Department
for Environment
Food & Rural Affairs

Waste Management Plan for England

January 2021

We are the Department for Environment, Food and Rural Affairs. We're responsible for improving and protecting the environment, growing the green economy and supporting our world-class food, farming and fishing industries.

We work closely with our 33 agencies and arm's length bodies on our ambition to make our air purer, our water cleaner, our land greener and our food more sustainable. Our mission is to restore and enhance the environment for the next generation, and to leave the environment in a better state than we found it.

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Ministerial Foreword

The need to manage waste sustainably has never been more important. A core pledge of our 25 Year Environment Plan is to protect our natural world and leave it in a healthier state for the next generation. It includes commitments to double resource productivity by 2050 and to minimise waste, reuse materials as much as possible, and manage materials at the end of their life to minimise their impact on the environment.

The government's overall approach to resources and waste is one of moving away from the current linear economic model of take, make, use, throw, towards a more circular economy which keeps resources in use for longer so that we can extract maximum value from them. Our goal is to maximise the value of the resources we use, minimise the waste we create and therefore avoid emissions from the waste sector, driving us towards our target of net zero emissions by 2050.

Our Resources and Waste Strategy published in 2018 builds on the commitments in the 25 Year Environment Plan and sets out the policies that will help achieve its vision. The Strategy contains five strategic ambitions: to work towards eliminating food waste to landfill; to double resource productivity; to work towards ensuring all plastic packaging placed on the market is recyclable, reusable or compostable; to eliminate avoidable waste of all kinds; and to eliminate avoidable plastic waste. It sets the framework that will help government, businesses and the public to play their part in reducing the impact of our consumption and the resulting waste on the environment.

Through our landmark Environment Bill, we will take the powers necessary to deliver on many of the commitments in the Resources and Waste Strategy, such as to reform the UK packaging producer responsibility system and introduce greater consistency in recycling collections in England. The Bill presents a rare opportunity to provide the broader legislative framework needed to transform the way we manage our resources and waste. The government supports comprehensive and frequent rubbish and recycling collections and the major waste reforms set out in the Bill will support the achievement of a 65% recycling target for municipal waste by 2035.

During the lifetime of this Waste Management Plan, we will see significant changes in the way we manage our waste going further to improve recycling rates. Effective waste management can reduce carbon emissions from the waste sector contributing to government's net zero target and a green recovery.

Together with the Resources and Waste Strategy, this Plan will play its part in embedding sustainable thinking around waste management and bringing about a real step change in how we consume resources, protecting the planet's natural capital for the benefit of us all – both now and in generations to come.

Rebecca Pow

Waste Management Plan for England

In the 25 Year Environment Plan[1], the government pledged to leave the environment in a better condition for the next generation.

The Resources and Waste Strategy[2] sets out how we will preserve material resources by minimising waste, promoting resource efficiency and moving towards a circular economy in England. It sets out how we will minimise the damage caused to our natural environment by reducing and managing waste safely and carefully, and by tackling waste crime. It combines actions we will take now with firm commitments for the coming years and gives a clear longer-term policy direction in line with our 25 Year Environment Plan. It is our blueprint for eliminating avoidable[3] plastic waste over the lifetime of the 25 Year Environment Plan, doubling resource productivity, and eliminating avoidable waste of all kinds by 2050.

This Waste Management Plan for England, "the Plan", will fulfil the requirements of the Waste (England and Wales) Regulations 2011[4] for the waste management plan to be reviewed every six years[5]. The Plan, and its associated documents, together with local authorities' waste local plans and combined with the equivalent plans produced by the devolved administrations in Scotland, Wales and Northern Ireland, and Gibraltar, will ensure that waste management plans are in place for the whole of the UK and Gibraltar.

While the Resources and Waste Strategy sets out a vision and a number of policies to move to a more circular economy, such as waste prevention through policies to support reuse, repair and remanufacture activities, the Waste Management Plan for England focuses on waste arisings and their management. It is a high-level, non-site specific document. It provides an analysis of the current waste management situation in England and evaluates how the Plan will support implementation of the objectives and provisions of the Waste (England and Wales) Regulations 2011. It will be supplemented by a Waste Prevention Programme for England. This will set out our plans for preventing products and materials from becoming waste, including by greater reuse, repair and remanufacture supported by action to ensure better design to enable this to be done more easily.

National planning policy on waste is currently set out in the National Planning Policy for Waste[6]. It provides the planning framework to enable local authorities to put forward, through waste local plans, strategies that identify sites and areas suitable for new or

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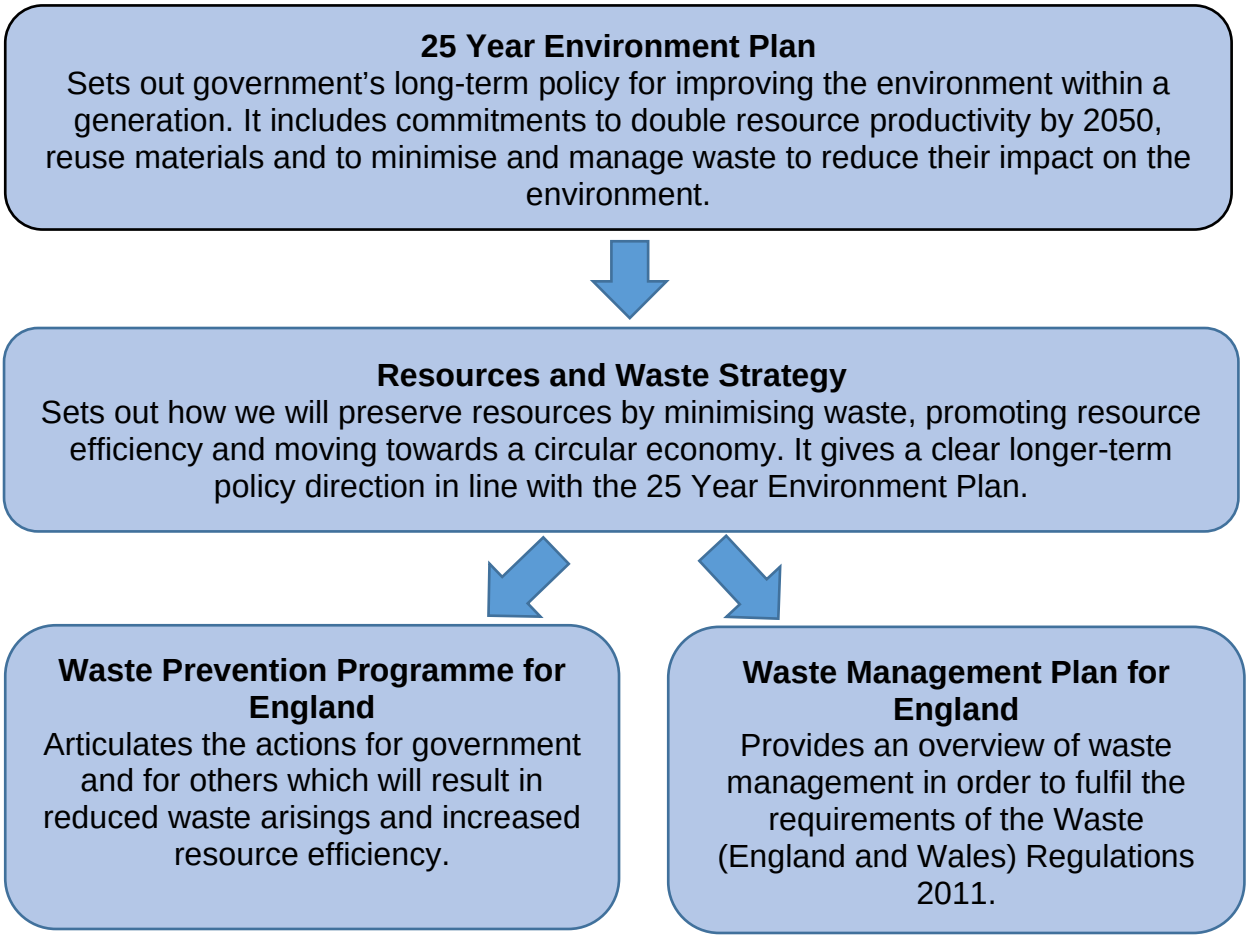
[1] www.gov.uk/government/publications/25-year-environment-plan
[2] www.gov.uk/government/publications/resources-and-waste-strategy-for-england
[3] We talk about plastic waste being 'avoidable' when the plastic could have been reused or recycled; when a reusable or recyclable alternative could have been used instead; or when it could have been composted or biodegraded in the open environment
[4] www.legislation.gov.uk/uksi/2011/988/regulation/10/made
[5] The Waste Management Plan for England is subject to review as provided for in regulation 10(1)(a) of the Waste (England and Wales) Regulations 2011.
[6] www.gov.uk/government/publications/national-planning-policy-for-waste

enhanced facilities to meet the waste management needs of their areas. This policy will be updated to align with the changes to the National Planning Policy Framework and the Resources and Waste Strategy.

Figure 1 Relationship between the Waste Management Plan for England and other policy documents



Objectives and scope of the plan

This Plan supersedes the previous waste management plan for England[7]. It provides an overview of waste management in England. The plan includes changes to waste management plan requirements which have been made by the Waste (Circular Economy) (Amendment) Regulations[8] where these could be incorporated in the Plan.

The Waste (England and Wales) Regulations 2011 specify that the Plan for England must contain the following information. The changes to these requirements made by the Waste (Circular Economy) (Amendment) Regulations 2020, which came into force on 1 October

[7] The Waste Management Plan for England 2013. www.gov.uk/government/publications/waste-management-plan-for-england

[8] S.I. 2020/904 (non-mandatory requirements for this waste management plan are indicated by text in italics)

2020 are indicated by italics. The changes to these requirements do not apply to waste management plans adopted before 1 October 2020 or where a review of such a plan started before that date[9]:

- An analysis of the current waste management situation in the geographical entity concerned, as well as the measures to be taken to improve environmentally sound preparing for reuse, recycling, recovery and disposal of waste, and an evaluation of how the Plan will support the implementation of the objectives and provisions listed in the Waste (England and Wales) Regulations 2011;

- The type, quantity and source of waste generated within the territory, the waste likely to be shipped from or to the national territory, and an evaluation of the development of waste streams in the future;

- Existing major disposal and recovery installations, including any special arrangements for waste oils, hazardous waste, *waste containing significant amounts of critical raw materials*, or waste streams addressed by specific legislation;

- An assessment of the need for the closure of existing waste installations and for additional waste installation infrastructure in accordance with the proximity principle. *An assessment of the investments and other financial means, including for local authorities, required to meet those needs is carried out*;

- *Information on the measures to attain the objective of diverting waste suitable for recycling or other recovery (in particular municipal waste) away from landfill or in other strategic documents;*

- An assessment of existing waste collection schemes, *including the material and territorial coverage of separate collection and measures to improve its operation, of any exceptions to requirements to collect waste separately,* and of the need for new collection schemes;

- Sufficient information on the location criteria for site identification and on the capacity of future disposal or major recovery installations, if necessary;

- General waste management policies, including planned waste management technologies and methods, or policies for waste posing specific management problems;

- *Measures to combat and prevent all forms of littering and to clean up litter;*

[9] See Part 2A of Schedule 1 to the Waste (England and Wales) Regulations 2011.

- *Appropriate qualitative or quantitative indicators and targets, including on the quantity of generated waste and its treatment and on municipal waste that is disposed of or subject to energy recovery;*

- Waste management plans must:

    - *include the measures to be taken so that, by 2035:*

        - *the preparing for re-use and the recycling of municipal waste is increased to a minimum of 65% by weight.*

        - *the amount of municipal waste landfilled is reduced to 10% or less of the total amount of municipal waste generated (by weight).*

    - Conform to the strategy for the reduction of biodegradable waste going to landfill required by section 17(1) of the Waste and Emissions Trading Act 2003

    - *Conform to the provisions in paragraph 5(1)(b) of Schedule 10 to the Environmental Permitting (England and Wales) Regulations 2016*

    - *For the purposes of litter prevention, conform to:*

        - *the programme of measures published pursuant to regulation 14(1) of the Marine Strategy Regulations 2010;*

        - *each programme of measures proposed and approved under regulation 12(1) of the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 for river basin districts that are wholly or partly in England.*

Schedule 1 to the Waste (England and Wales) Regulations 2011 also sets out other obligations for the Plan which include:

- Having a specific chapter on the management of packaging and packaging waste, including measures taken

    - to prevent the formation of packaging waste in accordance with the Packaging (Essential Requirements) Regulations 2015;

    - that consist of national programmes and projects to introduce *extended* producer responsibility *schemes* to minimise the environmental impact of packaging;

    - that achieve a sustained reduction in the consumption of lightweight plastic carrier bags;

- that actively encourage public information and awareness campaigns concerning the adverse environmental impact of the excessive consumption of lightweight plastic carrier bags;

- that encourage re-use systems of packaging, which can be re-used in an environmentally sound manner

- *that encourage the increase in the share of re-useable packaging placed on the market and of systems to reuse packaging in an environmentally sound manner without compromising food hygiene or the safety of consumers*

- Measures to promote high quality recycling including the setting up of separate collections of waste where technically, environmentally and economically practicable and appropriate to meet the necessary quality standards for the relevant recycling sectors.

- As appropriate, measures to encourage the separate collection of bio-waste with a view to the composting and digestion of bio-waste.

- As appropriate, measures to be taken to promote the re-use of products and preparing for re-use activities, in particular—

  (a) measures to encourage the establishment and support of re-use and repair networks;

  (b) the use of economic instruments;

  (c) the use of procurement criteria; and

  (d) the setting of quantitative objectives.

- Measures to be taken to ensure that by 2020:

  (a) at least 50% by weight of waste from households is prepared for re-use or recycled.

  (b) at least 70% by weight of non-hazardous construction and demolition waste that is not naturally occurring material falling within the description of code 17 05 04 in the List of Wastes[10] is subjected to material recovery.

[10] This is construction and demolition waste excluding hazardous waste and naturally occurring material falling within code 17 05 04 in EU Decision 2000/532.

The Waste Management Plan and the objectives of the Waste (England and Wales) Regulations 2011

There are comprehensive waste management policies in England which taken together deliver the objectives of the The Waste (England and Wales) Regulations 2011: to protect the environment and human health by preventing or reducing the generation of waste, the adverse impacts of the generation and management of waste, and by reducing overall impacts of resource use and improving the efficiency of such use[11]. It is not, therefore, the intention of the Plan to introduce new policies or to change the landscape of how waste is managed in England. Its core aim is to bring current waste management policies under the umbrella of one national plan.

The Resources and Waste Strategy sets out a vision and a number of policies to move to a more circular economy, many of which fall under the Waste Management Plan for England umbrella. In addition, the following documents contain significant policies that contribute to the Waste Management Plan for England:

- the Clean Growth Strategy[12],
- the Industrial Strategy[13],
- the Litter Strategy[14]
- the UK Plan for Shipments of Wastes[15];
- the National Policy Statements for Hazardous Waste[16] and for Renewable Energy Infrastructure[17] (in so far as it relates to facilities which recover energy from waste).

In preparing the Plan we have also drawn on a number of other sources which are referenced in this document.

National waste planning policy is an important part of delivering the objectives of the Waste (England and Wales) Regulations 2011. Current planning policy in the National Planning Policy Framework[18] and the National Planning Policy for Waste contains planning policies which should be taken into account by local authorities:

- in assessing the suitability of areas and sites for waste development within local plans

[11] This objective includes changes to the text made by the Waste (Circular Economy) (Amendment) Regulations 2020.
[12] www.gov.uk/government/publications/clean-growth-strategy
[13] www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future
[14] www.gov.uk/government/publications/litter-strategy-for-england
[15] www.gov.uk/government/publications/uk-plan-for-shipments-of-waste
[16] www.gov.uk/government/publications/hazardous-waste-national-policy-statement
[17] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47856/1940-nps-renewable-energy-en3.pdf
[18] www.gov.uk/government/publications/national-planning-policy-framework--2

- in determining planning applications.

Within the Plan, the chapter on the waste management situation in England summarises how we apply the waste hierarchy in England. This chapter also explains how waste management is regulated by the Environment Agency (EA) to prevent harm to human health and the environment.

The chapter on waste arisings summarises information on the extent, nature, and sources of waste which is necessary to underpin decisions on waste management. Subsequent chapters provide further detail on actions to deliver the objectives of the Waste (England and Wales) Regulations 2011 by promoting better quality recycling and, where required, new collections and infrastructure. Finally, the Plan considers the future development of waste streams in the light of current policies.

The Plan – like the Resources and Waste Strategy - recognises that the objectives of The Waste (England and Wales) Regulations 2011 cannot be delivered by government alone. It requires action by businesses, consumers, householders and local authorities. The policies summarised in the Strategy and the Plan provide a framework for action by such groups.

At the local authority level, waste planning authorities (county and unitary authorities in England) are responsible for producing waste local plans that cover the land use planning aspect of waste management for their areas. Waste planning authorities should have regard to this Plan - alongside the National Planning Policy on Waste and other planning policy contained in the National Planning Policy Framework - in drawing up, or revising, their existing waste local plans.

Geographic scope of the Plan

This plan covers England including the sea adjacent to England as far as the seaward boundary of the territorial sea.

Devolved administrations

As waste is a devolved matter, the devolved administrations and Gibraltar are responsible for producing a plan for their areas. Together with the Waste Management Plan for England those plans will collectively cover the geographical territory of the United Kingdom.

Wastes covered by the Plan

The legal definition of waste is set out in various pieces of legislation relating to waste, including section 75(2) of the Environmental Protection Act 1990. It is defined as “any substance or object which the holder discards or intends or is required to discard”.

Within this definition, waste streams are employed to categorise particular types of waste which may be produced by individuals or organisations. Primarily these are:

1. Household waste and commercial waste of a nature similar to household waste
2. Industrial (including agricultural) and other commercial waste
3. Industrial waste - construction and demolition waste
4. Hazardous waste

The Plan does not apply to certain wastes covered by other legislation, such as radioactive waste, mining waste, animal by-products and waste waters.

Strategic environmental assessment (SEA)

What is SEA?

The Environmental Assessment of Plans and Programmes Regulations 2004[19] introduced a requirement for a SEA to be carried out for a number of statutory plans and programmes, including waste management plans.

The SEA process aims to identify the main environmental implications of a plan, and key alternatives, before it is adopted and its provisions are implemented. This allows the environmental impacts of proposals to be identified and addressed whilst at the development stage, enabling consideration of possible alternatives in advance of implementation. SEA therefore facilitates the development of plans that take account of the environmental impacts (positive and negative), allowing full consideration of them, and identifying options for mitigation of impacts where they have the potential to arise.

The Environmental Report accompanying the Plan appraises the significant environmental impacts of the waste management plan.

Environmental report summary

In the context of the Environmental Report, ‘the Plan’ refers to the Waste Management Plan for England excluding the National Planning Policy on Waste, which has been subject to separate consideration under the Environmental Assessment of Plans and Programmes Regulations 2004.

[19] S.I. 2004/1633

Given that the Plan under assessment here does not include the spatial distribution of facilities and other issues which are the realm of national waste planning policy, there can be no location-specific impacts of the Plan.

The Plan is designed to bring together current plans and policies already in place. Overall, through the policies contained in the Plan, the assessment found that the Plan will have positive effects on the environment. This broadly reflects the socio-economic and environmental benefits associated with sustainable waste management and moving waste up the waste hierarchy. Significant positive effects were identified in respect of biodiversity, land use, geology and soils and on climatic factors. No overall significant negative effects were identified. The report identified that new waste management infrastructure and the implementation of new waste collection services and deposit return schemes (principally emissions to air and disturbance associated with increased vehicle movements) could have a minor negative effect on biodiversity. The report recognised that further assessments will be carried out through the planning and permitting regimes.

Further detail can be found in the Post Adoption Statement which has been published alongside this document on gov.uk.

Waste management in England

Our 25 Year Environment Plan committed us to being the first generation to leave the environment in a better state than we found it. Our Resources and Waste Strategy will help us meet this commitment. It sets out measures to eliminate avoidable plastic waste, tackle confusion over household recycling, and make sure that those responsible for creating polluting products pay for the costs of that pollution. Further information can be found in the Resources and Waste Strategy.

We want to prolong the lives of the materials and goods that we use. Our plan is to move society away from the inefficient ‘linear’ economic model of ‘take, make, use, throw’. A more circular economy will see us keeping resources in use for as long as possible. It will allow us to extract maximum value from them, then recover and regenerate products and materials at the end of their lifespan.

The Resources and Waste Strategy identifies five strategic ambitions:

- To work towards all plastic packaging placed on the market being recyclable, reusable or compostable by 2025;
- To work towards eliminating food waste to landfill by 2030;

- To eliminate avoidable[20] plastic waste over the lifetime of the 25 Year Environment Plan;

- To double resource productivity[21] by 2050; and

- To eliminate avoidable waste of all kinds by 2050.

In 2019, the UK government became the first major economy in the world to set a legally binding target to achieve net zero greenhouse gas emissions (GHG) from across the UK economy by 2050. Emissions from waste management (excluding energy from waste) have decreased by 69% between 1990 and 2018 and the sector will continue to play an important part of the UK's ambition to achieve net zero[22].

The Resources and Waste Strategy includes plans to reduce the amount of waste sent to landfill and the GHG emissions associated with breakdown of biodegradable waste, and to increase recycling, which typically results in lower carbon emissions in comparison to manufacturing products from virgin materials. The Strategy announced three major reforms to the waste system in England, which are included in this Plan. These are the introduction of a deposit return scheme for drinks containers, extended producer responsibility for packaging, and consistency in household and business recycling collections. The Resources and Waste Strategy also sets out how we will work towards no food waste entering landfill by 2030 and explore policies to work towards eliminating all biodegradable waste to landfill by the same date, to reduce harmful methane emissions from landfill.

We have committed in the Resources and Waste Strategy to drive greater efficiency of energy from waste plants by encouraging use of the heat the plants produce. We also want to work closely with industry to secure a substantial increase in the number of energy from waste plants that are formally recognised as achieving recovery (R1) status, and to ensure all future energy from waste plants achieve recovery status. To deliver net zero virtually all heat will need to be decarbonised and heat networks will form a vital component of this. Energy from waste has a role to play in supplying this heat, but currently only around a quarter of energy from waste plants operate in combined heat and power mode, despite most being enabled to do so. We want to see this number increase.

We are targeting energy from waste incinerators to produce heat for heat networks as this substantially reduces their emissions by making use of the otherwise wasted heat to displace gas boiler heating. This will support a shift from using high carbon gas generation to lower carbon generation in heat networks. Funding for this in England (and Wales) is

[20] We talk about plastic waste being 'avoidable' when the plastic could have been reused or recycled; when a reusable or recyclable alternative could have been used instead; or when it could have been composted or biodegraded in the open environment.
[21] Resource productivity is a measure of the value (in terms of GDP) we generate per unit of raw materials we use in the economy.
[22] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/862887/2018_Final_greenhouse_gas_emissions_statistical_release.pdf

coming through government's £320 million pound Heat Networks Investment Project (HNIP). To date, we have announced over £76 million in funding to 13 projects, including 6 from energy from waste plants, which will in total take over 150 GWhs annually of waste-heat from incinerators. We are planning to continue our support of this area by supporting the BEIS £270 million Green Heat Network Fund (GHNF) scheme, which is expected to open in 2022 to further drive carbon savings and ensure that energy from waste incinerators are making the most of their heat production potential and reducing their CO2 emissions.

Since the Resources and Waste Strategy's publication in 2018, we've been developing the ambitious measures needed to grow our circular economy, to move waste up the waste hierarchy and minimise the types and amounts of waste reaching the lower tiers of recovery and disposal, enabling us to reduce carbon emissions from the waste sector.

The Environment Bill, currently on its passage through parliament, requires the Secretary of State to set long-term, legally-binding environmental targets in four areas, one of which is resource efficiency and waste reduction. These long-term targets need to be set by 31 October 2022. A target or targets will build on a foundation of existing recycling and landfill targets which have led to improvements in the waste system alongside other regulatory drivers such as landfill tax. The targets are intended to encourage sustained improvement across the whole resources and waste system, while strengthening and supporting commitments made in other government strategies. Targets currently under consideration are increasing resource productivity and reducing the volume of 'residual' waste we generate. Other resources and waste powers sought in the Environment Bill, as discussed in this Plan, will support attainment of long-term targets. Further information about the target setting process and the resources and waste targets we are considering can be found at gov.uk.

Waste management is defined by virtue of regulation 3(2) of the Waste (England and Wales) Regulations 2011 as "the collection, transport, recovery (including sorting), and disposal of waste, including the supervision of such operations and the after-care of disposal sites, and including actions taken as a dealer or broker". The way waste is managed in England (and the UK) is continually evolving as we move away from landfilling the majority of our waste to a more circular economy where we recover and regenerate products and materials whenever we can.

For example, only 12% of all local authority managed waste was recycled or composted in England in 2000/01, compared to 42.7% in 2018[23]. Meanwhile, the proportion of local authority waste sent to landfill has fallen from 79.0% to 10.8% the same period.

Positive shifts such as these have been driven by a combination of regulatory, policy and financial measures such as recycling targets, landfill tax, and targeted financial support.

[23] https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables

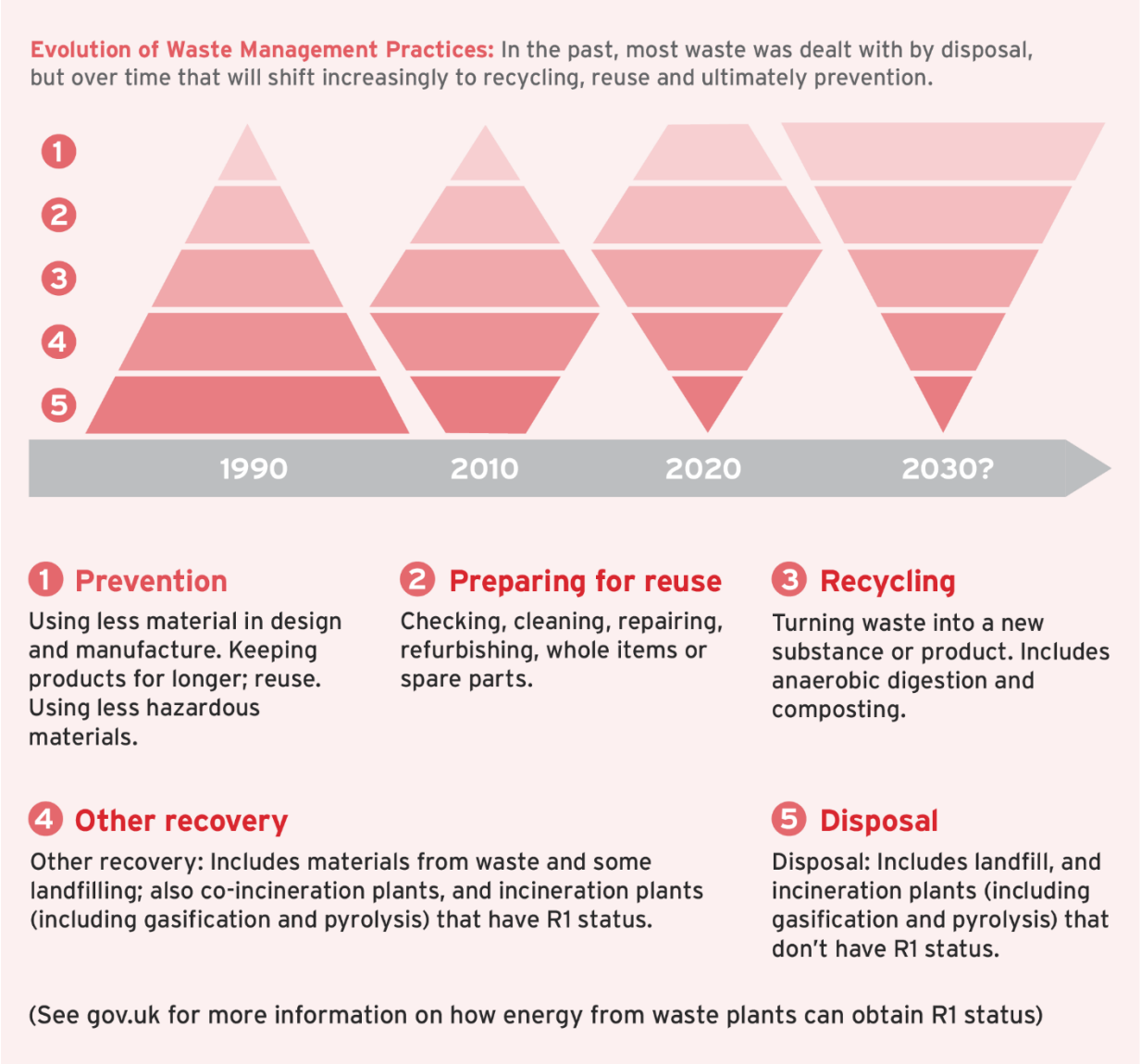
However, there is more to be done, with progress in some areas, for example improvements to recycling rates, having slowed in recent years.

The waste hierarchy

In England, the waste hierarchy is both a guide to sustainable waste management and a legal requirement, enshrined in law through the Waste (England and Wales) Regulations 2011.

The waste hierarchy, which ranks options for waste management, has driven some progress towards better use of our resources. Priority goes to preventing the creation of waste in the first place, followed by preparing waste for reuse; to recycling, and then recovery. Disposal – in landfill for example – is regarded as the worst option. To date we have increased our rates of recovery and recycling and generated much more energy from waste. Our focus is on moving up the waste hierarchy, to minimise the amount of waste we produce by improving our resource efficiency and keeping products in circulation longer so that they do not become waste.

Figure 2 Evolution of waste management practices



The 2011 Regulations require everyone involved in waste management and waste producers in England (and Wales) to take, on the transfer of waste, all reasonable measures to apply the priority order in the waste hierarchy except where, for specific waste streams, departing from the priority order is justified by lifecycle thinking on the overall effects of generating and managing the waste. Regulators under the Environmental Permitting (England and Wales) Regulations 2016[24] must exercise their relevant functions (such as granting environmental permits) for the purpose of ensuring that the waste hierarchy is applied to the generation of waste by a waste operation. To aid people to apply the waste hierarchy duty, Defra produced guidance on its application[25]. We have also published guidance on applying the waste hierarchy to hazardous waste[26] and a food

[24] SI 2016/1154
[25] https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy
[26] https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy-to-hazardous-waste

and drink waste hierarchy[27] which sets out our intentions to stop surplus food from becoming waste.

Prevention

The Resources and Waste Strategy sets out our ambitions for maximising the value of resources and minimising the waste we create by moving towards a circular economy. It sets out how reusing products preserves the energy and materials embedded in them during their production and how adopting a 'lifecycle' approach requires us to focus not just on managing waste responsibly, but on preventing its creation in the first place. It places a stronger emphasis on sustainable production, emphasising that we need to rethink how we design and make products in order to be more efficient in the way we use our stock of natural resources.

The Waste Prevention Programme for England 2013[28] set out the government's view of the key roles and actions that should be taken to move towards a more resource efficient economy. The Waste Prevention Programme is being reviewed and modified in line with the requirements of the Waste (England and Wales) Regulations 2011. It will build on and take forward commitments in the Resources and Waste Strategy, setting out a broad approach and priority sectors, as well as take on board the measures to prevent waste generation outlined in the Waste (England and Wales) Regulations 2011.

Preparing for reuse

The Resources and Waste Strategy sets out our proposals for encouraging the reuse of products and ensuring that the purchase of sustainable goods and reusing them becomes embedded into our way of life. It includes proposals and actions to make it easier for people and organisations to buy products that are better designed to be re-usable or upgradable, with longer lives and lower environmental impacts. It is intended to elaborate on these proposals and actions under in the revised Waste Prevention Programme.

Recycling

The Resources and Waste Strategy sets out our plans to drive better quantity and quality in recycling and to make it easier for households, businesses, and local authorities to recycle. The most recent statistics[29] show that the official England waste from households recycling rate was 44.7% in 2018. This includes metals recovered from incineration of residual waste which are then recycled. The government keeps progress towards the targets under review by monitoring actual recycling rates and by modelling future

[27] https://www.gov.uk/government/publications/food-and-drink-waste-hierarchy-deal-with-surplus-and-waste/food-and-drink-waste-hierarchy-deal-with-surplus-and-waste
[28] https://www.gov.uk/government/publications/waste-prevention-programme-for-england
[29] https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/waste-and-recycling-statistics

recycling. Many local authorities continue to expand services such as food waste collection (which is then composted or sent for anaerobic digestion (AD)), but others have seen reductions in their recycling rate. Overall, the rate of increase has slowed in the last 5 years. We will continue to work with local authorities to increase household recycling.

For various reasons, including uncertainty about quality, lack of information and high costs when collections are inconsistent, the benefits of reusing products for example after remanufacture or reconditioning are not fully realised at present. Leaving the EU provides us with an opportunity to review and streamline the regulatory environment to overcome these barriers.

The sector's latest best estimates for non-household municipal recycling, which concerns recycling of materials similar in nature to household waste, put the current recycling rate at approximately 43%[30]. We are continuing to comfortably exceed the target to recover 70% of non-hazardous construction and demolition waste by 2020. The annual recovery rate for construction and demolition in England has remained at around 92% since 2010. In 2016, the recovery rate was 92.1%[31].

This Plan sets out a number of other initiatives that are under way to boost recycling.

The government continues to support AD as the most effective way to treat separately collected food waste to produce energy and valuable bio-fertiliser. This ensures that food waste is diverted from landfill and reduces greenhouse gas emissions. The government is committed to increasing the energy from waste produced through AD and in February 2019 published a consultation on measures to increase recycling, including measures to increase the amount of separately collected food waste from households and businesses. These measures would support further growth in AD. We have also committed in the Resources and Waste Strategy to reduce the air quality impacts arising from digestate and levels of plastic contamination to improve the quality of end products.

Other recovery

Residual waste generally refers to the waste collected from households or businesses in a black bag or wheelie bin. The government supports efficient energy recovery from residual waste – energy from waste is generally the best management option for waste that cannot be reused or recycled in terms of environmental impact and getting value from the waste as a resource. It plays an important role in diverting waste from landfill. In 2016, 6.2 million tonnes of residual waste were disposed of in energy from waste facilities[32]. The Resources and Waste Strategy promotes the greater efficiency of energy from waste plants through utilisation of the heat generated in district heating networks or by industry, and by seeking

[30] WRAP's estimate based on an end destination of materials.

[31] https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management - See Table 3_1

[32] https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management - See Table 5_3

an increase in the number of plants obtaining R1 recovery status[33]. The Guide to Energy from Waste[34] highlights key environmental, technical and economic issues to raise the level of understanding and debate around energy from waste.

It is for the Environment Agency to determine on a case-by-case basis whether an application for an environmental permit constitutes a waste recovery or a disposal operation. Inert waste can and should be recovered or recycled whenever possible. However, the disposal of inert waste in or on land, i.e. landfill, remains a valid way of restoring quarries and worn out mineral workings where this is a planning requirement.

Disposal

Landfill or incineration without R1 recovery status should usually be the last resort for waste, particularly biodegradable waste. In addition to the measures outlined in our Resources and Waste Strategy, the landfill tax is one of the key drivers to divert waste from landfill to ensure that we meet our 2020 target of no more than 10.16 million tonnes of biodegradable municipal waste to landfill and our 2035 target of no more than 10% of municipal waste to landfill. That does not mean that all wastes will be diverted from landfill. There are some wastes for which landfill remains the best, or least worst, option. The Resources and Waste Strategy recognises there is an ongoing role for landfill in managing waste, particularly for inert waste that cannot be prevented, recovered or recycled, but that its use should be minimised as much as possible. Such materials are likely to include:

- some hazardous wastes – such as asbestos;
- certain process residues, such as pre-treated industrial wastes from which no further resources can be recovered; and
- waste for which the alternatives to landfill are not justified on cost or environmental and resource efficiency grounds.

Waste regulation

The regulatory framework for the waste sector exists to protect the environment and human health and to provide a level playing field for a market in which legitimate businesses can operate and invest with confidence. Whilst regulation and its enforcement must be proportionate, it is important that it is appropriate to the risks and targeted towards those with poor standards of compliance or who cause a nuisance or harm, and those who deliberately flout the law.

[33] 'R1' Recovery status acts as a proxy for the energy-generating efficiency of facilities. Facilities, including gasification and pyrolysis plants, which achieve the status are classed as a recovery operation for the purposes of the waste hierarchy and so are a level up from the bottom rung of 'disposal'.
[34] https://www.gov.uk/government/publications/energy-from-waste-a-guide-to-the-debate

The EA is the main regulator of waste management in England. Among its responsibilities are the determination of applications for environmental permits; the registration of exemptions for low risk waste treatment; the registration of waste carriers, brokers and dealers; and carrying out related inspection and other compliance assessment activities[35]. The EA also carries out work to prevent, disrupt and prosecute those who attempt to operate illegally outside of the regulatory framework.

The environmental permitting regime is a common framework for applying for, receiving, varying, transferring and surrendering permits, along with compliance, enforcement and appeals arrangements. The regime provides exemptions from environmental permitting for smaller scale, lower risk waste treatment operations. The registration system for waste carriers, brokers and dealers provides a level of assurance that those involved in transporting and dealing in waste, and brokering waste management, are authorised to do so.

The Resources and Waste Strategy sets out our strategic approach to tackling crime and poor performance in the waste sector. We continue to ensure that the regulatory framework for the industry is fit for purpose, and work to prevent, detect and deter waste criminals, especially those involved in serious and organised criminality in the sector.

Polluter pays principle

The waste producer and the waste holder should manage waste in a way that guarantees a high level of protection of the environment and human health. In accordance with the polluter-pays principle, the costs of waste management shall be borne by the original waste producer, or by the current or previous waste holders. The distributors of products potentially share these costs. The polluter-pays principle ensures that those responsible for producing and holding waste are incentivised to reduce and/or manage their waste in a way that reduces impacts on the environment and human health.

Waste arisings

Data on total waste arisings are published in the *UK statistics on waste*[36] annual release. The most recent year reported is for 2016. In England, total waste generation has risen since 2010, from 168 million tonnes to 187 million tonnes in 2016[37].

This publication also provides breakdowns of waste arisings specifically from construction and demolition, commercial and industrial, and household sources, which we examine in their associated sections.

[35] http://www.legislation.gov.uk/uksi/2016/1154/contents/made
[36] https://www.gov.uk/government/statistics/uk-waste-data
[37] https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management

The national electronic duty of care (EDOC) system introduced in 2014 is a voluntary system which enables users to record the details of commercial waste transfers in accordance with their duty of care. Since introduction over 11,000 companies have registered to use EDOC. Data on waste collected by local authorities has radically improved through the creation of WasteDataFlow. In the Resources and Waste Strategy we set out our plans to make a similar step change to produce data on resource inputs, stocks and flows, and expand our knowledge of commercial, industrial, construction and demolition wastes.

The governments and regulators across England, Northern Ireland, Scotland and Wales, are looking at how we can digitise waste tracking processes. In particular, how we record what happens to waste as it moves from production to recovery or disposal[38]. The Environment Bill will give the Secretary of State in England powers to make regulations to establish an electronic waste tracking system.

We intend that the system will integrate and simplify the recording of all movements of controlled waste – bringing together separate systems covering commercial, household and industrial waste. The system will also be able to cover waste from mining operations and quarries, details of the proposed system will be subject to consultation in 2021.

Waste from households

In 2018, 22.0 million tonnes of waste from households was collected in England[39]. The composition of this waste is broken down as: residual waste, 55%; dry recycling, 27%; other organics, 16%; and separately collected food waste, 2% (see Figure 3). [40].

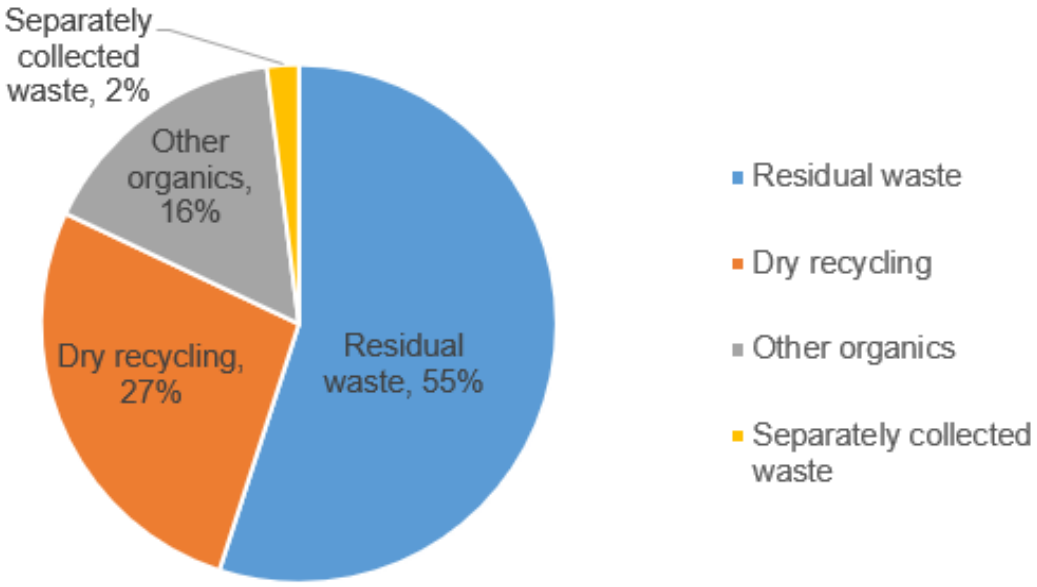
In 2018, 44.7% of the waste collected from households was recycled, reused or composted. This equates to 394kg of waste generation per person per year, of which 176kg was recycled, composted or reused.

[38] https://www.gov.uk/government/collections/waste-management-smart-tracking-of-waste-govtech-catalyst

[39] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/918853/201819_Stats_Notice_FINAL_accessible.pdf

[40] Statistics on waste managed by local authorities in England in 2018/19

Figure 3 Composition of waste from households, England, 2018 – proportion of tonnages



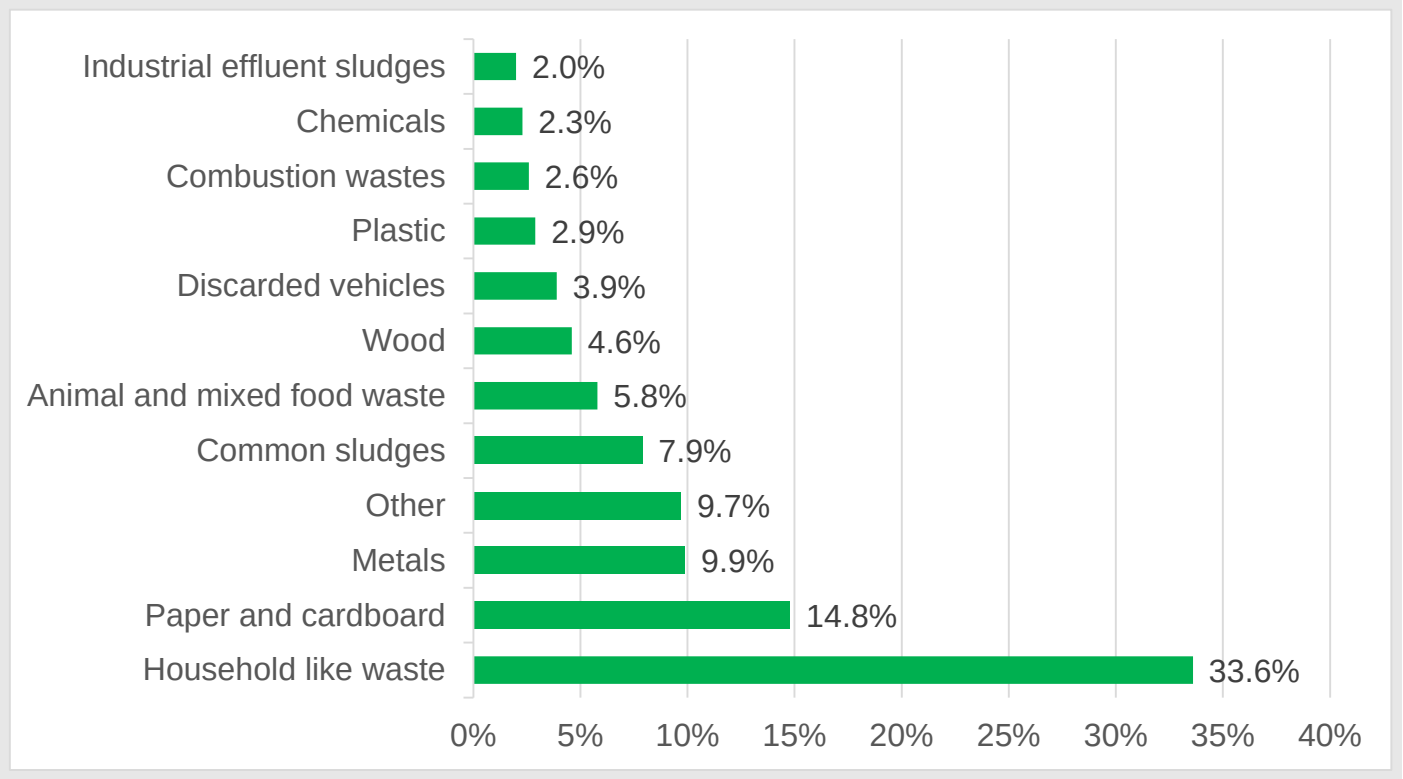
Source: Defra Statistics

Commercial and industrial waste

In 2018, 37.2 million tonnes of waste was generated by businesses[41] in England, an increase of 1.1 million tonnes from 36.1 million in 2017. Of this 37.2 million, the industrial sector accounted for 10.1 million tonnes and the commercial sector 27.1 million tonnes. The most recent figures for the composition of this waste is shown in Figure 4.

[41] : https://www.gov.uk/government/statistics/uk-waste-data

Figure 4 Composition of commercial and industrial waste in 2016[42]



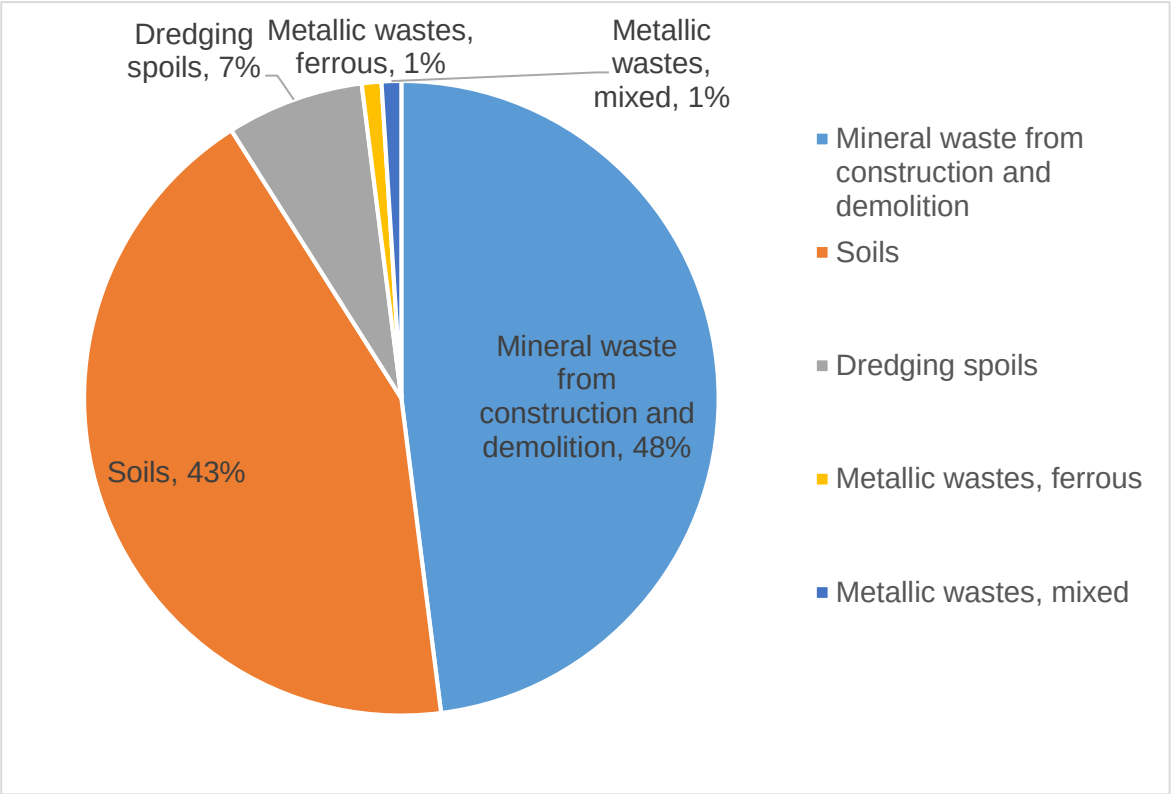
Source: Defra Statistics

Construction, demolition & excavation waste (CDE)

The construction, demolition and excavation sector is the largest contributing sector to the total waste generation. This generated 120.3 million tonnes of waste in 2016, accounting for almost two thirds (64%) of total waste generation[43]. The composition of this waste can be broken down as follows: mineral waste from construction and demolition, 48%; soils, 43%; dredging spoils, 7%; metallic wastes ferrous, 1%; metallic wastes, mixed, 1%. (See Figure 5: Composition of construction and demolition waste in 2016).

[42] https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management
[43] UK Statistics on Waste – March 2020 update: https://www.gov.uk/government/statistics/uk-waste-data and https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/778622/UK_Statistics_on_Waste_dataset_Feb_2019_rev_FINAL.xlsx

Figure 5 Composition of construction and demolition waste in 2016



Source: Defra Statistics

Note that the mineral wastes in this pie-chart are inert materials from construction and not from mining/extractive activities.

Hazardous waste

The amounts of hazardous waste consigned in England are significant, with around 4.8 million tonnes arising in England in 2010, 4.7 million tonnes in 2012 and 4.3 million tonnes in 2014[44]. This waste arises from six main sectors of industry: chemicals, oils, construction and demolition, waste and water treatment, and general industry. Government's Strategy for Hazardous Waste Management in England[45] sets out important principles that aim to encourage reductions in hazardous waste arisings and the wider application of the waste hierarchy to the management of hazardous waste. Our Resources and Waste Strategy also includes a commitment to consult on further ways to encourage hazardous waste producers to implement the waste hierarchy.

[44] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/710124/Digest_of_Waste_and_Resource_Statistics_2018.pdf
[45] https://webarchive.nationalarchives.gov.uk/20130505065433/http:/archive.defra.gov.uk/environment/waste/topics/hazwaste/documents/policy.pdf

Resources and waste: imports and exports

The UK imports around 167 million tonnes of goods and raw materials from abroad each year, including food, electrical items, clothing and a range of other products[46]. This allows the UK to access goods which can be made more cheaply elsewhere or from materials not available in the UK.

In turn, as well as importing and exporting goods, the UK imports nearly 0.9million[47] tonnes of waste materials and exports approximately 16.3 million tonnes of materials for recycling per year[48]. This ensures that much of the recyclable waste collected by local authorities and waste management companies is ultimately recycled.

The materials the UK exports for recovery include glass, plastic, scrap metal, paper and cardboard which are all traded on the international market. The largest tonnage of materials exported for recovery is metals, followed by paper and cardboard. Plastics and glass are also exported for recovery in significant volumes. As of 2018, our principal trading partners were the EU and European Free Trade Association (EFTA) countries, as well as countries in Asia. Overall, we export materials to a range of countries, such as Turkey, India, and China (which in 2018 was the main export destination for paper recycling). However, restrictions on waste imports, notably plastic, have changed the markets we export to, with less plastic waste exported to China, and countries such as Malaysia and Turkey becoming more prominent.

The UK also exports refuse derived fuel (RDF) mainly to northern continental Europe and Scandinavia for energy recovery. RDF is mixed solid waste that has been pre-treated so it consists largely of combustible components such as unrecyclable plastic and biodegradable waste – as much as possible, any recyclable material is removed and sent to be recycled as part of pre-treatment. Exports of RDF have increased between the period of 2012-2018 in response to the rising costs of landfill in the UK. Exports of RDF have risen from 961 thousand tonnes in 2012 to 3.5 million tonnes in 2018[49]. Exports of wood/biomass for energy recovery are not included within the RDF data.

Waste shipment controls

There are strict controls on what waste can be exported and to which countries. These controls stem from the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their disposal and an Organisation of Economic Cooperation and Development (OECD) Council Decision on the Control of Transfrontier Movements of

[46] 2017 HMRC trade data, all commodity codes https://www.uktradeinfo.com/statistics/BuildYourOwnTables/Pages/Home.aspx
[47] 2017 HMRC trade data, all waste commodity codes
[48] 2017 HMRC trade data, all waste commodity codes
[49] http://ers.basel.int/ERS-Extended/FeedbackServer/fsadmin.aspx?fscontrol=respondentReport&surveyid=77&voterid=50019&readonly=1&nomenu=1

Wastes Destined for Recovery Operations. The Convention provides a global system for controlling the export of hazardous wastes and wastes collected from households. The OECD decision provides a framework for OECD member countries to control transboundary movements of recoverable wastes within the OECD area in an environmentally sound and economically efficient manner. The requirements of the Basel Convention and the OECD decision have been implemented in UK law by the Transfrontier Shipment of Waste Regulations 2007[50]. The legislation requires that those involved in the shipment of waste take all necessary steps to ensure waste is managed in an environmentally sound manner throughout its shipment and during its recovery, recycling or disposal. These controls prohibit the export of waste for disposal either by landfill or incineration without energy recovery outside of the European Free Trade Area. It is also prohibited to export hazardous waste to countries that are not members of the OECD. In addition, non-hazardous wastes destined for recycling can only be exported to non-OECD countries[51] if the country of destination has indicated that it is willing to accept the waste and the waste will be managed in facilities operated in accordance with human health and environmental protection standards that are broadly equivalent to standards established in the UK.

These controls are supplemented by the UK Plan for Shipments of Waste[52], which implements the long-standing UK policy of self-sufficiency in the disposal of waste by strictly limiting when waste may be shipped to or from the UK for disposal. The government has also committed to banning the export of plastic waste to countries that are not members of the OECD and will consult on the date by which this should be achieved.

Enforcement of waste shipments legislation

The EA is the competent authority responsible for regulating waste shipments to, from or transiting through England. The EA's role includes preventing and disrupting suspected illegal activities and prosecuting offenders. The EA is committed to tackling waste crime in all its forms, including illegal waste shipments. The EA works closely with the other UK competent authorities, UK customs authorities, shipping lines and competent authorities overseas. In 2018/19 the EA inspected 926 shipping containers at port and returned 236 of these to their site of loading. In doing so this stopped 5,349 tonnes of waste being illegally exported. The EA also prevented an additional 7,341 tonnes of waste, unfit for export, from reaching ports through intervention at sites. In total, the EA prevented 12,690 tonnes of waste from being illegally exported during 2018/19. Some waste types, such as waste electrical and electronic equipment (WEEE), waste tyres and contaminated or mis-described recyclable materials pose a higher risk of deliberate illegal export and the EA's inspections are targeted accordingly, based on intelligence and risk. A producer responsibility investigations team was set up in January 2018. The team is dedicated to

[50] http://www.legislation.gov.uk/uksi/2007/1711/contents
[51] Countries that are not members of the OECD and not part of the European Union
[52] https://www.gov.uk/government/publications/uk-plan-for-shipments-of-waste

detecting fraud and error within the WEEE, Packaging and Batteries systems, including operators that export these wastes.

Waste producers also have an important role to play in ensuring the waste they produce, or collect, is treated in a responsible manner at all stages in the waste management chain and the risk of subsequent illegal export minimised.

Waste services

Managing waste further up the waste hierarchy has required a change in our waste management practices. As waste is increasingly treated as a resource it has led to complexities in our waste management services. These complexities are enhanced by the variation in waste services across England which are delivered by the different tiers of local government, i.e. unitary, county and district levels and by the private sector. Waste services, more specifically waste collection schemes and major disposal and recovery installations for municipal waste, are a matter for local authorities to develop fit for purpose local solutions within the context of the Environmental Protection Act 1990, as amended, and subsequent Regulations. Waste services for business waste are largely provided by the private sector as are many of the services for municipal waste commissioned by local authorities.

Measures to promote high quality recycling

The government has been working with local authorities to increase the frequency and quality of waste collections and make it easier to recycle. Further information with regards to existing waste collection schemes can be found in the Resources and Waste Strategy.

The government supports comprehensive and frequent rubbish and recycling collections. In February 2019 the government published a consultation on measures to increase recycling from households and businesses to support the achievement of a 65% recycling target for municipal waste by 2035. The consultation on these proposals closed in May 2019 and the government published a summary of its response to the consultation in July 2019. This states that, the government will introduce measures for England to increase household recycling by requiring all local authorities to collect a consistent set of dry materials from households in England; to collect food waste separately from all households on a weekly basis; and to arrange for separate garden waste collection. These measures are expected to increase recycling from households from current levels to 65% by 2035. This will support our ability to meet commitments on recycling outlined in the Resources and Waste Strategy and in legislation.

The government supports local authorities in improving quality and quantity of recycling and has taken a range of measures to support better quality recycling including:

- Regulation 13(2) of The Waste (England and Wales) Regulations 2011[53], which requires an establishment or undertaking that collects waste paper, metal, plastic or glass to collect that waste by way of separate collection. Regulation 13(3) requires every waste collection authority, when making arrangements for the collection of waste paper, metal, plastic and glass, to ensure that those arrangements are by way of separate collection. These duties apply where separate collection is necessary to ensure that waste undergoes preparing for re-use, recycling or other recovery operations and to facilitate or improve preparing for re-use, recycling or recovery, unless one of the conditions in regulation 13(4) is met. Those conditions are that collecting waste together results in output of comparable quality, separate collection does not deliver the best environmental outcome, separate collection is not technically feasible or would entail disproportionate economic costs

- Writing to relevant local authority bodies and industry bodies to highlight the risks of glass shards contaminating paper in mixed collections and reducing the value of mixed glass overall and to remind operators to give careful consideration to legal obligations when considering comingled collections, especially if glass is included;[54]

- Requiring operators of materials recovery facilities (MRFs) to sample comingled recycling received for sorting and to report on the levels of contamination recorded for both input and output streams and publishing this sampling data quarterly to provide transparency on the performance of MRFs[55].

Despite these actions, quality has not improved significantly with many local authorities following comingled collections and not separating glass from other materials as recommended[56].

We want to help local authorities improve the quality of what is collected for recycling so that its value can also increase. Therefore, as part of our consultation on consistency in recycling we proposed to clarify the requirements of separate collection in law to make these clearer for local authorities and waste operators to follow. We also proposed to provide statutory guidance to help with decision making on separate collection and when local authorities should carry out an assessment of the feasibility or otherwise of separately collected recyclable materials.

Following the consultation, we have set out requirements for separate collection of recyclable waste streams in the Environment Bill. This will be supported by statutory guidance and further regulations which will be consulted upon in 2021. The statutory guidance will help waste collectors to meet their duties in relation to separate collection

[53] http://www.legislation.gov.uk/uksi/2011/988/contents/made
[54] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/250013/waste-seperate-collection-201310.pdf
[55] https://mfrp.wrap.org.uk/
[56] WRAP LA portal data. Percentages add up to 110 as some local authorities use more than one collection system.

and promote high quality recycling. The statutory guidance would also set out the process by which waste collection authorities and other waste collectors may collect recyclable waste streams together where separate collection is not technically or economically practicable or there is no significant environmental benefit.

The Resources and Waste Strategy also sets out measures to help consumers to be able to recycle the materials they use and dispose of them in the most environmentally sensitive ways. This includes consulting on the introduction of a deposit return scheme in England for single-use drinks containers. We have also consulted on increasing our successful 5p plastic bag charge to 10p and extending the scheme to small retailers. In August, the government response to this consultation confirmed that the government will extend the single-use carrier bag charge to all businesses in England and increase the minimum mandatory charge from 5p to 10p. The extension and increase of the charge will enter into force in 2021[57]. The Resources and Waste Strategy also outlines the case for banning the most problematic plastic products where there is a clear case for it and alternatives exist**.** We have already banned the sale of plastic microbeads in rinse-off personal care products and introduced a ban on the supply of plastic drinking straws, stirrers and plastic stemmed cotton buds in October 2020 in the Environmental Protection (Plastic Straws, Cotton Buds and Stirrers) (England) Regulations 2020. We are also assessing the impact of banning other single-use plastic items or introducing charges for single-use plastic items under new powers being sought in the Environment Bill.

Separate collection of bio-waste

The government has a range of measures to encourage the separate collection of bio-waste in England, which is often environmentally the best solution. However, currently, the decision to offer a separate collection of food or garden waste is for local authorities, taking into account local circumstances including logistics, characteristics of the area, and providing the services local people want. Almost all local authorities collect garden waste separately and about 50% collect food waste either on its own or with garden waste, providing quality feedstocks for anaerobic digestion and composting.

Following on from the commitment in the Resources and Waste Strategy and our consultation on consistency in Spring 2019, we are legislating through the Environment Bill, to require weekly separate food waste collection from households in England. In addition, the Environment Bill would also require waste collection authorities to separately collect garden waste from households. In the consultation, there was a range of views on the provision of free garden waste collections. We will therefore give further consideration to the costs and benefits of this measure before making a final decision on whether a free minimum service for garden waste collection should be required, or whether charging should remain a matter for local decision making.

[57] Consultation outcome: single use carrier bags: extending and increasing the charge https://www.gov.uk/government/consultations/single-use-carrier-bags-extending-and-increasing-the-charge

Since the publication of the Anaerobic Digestion Strategy in 2011[58], AD growth has been supported by measures such as feed-in tariffs (FITs) and the non-domestic Renewable Heat Incentives (RHI). Energy recovered from AD increased by 5.6% to 2.7% TWh in 2018. AD also produced 7.2% of total renewable heat in 2018. WRAP has estimated that UK food waste sent to AD produces 1,000 GWh, enough to power 1 million homes for over one month[59].

In April 2020, the Department for Business, Energy and Industrial Strategy (BEIS) published the Future Support for Low Carbon Heat consultation, which amongst other policies, consulted on proposals for the Green Gas Support Scheme (GGSS). The GGSS will provide tariff support for biomethane produced via anaerobic digestion and injected into the gas grid. The government response to this consultation will be published in due course.

In the Resources and Waste Strategy the government also announced that it would carry out and publish a review of policies to support bio-waste recycling through AD and composting to ensure we can maximise the benefits of these treatment options whilst managing the risks. This would include opportunities to promote synergies between food waste and other bio-waste and renewable energy to support decarbonisation of transport, heat and power and we continue to work with BEIS and other Departments on these areas. We also want to ensure that where appropriate farms continue to use AD as a treatment option for managing on-farm waste and recycling nutrients into energy and digestate that can be applied back to land.

Arrangements for hazardous waste

Government's Strategy for Hazardous Waste Management in England[60] sets out important principles that aim to encourage reductions in hazardous waste arisings and the wider application of the waste hierarchy to the management of hazardous waste.

Hazardous waste management practices and new infrastructure must meet existing regulatory requirements, including those of the Hazardous Waste (England and Wales) Regulations 2005[61] and the Environmental Permitting (England and Wales) Regulations 2016[62]. This will help to secure environmentally sound management of hazardous waste. The Hazardous Waste Management Strategy includes information on how some key hazardous wastes are managed. In addition, guidance has been developed on applying the waste hierarchy to hazardous waste[63] to encourage further the provision of key

[58] www.gov.uk/government/publications/anaerobic-digestion-strategy-and-action-plan
[59] https://publications.parliament.uk/pa/cm5801/cmselect/cmcomloc/363/36302.htm
[60] https://webarchive.nationalarchives.gov.uk/20130505065433/http:/archive.defra.gov.uk/environment/waste/topics/hazwaste/documents/policy.pdf
[61] www.legislation.gov.uk/uksi/2005/894/contents/made
[62] http://www.legislation.gov.uk/uksi/2016/1154/contents/made
[63] https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy-to-hazardous-waste

infrastructure. Our Resources and Waste Strategy also includes a commitment to consult on further ways to encourage hazardous waste producers to implement the waste hierarchy.

Furthermore, under the Planning Act 2008, Defra published in June 2013 a National Policy Statement for Hazardous Waste[64] in relation to the development of nationally significant hazardous waste infrastructure. The Statement sets out the strategic need and government policy context for the provision of such infrastructure. It is used to guide decisions by the Planning Inspectorate but also provides guidance to developers.

Arrangements for construction and demolition waste

The United Kingdom is committed to meeting its target of recovering at least 70% by weight of non-hazardous construction and demolition (C&D) waste[65] by 2020.

UK estimates for the recovery rate from non-hazardous C&D waste have been calculated and reported. The methodology for England was originally devised in conjunction with industry and, although not identical to the rest of the UK, efforts have been made to synchronise approaches and methodologies across UK countries.

England and the UK have been comfortably meeting the 2020 target of recovering at least 70% of non-hazardous C&D waste throughout the calculated time-series, with recovery rates of 90% and above since 2010. The latest data for 2016 indicates a recovery rate of 92.1% for England and 91.0% for the UK as a whole[66].

Table 1 Recovery rate from non-hazardous Construction and Demolition Waste, England, 2010 – 2016

Year	Percentage
2010	92.2%
2011	92.5%
2012	92.0%
2013	92.0%
2014	92.4%

[64] https://www.gov.uk/government/publications/hazardous-waste-national-policy-statement

[65] This is construction and demolition waste, excluding hazardous waste and naturally occurring material falling within code 17 05 04 in Schedule 1 to the List of Wastes (England) Regulations 2005 (SI 2005/895).

[66] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784263/UK_Statistics_on_Waste_statistical_notice_March_2019_rev_FINAL.pdf

2015	92.3%
2016	92.1%

Arrangements for marine waste

Marine waste can have environmental impacts through accidental pollution from ships in the course of navigation or lawful operations, pollution caused by unlawful operational discharges by ships, such as oil, waste or sewage, or physical damage caused by groundings or collisions.

Marine waste is regulated by both domestic law and international conventions that the UK has signed up to. These are the International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978[67], OSPAR Convention 1992[68]; the London Convention and Protocol[69]; the Marine and Coastal Access Act 2009[70]; and the Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008[71] which provides domestic regulation.

Marine plans set out priorities for future development, help marine users understand the best locations for their activities and set out issues to be considered, including in relation to water quality and litter. Public authorities must take authorisation or enforcement decisions that might affect the UK marine area (except development consent order applications made under the Planning Act 2008) in accordance with the Marine Policy Statement[72] and relevant marine plans, unless relevant considerations indicate otherwise. They must have regard to the Marine Policy Statement and relevant marine plans when taking other decisions that might affect the UK marine area.

Marine litter is regulated through the above laws and conventions, and our strategy to address the issue is set out in the 25 Year Environment Plan[73], the UK Marine Strategy Part 3[74] and the Resources and Waste Strategy. The Marine Strategy Part Three sets out the UK programme of measures, including measures to tackle marine litter, that contribute

[67] www.gov.uk/government/publications/min-585-m-the-international-convention-for-the-prevention-of-pollution-from-ships-1973-as-modified-by-the-protocol-of-1978-marpol-7378-annex-i
[68] www.ospar.org/convention
[69] www.imo.org/en/OurWork/Environment/LCLP/Pages/default.aspx
[70] www.legislation.gov.uk/ukpga/2009/23/pdfs/ukpga_20090023_en.pdf

[71] Garbage: https://www.legislation.gov.uk/uksi/2020/621/contents/made, Sewage: https://www.legislation.gov.uk/uksi/2020/620/contents/made

[72] www.gov.uk/government/publications/uk-marine-policy-statement
[73] https://www.gov.uk/government/publications/25-year-environment-plan
[74] https://www.gov.uk/government/publications/marine-strategy-part-three-uk-programme-of-measures

to the achievement and maintenance of Good Environmental Status in UK seas and fulfils the requirement in the Marine Strategy Regulations 2010[75].

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017[76] applies to surface waters (including some coastal waters) and groundwater (water stored below the ground in rocks or other geological strata). These regulations set out requirements to prevent deterioration of aquatic ecosystems and protect, enhance and restore water bodies to 'good' status. Local planning authorities must, in exercising their functions, have regard to river basin management plans[77]. These plans contain the main issues, including litter in the water environment and the actions needed to tackle them.

Since 1998, in compliance with international obligations, the UK administrations have, with some minor exceptions, only licensed the disposal at sea of capital and maintenance dredging and small amounts of fish waste. Most marine dredging and disposal is for the purposes of navigation and existing and future port development, though other works can take place to facilitate the construction of pipelines, outfalls and tunnels.

Disposal of dredged material at sea is regulated by the Marine Management Organisation under the licensing provisions of the Marine and Coastal Access Act 2009. Those wishing to dispose of marine waste must demonstrate that appropriate consideration has been given to the internationally agreed hierarchy of waste management options for sea disposal. Waste is not accepted for disposal where appropriate opportunities exist to reuse, recycle or treat the waste without undue risks to either human health or the environment, or disproportionate costs.

Regulators undertake a detailed evaluation of the potential adverse effects of any dredging activity or deposit on the marine ecosystem and others using the sea. This should have full regard to any accompanying environmental statement or additional data that may be requested in support of the application and international obligations under the OSPAR Convention and London Convention, as well as any other available guidance.

The Marine Management Organisation considers the potential adverse effects on the marine environment, habitats and wildlife from dredging activity. Particular recognition is given to the implementation and use of the maintenance dredging protocol[78] to minimise impacts on habitats and wildlife and help meet statutory obligations in relation to European Sites (also known as Natura 2000 sites).

Fish waste from processing of fish at sea may be disposed of in the marine environment but this is subject to the marine licensing provisions of the Marine and Coastal Access Act 2009.

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[75] SI 2010/1627
[76] SI 2017/407
[77] https://www.gov.uk/government/collections/river-basin-management-plans-2015
[78] https://www.gov.uk/guidance/do-i-need-a-marine-licence

Burial at sea is generally discouraged but is allowed in some circumstances, subject to licensing. There are three designated sites where burials may take place: Needles, Isle of Wight; off Tynemouth, North Tyneside; and between Hastings and Newhaven on the south coast of England.

Business waste

Business waste incorporates commercial waste and industrial waste. Generally, businesses are expected to make their own arrangements for the collection, treatment and disposal of their wastes. Waste from smaller shops and trading estates where local authority waste collection agreements are in place will generally be treated as municipal waste (this is waste similar to household waste i.e. paper, card etc.).

As referred to in the Resources and Waste Strategy all business, from the micro-business to the multi-national, should have access to regular, efficient and affordable waste collection and recycling services, whether provided by the private sector or their local authority.

Waste prevention sits at the top of the waste hierarchy as preventing waste has the best environmental outcome. It can save businesses and consumers money and avoids costs to businesses and local authorities of dealing with the waste that would otherwise be produced. Both the Waste Prevention Programme[79] and the Resources and Waste Strategy consider waste as a resource and identify opportunities for waste prevention to benefit business sectors and the wider economy.

Business recycling

We want to increase the amount of household like material collected from businesses and other organisations in the municipal waste sector so that we can increase recycling of waste overall and achieve targets to recycle 65% of municipal waste by 2035. Our latest best available estimates for recycling in this sector put recycling rates at approximately 43%. We think we can achieve much higher rates of recycling with the right combination of measures and support. As part of our consultation on consistency in recycling we sought views on proposals to require businesses and other organisations to segregate dry recyclable waste and food waste from other waste so that it can be collected for recycling. These proposals were strongly supported and there are duties for separate collection of recyclable waste from households, non-domestic premises that produce household waste and producers of industrial and commercial waste that is similar in nature and composition to household waste in the Environment Bill. We will give further consideration to measures to reduce the costs of collection for small and micro firms, taking into account comments and evidence provided from the consultation, as well as discussions with stakeholders and business on implementation.

[79] https://www.gov.uk/government/publications/waste-prevention-programme-for-england

The government's Cycling and Walking Strategy[80] states that the government will work with key stakeholders to explore options to allow local authorities to better co-ordinate the number of deliveries and waste collections in certain areas, still allowing competition and choice but reducing the number of operators and vehicle movements. Parts of some cities are served by as many as 50 waste management and delivery companies, with multiple pickups from businesses on the same street and large numbers of delivery vehicles carrying out duplicating trips. Pilot projects in areas such as Mayfair, in the West End of London, which aim to reduce the number of suppliers, have brought about significant reductions in commercial vehicle traffic. Government will conduct further pilot projects to allow local authorities to franchise certain delivery and waste management services where appropriate, this is subject to further consultation.

Extended producer responsibility including producer responsibility for packaging

Extended Producer Responsibility (EPR) is an environmental policy approach through which a producer's responsibility for a product is extended to the post-use stage. This incentivises producers to design their products to make it easier for them to be reused, dismantled and/ or recycled at end of life. Alongside stakeholders, we consider EPR to be a crucial tool in moving waste up the hierarchy and stimulating growth in the secondary materials markets.

There are currently UK-wide producer responsibility schemes in place for:

- Packaging waste;
- End-of-life vehicles (ELV);
- Batteries and accumulators;
- Waste electrical and electronic equipment

Our Resources and Waste Strategy sets out our intention to review the existing producer responsibility systems and develop new EPR schemes. This includes reviewing and consulting on measures such as EPR and product standards for five new waste streams by 2025, two of which are planned to be completed by the end of 2022.

Packaging waste

The key regulations in relation to packaging and packaging waste are the Packaging (Essential Requirements) Regulations 2015 and the Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (as amended)[81]. The former contains requirements

[80] https://www.gov.uk/government/publications/cycling-and-walking-investment-strategy
[81] S.I 2007/871 as last amended by SI 2012/3082

that must be satisfied before packaging can be placed on the market, whilst the latter establish a ‘producer responsibility’ regime and set targets on producers for the recycling of packaging waste.

The Producer Responsibility Regulations make producers (i.e. businesses that manufacture, import and sell packaging) responsible for ensuring a proportion of the packaging they place on the market is recycled once it has reached end of life.

To date the targets have delivered environmental and economic benefits and from increasing the recycling of all the key materials including plastics, card, metals and glass. Recycling targets are in place to 2022.

The Resources and Waste Strategy sets out how we plan to reform the current “Producer Responsibility” scheme and the reasons for doing so. It also provides the principles that will be central to any future EPR scheme. Together with the devolved administrations we consulted on our initial proposals for a reformed packaging producer responsibility system in Spring 2019 and will consult on our final proposals in 2021.

Waste electrical and electronic equipment, batteries and vehicles

Statutory producer responsibility regimes in the UK also cover waste electrical and electronic equipment (WEEE), batteries and vehicles. These regimes all provide for producers to bear the financial costs of collecting, treating, and recycling/ recovering a proportion of their waste products/ packaging to meet legal targets and minimum standards. For batteries; there is a 45% collection requirement for portable batteries and a landfill disposal and incineration ban in place for industrial and automotive batteries. For ELVs, there is a 95% reuse, recycling and recovery requirement. From 2019, the collection rate for WEEE is 65%. The regimes achieve this in a number of ways, but typically through administrative processes such as producer registration, approvals of compliance schemes and the authorisation of treatment facilities. We are committed to reviews of all three regimes in the period 2021-2024.

Introducing extended producer responsibility to other waste streams

The Resources and Waste Strategy sets out our intention to review and consult on measures such as EPR and product standards for five new waste streams, two of which we plan to complete by the end of 2022. These are:

- Textiles (including all clothing, as well as other household and commercial textiles, such as bedlinens);
- Bulky waste (including mattresses, furniture, and carpets);
- Certain materials in the construction and demolition sector;

- Vehicle tyres (including tyres from cars, motorcycles, commercial and goods vehicles, and heavy machinery); and

- Fishing gear.

We are currently considering where EPR could potentially improve waste management under these five areas and how this might work. In particular, construction and demolition cover a wide range of waste streams and there is a need to explore the specific products that might fall within the scope of EPR.

We are also committed to taking action to reduce the waste produced by plastics, including single-use plastics, and will take the necessary action to tackle the problem of plastic waste in our environment.

Measures to combat and prevent all forms of littering and to clean-up all types of litter

There is a comprehensive range of legislative measures in place to combat litter and littering in England.

Section 87 of the Environmental Protection Act 1990, as amended, makes it a criminal offence to "throw down, drop or otherwise deposit any item, and leave it". The offence applies to all land in England that is open to the air which the public has access to, including private land, and land covered by water.

Local authorities, national park authorities, the Broads Authority and police community support officers have powers to take enforcement action against offenders. Anyone caught littering may be prosecuted in a magistrates' court, which can lead to a criminal record and a fine of up to £2,500 on conviction. Instead of prosecuting, councils may decide, under section 88 of the Act, to issue a fixed penalty notice otherwise known as an 'on-the-spot fine', of up to £150. Regulations made under section 88A allow councils in England outside London to issue civil penalties (not carrying criminal liability) to the keeper of any vehicle from which a littering offence is committed. Councils in London have similar powers under the London Local Authorities Acts 2007 and 2012[82].

Section 89 of the Environmental Protection Act 1990, imposes two distinct duties on a range of bodies to "ensure that the land is, so far as is practicable, kept clear of litter and refuse" and to "ensure that the highway or road is, so far as is practicable, kept clean"[83]. In complying with these duties, "duty bodies" (the Secretary of State as respect certain roads highways, district councils, highway authorities, educational institutions, the Crown and statutory undertakers such as rail and tram operators and water companies) must "have

[82] www.legislation.gov.uk/ukla/2012/2/contents/enacted

[83] "Relevant land" is land under the direct control of the duty body, which is open to the air on at least one side, and to which the public has access with or without payment.

regard to" the statutory Code of Practice on Litter and Refuse[84]. The Code sets out the standards that duty bodies are expected to be able to achieve in carrying out these duties on different types of land and seeks to encourage duty bodies to maintain their land within acceptable cleanliness standards. The emphasis is on the consistent and appropriate management of an area to keep it clean, not on how often it is cleaned.

To assist them in achieving these standards, litter authorities (predominantly district councils) have access to a range of other powers and duties designed to deter littering and prevent the defacement of land by litter and waste:

- The Litter Act 1983[85]:
    - provides the Secretary of State (with the Treasury's consent) the power to make grants to anybody for the purpose of assisting the body to encourage the public not to deface places by litter;
    - provides a power for councils to install litter bins in any street or public place, with an associated duty to clean and empty the bins regularly.
- Section 94B of, and Schedule 3A to, the Environmental Protection Act 1990 enables principal litter authorities (county or district councils or London boroughs) to designate areas of their land within which authorisation is required before free printed material may be distributed.[86] Unauthorised distribution within these areas is a criminal offence, punishable by a fine of up to £2,500 or a fixed penalty in lieu of prosecution of up to £150.
- The Anti-social Behaviour, Crime and Policing Act 2014[87] provided local agencies (councils, local police forces and registered social housing providers) with a range of flexible powers to tackle various anti-social and nuisance behaviours.
    - Community Protection Notices (CPN) may be used to deal with particular, ongoing problems or nuisances which negatively affect the community's quality of life, by targeting those responsible. CPNs can include requirements to do, or not do, specified things, or to take reasonable steps to achieve specified results. They may therefore be used to tackle litter problems associated with particular premises (including businesses) by requiring them to clear up litter around their premises and/or provide and maintain suitable bins.
    - Public Space Protection Orders (PSPOs) provide similar protection from nuisances in public spaces by imposing conditions on the use of that area.

[84] www.gov.uk/government/publications/code-of-practice-on-litter-and-refuse
[85] www.legislation.gov.uk/ukpga/1983/35
[86] The distribution of material for charitable, political, or religious purposes may not be restricted under these powers.
[87] www.legislation.gov.uk/ukpga/2014/12/contents/enacted

For example, a PSPO may be used to require dog owners to pick up their dog's faeces.

- Section 215 of the Town and Country Planning Act 1990[88] gives a local authority the power to serve a notice on any landowner whose failure to maintain their land is adversely affecting the amenity of the surrounding area, requiring them to remedy the problem.

In addition to the legislative provisions outlined above, a number of policy measures are also in place to tackle and reduce littering.

We published the Litter Strategy for England[89] in April 2017, setting out our aim to clean up the country and deliver a substantial reduction in litter and littering within a generation. The Litter Strategy brings together communities, businesses, charities and schools to bring about real change by focusing on three key themes: education and awareness; improving enforcement; and better cleaning and access to bins. A national anti-litter campaign was launched in 2018, which features poignant images of wildlife eating and getting tangled in litter, contrasted against typical excuses people give for dropping litter. We have also said that we will ensure that, subject to consultation, charging arrangements in the Controlled Waste (England and Wales) Regulations 2012 are clear, especially in relation to waste arising from small scale DIY construction activities carried out by ordinary householders with no specialist skills, which government has been clear should not be charged for.

We also want to see businesses recognising what they can do to discourage the littering of their products, and the potential benefits to their brand of being associated with reducing, rather than causing litter. The Resources and Waste Strategy includes measures that will help to change the way we use and think about our resources and help to reduce litter along the way. Such measures include Extended Producer Responsibility through which a producer's responsibility for a product is extended to the post-use stage and a deposit return scheme to increase the recycling of single-use drinks containers. These measures are discussed earlier in the Waste Services section.

[88] www.legislation.gov.uk/ukpga/1990/8/contents
[89] www.gov.uk/government/publications/litter-strategy-for-england

Assessment of need for new collection schemes and infrastructure, the closure of waste infrastructure, including an assessment of the investments and other financial means

Infrastructure

The Resources and Waste Strategy sets out that having the right infrastructure in place is key to changing society's mind-set and encouraging people to 'do the right thing'. The policies in the Strategy seek to speed up this process – helping people value the resources that pass through their hands and supporting them with the right infrastructure to keep those resources in use.

We continue to support local authorities to facilitate the provision of necessary waste infrastructure, recognising that local communities should be involved from an early stage in planning for such infrastructure.

The closure of waste infrastructure

The EA regulates the closure of permitted waste operations through surrender notifications and applications. Operators of some regulated facilities may simply notify the EA but others must make an application to the regulator as required under regulations 24 and 25 of the Environmental Permitting (England and Wales) Regulations 2016. It is also possible to surrender part of an environmental permit, for example, if the operator is reducing the extent of a permitted site. Where there is a partial surrender, the regulator may need to vary the permit conditions to reflect this.

Specific provisions apply to the closure of landfill sites when an operator ceases accepting waste for disposal and their site enters the aftercare phase. Closed landfill sites fall into three categories:

(i) sites that are permitted and closed after 16 July 2001 in accordance with the requirements of Schedule 10 to the Environmental Permitting (England and Wales) Regulations 2016,

(ii) sites that are permitted but closed before 16 July 2001; and

(iii) sites that are no longer regulated by an environmental permit (historic closed landfills).

When the waste in the landfill has stabilised physically and chemically, the operator may apply to the regulator to surrender their permit[90].

Proximity principle

The principle of 'proximity' is set out in paragraph 4 of Part 1 of Schedule 1 to the Waste (England and Wales) Regulations 2011. This is within the context of the requirement to establish an integrated and adequate network of waste disposal installations for recovery of mixed municipal waste collected from private households. The requirement includes where such collection also covers waste from other producers.

The network must enable waste to be disposed of, or be recovered, in one of the nearest appropriate installations, by means of the most appropriate methods and technologies, in order to ensure a high level of protection for the environment and public health.

The network shall be designed in such a way as to enable a movement towards the aim of self-sufficiency in waste disposal and the recovery of waste. However, consideration must be given to the geographical circumstances or the need for specialised installations for certain types of waste.

This principle must be applied when decisions are taken on the location of appropriate waste facilities.

Waste planning

The government has consulted on major reforms to the planning system[91] which seeks, amongst other things, to radically change how local plans are prepared and function. Government is currently considering the responses to that consultation. These reforms, if taken forward, would mean consequential changes to the National Planning Policy Framework (NPPF)[92] and to the National Planning Policy for Waste (NPPW)[93] to reflect any agreed changes.

The current NPPW sets out existing planning policy to be taken into account by waste planning authorities and should be read in conjunction with the NPPF. This requires local planning authorities to include strategic policies in their development plans setting out an overall strategy for the pattern, scale and quality of development, and to make sufficient provision for infrastructure for waste management, and energy (including heat). The Resources and Waste Strategy sets out the government's objective of supporting the need

[90] https://www.gov.uk/government/publications/landfill-epr-502-and-other-permanent-deposits-of-waste-how-to-surrender-your-environmental-permit

[91] Planning for the Future, MHCLG, Aug 2020

[92] https://www.gov.uk/government/publications/national-planning-policy-framework--2

[93] https://www.gov.uk/government/publications/national-planning-policy-for-waste

for resource and waste management infrastructure through the planning system including a greater emphasis on the circular economy.

The NPPW aims to help achieve sustainable waste management by securing adequate provision of new waste management facilities of the right type, in the right place and at the right time. Under the national planning policy approach, waste planning authorities should identify in their local waste plans areas suitable for new or enhanced facilities for the waste management needs of their area. In deciding which land to identify for such facilities, waste planning authorities should assess their suitability against the criteria set out in the policy. This includes the physical and environmental constraints on development, existing and proposed neighbouring land uses, and any significant adverse impacts on the quality of the local environment.

Strategic policy-making authorities should cooperate with each other, and other bodies, when preparing, or supporting the preparation of policies which address strategic matters, including policies contained in local waste plans. In particular, joint working should help to determine where additional infrastructure is necessary, and whether development needs that cannot be met wholly within a particular plan area could be met elsewhere. Further consideration is to be given as to the optimal way in which strategic cross-boundary issues, such as major infrastructure or strategic sites, can be adequately planned for, including the scale at which plans are best prepared in areas with significant strategic challenges.

All local planning authorities should have regard to both the Waste Management Plan for England, the National Waste Planning Policy and the Resources and Waste Strategy when discharging their responsibilities to the extent that they are appropriate to waste management. Waste planning authorities remain responsible for developing local authority waste plans as part of their wider strategic planning responsibilities, in support of the Waste Management Plan for England.

Location

The EA holds information which can be used to aid decisions about the allocation of sites by type of infrastructure required, its location and capacity. The following links are to data sources held by Defra and the EA and which are available on the gov.uk website:

- UK Statistics on Waste[94] – this dataset provides information on waste arising, treatment, recycling figures and statistics from other relevant regimes (e.g. Producer Responsibility).

[94]https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management

- Permitted Waste facilities[95] – list of permitted sites and applications (note zipped files).
- Waste data interrogators[96] – this data set is comprised of returns made to the EA on waste handled at permitted facilities.
- Waste incineration data[97] – this data is required in addition to the interrogator data, to give correct totals for waste handled, treated and disposed.
- Landfill capacity data[98] – this data is also required to be used alongside the other data sets, to arrive at a meaningful figure for waste treatment and disposal capacity when plan making.
- Hazardous waste data interrogator[99] – hazardous waste carries additional regulatory requirements, which translate into planning considerations under the Duty to Cooperate.
- The Waste Hierarchy[100] – Plans must have regard to the Waste Hierarchy in the management of waste.

Need for additional infrastructure

The National Infrastructure Commission published their first National Infrastructure Assessment (NIA) in July 2018, which set out their assessment of the UK's long-term infrastructure needs[101], including resources and waste, making over 60 recommendations to the government based on extensive consultation. The government has responded to these recommendations through a National Infrastructure Strategy[102] published in November 2020.

Published annually since 2011, the National Infrastructure and Construction Pipeline details planned infrastructure and construction investment across the public and private sectors, including energy from waste and advanced conversion technologies. The pipeline provides a forward look on infrastructure, and builds on the work of the National Infrastructure Delivery Plan, as well as previous National Infrastructure Plans[103] by providing a delivery record of infrastructure projects and an update on the status of all projects flagged as priorities since 2010.

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[95] https://ea.sharefile.com/share/view/s4d607c5444344269
[96] https://data.gov.uk/dataset/d409b2ba-796c-4436-82c7-eb1831a9ef25/2019-waste-data-interrogator
[97] https://ea.sharefile.com/share/view/sd8fd3ec9e7245abb
[98] https://data.gov.uk/dataset/237825cb-dc10-4c53-8446-1bcd35614c12/remaining-landfill-capacity
[99] https://data.gov.uk/dataset/5f4e64fc-5b19-4080-9774-113ce6a82355/2019-hazardous-waste-interrogator
[100] https://www.gov.uk/government/publications/guidance-on-applying-the-waste-hierarchy
[101] www.nic.org.uk/assessment/national-infrastructure-assessment/
[102] https://www.gov.uk/government/publications/national-infrastructure-strategy
[103] https://www.gov.uk/government/organisations/infrastructure-uk/series/national-infrastructure-plan

Government has published a Green Finance Strategy[104] which, together with the recently announced 10 Point Plan for a Green Industrial Revolution[105], sets out a clear framework for how investment will be increased in key clean growth and environmental sectors. Through providing t paper and cardboardhe policy certainty the Resources and Waste Strategy will unlock the increased investment needed in infrastructure to support delivery of those policies and ambitions around financing green investment. Work to improve waste data will support the Green Finance Strategy's ambitions. This will enable resources to be kept in use for longer and prevent waste occurring in the first place, and to develop and enhance domestic reprocessing infrastructure, particularly recycling. It welcomes continued further market investment in residual waste treatment infrastructure, particularly where this links up with local heat users or heat networks. The Strategy commits to ensuring that local authorities are resourced to meet new net costs arising from the policies in the Strategy, including up front-transition costs and ongoing operational costs. The government has also supported local authorities in delivering infrastructure investment through a Local Infrastructure Rate[106].

Through our Resources and Waste Strategy we have committed to increasing municipal recycling rates from households and from businesses and other establishments that produce waste similar to household waste. We consulted on the policy to have greater consistency in recycling in 2019 and included provisions for legislation in the Environment Bill. These reforms will see changes in the collection infrastructure needed for both local authorities and businesses, in particular for the collection and treatment of food waste from businesses and households and garden waste from households. We have recognised that where new burdens arise from new statutory duties on local authorities', government should pay the net costs of these burdens. We will work with local government and businesses regarding changes in infrastructure needs to ensure these are taken into account in implementing measures.

We also want to increase recycling from flats and are proposing that measures that apply to kerbside households should apply equally to flats. Building Regulations Approved Document H6[107], Para 1.1 – 1.23 sets out requirements for siting and design of waste provision in high- and low-rise developments and states that adequate bin storage should be provided including for waste which can be recycled. We recognise that there may be circumstances, such as high-rise flats or flats above commercial premises, where additional considerations may apply. We have received views on these as part of our consultation on consistency and will take these into account in developing this policy and any Regulations or statutory guidance on separate collection under the Environment Bill.

[104] https://www.gov.uk/government/publications/green-finance-strategy
[105] https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution
[106] https://www.dmo.gov.uk/media/15507/180521-local-infrastructure-rate-bidding-criteria-april-2018-v2.pdf
[107] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/442889/BR_PDF_AD_H_2015.pdf

The Waste Infrastructure Delivery Programme (WIDP) was set up in 2006 to address a potential shortfall in residual waste treatment capacity needed in order for England to meet the landfill reduction target for biodegradable municipal waste set out in the Landfill (Maximum Landfill Amount) Regulations 2011[108]. It continues to provide grant support to a number of local authority projects, including facilities to help improve recycling, such as materials recovery facilities and anaerobic digestion plants.

In monitoring progress towards meeting landfill targets, we estimate that we will have sufficient residual waste treatment infrastructure, on reasonable assumptions, to meet our 2020 obligations under the Waste and Emissions Trading Act 2003 and the Landfill (Maximum Landfill Amount) Regulations 2011.

The government offers innovation funding for low-carbon technologies which includes infrastructure to manage or use waste as an energy resource, encourages investment from abroad and provides ongoing non-financial support to local authorities.

Collection infrastructure

The government supports comprehensive and frequent rubbish and recycling collections that meet the needs of local residents. Local authorities in England are under a legal obligation under the Environmental Protection Act 1990[109] to provide waste collections to households. From 2003, they have also been under a duty to collect at least two types of recyclable waste separately where they have a duty to collect household waste. Local authorities have a duty to collect waste paper, metal, plastic or glass by way of separate collection where this is necessary to ensure that waste undergoes recovery operations and to comply with the waste hierarchy and to facilitate or improve recovery. This is the case unless one of the conditions in regulation 13(4) of the Waste (England and Wales) Regulations 2011 is met i.e. collecting waste together results in output of comparable quality, separate collection does not deliver the best environmental outcome, separate collection is not technically feasible or it would entail disproportionate economic costs. When making arrangements for the collection of such waste (rather than collecting it themselves), local authorities must ensure that those arrangements are by way of separate collection, unless a condition in regulation 13(4) is met.

As noted in the section on measures to promote high quality recycling, the government has also been working with local authorities to increase the frequency and quality of waste collections, making it easier to recycle and to encourage reward schemes to increase recycling.

As stated earlier, we are consulting on measures to increase consistency in the materials collected for recycling and would expect these reforms to impact upon necessary collection infrastructure. In particular, proposals to require separate weekly collection of

[108] SI 2011/2299.
[109] www.legislation.gov.uk/ukpga/1990/43/contents

food waste would lead to a need for additional infrastructure for this. Also, where local authorities introduce greater separate collection to improve the quality of materials this too would impact on collections infrastructure. Within England, local authorities assess the need for any changes to collection arrangements that best fit their local circumstances and meet the legal obligations to collect waste. At a national level, the Waste and Resources Action Programme (WRAP) assesses the performance of local authority collection arrangements in terms of yields of residual waste and of dry recyclables[110]. This work will help to inform future decisions on collection schemes. We have committed to funding the net costs of new burdens on local authorities arising from new statutory duties introduced to increase consistency in recycling and we will work with local government bodies to develop our assessment of costs and changes necessary. Where collections infrastructure has to change, we would expect this to be done at the earliest opportunity allowed for by contractual obligations.

Technologies for managing residual waste

The Resources and Waste Strategy promotes efficient energy recovery from residual waste, but the government does not express a preference for one technology over another, since local circumstances differ. Efficient energy recovery from residual waste which can deliver environmental benefits, reduce carbon impacts and provide economic opportunities, and innovative technologies which improve the environmental outcome for the treatment of residual waste are welcomed. For example, the government encourages innovative waste treatment technologies that create transport fuels through the Renewable Transport Fuels Obligation.

The Resources and Waste Strategy recognises that energy from waste is generally the best management option for waste that cannot be reused or recycled in terms of environmental impact and getting value from the waste as a resource. It promotes the greater efficiency of energy from waste plants through utilisation of the heat generated in district heating networks or by industry, and by seeking an increase in the number of plants obtaining R1 recovery status[111]. Any given technology is more beneficial if both heat and electricity can be recovered. Particular attention should therefore be given to the location of the plant to maximise opportunities for heat use.

The Resources and Waste Strategy considered whether further capacity was needed to manage residual waste and welcomed further continued investment in energy from waste facilities that raises efficiency standards and minimises impacts on the environment.

[110] http://www.wrap.org.uk/content/local-authority-waste-and-recycling-information

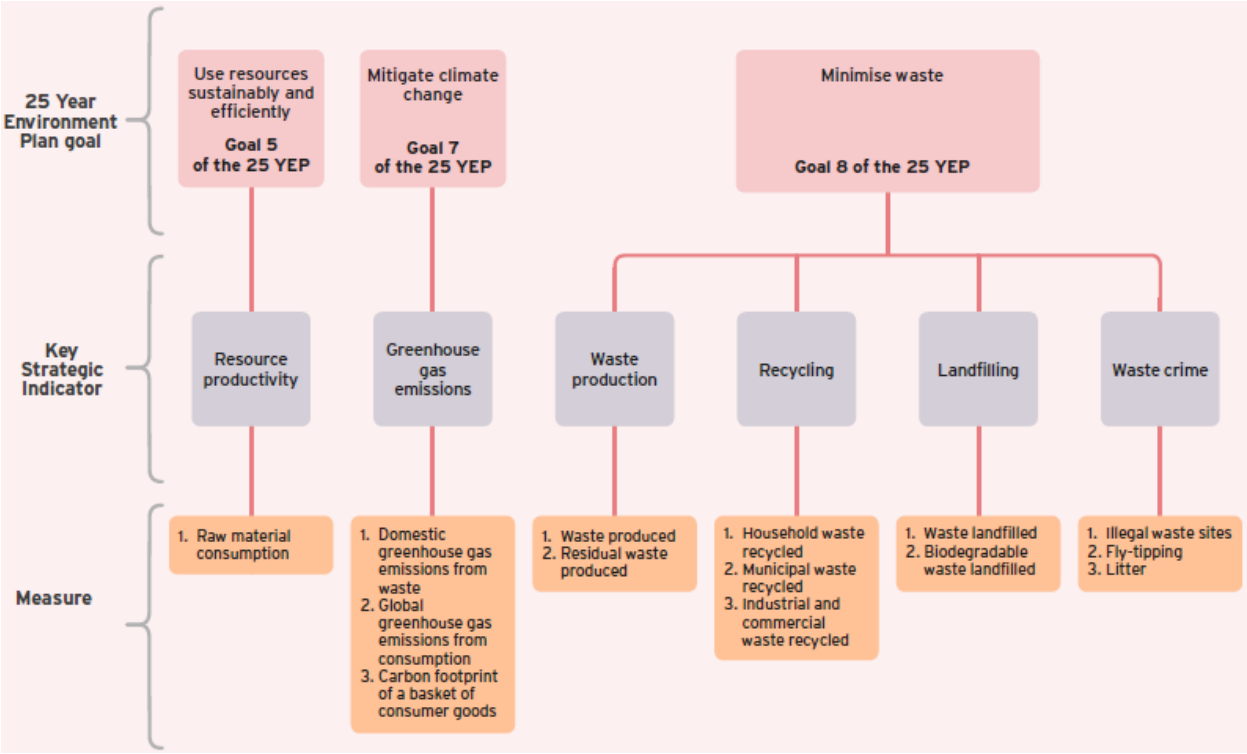
[111] 'R1' Recovery status acts as a proxy for the energy-generating efficiency of facilities. Facilities, including gasification and pyrolysis plants, which achieve the status are classed as a recovery operation for the purposes of the waste hierarchy and so are a level up from the bottom rung of 'disposal'.

Evaluation of the development of waste streams in the future

The policies that are summarised in this document are designed to achieve the aims of the Waste (England and Wales) Regulations 2011 and the Resources and Waste Strategy. These are: to protect the environment and human health by preventing or reducing the generation of waste, the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.

Our policies will directly affect the extent, nature and treatment of waste streams in the future. We expect that this will include a continuing reduction in the amount of waste sent to landfill and an increase in the products and material that are reused, recycled or recovered. In the Resources and Waste Strategy, we published an indicator framework to be used for monitoring progress against RWS policies and commitments. It consists of a breadth of indicators to help us assess progress in increasing resource productivity, reducing greenhouse gas emissions, lessening the amount of waste we produce and that sent to landfill and increasing recycling. The government has committed to regularly publishing progress against the indicators and reviewing them on a regular basis to ensure they continue to report progress in the right areas (See Figure 6 below).

Figure 6 Indicator Framework for Monitoring the Resources and Waste Strategy



The government has published a Resources and Waste Strategy Evaluation Plan together with a Monitoring Progress document[112] which provides information on the reporting mechanism for tracking these indicators.

The evaluation plan clearly and transparently sets out the high-level provisions for evaluating the impact of the key policies set out in the Resources and Waste Strategy, which will affect the development of waste streams in the future. It explains how we will monitor and report the progress of the strategy in achieving change, through identifying to what extent policy initiatives are working as intended and citing evidence, where possible, to suggest how much of the observed impacts are due to the strategy, rather than external factors. The extent of the evaluation will depend on availability of funding.

As well as setting out the high-level principles and approaches it includes more detailed plans for six initial evaluation projects. These policies being evaluated are expected to deliver significant and measurable changes for the better. Table 2 lists the outline plans for the initial evaluation projects.

Table 2 Evaluation of Resource and Waste policies

Policy to be evaluated	Likely approach
The new provisions for extended producer responsibility on packaging waste	Multi-method approach involving process and impact evaluation to feed into the required post-implementation review. Initial process evaluation to start 2024, depending on speed of implementation. Initial impact evaluation to start 2026, depending on speed of implementation.
The new provisions on a deposit return scheme for drinks containers (subject to introduction)	Multi-method approach involving process and impact evaluation to feed into the required post-implementation review. Initial process evaluation to start 2024, depending on speed of implementation. Initial impact evaluation to start 2026, depending on speed of implementation.
The effectiveness of Resources and Waste Strategy actions on the use and waste of plastics	Wide-ranging, theory-based impact evaluation deploying both qualitative and quantitative methods. It will look across government at actions targeting plastics to draw conclusions

[112] https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england-monitoring-and-evaluation

	about successes. Start date 2026, depending on speed of implementation of key actions.
The effectiveness of the requirement for consistent collections	Theory-based approach combined with possible modelling. This will build on lessons from similar studies carried out by WRAP and others. It will also build on the evaluation of existing consistency pilots. It will focus on quantitatively assessing the impact of the policy. A quantitative study may be preceded by a more qualitative process evaluation. We will monitor surveys of resident satisfaction with waste collection services, such as those undertaken three times a year by the Local Government Association, to track that this policy is cutting confusion and increasing resident satisfaction with waste collections.[113] Start date 2025, depending on speed of implementation of key actions.
The effectiveness of measures to tackle waste crime and poor performance (failure to comply with rules for transporting, storing or disposing of waste)	Wide-ranging, theory-based impact evaluation deploying both qualitative and quantitative methods. Operational data will be used to assess changes in incidence of waste crime and poor performance. Primary qualitative research will seek to understand how measures were delivered and the mechanisms and causes of observed changes. An economic evaluation will be undertaken to seek to draw conclusions on overall value for money, Start date 2024, depending on speed of implementation of key actions.
Analysis of the contribution the Resources and Waste Strategy has made to observed changes	Theory-based study utilising contribution analysis or realist impact evaluation techniques. It will focus on describing qualitatively the context, mechanisms and outcomes of interventions included in the Resources and Waste Strategy to devise a contribution story.

[113] Local Government Association (2020) Residents Satisfaction Surveys https://www.local.gov.uk/our-support/research/research-publications/residents-satisfaction-surveys

	Start date 2028/9.

The evaluation will be conducted in accordance with the HM Treasury guidance on evaluation, the Magenta Book[114]

[114] Magenta Book 2020 HM Treasury https://www.gov.uk/government/publications/the-magenta-book