

Statistical bulletin

Environmental protection expenditure, UK: 2018

Estimates of environmental protection expenditure by UK general government and industries for 2018.

Contact:
Kirsty Mackenzie
environment.accounts@ons.gov.
uk
+44 (0)1633 456187

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1 . Main points

- In 2018, the UK government spent £14.5 billion on environmental protection, accounting for 1.7% of all UK government expenditure.
- Environmental protection expenditure (EPE) by government as a percentage of gross domestic product (GDP) remained at 0.7% in 2018, unchanged since 2016.
- UK businesses spent an estimated £2.5 billion on environmental protection in 2018.
- The majority of EPE by UK businesses related to operating costs (£2.1 billion), of which £1.6 billion related to payments to external organisations.
- Businesses in the manufacturing industry spent £1.5 billion on environmental protection, accounting for almost two-thirds of the total EPE by UK businesses in 2018.

2 . Environmental protection expenditure by UK general government

Environmental protection expenditure (EPE) by the UK general (central and local) government was £14.5 billion in 2018, 1.7% of total government spending. All estimates are reported at current prices, no adjustments have been made to account for the effects of inflation.

Estimates of EPE by government are broken down into the following categories:

- solid waste management
- waste water management
- protection of ambient air and climate
- protection of biodiversity and landscape
- research and development, education and administration
- other abatement costs

Government spending on environmental protection was slightly lower than in 2017 (£14.7 billion), mainly because of a fall in expenditure on research and development, education and administration from £0.8 billion to £0.5 billion.

Since 1995, solid waste management activities such as waste collection and treatment have accounted for the highest proportion of all government EPE. In 2018, the government spent £11.7 billion on solid waste management, just over 80% of its total EPE. Further [splits of EPE by activity can be found in the 2018 dataset](#).

Government spending on environmental protection as a percentage of total government expenditure was unchanged between 2017 and 2018. It has remained relatively stable since 2000, ranging from 1.7% to 2.2%. The exception to this was in 2005 when the transfer of responsibility to government for nuclear decommissioning took place¹.

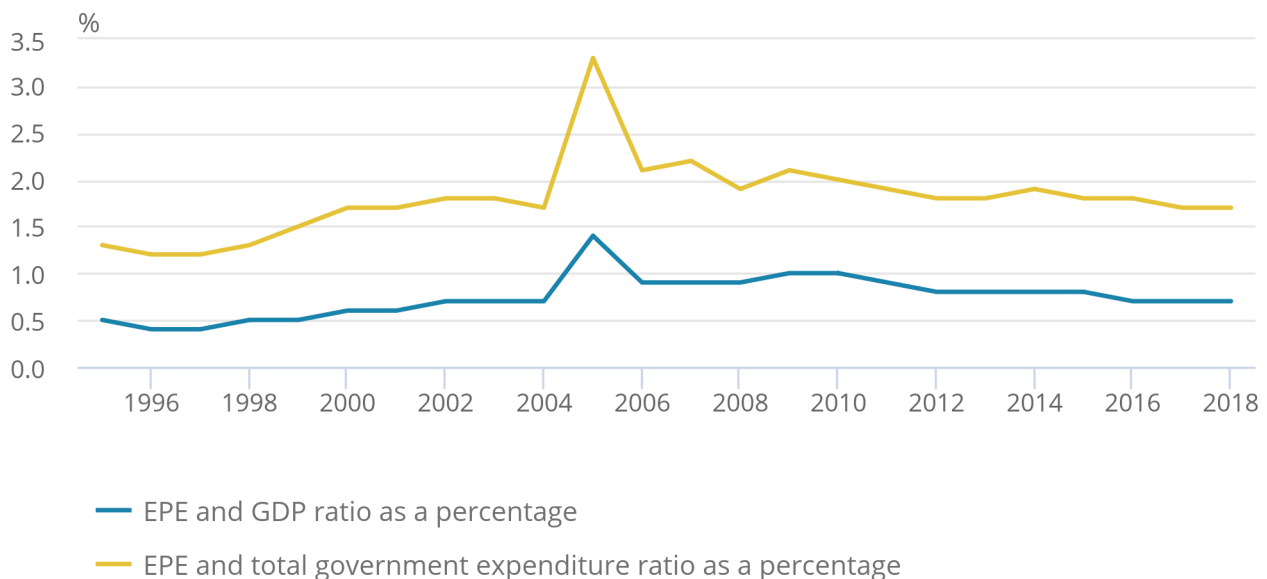
EPE by government as a percentage of gross domestic product (GDP) remained at 0.7% in 2018, unchanged since 2016. Between 2008 and 2009, EPE by government increased, while GDP fell during the economic downturn. Since 2010 EPE as a percentage of GDP has fallen slightly from 1% to 0.7% in 2018 (Figure 1).

Figure 1: Environmental protection expenditure (EPE) by government as a percentage of GDP has been relatively stable since 2012

Environmental protection expenditure by general government as a percentage of GDP and of total government spend, UK, 1995 to 2018

Figure 1: Environmental protection expenditure (EPE) by government as a percentage of GDP has been relatively stable since 2012

Environmental protection expenditure by general government as a percentage of GDP and of total government spend, UK, 1995 to 2018



Source: Office for National Statistics – General government annual expenditure

Notes:

1. All estimates are reported at current prices, no adjustments have been made to account for the effects of inflation.
2. The rise and subsequent fall of EPE by government between 2004 and 2006 is a result of the transfer of responsibilities between British Nuclear Fuels (BNF) and the Nuclear Decommissioning Authority (NDA). BNF, a non-government organisation, restructured in 2005 and the responsibility for nuclear decommissioning transferred to the government's NDA. The majority of the NDA costs for decommissioning were accounted for in 2005.

Notes for: Environmental protection expenditure by UK general government

1. The rise and subsequent fall of EPE by government between 2004 and 2006 is a result of the transfer of responsibilities between British Nuclear Fuels (BNF) and the Nuclear Decommissioning Authority (NDA). BNF, a non-government organisation, restructured in 2005 and the responsibility for nuclear decommissioning transferred to the government's NDA. The majority of the NDA costs for decommissioning were accounted for in 2005.

3 . Total environmental protection expenditure by UK businesses

UK businesses¹ spent £2.5 billion on environmental protection in 2018, compared with £2.2 billion in 2017. All estimates are provided in current prices and no adjustments have been made to take account of the effects of inflation (Table 1).

Environmental protection expenditure (EPE) can be divided between operating expenditure and capital expenditure. Operating expenditure relates to running costs incurred by businesses for environmental protection services that enable them to operate.

In 2018, the majority of EPE related to operating expenditure, accounting for £2.1 billion, or 85%, of all EPE by UK businesses. Around three-quarters (£1.6 billion) of this operating expenditure related to payments made to external organisations for their environmental services, such as waste disposal or sewage treatment. This suggests that businesses mainly paid external organisations for treatment, disposal and investigation of waste, instead of managing this process internally.

Capital expenditure relates to investment by businesses in assets such as land, equipment or buildings that are used during business operations to protect the environment from pollutants. These are often one-off items and low levels of investment in the current year may reflect high investment in previous years.

UK businesses spent £0.4 billion on capital EPE in 2018, compared with £0.5 billion in 2017. In both years, the majority of this capital expenditure related to what can be referred to as “end-of-pipe”. End-of-pipe capital expenditure in an environmental context represents investment in methods, technologies, processes or equipment designed to manage pollutants after their creation, whereas integrated capital expenditure² refers to methods, technologies and equipment integrated within the business' overall activity.

Table 1: UK businesses spent £2.5 billion on environmental protection in 2018
Environmental protection expenditure by businesses, UK, 2016 to 2018

£ billions	2016	2017	2018
External operating expenditure	1.2	1.2	1.6
In-house operating expenditure	0.5	0.5	0.5
Total operating expenditure	1.7	1.7	2.1
End-of-pipe capital expenditure	0.2	0.5	0.3
Integrated capital expenditure	0.1	0.1	0.0
Total capital expenditure	0.3	0.5	0.4
Total environmental protection expenditure	2.0	2.2	2.5

Source: Office for National Statistics – Environmental Protection Expenditure Survey

Notes

1. Estimates are rounded to the nearest £0.1 billion in the table but are available to the nearest £1 million in the datasets accompanying this release. [Back to table](#)
2. Where expenditure for a particular activity and type is less than £0.1 billion, it may be shown as 0. Integrated capital expenditure is less than £0.1 billion and shown as 0, reported expenditure in the dataset is £19 million in 2018. [Back to table](#)
3. Sub-totals may not sum to totals because of rounding. [Back to table](#)
4. All estimates are provided in current prices and are not adjusted for inflation. [Back to table](#)
5. The year on year differences should be interpreted with caution because of the precision of survey-based estimates. 95% confidence intervals (CI), a standard way of expressing the statistical accuracy of a survey-based estimate, can be found in the datasets accompanying this release. [Back to table](#)

Notes for: Total environmental protection expenditure by UK businesses

1. The target population for the survey is specified by [Eurostat \(PDF, 501KB\)](#) as including the following industries: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning (D) and Water collection (E36). Potential activity in other industries is not captured by the survey.
2. Integrated capital expenditure only relates to expenditure where the primary aim of the expenditure is to reduce any pollutants generated. Where investment has been made in equipment that is integrated within a production process, then only the additional cost over and above equivalent but less environmentally friendly equipment is included in the estimates provided.

4 . Environmental protection expenditure by activity

Business expenditure on solid waste management activities (£0.9 billion) accounted for the largest proportion (35%) of all environmental protection expenditure (EPE) in 2018. Solid waste management activities include the treatment, disposal and investigation of waste, including general waste such as paper and cardboard, as well as hazardous and non-hazardous waste.

The majority of expenditure on solid waste management (86%) related to external operating expenditure (Figure 2).

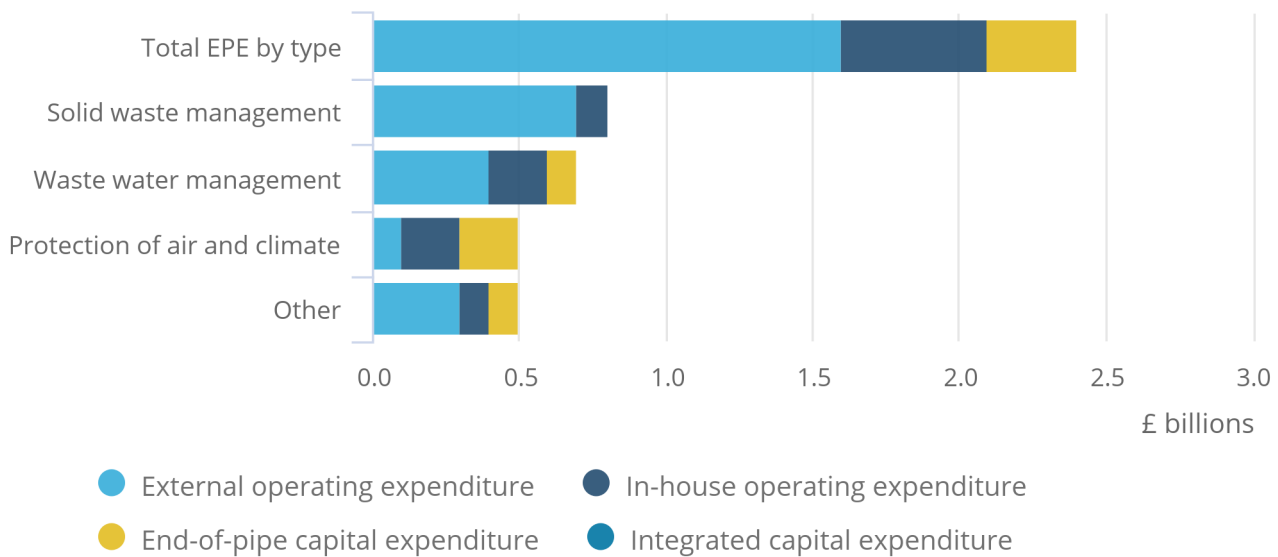
Generally, external operating expenditure was greater than in-house expenditure across all types of EPE activity, suggesting that businesses often outsourced the disposal of waste to specialised contractors. However, expenditure for protection of ambient air and climate activities mainly related to in-house operating expenditure. This suggests that for protection of ambient air and climate, businesses mainly managed this type of environmental control and protection internally.

Figure 2: Solid waste management accounted for the largest proportion of environmental protection expenditure (EPE) by businesses in 2018

Environmental protection expenditure by activity and type, UK, 2018

Figure 2: Solid waste management accounted for the largest proportion of environmental protection expenditure (EPE) by businesses in 2018

Environmental protection expenditure by activity and type, UK, 2018



Source: Office for National Statistics – Environmental Protection Expenditure Survey

Notes:

1. Estimates are rounded to the nearest £0.1 billion in the chart but are available to the nearest £1 million in the datasets accompanying this release.
2. Where expenditure is less than £0.1 billion, it is not shown in the chart but can be found in the [2018 dataset](#).
3. Sub-totals may not sum to totals because of rounding.
4. Estimates are provided broken down according to the [Classification of Environmental Protection Activity \(CEPA\)](#).
5. Types of environmental protection expenditure not elsewhere classified may include expenditure aimed at the protection of soil or groundwater, noise abatement, protection of biodiversity or protection against radiation.

5. Environmental protection expenditure by industry

Environmental protection expenditure (EPE) varies across industries depending on the operating activity of the business and strategies for waste management and environmental protection.

In 2018, the manufacturing industry spent more on environmental protection than any other industry surveyed¹, accounting for around 62% (£1.5 billion) of all EPE (Figure 3). The largest expenditure type related to external operating expenditure (£0.9 billion), the majority of which was for solid waste management activities.

By contrast, businesses operating within the electricity, gas, steam and air conditioning supply industry spent more on in-house operating expenditure, most of which related to protection of ambient air and climate (Further [splits of EPE by activity can be found in the 2018 dataset](#)).

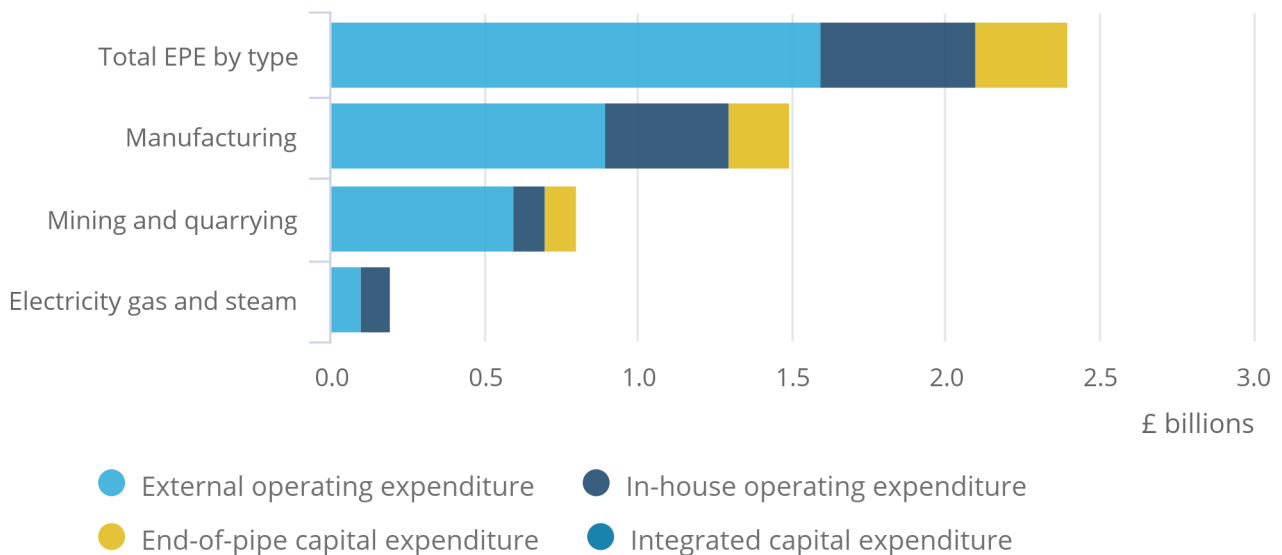
The type of EPE by business usually reflects the activity of the industry. For example, a business within the generation of electricity industry may be more likely to have larger in-house expenditure than external expenditure as their waste disposal and environmental protection activities might be easier to manage internally. However, businesses within the manufacturing industry may have more bulky waste items or waste that is difficult to dispose of and requires specialised services and therefore spend more externally.

Figure 3: Businesses within the manufacturing industry accounted for most environmental protection expenditure (EPE) in 2018

Environmental protection expenditure by type and industry, UK, 2018

Figure 3: Businesses within the manufacturing industry accounted for most environmental protection expenditure (EPE) in 2018

Environmental protection expenditure by type and industry, UK, 2018



Source: Office for National Statistics – Environmental Protection Expenditure Survey

Notes:

1. Businesses are classified as operating in a particular industry according to the [Standard Industrial Classification \(SIC\)](#).
2. Estimates are rounded to the nearest £0.1 billion in the chart but are available to the nearest £1 million in the datasets accompanying this release.
3. Where expenditure is less than £0.1 billion, it is not shown in the chart but can be found in the [2018 dataset](#).
4. Sub-totals may not sum to totals because of rounding.
5. Electricity, gas and steam also includes air conditioning supply.

Notes for: Environmental protection expenditure by industry

1. The target population for the survey is specified by [Eurostat \(PDF, 501KB\)](#) as including the following industries: Mining and quarrying (B), Manufacturing (C), Electricity, gas, steam and air conditioning (D) and Water collection (E36). Potential activity in other industries is not captured by the survey.

6 . Environmental protection expenditure data

[Environmental protection expenditure: general government](#)

Dataset | Released 6 May 2020

Data on the UK's environmental protection expenditure by general government according to activity, 1995 to 2018.

[Environmental protection expenditure: industry](#)

Dataset | Released 6 May 2020

Estimates for the UK's environmental protection expenditure by industry, 2015 to 2018.

[Environmental protection expenditure: total](#)

Dataset | Released 6 May 2020

Estimates for the UK's total environmental protection expenditure, 2010 to 2017.

7 . Glossary

Environmental protection expenditure

Environmental protection expenditure (EPE) includes all activities and actions that have as their main purpose the prevention, reduction and elimination of pollution or any other degradation of the environment. Examples of EPE include: sewage, solid waste, treatment of exhaust gases and protection of natural landscapes. Environmental protection types are classified in this bulletin according to an internationally recognised categorisation scheme devised by Eurostat: [the classification of environmental protection activities \(CEPA\)](#).

External operating expenditure

External operating expenditure refers to operating costs paid to external organisations for treatment, disposal or investigation relating to wastewater management, protection of ambient air and climate, solid waste management or other environmental-related external operating expenditure not elsewhere classified.

In-house operating expenditure

In-house operating expenditure refers to on-site management costs for the treatment, disposal or investigation relating to wastewater management, protection of ambient air and climate, solid waste management or other environmental-related external operating expenditure not elsewhere classified.

End-of-pipe capital expenditure

End-of-pipe capital expenditure is a type of expenditure that represents investment in methods, technologies, processes or equipment designed to manage pollutants after their creation, such as investment in plants or equipment that treat generated pollutants.

Integrated capital expenditure

Integrated capital expenditure refers to investment in methods, technologies and equipment that are integrated within the business' overall activity, where the primary aim of the expenditure is to reduce any pollutants generated.

8 . Measuring the data

This section contains important notes and definitions used in the calculation and production of environmental protection expenditure (EPE). The EPE accounts aim to assess the actual expenditure on environmental protection incurred by the total economy. Environmental protection activities are defined according to the [Classification of Environmental Protection Activity](#).

Measuring environmental protection by government

Information on EPE by general government (central government and local government) comes from the [General government annual expenditure: ESA Table 11](#). Data are available from 1995. The annual UK government expenditure is broken down by function using the Classification of the functions of government (COFOG). A Eurostat guide to COFOG tables is available in the [Glossary: Classification of the functions of government \(COFOG\)](#), which explains the definitions and codes associated with these tables. For each environmental activity provided in the table, for example, GF0501 solid waste management, the value of investment, current expenditure and subsidies are summed to produce a total. The [YBHA series](#) of gross domestic product (GDP) at current prices is used when calculating general government EPE as a proportion of GDP.

Measuring environmental protection by industry

Information on EPE by industry comes from an Office for National Statistics (ONS) survey, which has been dispatched annually since 2016.

The ONS surveys around 3,000 businesses from four Standard Industrial Classification (SIC) sections in the UK to obtain estimates of EPE by these industries. These SIC sections are:

- mining and quarrying (Section B)
- manufacturing (Section C)
- energy production (Section D)
- water supply (Section E)

In 2018, the response rate to the survey was 74%. Potential activity in other industries is not captured by the survey. As with any survey-based estimates, these are subject to a margin of error and should be interpreted with caution. Standard errors around all published estimates are published in the [2018 dataset](#).

Revisions to environmental protection expenditure survey estimates

This bulletin contains revisions to 2017 and 2016 figures from the Environmental Protection Expenditure (EPE) Survey since they were published in May 2019. Revisions are not uncommon during the first few years of a survey being conducted. Reasons include:

- 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
- developments in methodology and changes to the questionnaire

Table 2 allows a comparison of the latest 2018 estimates of UK industry environmental protection expenditure with revised and original 2017 estimates. Revisions may continue to be made in future years of the survey as the survey matures.

Table 2: Revisions to environmental protection expenditure survey estimates, UK, 2017 and latest 2018
£ billions

	2017 original	2017 revised	2018
External operating expenditure	1.3	1.2	1.6
In-house operating expenditure	0.5	0.5	0.5
Total operating expenditure	1.8	1.7	2.1
End-of-pipe capital expenditure	0.7	0.5	0.3
Integrated capital expenditure	0.1	0.1	0.0
Total capital expenditure	0.7	0.5	0.4
Total environmental protection expenditure	2.5	2.2	2.5

Source: Office for National Statistics – Environmental Protection Expenditure Survey

Notes

1. Estimates are rounded to the nearest £0.1 billion in the table but are available to the nearest £1 million in the datasets accompanying this release. [Back to table](#)
2. Where expenditure for a particular activity and type is less than £0.1 billion, it may be shown as 0. Integrated capital expenditure is less than £0.1 billion. [Back to table](#)
3. Sub-totals may not sum to totals because of rounding. [Back to table](#)
4. All estimates are provided in current prices and are not adjusted for inflation. [Back to table](#)

Quality

More quality and methodology information on the strengths, limitations, appropriate uses, and how the data were created is available in the [Environmental accounts on environmental protection expenditure \(EPE\) QML](#).

9 . Strengths and limitations

Uncertainty

Data for environmental protection expenditure (EPE) by industry are survey-based estimates and gather information from a sample rather than the whole population. This means they are subject to some [uncertainty](#), which can have an effect on how changes in the estimates should be interpreted. Estimates of the level of uncertainty associated with all figures (standard errors and confidence intervals) reported are presented in the bulletin and datasets to aid interpretation.

In general, changes in the estimates reported in this statistical bulletin between 2015 and 2018 are not usually greater than the level that is explainable by sampling variability. This means movements in the estimates should be treated as indicative only.

Comparability

Prior to 2015, data were collected by a Department for Environment, Food and Rural Affairs (Defra) survey in 1994 (pilot), 1997, and then annually between 1999 and 2013. Defra have published the [results from the Environmental Protection Expenditure \(EPE\) Survey](#) for these years. In 2016, the survey was migrated to the Office for National Statistics (ONS) and was dispatched in September 2016 to collect data for 2015. As a result of the migration no data were collected for 2014. Results from the Environmental Protection Expenditure Survey from 2015 onwards are not comparable with previous data because of differences in the methodology between Defra and the ONS.

Geography

Estimates of total Environmental Protection Expenditure (EPE) by general government and industry are available at a UK level and not further disaggregated by geography.

Timeliness

We aim to publish total Environmental Protection Expenditure (EPE) and EPE by general government and industry two years after the reference period. For example, in 2020, data for 2018 are published. We aim to publish the data in the timeliest manner available. Total EPE estimates are supplied to Eurostat each year in line with regulatory requirements (currently by the end of December). Eurostat then releases the estimates in their [EPE database](#) alongside data for other countries. The Environmental accounts on environmental protection expenditure (EPE) Quality and Methodology Information Annex 2 has [definitions of available breakdowns of total EPE published by Eurostat](#).

10 . Related links

[UK Environmental Accounts: 2019](#)

Bulletin | Released 5 June 2019

Measuring the contribution of the environment to the economy, impact of economic activity on the environment, and society's response to environmental issues. Satellite accounts to the main UK National Accounts.

[Low Carbon and Renewable Energy Economy, UK: 2018](#)

Bulletin | Released 16 January 2020

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.

[Material footprint in the UK: 2017](#)

Article | Released 2 April 2020

The UK's material footprint captures the amount of domestic and foreign extraction of materials needed to produce the goods and services used by households, governments and charities in the UK.