
8. [Glossary](#)
9. [Data sources and quality](#)
10. [Related links](#)

1 . Main points

- The low emission vehicle sector (LEV) recorded a turnover of £6.0 billion in 2019, nearly double the £3.4 billion turnover in 2016.
- Large businesses, with 250 or more employees, accounted for 96.8% of the overall LEV sector turnover and 87.4% of its employment.
- LEV sector turnover for large businesses has grown by 78.7% (or £2.6 billion) between 2015 and 2019, while full-time equivalent (FTE) employment for those businesses increased from 7,700 to 13,900 over the same period.
- For large businesses, the manufacture of motor vehicles, trailers and semi-trailers accounted for 58.3% of FTE employment in the LEV sector in 2019, followed by the manufacturing of machinery and equipment (covering 21.6% of FTE employment in the LEV sector) in the same year.
- In April to June 2021, the number of LEV sector-relevant vocational skills qualifications awarded in England, Wales and Northern Ireland increased compared with the same period in 2019.

2 . The expansion of low emission vehicles

The UK Vehicle Certification Agency [currently defines a low emission vehicle \(LEV\)](#) as one that produces less than 100g of CO₂ for every kilometre (0.6 miles) travelled. This includes [ultra-low emission vehicles \(ULEVs\) \(PDF, 436KB\)](#) that produce less than 75g of CO₂ per kilometre travelled, and zero emission vehicles (ZEVs) that generate no tail-pipe emissions of CO₂.

In 2019, [the majority \(92.1%\) of cars registered for the first time were either petrol or diesel cars](#). However, the proportion of new hybrid and electric cars registered for the first time increased from 2.8% in 2015 to 7.9% in 2019. These Department for Transport statistics are categorised by fuel type, rather than emission levels, so may not align exactly with the definition of a LEV used above.

[Statistics recently published by the Society of Motor Manufacturers and Traders](#) show that the share of battery electric vehicles have increased from 6.7% market share in September 2020 to 15.2% in September 2021.

There has also been an increase in LEV-supporting infrastructure, with [five times as many charging devices in the UK in 2019 as in 2015](#). The UK Government estimates that there are over [600,000 plug-in electric vehicles in the UK, and over 1 in 5 new cars sold in September 2021 were electric or a plug-in hybrid](#).

Attitudes toward electric cars are also changing, with [a recent ONS survey finding](#) that 44% of all those not currently driving an all-electric car are likely or very likely to switch to one in the next 10 years.

This analysis focuses on the latest data available on businesses (and especially on businesses with 250 or more employees) active in the LEV sector up to 2019. It therefore does not account for any effects of any announcements since.

3 . The UK's 2050 net zero target and transport

Adopted in June 2019, the [UK-wide net zero by 2050 target](#) means that by that year [the greenhouse gas \(GHG\) emissions produced by the UK](#) should be equal to or less than the emissions removed from the environment. This can be achieved by a mix of reducing and removing emissions from the environment. In 2019, transport accounted for 27% of all UK greenhouse gas emissions, based on [BEIS territorial emissions \(PDF, 332KB\)](#).

In November 2020, the UK Government outlined the [Ten Point Plan for a Green Industrial Revolution](#) towards net zero, including [“accelerating the shift to zero emission vehicles”](#). This included an [announcement to end UK sales of new petrol and diesel cars by 2030](#) and aiming for all new vehicles to emit zero tailpipe emissions by 2035.

In October 2021, the UK Government outlined the [Net Zero Strategy: Build Back Greener \(PDF, 7.7MB\)](#) which includes plans to introduce a zero emission vehicles target from 2024 for the percentage of new car and van sales each year that should be zero emission.

4 . The Low Carbon and Renewable Energy Economy survey and the low emission vehicle sector

The [Low Carbon and Renewable Energy Economy survey \(LCREE\)](#) was first conducted in 2015 for the reporting year 2014. The survey covers several sectors with low carbon and renewable energy activity, collecting information on businesses' primary or secondary direct low carbon activity. It does not measure indirect low carbon activity, being any additional activity generated, for example, because of demand for products.

This article focuses on businesses with some activity in the low emission vehicle (LEV) sector. The LCREE considers activities in the LEV sector as relating to design and manufacture of vehicles with specific technology to significantly reduce or remove emissions, which includes both hybrid and pure electric vehicles. This also includes installation of infrastructure to support these vehicles, such as charging points.

5 . Low carbon activity in the low emission vehicle sector

The turnover for all businesses engaged in the UK low emission vehicle (LEV) sector (independently from their size) was an estimated £6.0 billion in 2019. Following a decrease in turnover from 2015 to 2016, turnover has increased in each year from £3.4 billion in 2016.

The LEV sector is dominated by large businesses. This article considers large businesses to be those with 250 or more employees working for them, although not all of those employees would necessarily be working on LEVs.

Large businesses active in the LEV sector accounted for 13,900 full-time equivalent (FTE) jobs, or 87.4% of the overall employment in the LEV sector in 2019.

In the same year, these large businesses accounted for £5.9 billion (or 96.8%) of the total LEV turnover.

The Low Carbon and Renewable Energy Economy (LCREE) survey samples all large businesses in the population of interest annually, which removes sampling error from their estimates. This makes it easier to make comparisons over time. It is important to note that while these large businesses account for a large proportion of the LEV activity in the UK, they are likely to act differently to small and medium-sized businesses active in the LEV sector. Further explanation can be found in [Section 9](#).

LEV turnover and employment for 250 plus businesses and by industry

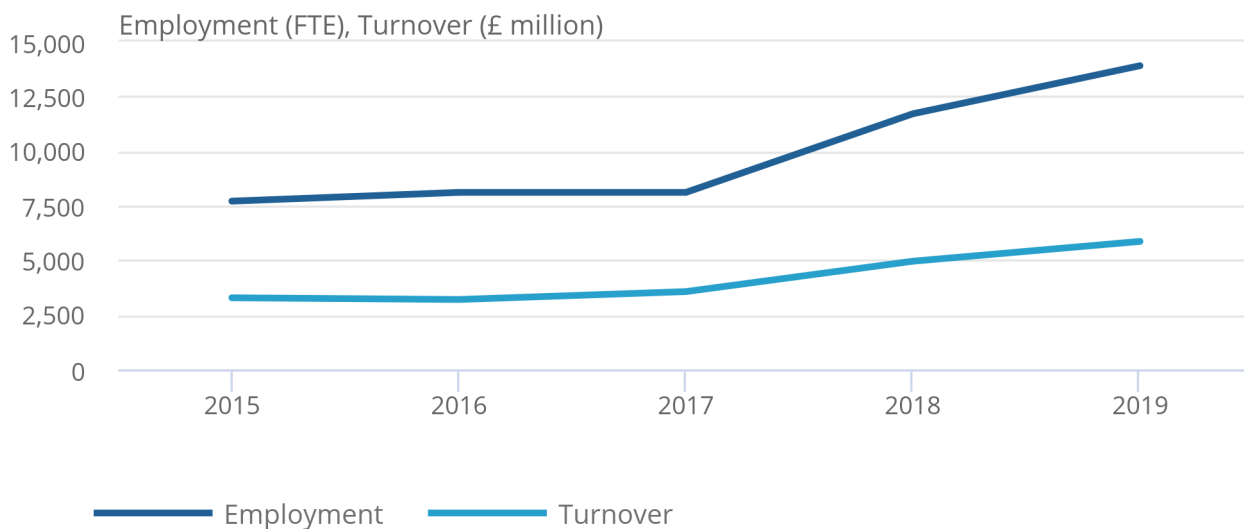
LEV sector turnover for large businesses has grown by 78.7% (or £2.6 billion) between 2015 and 2019. Meanwhile, the employment for those businesses increased from 7,700 full-time equivalent employees in 2015 to 13,900 in 2019, an 80.5% increase. Both turnover and employment remained relatively stable between 2015 and 2017, and their increase was mainly recorded after 2017, as seen in Figure 1.

Figure 1: LEV sector employment for large businesses has increased by 80.5% between 2015 and 2019

Turnover and employment for large businesses in the low emission vehicle (LEV) sector, UK, 2015 to 2019

Figure 1: LEV sector employment for large businesses has increased by 80.5% between 2015 and 2019

Turnover and employment for large businesses in the low emission vehicle (LEV) sector, UK, 2015 to 2019



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

Nearly all LEV sector turnover is generated by businesses within the manufacturing industry. Among large businesses active in the LEV sector, the manufacturing industry accounted for £5.6 billion (96.4%) of total LEV turnover in 2019. From 2015 to 2019, that turnover has increased by £2.4 billion.

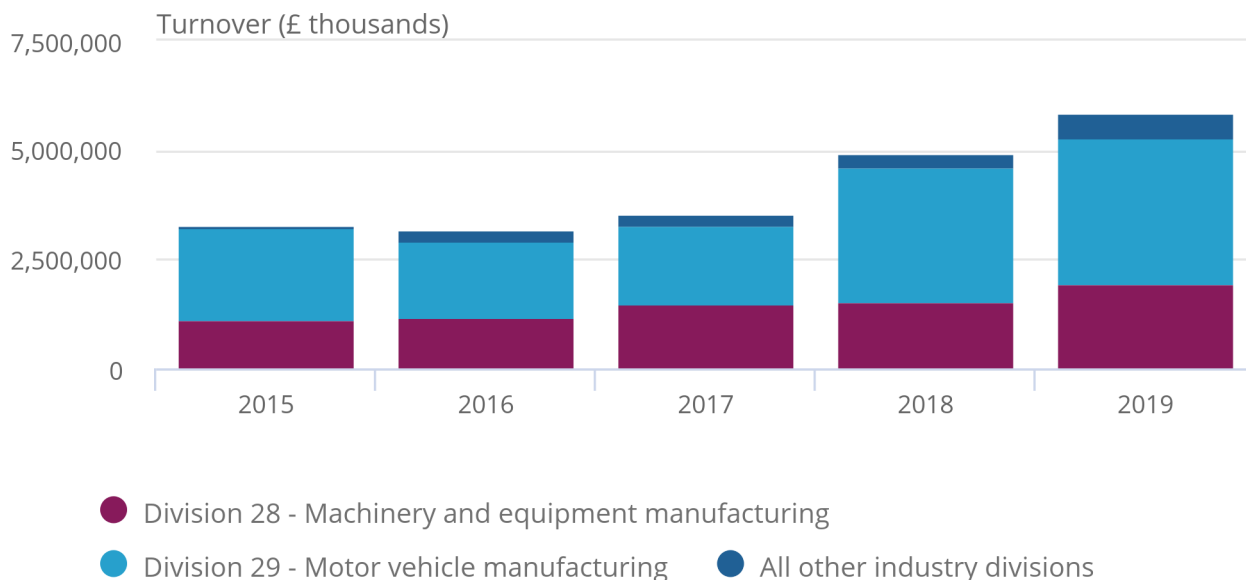
Within the manufacturing industry and again focusing on large businesses that are active in the LEV sector, the manufacture of motor vehicles, trailers and semi-trailers (Standard Industrial Classification (SIC), Division 29) accounted for 57.2% (£3.3 billion) of the LEV sector turnover in 2019, while machinery and equipment manufacturing (SIC Division 28) accounted for 33.2% (£1.9 billion) in 2019. From 2015 to 2019, turnover for large businesses has increased by £1.3 billion for motor vehicle manufacturing and by £0.8 billion for manufacturing of machinery and equipment.

Figure 2: LEV sector turnover for large businesses increased for both manufacturing of vehicles and of machinery and equipment between 2015 and 2019

Turnover for large businesses in the LEV sector, by industry divisions, UK, 2015 to 2019

Figure 2: LEV sector turnover for large businesses increased for both manufacturing of vehicles and of machinery and equipment between 2015 and 2019

Turnover for large businesses in the LEV sector, by industry divisions, UK, 2015 to 2019



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

Notes:

1. The LCREE survey does not sample all industry divisions, so some will be excluded from the survey target population. For more information on exclusions, see [survey quality and methodology information](#).

LEV sector employment is similarly dominated by businesses in the manufacturing industry. In 2019, large businesses active in the LEV sector and within the manufacturing industry were engaging 11,700 FTE employees (84.2% of total LEV sector employment), up 4,000 FTE since 2015.

Looking at the manufacturing industry and again focusing on large businesses that are active in the LEV sector, the manufacture of motor vehicles, trailers and semi-trailers (SIC Division 29) accounted for 58.3% of FTE employment in the LEV sector in 2019, followed by the manufacturing of machinery and equipment (SIC Division 28), covering 21.6% of FTE employment in the LEV sector.

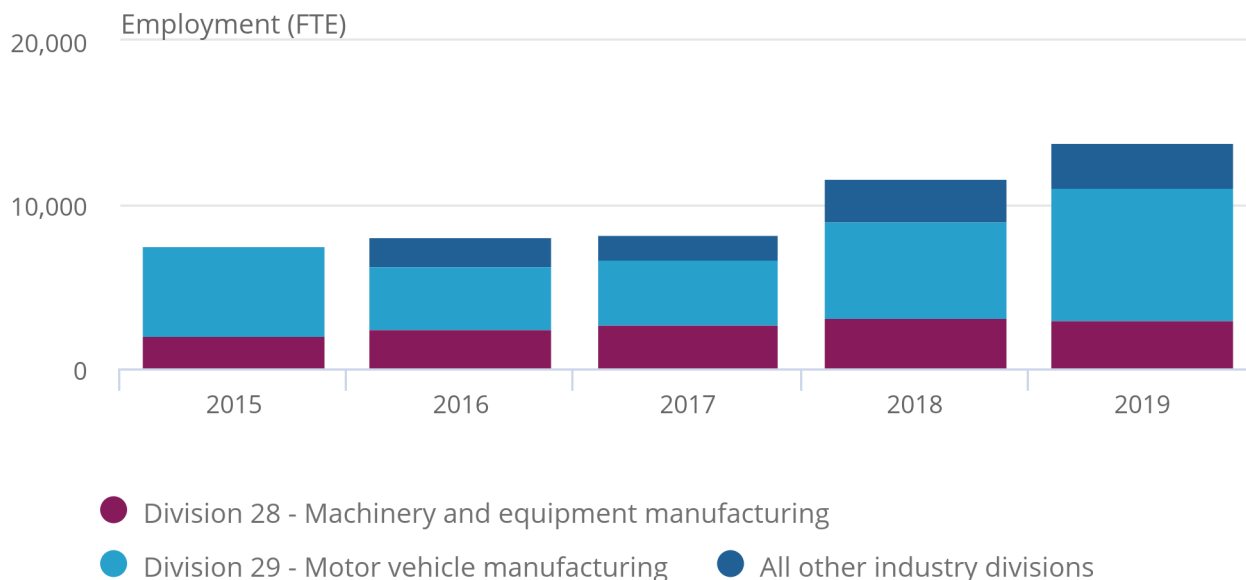
From 2015 to 2019, employment for large businesses has increased by 2,600 FTE employees for motor vehicle manufacturing and by 900 FTE employees for manufacturing of machinery and equipment.

Figure 3: Employment for large businesses in the LEV sector increased for both motor vehicle manufacturing and manufacturing of machinery and equipment from 2015 to 2019

Employment for large businesses in the LEV sector, by industry divisions, UK, 2015-2019

Figure 3: Employment for large businesses in the LEV sector increased for both motor vehicle manufacturing and manufacturing of machinery and equipment from 2015 to 2019

Employment for large businesses in the LEV sector, by industry divisions, UK, 2015-2019



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

Notes:

1. Employment in 'All other industries' in 2015 was estimated as fewer than 100 FTE employees, so was not reported. Besides, some industries are outside the LCREE survey target population and so are excluded from the sample. For more information on the excluded industries, see survey [quality and methodology information](#).

The LEV sector within the wider manufacturing industry

While the LEV sector is still a small part of the overall car manufacturing industry, the percentage of turnover and employment in the manufacture of motor vehicles, trailers and semi-trailers industry and the manufacture of machinery and equipment industry that can be attributed to LEVs increased between 2015 and 2019. In contrast, industrial output of the overall motor vehicle manufacturing industry has slowed considerably and growth has levelled off since 2016.

Using estimates from the LCREE and the Annual Business Survey (ABS), it was found that the LEV sector accounted for 4.4% of turnover and 4.9% of employment in the wider motor vehicle manufacturing industry in 2019, up from 3.1% of turnover and 3.4% of employment in 2015.

Within the wider manufacturing of machinery and equipment industry, 5.0% of turnover was generated from LEV sector activity in 2019, up from 3.2% in 2015. LEV employment in this industry also increased, though to a lesser extent than the turnover, from 1.1% in 2015 to 1.6% in 2019.

Businesses transitioning into the LEV sector

All businesses (large and small) that had responded to or had imputed data for the LCREE for every year from 2015 to 2019, and that were active in the LEV sector in 2019, accounted for £5.5 billion, or 90.3% of all LEV turnover in 2019. These businesses also accounted for 12,700 full-time equivalent employment, or 79.9% of all LEV employment in that year.

Some 42.5% of these businesses had been active in the LEV sector since 2015, which accounted for most turnover and employment (£5.1 billion of turnover and 8,600 of employment in 2019). 32.5% have transitioned from other low carbon activity into LEVs, and 25.0% were new entrants to the LEV sector (and to the low carbon economy).

6 . Vocational training and skills for the transition to low emission vehicles

The transition to low emission vehicles is likely to have an impact on skills and training needs in the manufacturing sector and beyond. A recent [High Value Manufacturing Catapult skills framework \(PDF, 6.2MB\)](#) to support the “electrification” of sectors highlights that around 63% of current job roles will change significantly, from roles across the automotive manufacturing, batteries, as well as electronics and electric machines.

The [Net Zero Strategy published by the UK Government \(PDF, 7.7MB\)](#) estimates that as many as 50,000 workers could need re-skilling by 2025 in the UK's car manufacturing industry. Re-training and re-skilling may also include training [for mechanics in local garages for maintenance and repair, retail sales dealerships, and emergency service \(PDF, 1.105KB\)](#) in response to accidents involving low emission vehicles, which pose different risks to petrol and diesel cars, for example around high-voltage batteries.

The UK's nations offer different numbers of courses and course content.

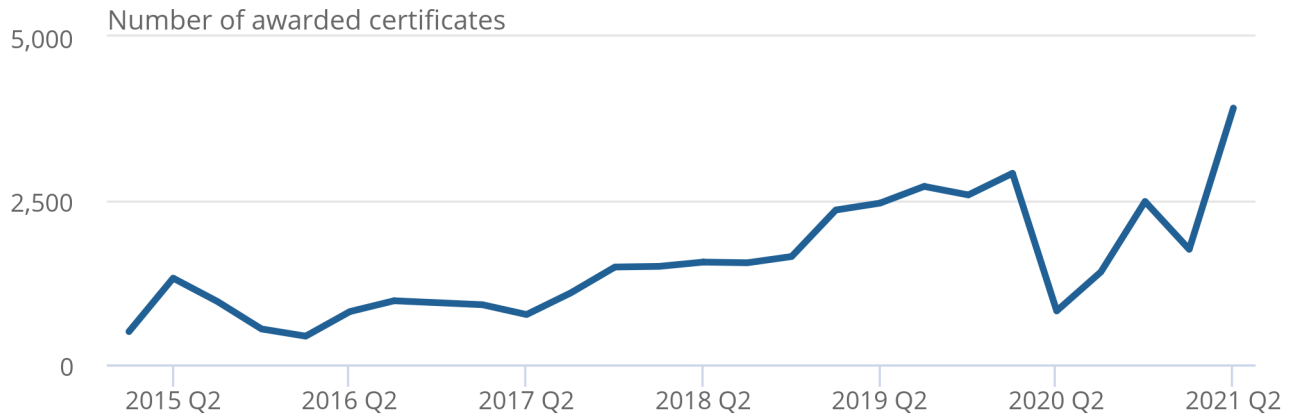
In England, before the COVID-19 pandemic, there has been an increase in awarded certificates relating to LEVs and charging points. In Quarter 1 (Jan to Mar) 2020, 2,485 more certificates were awarded for LEV-related qualifications than in the same quarter in 2016. During Quarter 2 (Apr to June) 2021, 3,910 certificates were awarded for vocational qualifications covering LEV-related skills, on vehicles themselves or the charging infrastructure, up 58.9% on the same quarter in 2019 (as 2020 data are likely to have been affected by COVID-19 pandemic restrictions). Of certificates awarded in Quarter 2 2021, 38.6% were related to courses involving the installation of charging points.

Figure 4: Certificates awarded in England for LEV and charging infrastructure related courses has generally increased since 2016

Certificates for vocational courses relating to low emission vehicles and charging points in England from 2015

Figure 4: Certificates awarded in England for LEV and charging infrastructure related courses has generally increased since 2016

Certificates for vocational courses relating to low emission vehicles and charging points in England from 2015



Source: Office of Qualifications and Examinations Regulation - Vocational qualifications dataset

Notes:

1. The drop in awarded certificates in 2020 is likely because of the COVID-19 pandemic as many assessments were cancelled or delayed.
2. Since 2015 some courses have been withdrawn and others have started operating. This may have an impact on the number of certificates awarded.
3. Data are rounded to the nearest five.

A similar trend of increasing numbers of certificates awarded for LEV-related courses can be observed in Wales and Northern Ireland (comparable data for Scotland was not available). In the second quarter of 2021, [215 certificates were awarded in Wales](#) for similar courses, around a seven-fold increase compared with the second quarter of 2019.

In [Northern Ireland, 130 certificates were awarded](#) to those completing LEV-related vocational training courses in the second quarter of 2021, a 54.8% increase compared to the number of awarded certificates in the same quarter in 2019.

7 . Low emission vehicles data

[Low carbon and renewable energy economy estimates](#) Dataset | Released 20 May 2021 This dataset 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.

[The UK's low emission vehicle sector](#) Dataset | Released 8 November 2021 Turnover and employment data for the low emission vehicle and infrastructure sector in the UK, 2015 to 2019, and data on vocational qualifications related to low emission vehicles and charging points in England, Wales and Northern Ireland.

[Non-financial business economy, UK: Sections A to S](#) Dataset | Released 24 June 2021 Annual data on size and growth within the UK non-financial business sectors as measured by the Annual Business Survey, broken down to four-digit Standard Industrial Classification 2007.

8 . Glossary

Employment

Employment in the Low Carbon and Renewable Energy Economy (LCREE) survey is measured in terms of full-time equivalent (FTE) employees. One FTE employee may be thought of as one person working full-time for a year.

Direct and indirect activity

The LCREE survey collects information on direct low carbon activity (this activity can be the primary and secondary activity of the business). The survey does not collect information on indirect activity. Indirect activity is additional activity in the economy that is generated because of demand for the products of LCREE-active firms, the wages they pay to employees, or the increase in demand for the inputs used by businesses directly active in the LCREE. More information can be found in the [Low Carbon and Renewable Energy Economy Survey Quality and Methodology Information](#).

Industry

Businesses are classified by the type of economic activity in which they are engaged into an industry using the current [Standard Industrial Classification \(SIC\) 2007](#). Following the industry section, the industry is further divided into divisions (referred to as SIC division in this article).

Low carbon and renewable energy economy

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

Turnover

The Low Carbon and Renewable Energy Economy survey defines turnover as the amount received in sales from goods and services in a defined time period. It is a useful measure of the business or economic activity.

9 . Data sources and quality

This article makes use of the following data sources:

- [Low Carbon and Renewable Energy Economy \(LCREE\) Survey 2015 to 2019](#)
- [Annual Business Survey \(ABS\) 2015 to 2019](#)
- [Vocational qualifications dataset 2012 to present in England, Office of Qualifications and Examinations Regulation](#)
- [Vocational and Other Qualifications Quarterly: Quarter 2 \(April to June\) 2021 for Wales](#)
- [Technical and Professional Qualifications: Quarter 2 April to June 2021, Northern Ireland](#)

LCREE

This article largely focuses on larger businesses, that is those with 250 or more employees.

For the LCREE, all businesses within the target population with 250 or more employees are sampled annually, removing sampling error for their estimates and enabling comparisons over time. The derived estimates may still be subject to other errors, such as inaccurate reporting and non-response. Additionally, it is important to note that those large businesses only make up a part of the low carbon and renewable energy economy and are likely to act differently to small and medium-size businesses. However, given that large businesses contribute such a high proportion of LEV turnover and employment, analysis of this group is likely to be reflective of the overall population of LEV businesses.

The LCREE collects information on whether businesses are active in the low carbon economy. This activity may only be a part of the businesses' overall activity. Therefore, turnover and employment in the LCREE survey only accounts for low carbon activity and is only a part of all turnover or employment of a business.

Annual Business Survey (ABS)

The ABS is an ONS-conducted business survey and collects financial information from businesses representing the UK non-financial business economy. To understand how much of the car manufacturing industry and the manufacture of motor vehicles, trailers and semi-trailers industry could be attributed to LEV, turnover and employment in the LEV sector (for 250 plus businesses) were taken from the LCREE survey and compared with data (for all businesses) from the ABS.

Vocational qualifications

Data on vocational qualifications provides the number of certificates awarded by any organisation. These numbers do not necessarily show the number of learners, as an individual can be awarded multiple certificates for different qualifications. Between 2015 and 2019, some qualifications have been withdrawn while new qualifications have been introduced; this may influence the number of certificates awarded.

To identify LEV-related qualifications, a word search was performed and improved in several stages using the following key words: "electric vehicle", "hybrid" and "electrically propelled vehicles". Any courses that may be related but did not contain these key words were not included.

Comparisons with 2021 data are made using 2019 data from the same quarter, to account for seasonal changes and given the impact of COVID-19 restrictions ([resulting in the delay or cancellation of assessments](#)) on the data.

10 . Related links

[Over half of younger drivers likely to switch to electric in next decade](#) Article | Released 25 October 2021
With the sale of vehicles reliant on fossil fuels set to end by 2030, what barriers exist for drivers to make the switch, and is the necessary infrastructure in place?

[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.

[Low carbon and renewable energy economy, UK: 2019](#) Bulletin | Released 29 March 2021
Estimates of the size of the UK's green economy from the Low Carbon and Renewable Energy Economy Survey, including turnover, employment, investment, and trade.