Country fact sheet

# Municipal waste management

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# United Kingdom

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European Environment Agency
European Topic Centre on Waste and
Materials in a Green Economy

## Context

This country profile was prepared within the EEA's work on municipal waste, resulting in the following outcomes:

- 32 country profiles (this document) – The country profiles were originally produced by the ETC/SCP and were published by the EEA in 2013. The ETC/WMGE updated them for the EEA under its 2015 and 2016 work programme.

- An EEA briefing on Municipal waste management across European countries


## Acknowledgements

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## Related country profiles

Country profiles on waste prevention programmes can be found at:
http://www.eea.europa.eu/publications/waste-prevention-in-europe-2015

For country profiles on material resource efficiency policies, please visit:
http://www.eea.europa.eu/publications/more-from-less/

# Contents

# Highlights

- The United Kingdom (UK) government committed in 2010 to better align the reporting of municipal solid waste (MSW) with the EU's definition. This particularly concerns the more consistent inclusion of commercial waste in data on the diversion of biodegradable MSW from landfill, as specified in the Landfill Directive.
- The UK met its 2013 Landfill Directive target on the diversion of biodegradable municipal waste from landfill and, if the current level is maintained, will meet its 2020 target.
- The landfill allowance schemes have been a major driver of rapidly increasing landfill diversion and recycling rates.
- The landfill tax continues to be important in diverting waste from landfill. It is, however, just one of a number of drivers of recycling rates.
- The Packaging Waste Regulations have also been key drivers in increasing recycling rates. The establishment of the WRAP UK initiative has been important for capacity building.
- The share of MSW landfilled in the United Kingdom decreased from 80 % in 2001 to 28 % in 2014. Recycling (material and organic) increased dramatically over the same period to 44% in 2014, though growth has slowed since 2011. There are, however, large variations in recycling rates between individual local authorities.
- The UK can meet the Waste Framework Directive (WFD) recycling target by 2020 if efforts on increasing the recycling rate continue in the coming years.

# 1 Introduction

## *1.1 Objective*

Based on historical municipal solid waste (MSW) data for the United Kingdom (UK), and EU targets linked to MSW in the Waste Framework Directive (WFD), the Landfill Directive and the Packaging Directive, the analysis undertaken includes:

- the historical MSW management performance based on a set of indicators;
- uncertainties that might explain differences in country performance, which may relate more to variations in reporting methodology than differences in management performance;
- indicators relating to the country's most important initiatives taken to improve the management of MSW; and
- possible future trends.

# 2 The United Kingdom's municipal solid waste management performance

Waste regulation in the UK is devolved, separately, to England, Northern Ireland, Scotland and Wales. The requirements of the WFD have been integrated into domestic law by the Waste Regulations (England and Wales) 2011, amended in 2012; the Waste Regulations (Northern Ireland) 2011, amended in 2013 and 2016; the Waste Regulations (Miscellaneous Provisions) (Wales) 2011; and Waste (Scotland) Regulations 2012 (Defra, 2016a; BiPRO and CRI, 2015).

The devolved administrations of Northern Ireland, Scotland and Wales are responsible for their own waste management strategies and policy. Despite differences in the specifics of policy measures, national priorities for waste have been consistent in aiming to drive action further up the waste hierarchy, making the transition from landfilling waste to prevention, re-use, recycling and energy recovery, along with a reduction of greenhouse gas emissions from waste management.

In general, successive waste strategies in each administration have tended to establish increasingly ambitious targets for the recycling of household and municipal waste, and for diversion of waste from landfills. Although each devolved administration has its own targets for the management of MSW, the data reported to Eurostat and presented in this analysis are for the UK as a whole. In addition, regional data reported to Eurostat are presented.

All households in the United Kingdom receive door-to-door collection of mixed municipal (residual) waste and some level of collection of recyclables. In many localities bulky waste is also collected door-to-door. There are different collection schemes for recyclables, and in 2015/16 more than half of local authorities operated some form of co-mingled collection. In Scotland, the Waste (Scotland) Regulations require separate collection of dry recyclable materials and food waste, and in Wales, 59 % of local authorities operate kerbsite sort collection where different recyclables are collected in separate streams. Households are also entitled to use bring-sites and civic amenity sites, and there are more than 13 000 and 700 respectively across the country. In 2015/16, 37 % of households also had a separate door-to-door food waste collection service (with the highest rate in Wales followed by Scotland), a further 16 % one for mixed food/garden waste collection. In total, 92 % of households had a door-to-door garden waste collection service (garden waste only or mixed with food waste) (WRAP, 2016). Local authorities have also a legal duty to offer commercial waste collection services according to the Environmental Protection Act 1990 (Gibbs *et al.*, 2014a; Defra, 2016a)

All local authorities must comply with legislation and failure to do so can lead to prosecution or other legal action. In Wales and Northern Ireland there are provisions for fines to be applied if local authorities fail to meet their Landfill Allowance Scheme (LAS) targets, and in Wales for failure to meet recycling targets (Defra, 2016a).

Residual waste collection as well as door-to-door collection of dry recyclables from the households is partly funded by central government and partly by households through local authority taxes. Many local authorities charge households additionally for bulky waste and household organic waste collection. Bring sites are funded by local authorities and by PR schemes (Defra, 2016a; Gibbs *et al.*, 2014a).

In 2012–2013, there were 23 incineration and gasification facilities in England dedicated to treating waste. There were also 17 residual waste pre-treatment facilities, with either mechanical biological treatment (MBT) or autoclave technologies. Organic waste is mainly treated in enclosed systems – in-vessel composting or anaerobic digestion – and only garden waste may be treated in open-windrow composting (Gibbs et al., 2014a; Defra, 2016a)

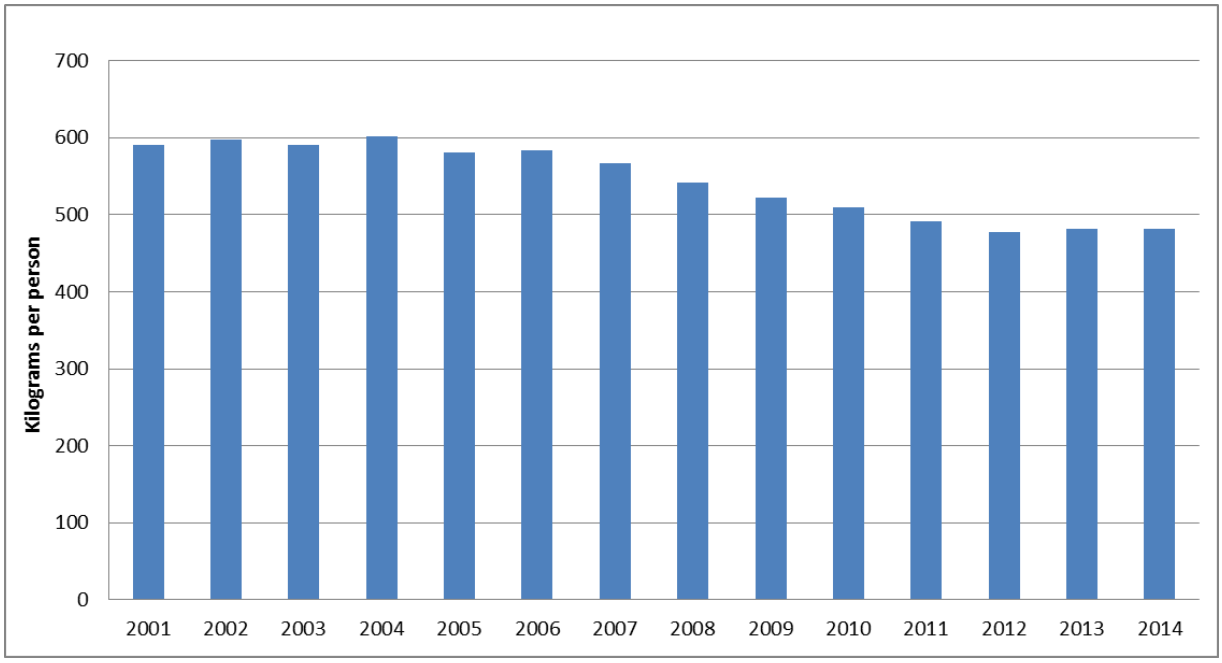
The annual amount of MSW generated in the United Kingdom peaked at 36.1 million tonnes in 2004 and has decreased in most years since, falling to 31.1 million tonnes in 2014. In the period 2001–2014 the reported treated amount of MSW accounted for around 99 % of the reported generated waste (Eurostat, 2016). It should be noted, however, that this relates to waste collected and managed by local authorities – mainly household waste and a relatively small proportion of commercial waste.

## *2.1 Municipal solid waste indicators*

The following indicators illustrate the development of MSW generation and management for 2001−2014. All percentage figures have been calculated as proportions of generated rather than treated waste.

Figure 2.0 shows the development in MSW per person in the United Kingdom between 2001 and 2014. It can be seen that following a reasonably stable period (2001–2004), MSW volumes began to decline and by 2014 had fallen to 482 kilograms per person, almost 20 % lower than the 2004 peak of 602 kilograms.

**Figure 2.0 United Kingdom, municipal solid waste generation per person, 2001–2014**




Source: Eurostat, 2016

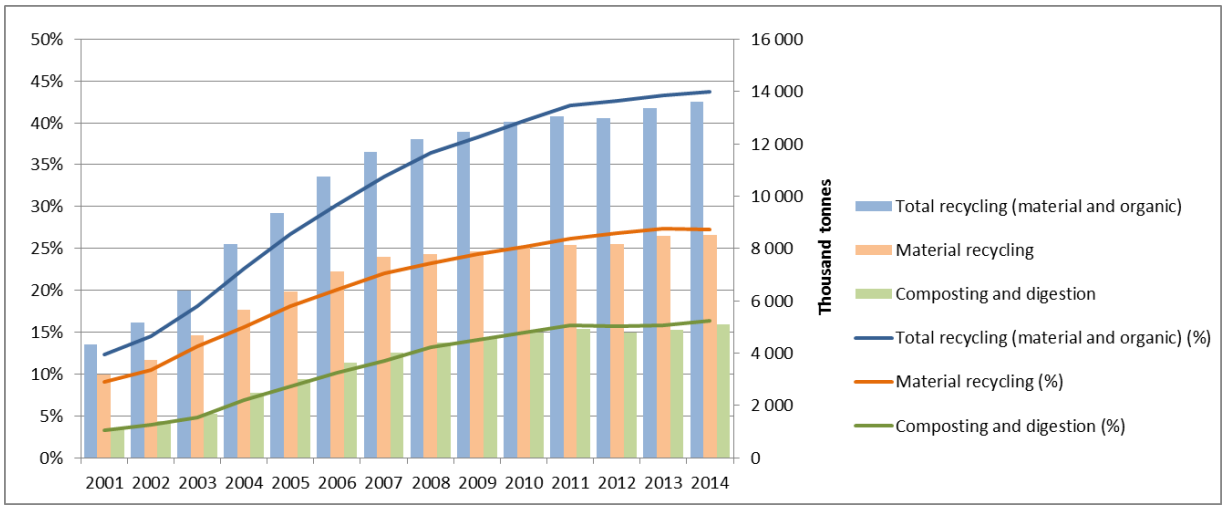
Management of MSW changed significantly between 2001 and 2014. Until 2008, the majority of MSW generated in the UK ended up in landfill, but this has decreased significantly, falling from 80 % in 2001 to 28 % in 2014. Material and organic recycling, as well as incineration, increased significantly over the same period.

### 2.1.1 Municipal solid waste recycling, 2001–2014

Figure 2.1 shows the development of recycling of MSW in the UK, both individual trends in material and organic recycling – composting and other biological treatment –, plus the trend in total recycling. Total recycling of MSW increased from 12 % of generated waste in 2001 to 44 % in 2014.

Recycling remains dominated by material recovery, which increased from 9 % of generated MSW in 2001 to 27 % by 2014 when around 8.5 million tonnes of MSW sent for material recovery. Although organic recycling remains of less importance, 5.1 million tonnes in 2014, it has seen some growth over the past decade. It should be noted that growth in both forms of recycling slowed significantly towards the end of the period.

**Figure 2.1 United Kingdom, recycling of municipal solid waste, 2001–2014, per cent and tonnes**




Source: Eurostat, 2016.

The EU's 2008 WFD includes a target for certain fractions of MSW: 'by 2020, the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass from households and possibly from other origins as far as these waste streams are similar to waste from households shall be increased to a minimum of overall 50 % by weight'. Member States may choose between four different methodologies to calculate compliance with the target[1]. The UK has chosen calculation method 3 (Gibbs *et al.*, 2014) with latest data and a time series for waste-from-households recycling from 2010 available on the UK Defra website. According to method 3, the UK has reported a recycling rate of 44.9 % for 2014 (Defra, 2015a). The recycling rates shown, which relate to all local authority waste, correspond to method 4, the only method for which Eurostat time series data exist. In 2015, the European Commission proposed new targets for municipal waste of 60 % recycling and preparing for reuse by 2025 and 65 % by 2030, based on only one calculation method, and with the option of time derogations for some countries (EC, 2015).

The UK will have to increase its recycling rate by 5 percentage points in 2014–2020 according to the chosen methodology, corresponding to 0.8 percentage points per year. Within the period 2001–2014, the country increased its recycling rate – calculated using data reported to Eurostat, method 4 – by 2.4 percentage points per year.

While the results for the two methodologies are not comparable, these numbers give suggest that the UK has a chance of meet the targets if efforts to increase the recycling rate continue in the coming years.

[1] Commission Decision 2011/753/EU allows countries to choose between four different calculation methods to report compliance with this target. Member States have the option of considering four alternative waste streams and fractions:

1. paper, metal, plastic and glass household waste;
2. paper, metal, plastic, glass household waste and other single types of household waste or of similar waste from other origins;
3. household waste;
4. municipal waste (the method used in this document).

### 2.1.2 Landfill of biodegradable municipal waste

According to the EU Landfill Directive, Member States have to reduce the amount of biodegradable municipal waste (BMW) landfilled by a specified percentage by 2006, 2009 and 2016. The targets are related to the amount of BMW generated in 1995. The UK has been given a four-year derogation period with respect to these targets. The UK targets are that landfilled quantities of BMW must be reduced to 75 % of the amount of BMW generated in 1995 by 2010, 50 % by 2013 and 35 % by 2020.

An added complication is that in October 2010, following a nationwide consultation, the UK government committed to a better alignment of MSW reporting as used by the UK with the EU's definition of MSW. This had implications for the reporting of BMW diverted from landfill, as it then included biodegradable waste from the commercial sector (Defra, 2010a). This resulted in almost a doubling in waste reported as BMW (Defra, 2010b).

The reporting method was adjusted for the reporting year 2010 onwards – corresponding to a data year of 2007 onwards. As a result, BMW sent to landfill in the UK as reported in 2007, 23.3 million tonnes, was 63 % higher than the figure reported for 2006, 14.3 million tonnes, but this was merely because of changing definitions rather than increases in the amount of BMW being landfilled.

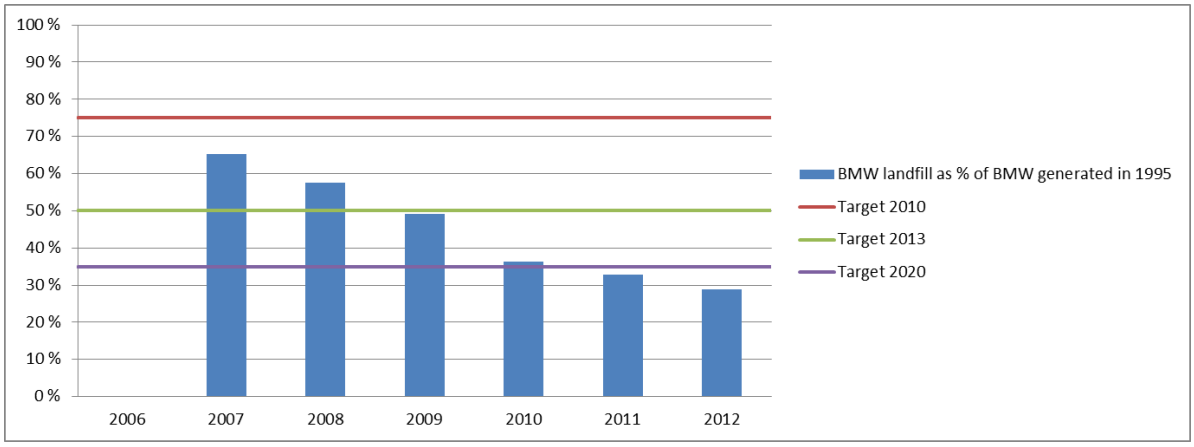
Following the change in definition, the UK adjusted the BMW Landfill Directive diversion targets (Table 2.1).

**Table 2.1 United Kingdom, Landfill Directive diversion targets according to old and revised definitions of BMW**

| | 1995 quantity of BMW | 2010 Target (75 % of 1995) | 2013 Target (50 % of 1995) | 2020 Target (35 % of 1995) |
|---|---|---|---|---|
| **UK Target for landfill of BMW under old definition ('000 tonnes)** | 18 260 | 13 695 | 9 130 | 6 391 |
| **UK Target for landfill of BMW following the 2010 revision ('000 tonnes)[2]** | 35 688 | 26 766 | 17 844 | 12 491 |

[2] According to David Lee, Waste Statistics Team, Defra, pers. com, 14 June 2012

**Figure 2.2 United Kingdom, landfill of biodegradable municipal waste in the United Kingdom, 2007–2012, % of biodegradable municipal waste generated in 1995**




Source: EC, forthcoming. Data according to the new definition of BMW.
Note: the target dates take account of the UK's four-year derogation period

Figure 2.2 shows that by 2009, the 2013 target had been exceeded and furthermore, by 2012 the 2020 target had been achieved suggesting that the 4-year derogation period had, in fact, not been necessary.

The derogation was negotiated while the UK still reported using a narrower definition of municipal waste. The new reporting methods, in line with EU definitions, present a more favourable picture of progress towards Landfill Diversion targets, presumably due to a more rapid diversion of commercial wastes from landfill.

One key policy measure that may have been a major driver for achieving rapid diversion rates were the Landfill Allowance Schemes (LAS) – in England Landfill Allowance Trading Schemes (LATS) –, launched in England and Wales in 2004 and in Scotland and Northern Ireland in 2005. Allowances were allocated to each waste disposal authority at a level that would enable each administration to meet its contribution to the UK targets under the Landfill Directive. Each, other than those in Wales, had the freedom to trade allowances with other authorities according to their individual investment strategies and timescales in alternative facilities for waste – material recovery, composting or incineration. The concept was that this would allow local authorities in the nations where trading was allowed, to meet their obligations in the most cost-effective way.

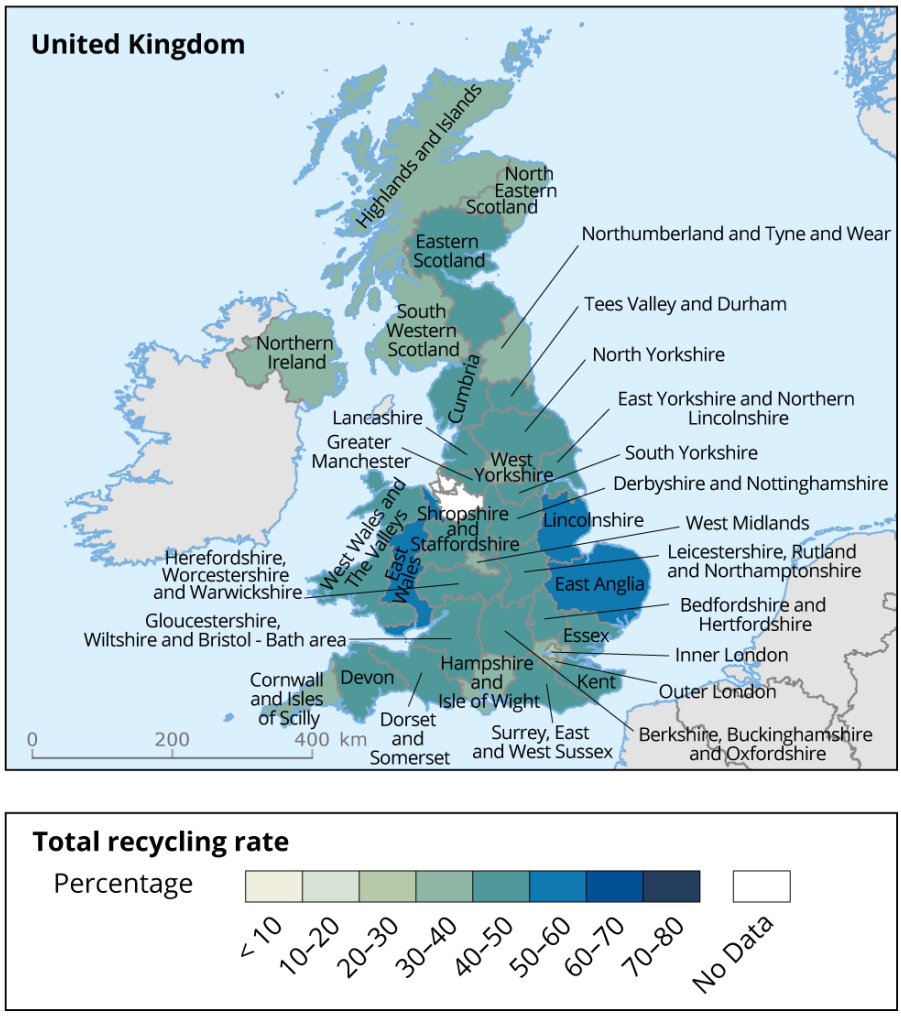
A 2010 consultation in England found, however, that the LATS was no longer the major driver for diversion of waste from landfills; the landfill tax escalator had overtaken them as a more important driver (Section 2.1.4). The 2011 Waste Strategy Review for England subsequently announced plans to scrap LATS after 2013 and to rely on continuing escalations in the landfill tax to continue diversion of BMW from landfill (Defra, 2012). Scotland is also in the process of scrapping LAS, but Wales and Northern Ireland are retaining theirs.

Scotland has introduced, via the Waste (Scotland) Regulations 2012, a ban on municipal biodegradable waste going to landfill by 1 January 2021 (Defra, 2016a).

### 2.1.3 Regional differences in municipal solid waste recycling

The UK has reported regional recycling data on MSW to Eurostat (NUTS2-level). Map 2.1 shows regional differences in the MSW recycling for 2011, the latest year for which regional recycling data are available at Eurostat's database.

**Map 2.1 United Kingdom, regional differences in municipal solid waste recycling, 2011**




Source: Eurostat, 2015.

At the level of NUTS2 regions, recycling rates in the UK in 2011 range from 53 % of generated MSW in Lincolnshire to 24 % in Inner London, where a very low organic recycling rate of 5 % is the most important cause of its low total recycling rate. Inner London's material recycling rate, 19 %, is also the lowest in the UK, but the difference with the next lowest, 20.5 % in the West Midlands, is small.

More recent statistics are available on the level of the local authorities in England, Northern Ireland, Scotland and Wales, but these data have not been reported to Eurostat. On the level of the nine NUTS1 regions in England, recycling rates for household waste in 2014/2015 ranged from 33 % in London to 49 % in Eastern England (based on sent to recycling less rejects), with 43.7% for England as a whole (Defra, 2015b). Latest data for Wales reveal a recycling rate for Wales of 60.2 % in 2015/2016, ranging on the level of local authorities from 48.7 % in Blaenau Gwent to 68.1 % in Ceredigion (Welsh Government, 2016). 2014 data for Scotland show a recycling rate for Scotland of 42.8 % in 2014, ranging from 9% for the Council of Shetland Islands to 55.8 % for the Council of Inverclyde (Scottish Government, 2016). In Northern Ireland, the household waste recycling rate was 42.0% for 2014/15 , and at council level, rates varied from 59 % in Banbridge and 30% in Strabane. (Northern Ireland Executive, 2016).

According to a 2009 study, the low levels of composting in the boroughs of Inner London result from the lack of a separate collection of biodegradable waste, presumably due to a low generation of garden waste in the dense inner city areas (RSE Consulting, 2009).

There is, however, a strong variation in recycling rates even within Inner London. According to the Greater London Authority (2010) there is a complex set of factors that impact recycling performance. In particular, socio-demographic make-up is a significant factor, but the type of materials collected, the type of system used, container types and capacity, communications, and composition of housing stock also have a strong influence. RSE Consulting (2009) suggested that boroughs that adopted compulsory recycling saw significant increases in recycling rates.

The Kent Resource Partnership (KRP) consists of 13 councils that manage the collection, processing and disposal of around 3 % of England's household waste tonnage. In 2014/15 the KRP had surpassed its own recycling/composting target of just over 45 % of collected waste a year ahead of schedule and is continuing to work towards its medium term target of 50 % by 2020/21. The KRP's recycling performance has seen significant annual rises through investment in the optimisation of services within the councils' control to improve finances and performance. Kent councils' optimised the type of collection provided to residents. These strategic decisions enabled KRP to achieve higher performance at comparably reduced costs, and place major importance on householders' convenience and ease of use to minimise the number of bins that residents were asked to use. Greater collaboration between councils, with joint contract arrangements rather than individual contracts, has delivered major efficiencies to the benefit of Kent taxpayers; and provided financial and service dividends to the councils (Defra, 2016a).

### 2.1.4 Recycling and landfill taxes

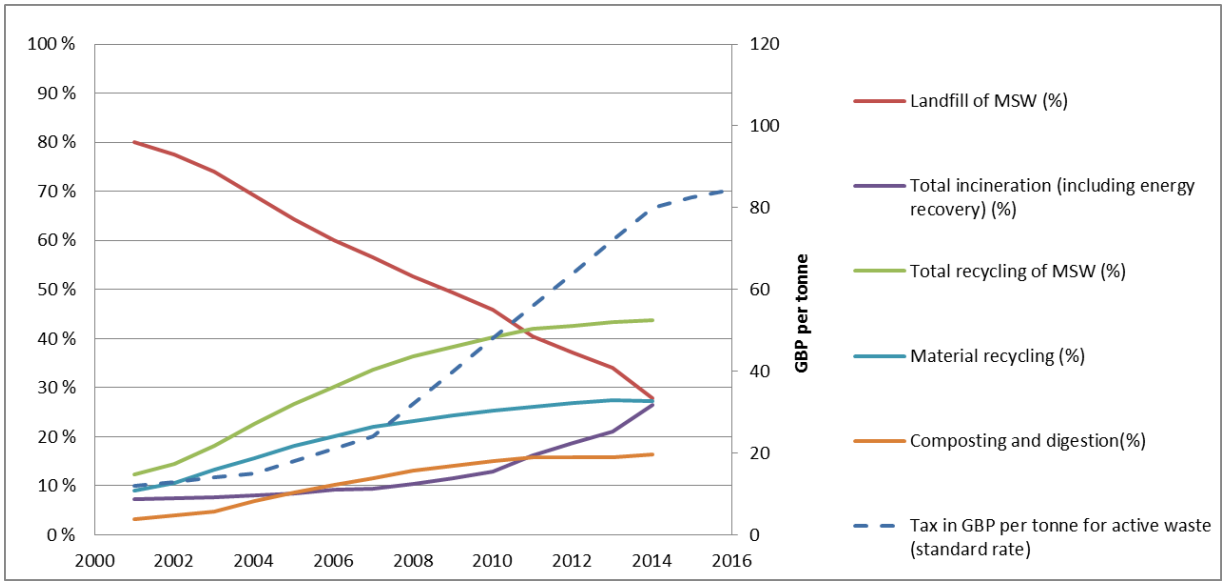
The UK Landfill Tax was introduced in 1996 and was UK's first tax with an explicit environmental focus (Seely, 2009a). The amount of tax levied is calculated according to the weight of the material disposed of and whether it is active or inactive waste. Active waste includes all biodegradable wastes including BMW.

The difference between the tax on active and inactive waste has been raised dramatically since the inception of the tax. In 1996 the tax rates were GBP 7 per tonne for active and GBP 2 per tonne for inactive waste (Seely, 2009a). By 2012 the tax rate for active waste had been raised to GBP 64, while that for inactive waste had only been increased, in line with inflation, to GBP 2.50 (Quinault, 2012). The aim of this escalation was to give a strong economic incentive to diverting biodegradable waste from landfill, rather than all waste, due to its higher environmental impacts in landfill (Seely, 2009a).

The first tax escalator (year-on-year increases) was announced in the 1999 budget following some individual increases in earlier budgets. The tax was to increase by GBP 1 per tonne each year until 2004 (Seely, 2009a). The escalator was increased to GBP 3 a tonne per year from 2005 and GBP 8 a tonne per year from 2007 (Seely, 2009b). In the 2010 budget, the government committed to continuing with the GBP 8 escalator until at least 2014 by which time the rate for active waste reached GBP 80 per tonne. The concept of an escalator was that it gives local authorities and businesses a stable foundation on which to make long-term investment decisions in alternative waste treatment plants. On 1 April 2015 and 2016 the tax rate for active and inactive waste were increased in line with the retail prices index, rounded to the nearest GBP 0.05. On 1 April 2016, the tax rate for active waste was increased to GBP 84.40 per tonne and the tax rate for inactive waste was increased to GBP 2.65 per tonne (HM Revenue & Customs, 2016). As from 2015, Scotland has had its own landfill tax, which currently operates in a similar way to the UK tax (Defra, 2016a).

The increase in the tax rates for active waste between 2001 and 2015 is presented in Figure 2.3, along with trends in the shares of MSW sent to landfill, incineration and recycling. There appears to be a reasonably strong correlation between the rise in landfill tax rates and the fall in MSW sent to landfill.

**Figure 2.3 United Kingdom, landfill tax and the development of recycling, landfill and incineration of municipal solid waste, 2001–2016 and GBP per tonne**




Note: landfill tax is shown for active waste – for inactive waste in 2016 it was GBP 2.65 per tonne

Source: Eurostat, 2016; HM Revenue & Customs, 2016.

As mentioned earlier the LATS in England and the LASs in Northern Ireland, Scotland and Wales may have been an enabling factor in allowing local authorities as a whole to divert MSW from landfill more rapidly than the Landfill Tax would have done alone. In the 2011 England Waste Policy Review, however, following a 2010 consultation, the government decided to rely on the landfill tax escalator and to phase out the LATS in England in 2013.

With respect to how the diverted landfill waste is being treated, the landfill tax seems to have had greatest impact on recycling, which more than tripled between 2001 and 2014. Growth in incineration over the same period was less rapid, although it has more than doubled.

### 2.1.5 Environmental benefits of better municipal solid waste management

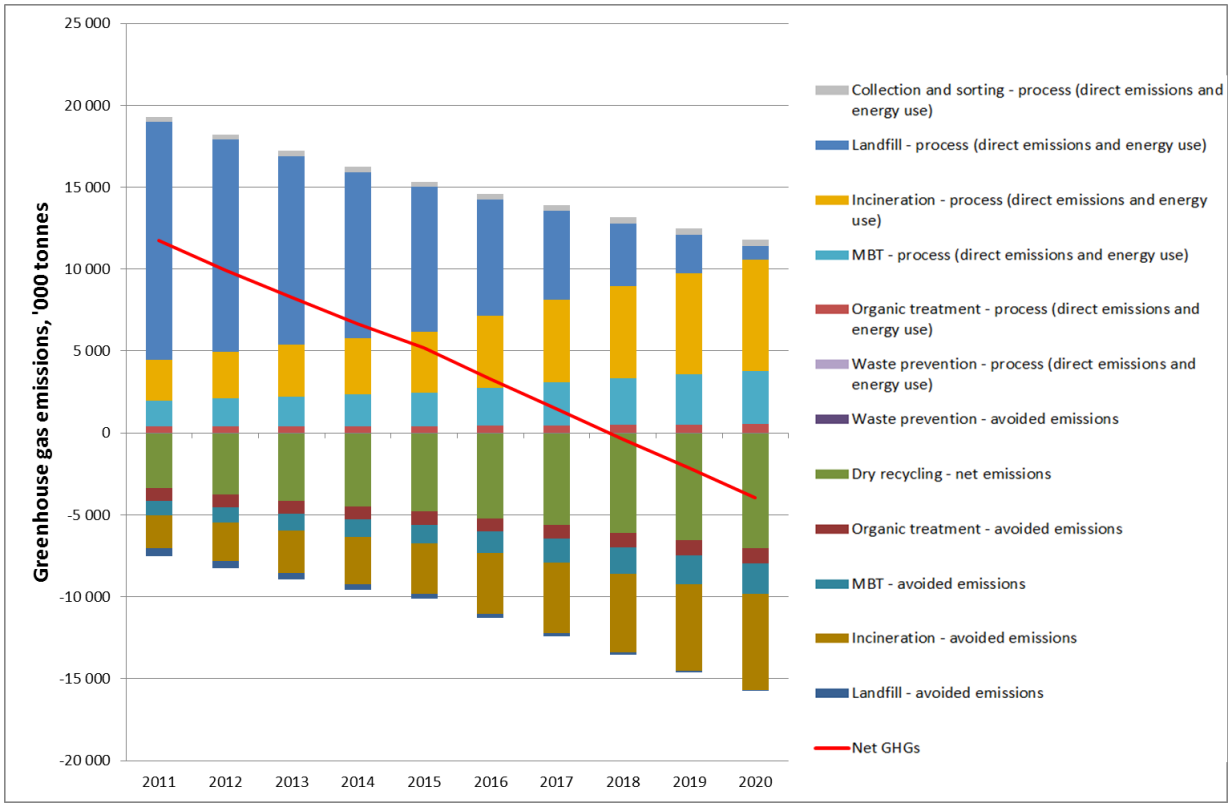
Figure 2.4 shows a scenario for greenhouse gas emissions from MSW management in the UK that assumes a yearly decrease of -1.9 % in municipal waste generation for the years 2011–2015 and an annual growth rate of 0.34 % for the years 2015–2020. The scenario also assumes that all EU targets for municipal waste for recycling and landfill are fully met. The calculation of emissions is based on data and assumptions in the European Reference Model on Municipal Waste Generation and Management. The approach taken in the model is rooted in life-cycle thinking, in that it considers not only direct emissions but also avoided emissions associated with the recycling of materials and the generation of energy from waste management processes. The more detailed methodology is described in Gibbs *et al.* (2014b). The level of emissions depends on the amount of waste generated and the treatment it undergoes each year.

Figure 2. shows direct, avoided and net emissions resulting from the management of MSW. All the emissions (positive values) represent direct operating emissions for each waste management option. The phases of the waste management chain covered include waste prevention; material recycling;

composting and anaerobic digestion; MBT and related technologies; collection and sorting; incineration and landfill.

For avoided emissions (negative values), the calculations integrate the benefits associated with energy recovery and material recycling of paper, glass, metals, plastics, textiles and wood, and bio-treatment of food and garden waste from MSW (Gibbs *et al.*, 2014c).

**Figure 2.4 United Kingdom, scenario for greenhouse gas emissions from municipal solid waste management, 2011–2020**




Source: ETC/WMGE, calculation based on the European Reference Model on Waste
Note: Results presented in this figure should not be used for the compilation of greenhouse gas reporting for the Intergovernmental Panel on Climate Change (IPCC) national inventory report, or be compared with IPCC figures, as the methodology employed here relies on life-cycle thinking and, by definition, differs substantially from the IPCC methodology.

In countries with low landfill and high recycling rates, waste treatment can have an overall positive impact on greenhouse gas emissions, reducing emissions from the economy as a whole, but the UK is not yet one of these. Based on the modelled scenario with full policy implementation, however, net emissions from the treatment of municipal waste in the UK are expected to decrease over the period 2011–2020, reaching zero in 2018. At the beginning of the modelled period, direct greenhouse gas emissions related to municipal waste management are estimated to originate almost exclusively from landfill, while towards the end of the period their share is assumed to decrease significantly but for direct emissions from incineration to grow.

Greenhouse gas emissions from landfill are caused by the breakdown of organic wastes accumulated over past decades. In the model, which calculates landfill impacts over a 100-year period, the longer-term emissions from any given waste are attributed to the year in which that waste is deposited (Gibbs *et al.*, 2014b). Therefore, the positive effect of diverting BMW from landfill appears in the figures as an immediate reduction in greenhouse gas emissions from landfill.

## 2.2 Uncertainties in the reporting

Uncertainties or differences in how countries report MSW recycling can result in different recycling levels. This applies, for example, to the following issues:

- the extent of packaging waste from households and similar packaging from other sources included or not included in reported MSW recycling;
- the definition of municipal waste used by the country, such as the inclusion or exclusion of home composting (excluded in the UK);
- the methodology used to report the inputs and outputs of MBT and sorting plants (in line with EU guidance in the UK).

The UK includes packaging waste in its regular reporting of MSW where this is part of the local authority collected and treated waste. Home composting is not included in the reported data (Defra, 2016a).

In late 2009, following pressure from the European Commission, the UK's Department for Environment, Food and Rural Affairs (Defra) announced proposals to ensure a more consistent scope of reporting of diversion of biodegradable MSW against the Landfill Directive in line with the Commission's definition, which includes commercial waste (Sloley, 2009). Following a countrywide consultation in March 2010, the UK government committed to following the Landfill Directive's definitions of BMW sent to landfill (Defra, 2010a). Today, the definition of municipal waste for reporting against the Landfill Directive covers all waste collected by local authorities, with some minor exceptions, as well as wastes similar to household waste collected from commercial sources, or the administrative side of industrial companies, irrespective of who collects the waste (Gibbs *et al.*, 2014a). The 1995 baseline was recalculated based on this definition and there are UK figures for 2007–2009. As a result of the new definition, the reported amount of BMW going to landfill has almost doubled.

The adjusted definitions and resulting estimates for BMW that has been diverted from landfill have been used to produce Figure 2.. The adjusted definition also applies to the MSW data shown in this report.

The annual reporting of municipal waste in the joint EU/Organisation for Economic Co-operation and Development (OECD) return relates to waste collected and treated by local authorities. This is mainly household waste and includes a small proportion of the commercial waste handled by local authorities but not that handled by private contractors. The UK data is mainly based on financial year data. It is a narrower definition than municipal waste to that reported under the Landfill Directive (Defra, 2016a).

The UK does not include the rejects from material recycling facilities in their reporting of recycling figures (Gibbs *et al.*, 2014a).

Although MBT has seen rapid growth in the UK in the past few years, its share in overall MSW treatment currently remains relatively small (Steiner, 2012). The current reporting of waste undergoing MBT is in line with EU guidance for the UK. The WasteDataFlow recording system, which is used, requires local authorities to record the input tonnage of waste entering MBT and outputs to incineration, landfill, any dry recycling and output from biological treatment – but excludes moisture/process loss (Defra, 2016a).

## 2.3 Important initiatives for improving municipal waste management

In general successive waste strategies in each administration – 2000 Waste Strategy in England and Wales; 2007 Waste Strategy, England; 2013 Waste Management Plan, England; 2010 Towards Zero

Waste Strategy, Wales; 2010 Zero Waste Strategy, Scotland, 2006; Waste Management Strategy, Northern Ireland, revised in 2013 – have established increasingly ambitious targets for the recycling of household and municipal waste, and for the diversion of waste from landfill. Scotland and Wales have also set ambitious recycling targets of 70 % of MSW by 2024/25 while England and Northern Ireland aim to achieve the relevant targets set out in the European waste directives (Gibbs *et al.*, 2014a). A number of initiatives have been developed to help meet these targets, many of which, in common with the UK's approach to solving environmental problems in recent years, use economic instruments. Wales has made recycling targets statutory for its local authorities (Defra, 2016a). In addition, England, Northern Ireland, Scotland and Wales have had waste prevention programmes in place since 2013/2014.

As described in Section 2.1.4, the Landfill Tax established in 1996 has been a key driver in the diversion of waste from landfill and to energy and material recovery. The impact of this driver, initially low, was strengthened by the adoption of regular increases in the charges for active wastes through an escalator. The resulting predictable nature of increases in tax rates provided a firm foundation for local authorities and waste treatment businesses to make low-risk investments in recycling, composting and incineration facilities.

Another milestone initiative was the passing of the Waste and Emissions Trading Act in 2003 in the UK that established a legal basis for the creation of the LA(T)Ss adopted 2004 in England and Wales, and 2005 in Scotland and Northern Ireland. The aim of the schemes that had trading (not in Wales) was to allow the targets for diversion from landfill to be met more cost-effectively by giving local authorities the flexibility to buy, bank or sell their allowances to others, depending on their current and future planned capacity for recycling facilities. As noted earlier, a consultation in England in 2010 identified that the LASs were no longer a key driver in meeting landfill diversion targets and they were, therefore, phased out in in 2013. In Northern Ireland, Scotland and Wales the LASs were still in place as of early September 2014 (CIWM, 2014), but the scheme is in the process of being revoked in Scotland (Defra, 2016a).

The recycling of packaging waste has been driven by the Producer Responsibility Obligations (Packaging Waste) Regulations since 1997 in England, Scotland and Wales, and since 1999 in Northern Ireland. This places a burden of responsibility on producers to ensure the recovery and recycling of a proportion of the packaging they place on the market at end of life. This is evidenced through the acquisition of Packaging Recovery Notes (PRNs) or Packaging Waste Export Recovery Notes (PERNs) from accredited re-processors and exporters. The price of PRNs is set by market forces, and is partly based on the level of collection thus creating a market for packaging wastes. In addition to packaging waste, producer responsibility schemes are also in place for WEEE, end of life vehicles (ELVs) and batteries (EC, 2012; Defra, 2016a).

A driver for energy recovery from MSW has been the market for Renewable Obligation Certificates (ROCs), established by the Renewable Obligation Orders of 2002, 2003 and 2005. Under these, distributors of electricity are required to deliver an increasing percentage of electricity from renewable sources. They buy renewable electricity by purchasing ROCs from renewable electricity generators, who can include incineration and anaerobic waste composting facilities. The majority of waste managers, however, do not believe that the market for ROCs and the UK's renewable energy targets have been a major driver for increasing waste recovery (Norton Rose Group and Tolvik Consulting, 2011).

An economic instrument which can be used to encourage waste separation by households is pay-as-you-throw (PAYT) charging for the collection of non-separated wastes, according to the amount of waste. This has, to date, not been used in the UK – according to an analysis made in 2012 (EC, 2012). The previous UK government opened the door for piloting such a scheme in up to five local authorities in England in the 2008 Climate Change Act, but no local authorities took it up (BBC, 2010). The UK government ruled out further support for such schemes in England in 2010, favouring

instead recycling reward schemes. An evaluation of waste reward and recognition schemes was undertaken between 2011 and 2014, providing local authorities and community groups the opportunity of trying different ways of encouraging good waste behaviour such as reusing and recycling (Defra, 2016b).

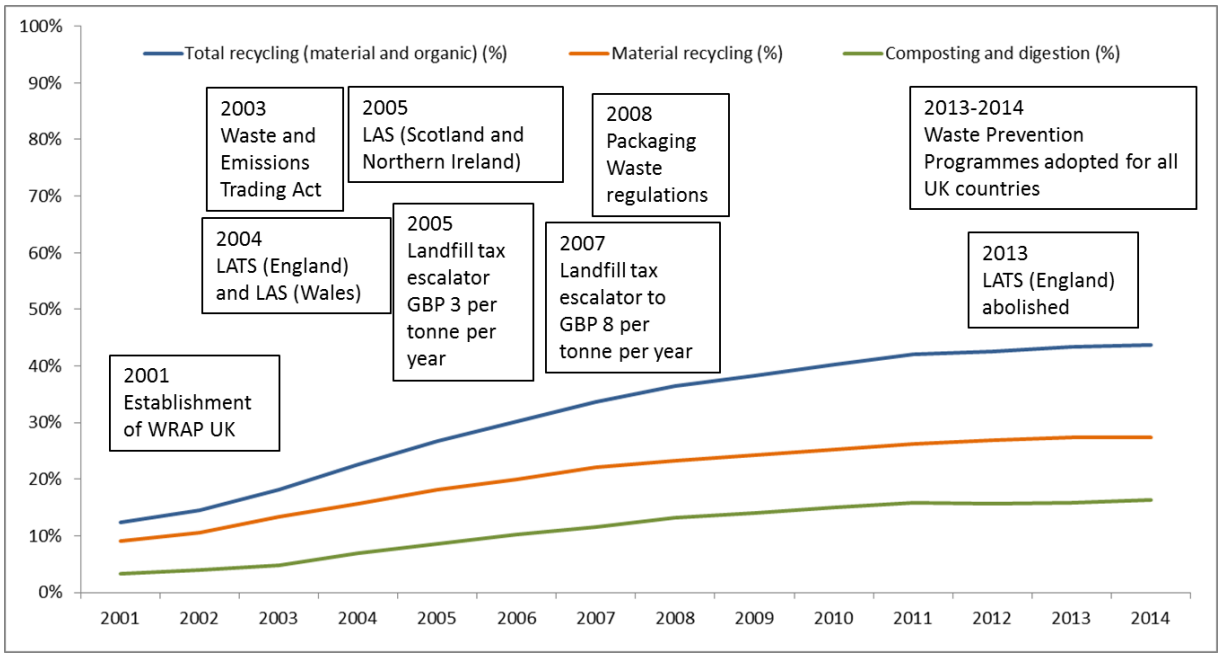
An important non-market-based initiative contributing to increasing recycling rates for MSW in the UK was the establishment of WRAP UK in 2001, in response to the 2000 Waste Strategy for England and Wales. WRAP is an enabling organisation whose core activity includes establishing voluntary partnerships between producers and recyclers of waste, as well as users of products containing recycled materials. One example of a WRAP initiative is the Courtauld Commitment 2025 which was launched in March 2016. This is an ambitious agreement with industry to help consumers to reduce avoidable food waste and for businesses to share efficiency savings along supply chains, waste less and get more value from unavoidable waste, and thereby increase business resilience. It has a UK target of a 20 % reduction per capita in food and drink waste, which includes preventing waste from arising and ensuring that surpluses are redistributed or go to animal feed, rather than going to waste. (Defra, 2016a)

WRAP are working closely with both central and local government, as well as representatives from the waste management, recyclers, producers and the retail sector to identify opportunities for bringing greater consistency in household waste collection and recycling services in England. This has the potential to improve the quality and quantity of recyclate collected and to provide opportunities for costs savings especially where local authorities work together. A 'Framework' for this consistency was published by WRAP in September. (Defra, 2016a)

In 2014, the government introduced statutory requirements in England and Wales for Material Recovery Facilities (MRFs), requiring operators to routinely sample and compositionally test their mixed waste inputs and main material output streams, and then to report the average percentage composition for target material – glass, metal, paper and plastic – plus levels of non-target recyclable and non-recyclable materials. The reported data are then published to help stimulate the market conditions necessary for improving the quality of the material produced by MRFs so that it can be more readily recycled, as well as supporting objectives in the revised Waste Framework Directive. (Defra, 2016a)

The Scottish Government published its first circular economy strategy, *Making Things Last*, on 23 February 2016 (Defra, 2016a)

**Figure 2.5 United Kingdom, recycling of municipal solid waste and important policy initiatives, 2001–2014**




Source: Eurostat, 2016.

## *2.4 Possible future trends*

As mentioned, the UK has a four-year derogation period for fulfilling the BMW landfill diversion targets in the EU Landfill Directive. The 2013 target has been met and, if the current levels are sustained, will meet the 2020 target. It also appears that the UK is on a path of further increasing its recycling rate, given the growth rates in MSW recycling observed in the first decade of the century. However, the slowdown in the growth of MSW recycling in recent years might need to be tackled through additional initiatives.

One remaining doubt is whether the austerity measures imposed on local budgets since the economic crisis will impede local authorities' abilities to provide separate door-to-door collection facilities in future.

Generally, no major changes are expected in the current waste collection systems in the UK, but some new infrastructure for anaerobic digestion, MBT and incineration is planned to come on line by 2020. According to research by Eunomia, the treatment capacity fin the UK is projected to increase fairly significant for mixed municipal waste by 2020. However, material recycling capacity is not expected to expand significantly in the foreseeable future (Gibbs *et al.*, 2014a).

No further government funding is available for new waste infrastructure projects. . Industry, of course, may continue to invest in new infrastructure if it feels that there is a need to do so. In Scotland, there are a number of new facilities of various types at different stages of development and planning, both in the public and private sectors. (Defra, 2016a)

Finally, the recent outcome of the referendum about EU membership creates uncertainty about future waste policy and developments in the UK.

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