

Statistical bulletin

UK environmental goods and services sector (EGSS): 2010 to 2015

First estimates of the UK environmental goods and services sector (EGSS) for 2015 and revised estimates for 2010 to 2014. Included are estimates of output, gross value added, employment and exports.



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1 . Main points

- The environmental goods and services sector (EGSS) contributed £62.5 billion of output to the UK economy in 2015, growing 27% between 2010 and 2015 (without adjusting for inflation).
- The EGSS contributed £30.5 billion to the economy in terms of gross value added (GVA) in 2015, growing by 23% since 2010 and continuing to represent around 1.6% of UK gross domestic product.
- The environmental goods and services sector contributed around 335,000 full-time equivalent jobs to the economy in 2015; an increase of 10% from 2010 to 2015 and representing around 1% of total UK employment.
- Waste management accounted for the single largest proportion of total EGSS output (23%) and employment (30%) in 2015.
- Between 2010 and 2015, the output and GVA from production of renewable energy activities nearly trebled, from £4.6 billion to £12.8 billion and £2.3 billion to £6.2 billion respectively.
- The production of renewable energy accounted for 4% of total EGSS employment but around 20% of total EGSS output and GVA in 2015.

2 . Things you need to know about this release

Why do we publish environmental goods and services sector estimates?

There is increasing demand in the UK, and internationally, to measure the progress towards a green economy. There is particular interest in establishing how the economy is managing natural resources, protecting the environment from further deterioration (sustainable development) and the amount of green jobs created. Furthermore, information on green growth is required to assist in the development and monitoring of environmental and economic policies such as [Clean Growth Strategy](#), one of the four grand challenges set out in the government's [Industrial Strategy](#).

What information is provided?

Although there is no commonly accepted definition of the green economy, the environmental goods and services sector (EGSS) framework, adopted under the UN System of Environmental Economic Accounting, provides a set definition and specification of activities that start to represent the green economy. The environmental goods and services sector is made up of areas of the economy engaged in producing goods and services for environmental protection purposes, as well as those engaged in conserving and maintaining natural resources.

Excluded from the scope of EGSS are goods and services produced for purposes that, while beneficial to the environment, primarily satisfy technical, human and economic needs or that are requirements for health and safety. Goods and services related to minimising the impact of natural hazards and those related to the extraction, mobilisation and exploitation of natural resources are also excluded.

This bulletin provides revised estimates on the output (value of goods and services produced), gross value added (output less the value of goods and services used up in the production process of the output; this represents the contribution of the EGSS towards gross domestic product, in current prices) and employment (in full-time equivalents) of the UK's environmental goods and services sector between 2010 and 2014 and first estimates for 2015. Estimates of exports for 2014 and 2015 are provided for the first time.

Following consultation with UK and European experts, it was agreed that EGSS in the UK likely comprises 17 different types of activity. The EGSS can be further considered in line with internationally-agreed classifications of environmental protection activities (CEPA) or resource management activities (CReMA).

Environmental protection activities include technologies, goods and services that reduce or prevent the amount of harmful material that enters the environment, while resource management activities include technologies, goods and services that manage or conserve natural resources. Both classifications also include activities related to monitoring the quality of the environment, research and development (R&D), general administration, and training and teaching related to environmental protection or resource management.

A diverse range of industries are involved in the production of environmental goods and services. Breakdowns of EGSS estimates in the [datasets](#) are also presented by standard industrial classification (SIC) section level. Classification here is by the producer unit and is determined by the primary activity of the business.

This bulletin highlights main contributors to EGSS by UK type of activity only. The [datasets](#) accompanying the bulletin provide a complete breakdown of EGSS estimates by UK type of activity, CEPA, CReMA and SIC. See the [methodology annex](#) for a full description of all activities and industries that contribute to the EGSS.

How are environmental goods and services sector estimates calculated?

The methodology used to develop the environmental goods and services sector (EGSS) estimates remains under development; the estimates reported in this bulletin are experimental and should be interpreted in this context. [Experimental Statistics](#) are those that are in the testing phase, are not yet fully developed and have not been submitted for assessment to the UK Statistics Authority. Detailed information on the data sources and methodologies used are presented in the [methodology annex](#).

Estimates for recycling activities as well as for five of the EGSS activities¹ that are derived from the Annual Business Survey should be treated with caution along with aggregate figures that they feed into because of the quality of the methodologies used; for more information see [Section 10](#): Quality and methodology.

Following consultation with European experts, the wholesale of waste and scrap, and activities of second-hand shops are no longer considered to represent EGSS activity and are not included in these EGSS estimates. All estimates are given in current prices, no adjustment is made for the rate of inflation in the economy or varying degrees of producer price inflation.

Notes for: Things you need to know about this release

1. These activities are: energy saving and sustainability, environmental consultancy, environmental construction, environmental inspection and control, production of industrial environmental equipment.

3 . What's the overall picture of the environmental goods and services sector?

Table 1: Estimated total output, gross value added (GVA) and employment for the environmental goods and services sector, 2010 to 2015

	Output (£ billion)	GVA (£ billion)	Employment (Full time equivalents)
2010	49.4	24.7	304,500
2011	51.8	26.2	313,100
2012	54.9	27.1	316,500
2013	57.1	27.6	324,300
2014	57.9	27.9	315,300
2015	62.5	30.5	335,100

Source: Office for National Statistics

In 2015, the environmental goods and services sector (EGSS) contributed a total output of £62.5 billion, an estimated £30.5 billion to the UK economy in terms of gross value added (GVA) and around 335,000 full-time equivalent (FTE) jobs (Table 1).

Between 2010 and 2015, output and GVA from the EGSS increased by 27% and 23% respectively. Output grew more quickly than GVA, demonstrating that the value of goods and services used up in production processes in the EGSS had increased. Although total UK gross domestic product (GDP) grew slightly more slowly than EGSS GVA, by 20% from 2010 to 2015, EGSS GVA represented a similar proportion of total UK GDP (around 1.6%) throughout this period.

Employment in the EGSS increased more slowly from 2010 to 2015 (by 10%) than both output and GVA.

All 17 types of activity contributed to the EGSS but the contribution of individual activities was often small. Sections 4 to 6 provide information about the contribution of three activities that made a relatively large contribution to the EGSS. A full breakdown of total EGSS estimates by all activities, classifications of environmental protection activities (CEPA) and resource management activities categories (CReMA) and standard industrial classification (SIC) is available in the [datasets](#) published with this bulletin.

4 . Waste management the largest contributor to EGSS

Waste management accounted for the single largest proportion of environmental goods and services sector (EGSS) output (around 20%) and employment (around 30%) in every year from 2010 to 2015. The "Other" category, which combines 12 EGSS activities, accounted for a larger proportion of output and employment but the contribution of each individual activity within this combined category was less than that of waste management.

Waste management activities include the collection, treatment and disposal of various forms of waste, such as solid or non-solid industrial or household waste but does not include recycling activity (see [Section 6: Recycling contribution to EGSS declining](#)). Waste management activities are captured under international classifications of environmental activities within Classification of Environmental Protection Activity (CEPA) 2000, Section 3. At an industry level, waste management is included within Standard Industrial Classification: SIC 2007, Section E, Waste and water management.

The growth of output and employment in waste management from 2010 to 2015 followed different patterns. Waste management output grew by 38% over this period to £14.2 billion in 2015 (Figure 1), whereas employment in waste management remained relatively stable, growing by 5% to around 101,000 in 2015 (Figure 3).

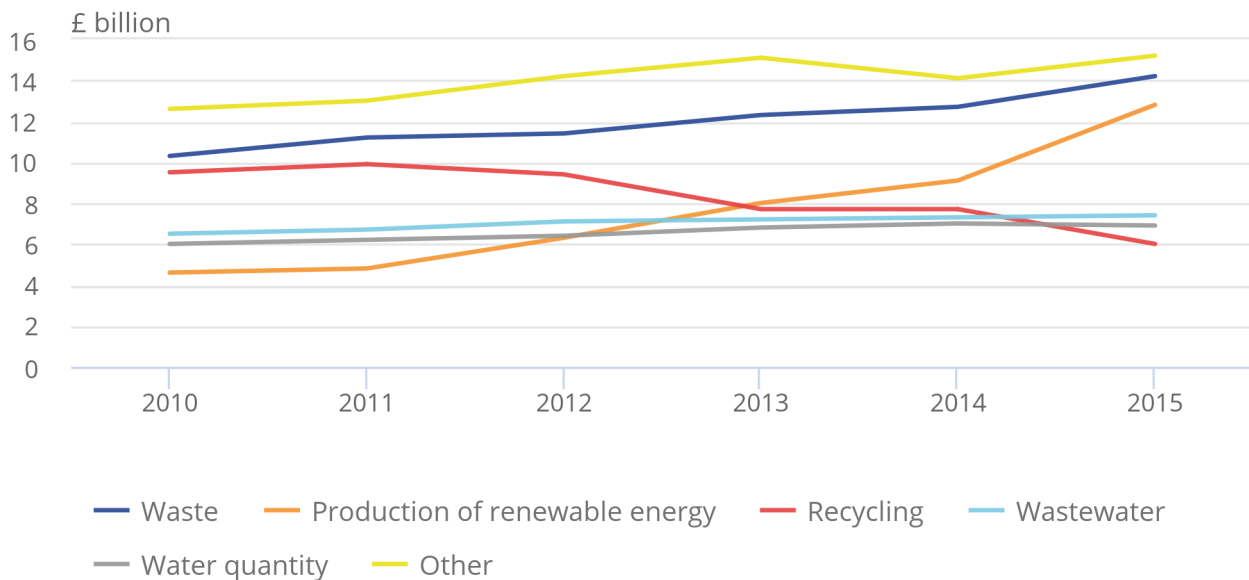
Waste management accounted for the largest proportion of GVA in the EGSS in all years prior to 2015. However, GVA by waste management slightly decreased from £5.8 billion in 2011 to £5.5 billion in 2015 (Figure 2). An increase in the GVA of production of renewable energy over this period (see [Section 5: Renewable energy contribution to EGSS continues to grow](#)) meant waste management was the second-largest contributor to EGSS (around 20%) in terms of GVA in 2015.

Figure 1: Output by EGSS activity

2010 to 2015

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2010 to 2015



Source: Office for National Statistics

Notes:

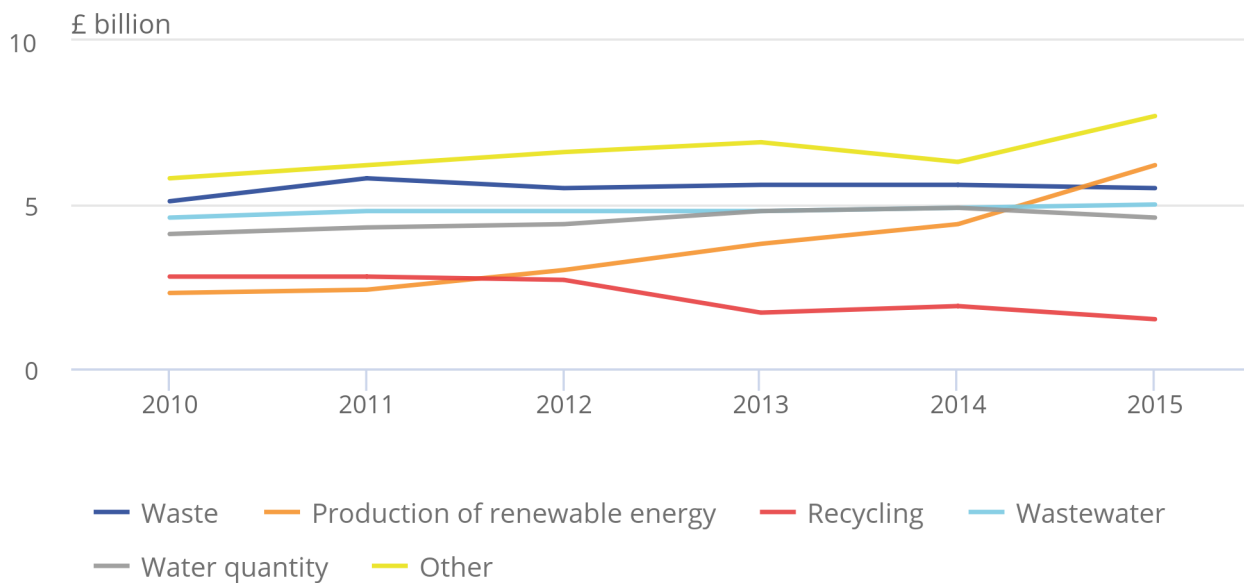
1. The "Other" category comprises 12 EGSS activities: Environmental charities, Managerial activities of government bodies, Management of forest ecosystems, Insulation activities, In-house environmental activities, Organic agriculture, Environmental related education, Energy saving and sustainable energy systems, Environmental consultancy and engineering services, Environmental related construction activities, Environmental inspection and control and Production of industrial environmental equipment.

Figure 2: Gross value added (GVA) by EGSS activity

2010 to 2015

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2010 to 2015



Source: Office for National Statistics

Notes:

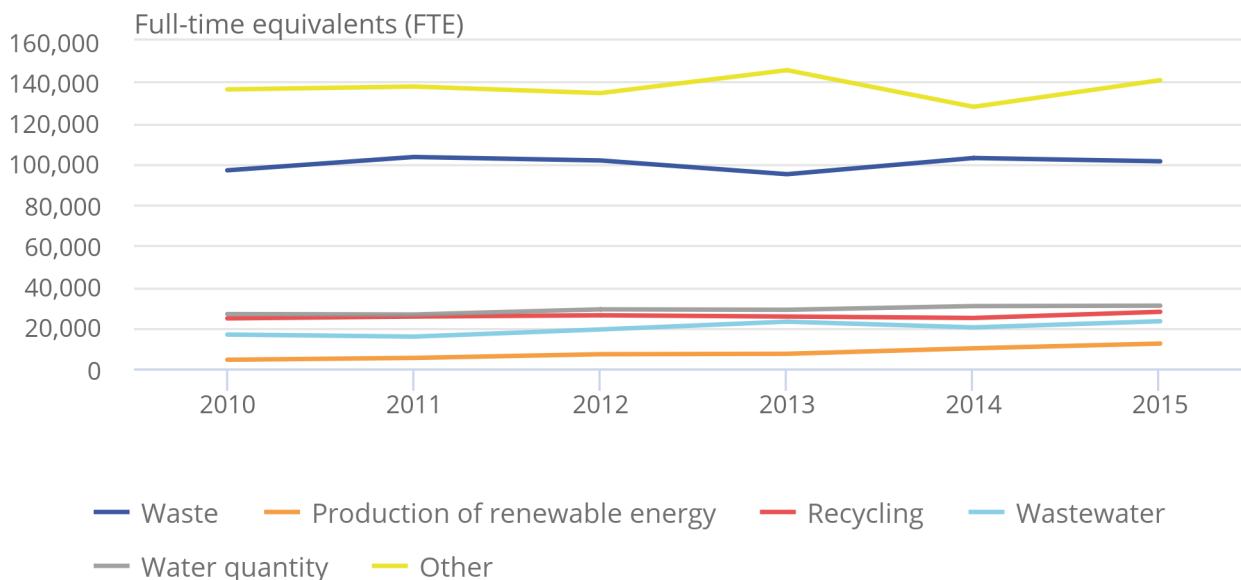
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Figure 3: Employment by EGSS activity

2010 to 2015

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2010 to 2015



Source: Office for National Statistics

Notes:

1. The "Other" category comprises 12 EGSS activities: Environmental charities, Managerial activities of government bodies, Management of forest ecosystems, Insulation activities, In-house environmental activities, Organic agriculture, Environmental related education, Energy saving and sustainable energy systems, Environmental consultancy and engineering services, Environmental related construction activities, Environmental inspection and control and Production of industrial environmental equipment.

5 . Renewable energy contribution to EGSS continues to grow

The production of renewable energy grew between 2010 and 2015, reflected by similar growth rates in its output, gross value added (GVA) and employment.

Production of renewable energy activities include the production of renewable electricity, heat and biofuels for transport and is captured under international classifications of environmental activity under Classification of Resource Management Activities (CReMA) 2008, Section 13, Management of energy resource and within Standard Industrial Classification: SIC 2007, Section D, Electricity, gas, steam and air conditioning supply.

Output from the production of renewable energy nearly trebled, from £4.6 billion in 2010 to £12.8 billion in 2015 and was the second-largest contributor to total environmental goods and services sector (EGSS) output in 2015 accounting for around 20% of total EGSS output. Similarly, GVA from the production of renewable energy nearly trebled over this period, from £2.3 billion to £6.2 billion, production of renewable energy becoming the largest single contributor (around 20%) to total EGSS GVA in 2015.

These trends are supported by figures from the [Digest of UK Energy Statistics](#), which show that the amount of energy generated from renewable sources tripled over the same period from 26,180 gigawatt hours to 83,403 gigawatt hours.

Though increasing at a similar rate, employment in the production of renewable energy accounted for a relatively small proportion of total EGSS employment in all years (4% in 2015); this reflects that production of renewable energy requires relatively few employees to produce a high level of output and GVA.

6 . Recycling contribution to EGSS declining

Recycling activities include salvage, separating and sorting waste materials into distinct categories and processing waste into raw materials. It is captured under international classifications of environmental activities in the Classification of Resource Management Activities (CReMA) 2008, Section 14, Management of minerals and within Standard Industrial Classification: SIC 2007, Section E, Waste and water management.

Recycling accounted for the second-largest proportion of environmental goods and services sector (EGSS) output between 2010 and 2012 but output decreased steadily from £9.9 billion in 2011 (around 20% of total EGSS output) to £6 billion in 2015 (around 10% of total EGSS output).

The gross value added (GVA) from recycling decreased year-on-year between 2010 and 2015, from £2.8 billion (11% of total EGSS GVA) in 2010, to £1.5 billion (5% of total EGSS GVA) in 2015. Employment in recycling activities remained relatively consistent over the period, contributing around 8% of total EGSS employment in all years from 2010 to 2015 (27,600 in 2015).

It is likely that the contribution from the public sector to recycling is underestimated under our current methodology, this may explain why the estimated output and GVA for recycling decrease over time. See [Section 10: Quality and methodology](#) for more information.

7 . Majority of EGSS exports from waste management and recycling

Total exports from the environmental goods and services sector (EGSS) were £5.0 billion in 2015, a decrease of 20% from £6.2 billion in 2014.

Almost 90% of all exports from the EGSS in both 2014 and 2015 came from recycling and waste management activities. Exports from recycling decreased by 20% from £3.0 billion in 2014 to £2.4 billion in 2015. Similarly, exports from waste management decreased by 22% from £2.6 billion in 2014 to £2.0 billion in 2015 (Figure 4).

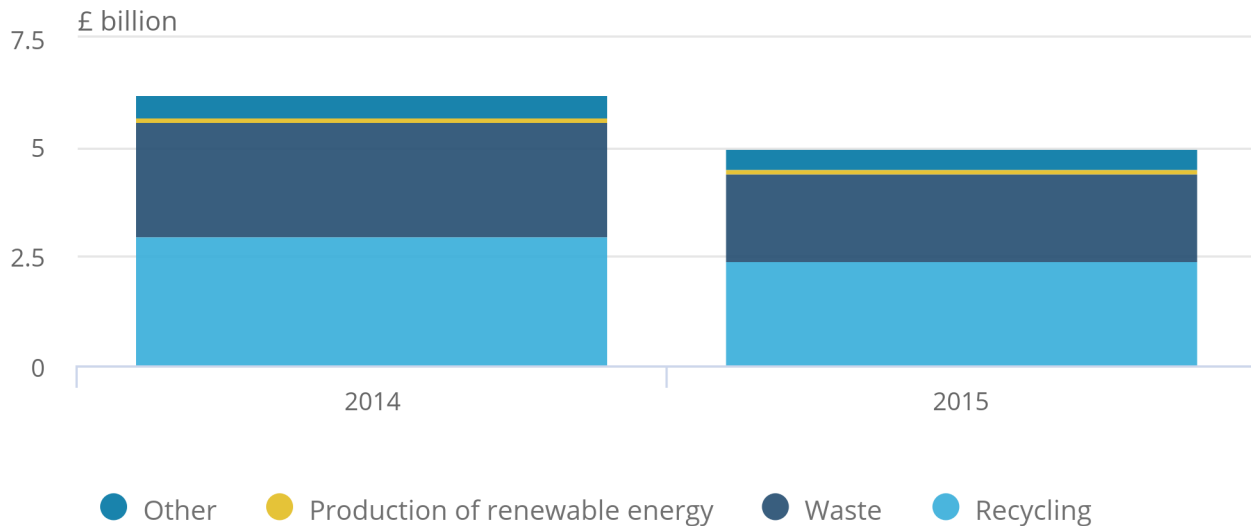
Information on exports from the EGSS are published here for the first time and are currently only available for 2014 and 2015. These estimates are experimental and remain under development, for more information see [Experimental Statistics](#).

Figure 4: Exports by EGSS activity

2014 to 2015

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2014 to 2015



Source: Office for National Statistics

Notes:

1. The "Other" category comprises 14 EGSS activities: Environmental charities, Managerial activities of government bodies, Management of forest ecosystems, Insulation activities, In-house environmental activities, Organic agriculture, Environmental related education, Energy saving and sustainable energy systems, Environmental consultancy and engineering services, Environmental related construction activities, Environmental inspection and control, Production of industrial environmental equipment, Water quantity management and Wastewater.

8 . Upcoming changes to methodology

A large amount of development work is planned in 2018 to improve the environmental goods and services sector (EGSS) estimates. We will be focusing on improving the methodology for the Annual Business Survey-derived activities in order to more precisely capture the magnitude of these EGSS activities. We are planning to incorporate information from the [Low Carbon and Renewable Energy Economy Survey](#), which collects information from businesses on employment, investment, turnover, imports and exports of low-carbon and renewable energy activities. Combining these two data sources will strengthen the estimates for these EGSS activities.

We will investigate data sources to supplement the recycling activities estimates to ensure that the contribution from the public sector is not being underestimated. We will also look to make additional improvements to "water quantity management". This currently includes not only resource management activities to minimise water losses and water reuses (considered part of the EGSS) but also services relating to the distribution, collection and treatment of water.

It is difficult to narrow the scope to exclude the distribution, collection and treatment of water, but future improvements may be possible once the resource management expenditure accounts (ReMEA) are further refined and completed. One way in which we plan to improve this category is to consider the financial records of water companies to identify expenditure and investment (based on the formation of fixed capital) in water management services, which may help to estimate the resource management activities appropriate for inclusion in the EGSS.

The estimates for insulation activities are currently underestimates in the EGSS due to the lack of information on the installation services associated with double and triple glazing. Insulation in commercial building is also unaccounted for and will require further work to be incorporated in the future.

Currently, estimates for environmental-related education do not include secondary education or post-secondary non-tertiary education relating to environmental protection and resource management activities. It is proposed that these will be incorporated once UK education statistics provide more detail.

The next updates to the EGSS estimates are currently planned for January 2019 and will occur on an annual basis. We aim to produce a longer time series, where data sources allow, in order to assess how the EGSS has developed prior to the year 2010.

The methodology used to develop these estimates remains under development; the estimates reported in this bulletin are experimental and should be interpreted in this context. We welcome comments and feedback on all aspects of the methodology used and seek feedback for further improvement and refinement. Please email your feedback to environment.accounts@ons.gov.uk.

9 . Links to related statistics

[Environmental Accounts 2017](#)

Satellite accounts to the main UK National Accounts 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 Economy Survey Estimates 2016](#)

Final results from the Low Carbon and Renewable Energy Survey on the low carbon and renewable energy economy in the UK, including direct and indirect activity, employees and turnover.

[Digest of UK Energy Statistics](#)

A comprehensive picture of energy production and use in the UK. It contains information on both renewable and non-renewable energy sources.

[Digest of Waste and Resource Statistics](#)

Compendium of statistics on a range of waste and recycling areas, it contains information on: resource (including flows and consumption of raw materials, such as metals and minerals), waste generation, destiny of waste (for example, recycling, incineration), waste composition, food waste, economic characteristics of the waste sector, waste infrastructure, environmental issues with waste, behavioural attitudes to waste, waste crime and EU data on waste.

10 . Quality and methodology

Sources

We have used a wide variety of sources for the collection of the environmental goods and services sector (EGSS) statistics, which have been compiled in line with the guidelines recommended by the [EGSS Practical Guide \(2016\)](#) and [Eurostat EGSS Handbook \(2016\)](#).

The methodology used to develop these estimates remains under development; the estimates reported in this bulletin are experimental and should be interpreted in this context. [Experimental Statistics](#) are those that are in the testing phase, are not yet fully developed and have not been submitted for assessment to the UK Statistics Authority. Experimental Statistics are published in order to involve customers and stakeholders in their development and as a means of building in quality at an early stage. Detailed information on the data sources and methodologies used are presented in the [methodology annex](#).

Annual Business Survey-based estimates

Five of the EGSS activities are derived from a two-part question on the Annual Business Survey (ABS) introduced in 2013:

- energy-saving and sustainability
- environmental consultancy
- environmental construction
- environmental inspection and control
- production of industrial environmental equipment

Businesses self-report whether they produce a good or service with the main aim of protecting the environment, which we then validate and allocate to one or more classifications of environmental protection activities (CEPA) or resource management activities (CReMA) code. Estimates of EGSS output, gross value added (GVA) and employment between 2010 and 2012 for these activities were back-casted from the 2013 ABS data based on a business's turnover in these years, creating a relatively smooth series.

In future years, however, the series may be more volatile as a result of the small sample sizes involved and the subjective nature of the methodology. The figures for 2014 show some noticeable differences to 2013 and result in a net decrease in the output, GVA and employment for these activities combined, which has also affected the aggregated figures. The figures for these specific activities should be treated with caution along with any aggregate figures that they feed into.

Recycling estimates

Estimates for recycling activity are derived by calculating the proportion of GVA and output in Standard Industrial Classification: SIC 38 (Waste collection, treatment and disposal activities; material recovery) that comes from SIC 38.3 (Materials recovery) using data from the ABS and applying this to output and GVA for SIC 38 from national accounts supply and use tables, which cover the whole economy. However, as the ABS only collects information on the private sector it is likely that this methodology is underestimating the contribution of the public sector to recycling activities. This may explain why the estimated output and GVA presented in this bulletin decrease over time. Without more detailed national accounts data it is not possible to derive more accurate figures and so the estimates should be interpreted with caution.

Exports estimates

Estimates for exports are derived using data from a variety of sources depending on the activity in question, sources include HM Revenue and Customs (HMRC) trade data, International Trade in Services Survey (ITIS) estimates and national accounts supply and use tables. These estimates are experimental and remain under development, for more information see [Experimental Statistics](#).