

Statistical bulletin

Environmental Protection Expenditure Survey, UK: 2022

Estimates of environmental protection expenditure by UK industry and activity, based on the Environmental Protection Expenditure (EPE) Survey.

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Next release:
To be announced

Notice

23 August 2024

We are pausing publication of this release. Data for 2023 will not be collected or published. We will publish data for 2024 to our regular schedule in 2026. This decision has been made because of wider ONS prioritisation. Please check our [Release calendar](#) for updates.

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1 . Main points

- Total estimates from the Environmental Protection Expenditure (EPE) Survey were £2.2 billion in 2022, an increase of 10.0% from an estimated £2.0 billion in 2021.
- This survey targets a limited number of UK businesses, the majority of which are within the manufacturing industry.
- Between 2016 and 2022, estimated total EPE was around £2.0 billion, with small fluctuations annually.
- Operating expenditure accounted for 81.8% (£1.8 billion) of EPE in 2022, of which £1.4 billion related to payments to external organisations.
- Solid waste management remained the largest EPE activity covered by the survey, with £0.9 billion of expenditure in 2022, 40.9% of the total.

2 . Environmental protection expenditure by UK businesses

Our Environmental Protection Expenditure (EPE) Survey collects data from a selected group of industries. More detail is available in [Section 4: Environmental protection expenditure by industry](#).

EPE is defined in the [Eurostat EPE handbook](#) as: "the economic resources devoted to all activities and actions which have as their main purpose the prevention, reduction and elimination of pollution and of any other degradation of the environment."

Examples of EPE could include:

- managing sewage
- managing solid waste
- treatment of exhaust gases
- protection of biodiversity and natural landscapes

This survey has been designed to target businesses that are likely to have expenditure that aims to protect the environment, rather than generating turnover from providing environmental protection services.

This bulletin outlines UK EPE estimates from this survey only. Data are collected from businesses on an annual basis. All estimates in this bulletin are given in current prices, as provided by the survey respondents; no adjustments have been made to take account of the effects of inflation.

Estimates from the EPE Survey are used in our [EPE accounts](#), part of our [UK Environmental Accounts: 2024](#). These capture estimates of expenditure, output and use by government, businesses and households.

Our [accompanying dataset](#) gives more detail on individual expenditure types by industry and activity breakdowns. It also provides any detail on profits made from the disposal of capital assets that have been used for environmental protection purposes.

Environmental protection expenditure in 2022

For those UK businesses targeted by the EPE Survey, total EPE was an estimated £2.2 billion in 2022. EPE consists of both operating and capital expenditure.

Operating expenditure relates to running costs incurred by businesses for environmental protection services that enable them to operate.

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. Capital expenditure is often on one-off items, so investment levels by an individual business may vary from year to year.

Figure 1 provides a breakdown of EPE by expenditure type in 2022. Full definitions of expenditure types are available in [Section 8: Glossary](#).

The majority of EPE related to operating expenditure in 2022, accounting for £1.8 billion (81.8%) of total EPE. Around £1.4 billion (77.8%) of this was external operating expenditure.

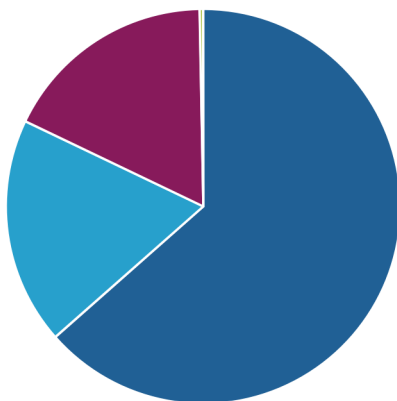
Capital expenditure from surveyed UK businesses was £0.4 billion (18.2%) of total EPE, in 2022. Nearly all of this was end-of-pipe capital expenditure.

Figure 1: The largest contributor to EPE in 2022 was external operating expenditure, at 63.5% of the £2.2 billion total

Environmental protection expenditure (EPE) by expenditure type, UK, 2022

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Environmental protection expenditure (EPE) by expenditure type, UK, 2022



Source: Environmental Protection Expenditure Survey from the Office for National Statistics

Notes:

1. See [Section 8: Glossary](#) for full definitions of EPE expenditure types.
2. Percentages may differ to those presented in our main bulletin text because of different rounding precision.

Environmental protection expenditure (EPE) by activity

We use the [Eurostat Classification of Environmental Protection Activities and Expenditure \(CEPA\) \(PDF, 360KB\)](#) to define EPE activity.

Solid waste management remained the highest contributor to EPE activity in 2022, accounting for £0.9 billion (40.9%) of total expenditure (Figure 2). Most of the expenditure on solid waste management activities was accounted for by external operating expenditure.

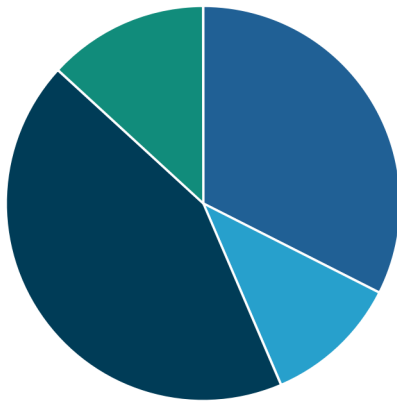
Between 2021 and 2022, solid waste management was the only activity for which expenditure decreased, from £1.0 billion to £0.9 billion (a 10.0% decrease). In the same period, wastewater management activities had the largest increase of all activities, from £0.6 billion to £0.7 billion (a 16.7% increase).

Figure 2: The largest EPE Survey activity in 2022 was solid waste management, at 43.3% of the £2.2 billion total

Environmental protection expenditure (EPE) by activity, UK, 2022

Figure 2: The largest EPE Survey activity in 2022 was solid waste management, at 43.3% of the £2.2 billion total

Environmental protection expenditure (EPE) by activity, UK, 2022



Source: Environmental Protection Expenditure Survey from the Office for National Statistics

Notes:

1. See the [Classification of Environmental Protection Activities and Expenditure \(CEPA\) \(PDF, 360KB\)](#) for full definitions of activities.
2. Percentages may differ to those presented in our main bulletin text because of difference in rounding precision.
3. Percentage totals may not sum to exactly 100% because of rounding.

3 . Environmental protection expenditure from 2016 to 2022

The Environmental Protection Expenditure (EPE) Survey provides information from 2015. However, we made changes to our survey methodology for data from 2016. As a result of this change, we make year-on-year comparisons from 2016 onwards only. More detail is available in [Section 9: Data sources and quality](#).

Estimated EPE has increased by 10.0%, from £2.0 billion in 2016 to £2.2 billion in 2022. Between 2016 and 2022, total EPE estimated from this survey remained around £2.0 billion, with small annual fluctuations around this level. The highest estimate was £2.2 billion in both 2017 and 2022, and the lowest was £1.9 billion in 2020.

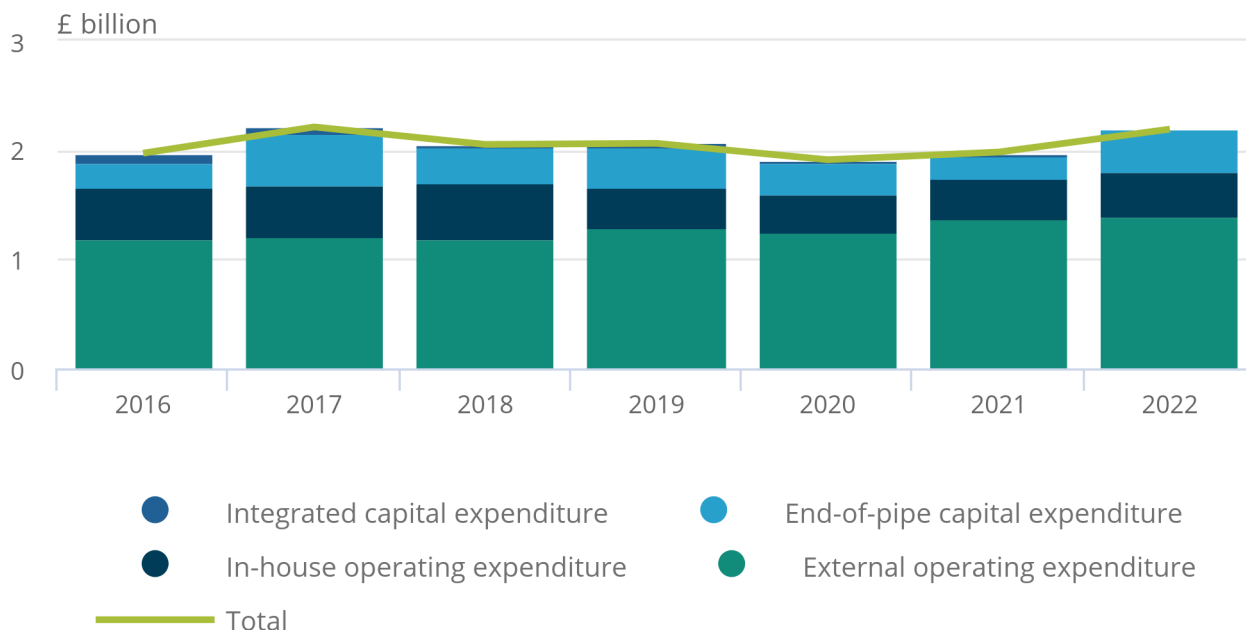
In every year since the first comparable figures in 2016, the majority of EPE has related to external operating expenditure. In 2022, external operating expenditure was also at its highest level (£1.4 billion), since data collection began on this expenditure type in 2016.

Figure 3: External operating expenditure was the largest contributor to EPE between 2016 and 2022

Environmental protection expenditure (EPE) in £ billions, UK, 2016 to 2022

Figure 3: External operating expenditure was the largest contributor to EPE between 2016 and 2022

Environmental protection expenditure (EPE) in £ billions, UK, 2016 to 2022



Source: Environmental Protection Expenditure Survey from the Office for National Statistics

Notes:

1. All estimates are provided in current prices and are not adjusted for inflation.
2. Estimates may differ slightly from those presented in our [accompanying dataset](#) because of difference in rounding precision.
3. Subtotals may not sum to totals because of rounding.
4. 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 our [accompanying dataset](#).
5. See [Section 8: Glossary](#) for full definitions of EPE expenditure types.

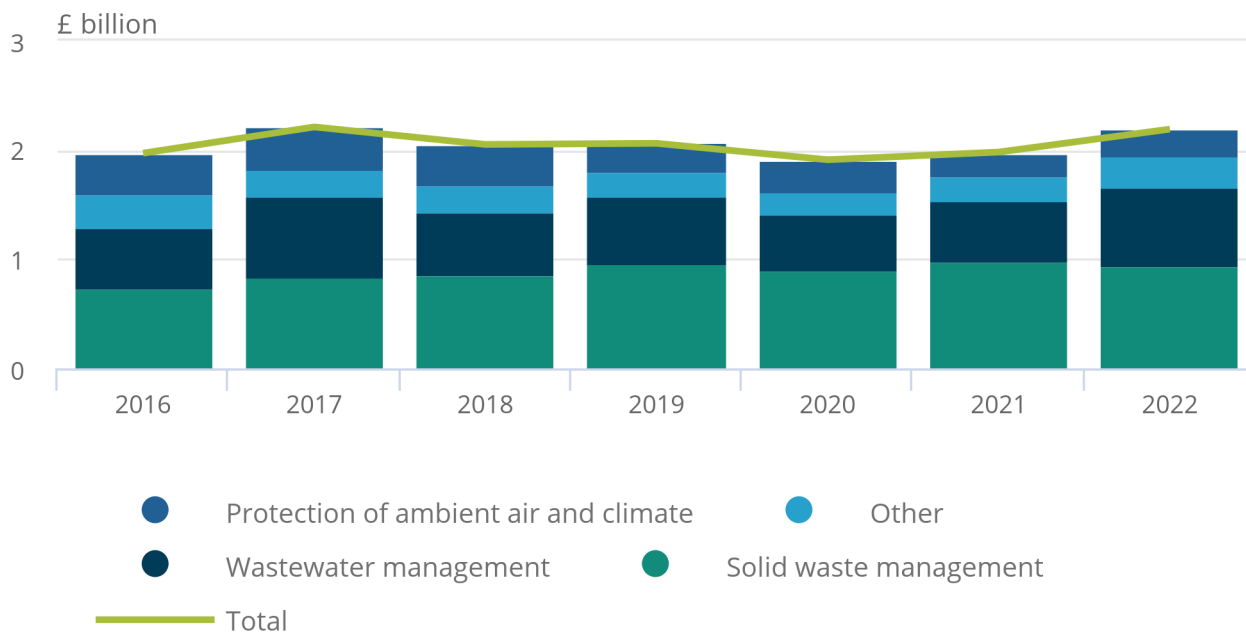
In every year since the first comparable figures in 2016, solid waste management has been the highest contributor to total EPE activity. Solid waste management activity was at its highest level (£1.0 billion) in 2021.

Figure 4: Solid waste management was the largest EPE Survey activity between 2016 and 2022

Environmental protection expenditure (EPE) by activity in £ billions, UK, 2016 to 2022

Figure 4: Solid waste management was the largest EPE Survey activity between 2016 and 2022

Environmental protection expenditure (EPE) by activity in £ billions, UK, 2016 to 2022



Source: Environmental Protection Expenditure Survey from the Office for National Statistics

Notes:

1. All estimates are provided in current prices and are not adjusted for inflation.
2. Estimates may differ slightly from those presented in our [accompanying dataset](#) because of difference in rounding precision.
3. Subtotals may not sum to totals because of rounding.
4. See the [Classification of Environmental Protection Activities and Expenditure \(CEPA\) \(PDF, 360KB\)](#) for full definitions of activities.

4 . Environmental protection expenditure by industry

Businesses are classified into an industry, using our current [UK Standard Industrial Classification \(SIC\) 2007](#), by the type of economic activity to which they are related.

At a top level, this system classifies businesses by industry (or section). Within each of these industries, businesses are further classified by division.

The Environmental Protection Expenditure (EPE) Survey samples UK businesses from 31 individual SIC divisions, all these divisions belong to one of the following four SIC industries (or sections):

- SIC Section B - Mining and quarrying
- SIC Section C - Manufacturing
- SIC Section D - Electricity, gas, steam and air conditioning supply
- SIC Section E - Water supply; sewerage, waste management and remediation activities

EPE varies across industries depending on the operating activity of the business, and strategies for waste management and environmental protection.

The SIC divisions selected for the EPE Survey are consistent with Eurostat EPE guidelines. More information is available in [Section 2: Environmental protection expenditure by UK businesses](#). Most of these SIC divisions, and therefore over 90% of the businesses sampled by the EPE Survey, are in the manufacturing industry. For this reason, although industry breakdowns are provided in our [accompanying dataset](#), we do not compare them here, as the results will be heavily influenced by the survey sampling frame.

5 . Responses to narrative questions

To help us to explain trends in the quantitative data, we ask businesses for more information about why their environmental protection expenditure (EPE) activities had taken place and the considerations involved.

The responses provide information regarding different approaches to external and in-house operating expenditure. Like the insights gained in our 2021 data, respondents confirmed that they mainly used contractors and consultants for their specialist services to move and dispose of waste, with labour costs and staff training forming the bulk of internal costs. A majority also confirmed they had no capital EPE.

We had more responses to these questions in our 2022 survey, with businesses providing more examples of recycling activity and references to wastewater management.

6 . Responses to climate change adaptation questions

Climate change has an increasing impact on weather conditions, people, and the natural environment, so businesses might be needing to invest more in adapting to, or preparing for, the consequences, such as those identified in the [Climate Change Committee Adaptation Monitoring Framework](#).

We ask businesses in the Environmental Protection Expenditure (EPE) Survey whether they are investing in "climate change adaptation".

In 2022, more businesses in our sample confirmed EPE on adaptations to address the impact of climate change than in 2021. With many focussing on:

- diversifying products, services or supply chains
- installing heating or cooling systems
- rethinking business strategies, finances or risk assessments
- installing new flood defences
- staff training

However, the majority of responses focussed on actions intended to limit or reduce greenhouse gas emissions, which is beyond the scope of this question.

Business Insights and Conditions Survey

On a quarterly basis, our Business Insights and Conditions Survey (BICS) asks participants about their concerns regarding the impacts of climate change on businesses, along with actions taken. More information is available in Wave 111 of our [Business insights and impact on the UK economy dataset](#). Annually, the survey asks about responses to a set of climate-change-related risks, most recently in August 2023, as reported in our [Business insights and impact on the UK economy: 10 August 2023 bulletin](#), with updated statistics expected to be published on 3 October 2024.

7 . Data on Environmental Protection Expenditure Survey

[Environmental Protection Expenditure Survey estimates: by industry and activity](#)

Dataset | Released 23 August 2024

Estimates for the UK's environmental protection expenditure by industry and activity, 2015 to 2022.

8 . 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:

- managing sewage
- managing solid waste
- treatment of exhaust gases
- protection of biodiversity and natural landscapes

Environmental protection types are classified in this bulletin according to an internationally recognised categorisation scheme devised in [Eurostat's Classification of Environmental Protection Activities and Expenditure \(CEPA\) \(PDF, 360KB\)](#).

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 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's overall activity, where the primary aim of the expenditure is to reduce any pollutants generated.

9 . Data sources and quality

Information on environmental protection expenditure (EPE) comes from the Office for National Statistics (ONS) survey, which we have run annually since 2016, providing data since 2015.

Our survey samples around 3,000 businesses that operate in four industries, based on [UK Standard Industrial Classification \(SIC\) 2007](#), to obtain estimates of EPE in these industries:

- SIC Section B - Mining and quarrying
- SIC Section C - Manufacturing
- SIC Section D - Electricity, gas, steam and air conditioning supply
- SIC Section E - Water supply; sewerage, waste management and remediation activities

The survey response rate increased from 64.2% in 2021 to 67.8% in 2022. As with any survey-based estimates, these are subject to a margin of error and should be interpreted with caution. Standard errors around all estimates are published in our [accompanying dataset](#). Potential EPE activity in other industries is not captured by this survey.

Revisions to Environmental Protection Expenditure Survey estimates

This release contains revisions to estimates for the years 2020 to 2021, since their last publication in June 2023. 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
- businesses revising their previous submissions
- developments in methodology and changes to the questionnaire

Quality

More quality and methodology information on strengths, limitations, appropriate uses, and how the data were created is available in our [EPE Survey Quality and Methodology Information \(QMI\)](#).

Uncertainty

Data for the EPE 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 affect how changes in the estimates should be interpreted. Estimates of the level of uncertainty associated with our statistics (including [standard errors](#) and [confidence intervals](#)) are given in our [accompanying dataset](#) to aid interpretation.

Read more in our [Uncertainty and how we measure it for our surveys methodology article](#).

Comparability

Before 2015, data were collected by Department for Environment, Food and Rural Affairs (Defra) surveys in 1994 (pilot), 1997, and then annually from 1999 to 2013. Defra have published [the results from the EPE Survey \(GOV.UK\)](#) for these years.

The survey was migrated to the ONS in 2016, 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 EPE Survey from 2015 onwards are not comparable with previous data because of differences in the methodology between Defra and the ONS.

In 2016, we added a question to the EPE Survey to obtain estimates of external operating expenditure. Before this, information was only collected on in-house operating expenditure. The addition of this question highlighted that many businesses had previously been including external operating costs in the values they provided for in-house operating expenditure. Consequently, 2015 estimates of in-house operating expenditure from the ONS Environmental Protection Expenditure (EPE) Survey may be overestimated and not directly comparable with estimates from 2016 onwards.

Geography

Estimates of total EPE by industry and activity, are available at a UK level and are not further disaggregated by geography.

Timeliness

We aim to publish the EPE Survey data in the timeliest manner possible, currently two years after the reference period. For example, data for 2022 are published in 2024.

10 . Related links

[Low carbon and renewable energy economy, UK: 2022](#)

Bulletin | Released 8 March 2024

Estimates of the size of the UK's low carbon and renewable energy economy, including turnover and employment.

[Environmental protection expenditure: general government](#)

Dataset | Released 5 June 2024

Data on the UK's environmental protection expenditure by general government according to activity, 1995 to 2022.

[UK Environmental Accounts: 2024](#)

Bulletin | Released 5 June 2024

Measuring the contribution of the environment to the economy, impact of economic activity on the environment, and response to environmental issues.

[UK environmental taxes: 2023](#)

Bulletin | Released 7 May 2024

The value and composition of UK environmental taxes from 1997 to 2023, by type of tax and economic activity, and comparisons with other European countries.

[Experimental estimates of green jobs, UK: 2024](#)

Bulletin | Released 14 March 2024

Experimental estimates of green jobs using the industry, occupation and firm approaches.

[Business insights and impact on the UK economy](#)

Datasets | Released every two weeks

Weighted estimates from the voluntary fortnightly Business Insights and Conditions Survey (BICS) about financial performance, workforce, prices, trade, and business resilience.

11 . Cite this statistical bulletin

Office for National Statistics (ONS), released 23 August 2024, ONS website, statistical bulletin, [Environmental Protection Expenditure Survey, UK: 2022](#)