

Annex II – Regulatory Triage Assessment (RTA)

PB14626b

Regulatory Triage Assessment	
For Self-Certified Measures in Defra	
Policy teams are advised to submit this assessment to their Better Regulation Business Partner, and, once signed-off, to upload the checklist alongside the relevant entry on SIPI. The assessment will need to be self-certified by Defra's BRU G7 Economist. The RTA fields have been amended to reflect the latest Better Regulation Framework updates which have introduced a de-minimis threshold, and a self-certification and call-in process.	
Title of Measure	Circular Economy Package – 2020 measures
Lead Department/Agency	Defra
Expected Date of Implementation	Autumn 2020 tbc
Origin (Domestic or International)	
Date of Assessment	26/06/2020
Lead Departmental Contact	Waste-EUExit@defra.gov.uk
RMT ID / Legislative ID	
<p>Rationale for intervention and intended effects</p> <p>In 2015, the European Commission published proposals to amend six EU Waste Directives, including the Waste Framework Directive (WFD), the Landfill Directive (LFD) and the Packaging and Packaging Waste directive (PPWD). Known as the Circular Economy Package (CEP), the proposal entered into force on the 4th July 2018. This RTA responds to where the UK is taking a legislative approach to meet its legal obligation to transpose the 2020 measures. The objectives of CEP measures are to reduce the adverse impacts of waste generation and the overall impacts of resource use by: a) ensuring appropriate application of waste hierarchy by placing restrictions for landfilling and incineration and b) changes to the arrangements affecting hazardous waste and waste oils.</p> <p>More specifically these measures will entail:</p> <ul style="list-style-type: none"> Landfill and incineration restrictions: waste separately collected for preparing for re-use and recycling should not be landfilled or incinerated, with the exception of waste resulting from subsequent treatment operations of the separately collected waste for which incineration or landfill is the best environmental outcome. Hazardous waste and waste oils: minor changes to the ban on mixing of hazardous waste; additional requirements for the mixing of waste mineral and synthetic oils; changes to recording and reporting requirements for data on hazardous waste. 	
<p>Viable policy options (including alternatives to regulation)</p> <p>Option 1: 'Do nothing' – do not transpose the CEP.</p> <p>The UK would not transpose the CEP legislation into domestic law, leading to the risk of infraction procedures (fines) from the EU at the point when transposition is required. Additionally, failing to align with EU requirements during the transition period could affect negotiations for a trade deal.</p> <p>Option 2: Transposition of amendments to Articles 10(4), 18, and 21(1)(c) and Article 35(1) & (4) of Directive 2008/98/EC on waste (Waste Framework Directive) and Article 5(3)(f) of Directive 1991/31/EC on the landfill of waste (Landfill Directive) into UK law.</p> <p>This, in combination with non-legislative changes and legislative changes with a minor impact that are not the subject of this RTA, would transpose the 2020 measures. This RTA focuses on two main measures: landfill and incineration restrictions of separately collected waste; hazardous waste and waste oils amendments. Other CEP measures are outside the scope of this RTA but have been analysed in other IAs published in 2019. Option 2 is our preferred option as it allows the UK Government to meet its legal obligation to transpose the CEP 2020 measures and its objectives as we have set out in the Resources and Waste Strategy.</p> <p>Given that the CEP is an amendment of the regulatory framework, there are no realistic alternatives to regulation.</p>	

Description of Novel and Contentious Elements (if any)

N/A

Assessment of Impacts on Business

Landfill and incineration restrictions: over a 10 year period (discounted values) England - waste holders face additional costs of £2.1m (£0.7m Local Authorities, £1.4m private businesses) as a result of sending recycling rejects of separately collected material from material recycling facilities' gates to mechanical biological treatment (MBT) plants for treatment or other treatment facilities instead of landfill and incineration; incineration operators lose £4.3m while landfill operators lose £0.1m. The UK Government loses £3.3m in landfill tax revenue.

Record keeping of hazardous waste: business costs in submitting additional information (£0.8m), business costs in adjusting to new requirements (£15.9m), regulator costs in ensuring waste site operators submit additional information (£0.05m), Government costs of amending IT systems (£0.2m); all values are discounted over the 10 year period.

Other CEP measures: either covered in other IAs, or minimal or unknown costs – please refer to the analysis of Option 2.

Further public and private costs might be associated with regulatory adjustments in areas of collection of waste oils, ban on mixing hazardous waste, and amendments to rules on mixing of waste oils. These are either currently unknown or regarded as very minimal given current practice. This is because mixing hazardous waste is already illegal, and the change means those undertaking the illegal mixing are more likely to have to pay to separate the illegally mixed waste. The change therefore provides a further economic incentive to comply with existing law and may possibly benefit the legitimate businesses in terms of higher profits. Additionally, there are very few sites permitted to mix waste oils, therefore it isn't envisaged that the legislative changes will have a significant material impact.

Landfill and incineration restrictions: Greenhouse gas (GHG) emissions savings of £6.4m as a result of diverting waste from landfill and incineration up the waste hierarchy (recycling and MBT); additional revenue to MBT operators (£6.5m) and recycling sector (£0.5m).

Other CEP 2020 measures: either covered in other IAs, minimal/unknown benefits – please refer to the analysis of Option 2.

As part of the reporting requirements (e.g. recycling calculation rules or hazardous waste record keeping), Government and businesses are expected to benefit from greater transparency of the waste and secondary material movements and from better information around the availability of secondary materials derived from hazardous waste treatments and processes. For businesses, there is a value to the materials and products resulting from treatment of hazardous waste. As a result, businesses will already likely be keeping these records. For Government, we already know how much waste goes into a site but these new requirements will ensure we can account for near enough 100% of the waste at the end of a process. This could help reduce waste crime as it will contribute to the tracking of waste from 'cradle to grave'.

Summary of monetised impacts

This analysis indicates the following impacts on key players across the UK (all over a ten year period, discounted):

- Government and public sector (discounted costs over 10 year period): additional Regulator costs in ensuring operators submit additional information and advising on new requirements (£0.05m); Government cost of amending IT system (£0.2m); loss in tax revenues (£3.3m).
- Businesses: adjustment and administrative costs to hazardous waste site operators in submitting additional information (£0.8m); additional net costs to private business waste holders (£1.4m) and additional net benefit to Mechanical Biological Treatment (MBT) plants or other treatment (£6.5m), additional net benefits to recycling centres (£0.5m).
- Environment: GHG emissions savings in England (£6.4m) as a result of diverting separately collected materials from incineration and landfill.

The cumulative impact of these amendments results in a net present social cost of £13.4m. The net direct cost to business is £2.6m per year, and this excludes benefits to MBT facilities and recycling facilities as they are considered indirect. We have looked at the RPC guidance on direct benefits, and although we believe this might be considered direct, we have taken the conservative decision to treat them as indirect, and the EANDCB is still below the £5m threshold.

The remaining CEP 2020 measures are currently understood to be very low or no-cost to either businesses or the public sector (Article 18: minor changes to the ban on the mixing of hazardous waste; Article 21(1)(c): further restrictions on waste oil). Thus, this assessment discusses these measures in a qualitative manner only.

Rationale for producing an RTA (as opposed to an IA)

The proposal has an EANDCB below the £5m threshold.

The cumulative impact of these amendments results in a net present social cost of £13.4m.

The net direct cost to business is £2.6m per year.

Business net present value -£15.5m.

	Name, Role	Date
Departmental sign off	Chris Preston	26/06/2020
Economist sign off (senior analyst)	Tom Murray	26/06/2020
Better Regulation Unit Sign off	Craig Stevenson	26/06/2020
Confirmation of self-certification by the BRU G7 Economist	Aftab Malik	26/06/2020

Supporting evidence

Executive Summary

In December 2015 the European Commission published proposals to amend six EU Waste Directives as part of a package of measures to promote the Circular Economy which introduce new waste management targets regarding reuse, recycling and landfilling; strengthen provisions on waste prevention and extended producer responsibility; and streamline definitions, reporting obligations and calculation methods for targets to the six Directives:

1. The Waste Framework Directive (WFD)
2. The Landfill Directive (LFD)
3. The Packaging and Packaging Waste Directive (PPWD)
4. The Waste Electrical and Electronic Equipment Directive (WEEE)
5. The Batteries and Accumulators and Waste Batteries and Accumulators Directive (BAWBAD)
6. The End-of-Life Vehicles Directive (ELD).

A provisional agreement was reached with the European Parliament on all six Directives on 17th December 2017. The Circular Economy Package (CEP) was voted through at European Parliament Plenary on 18th April 2018 and adopted by the European Parliament Environment Committee at Council on 22nd May 2018. It was subsequently published in the Official Journal (OJ) on 14th June 2018, with transposition for many of the measures required by 2020. After much scrutiny and assessment of the final amendments, including cost-benefit analysis of the key measures such as municipal recycling targets, the UK Government decided to support the package and voted in favour.

The production, use and end of life, i.e., when waste is generated, stages can result in negative externalities that are potentially harmful to the environment and human health if unregulated. The aim of the CEP is to ensure the value of products, materials and resources are maintained in the economy for as long as possible. This will reduce the generation of waste and negative impacts on the environment. It should enhance the security of the supply of raw materials, increase competitiveness, innovation, and growth, and create jobs, all of which are an essential contribution to the UK's efforts to develop a sustainable, low carbon, resource efficient and competitive economy. These measures are in line with domestic policy commitments in, for example, the Government's Resources and Waste Strategy for England¹.

This RTA responds to the legal obligation as set out under the European Communities Act 1972 and Article 288 of the Treaty of the Functioning of the EU to review the CEP directives. This RTA covers two main waste management directives (WFD and LFD), where substantive changes have been made and require the UK to make changes to existing arrangements. The remaining four directives (PPWD, WEEE, BAWBAD and ELD) don't require the UK to make any immediate legislative changes with a significant impact. The measures examined through this RTA and further referenced as '2020 measures' are:

- Landfill and incineration restrictions: waste separately collected for preparing for re-use and recycling should not be landfilled or incinerated, with the exception of waste resulting from subsequent treatment operations of the separately collected waste for which incineration or landfill is the best environmental outcome.
- Hazardous waste and waste oils: minor changes to the ban on mixing of hazardous waste; additional requirements for the mixing of waste mineral and synthetic oils; changes to recording and reporting requirements for data on hazardous waste.

The preferred option is to transpose those measures required by law. This analysis indicates the following impacts on key players across the UK (all over a ten year period, discounted):

¹ <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

- Government and public sector (discounted costs over 10 year period): additional Regulator costs in ensuring operators submit additional information and advising on new requirements (£0.05m); Government cost of amending IT system (£0.2m); loss in tax revenues (£3.3m).
- Businesses: adjustment and administrative costs to hazardous waste site operators in submitting additional information (£0.8m); additional net costs to private business waste holders (£1.4m) and additional net benefit to Mechanical Biological Treatment (MBT) plants or other treatment (£6.5m), additional net benefits to recycling centres (£0.5m).
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The cumulative impact of these amendments results in a net present social cost of £13.4m. The net direct cost to business is £2.6m per year, and this excludes benefits to MBT facilities and recycling facilities as they are considered indirect. We have looked at the RPC guidance on direct benefits, and although we believe this might be considered direct, we have taken the conservative decision to treat them as indirect, and the EANDCB is still below the £5m threshold.

The remaining CEP 2020 measures are currently understood to be very low or no-cost to either businesses or the public sector (Article 18: minor changes to the ban on the mixing of hazardous waste; Article 21(1)(c): further restrictions on waste oil). Thus, this assessment discusses these measures in a qualitative manner only.

1. The policy issue and rationale for Government intervention

Global waste is currently projected to reach 3.4 billion tonnes annually by 2050, a 70% increase relative to 2016 (2.0 billion tons)². Waste generation yields negative effects on humanity, wildlife and the environment. For example, increased waste generation depletes raw materials and pollutes land, water and air. To promote a more circular economy, the European Commission published in 2015 proposals to amend six EU Waste Directives as part of a suite of measures referred to as the Circular Economy Package (CEP). The UK Government voted in favour of the CEP.

The production, use and end of life, i.e., when waste is generated, stages can result in negative externalities that are potentially harmful to the environment and human health if unregulated. These externalities consist of environmental and disamenity impacts which are subsequently not reflected in market prices. The CEP 2020 measures are expected to drive changes towards a more circular and resource efficient economy resulting in environmental and wider societal benefits. This RTA responds to the legal obligation to review the waste management of two directives (WFD and LFD) where substantive changes were made that require changes in UK law.

Landfill and incineration restrictions

The treatment of waste in landfill and energy recovery via incineration generates negative environmental externalities due to the emission of GHGs. Landfilling and incineration also depletes natural resources. When waste cannot be prevented, recycling can minimise the environmental costs of products/materials being disposed of and create value by providing valuable materials for manufacturing. Landfill and incineration restrictions of materials separately collected for recycling will strengthen the application of waste hierarchy in this case and, as estimated below, will result in reduced UK GHGs.

Hazardous waste and waste oils

² <https://www.worldbank.org/en/news/press-release/2018/09/20/global-waste-to-grow-by-70-percent-by-2050-unless-urgent-action-is-taken-world-bank-report>

Hazardous waste is a relatively small waste stream, contributing around 2% of total waste arising in the UK³ but its proper management is crucial in order to prevent it from having serious negative environmental impacts; from hazardous chemical contamination which can cause irreparable damage to wildlife and food chains, to the effects on human health posed by asbestos. Comprehensive documentation and management of hazardous waste is therefore necessary to mitigate any potential negative impacts.

The removal of hazardous substances, components and mixtures from some hazardous waste is already commonplace. Such activities are waste treatment operations that must be carried out in accordance with the conditions of an environmental permit or licence, or a relevant exemption, ensuring protection of human health and the environment. The revised regulations will remove caveats and make small clarifications that will further protect the environment and human health from the effects of hazardous waste.

2. Policy objectives and intended effects

The UK Government's ambition is to "leave the natural environment in a better state than we inherited it" and become a world leader in resource efficiency, including targets for recycling, packaging, and diversion from landfill as well as a wider set of producer responsibility reforms and waste prevention measures. Such ambitions are aligned to various commitments and measures stated in recent Government strategies, including the Resource and Waste Strategy for England, 25 Year Environment Plan, Clean Growth Strategy, Industrial Strategy, and Litter Strategy for England. Wales set a target to use only its fair share of resources and achieve zero waste by 2050 in Towards Zero Waste, the overarching Waste Strategy for Wales. The aims of the CEP align to the UK's domestic objectives, and ensures the value of products, materials and resources are maintained in the economy for as long as possible, reducing waste generation and negative environmental impacts. We want to enhance the security of the supply of raw materials, increase competitiveness, innovation, and growth, and create jobs, all of which are an essential contribution to the UK's efforts to develop a sustainable, low carbon, resource efficient and competitive economy. The CEP aligns with our ambitions here.

The changes made to the Directives that constitute the CEP seek to build on the existing framework and further tackle the environmental and health issues that result from certain types of waste management across the EU. It requires intervention by law to reduce the adverse impacts of waste generation and management by applying the waste hierarchy as a priority order in terms of waste prevention and management legislation and policies.

The objectives of the measures considered in this RTA are to reduce the adverse impacts of the generation of waste and the overall impacts of resource use by:

- Ensuring appropriate application of waste hierarchy by placing restrictions on landfilling and incineration.
- Amending hazardous waste management requirements.

3. Description of options considered

This RTA has considered only two options with respect to the EU's Circular Economy Package. No other options, such as voluntary or non-regulatory measures, were deemed as realistic given the legislative nature of the CEP measures. Additionally, the UK Government voted in favour of the CEP and fully committing to meeting transposing changes that fall within the Transition Period.

Option 1: 'Do nothing' (business as usual)

With this option the UK would continue with existing resources and waste regulatory framework, and not transpose the amendments made to the six Directives covered by the CEP. This would leave the UK waste sector operating at a different level to that of the EU for many areas, such as determining end-of-waste criteria or controls for hazardous wastes. This would leave the UK open to possible infraction risks for the non-transposition

³ BiPRO (2017) on behalf of the European Commission, [Support to selected Member States in improving hazardous waste management based on assessment of Member States' performance.](#)

of EU law. Additionally, failing to align with EU requirements during the transition stage could affect negotiations for a trade deal.

Option 2: Transposition of amendments to Articles 10(4), 18, and 21(1)(c) Article 35(1) &(4) of Directive 2008/98/EC on waste (Waste Framework Directive) and Article 5(3)(f) of Directive 1991/31/EC on the landfill of waste (Landfill Directive) into UK law

The measures below are examined through this RTA and further referenced as ‘2020 measures’:

- 1 Waste Framework Directive Article 10(4) / Landfill Directive Article 5(3)(f) – Incineration and landfill restrictions: waste separately collected for preparing for re-use and recycling should not be landfilled or incinerated, with the exception of waste resulting from subsequent treatment operations of the separately collected waste for which incineration or landfill is the best environmental outcome.
- 2 Hazardous waste and waste oils:
 - a. Article 18 – Article 18(3) has been changed to remove the consideration of economic feasibility when deciding whether illegally mixed waste must be separated. Where separation of illegally mixed hazardous waste is not required, the waste must be treated at a facility that is authorised to accept it.
 - b. Article 21 – Article 21(1)(c) removes the caveat that the prohibition on mixing waste oils with other waste oils of different characteristics or other waste only applies if it is technically and economically viable not to mix waste oils.
 - c. Article 35 – Hazardous waste record keeping: requirement for authorised hazardous waste treatment sites to report on non-waste materials and products that result from waste treatment; requirement to use an electronic registry or coordinated registries, covering the whole of the UK, to record data on hazardous waste.

4. Analysis of options

The economic impacts of Options 1 and 2 were calculated in line with the HM Treasury’s Green Book guidelines. For some of the 2020 measures, quantitative analysis is currently not feasible either due to limited evidence base or early stage of policy development.

Please note bio-waste is not included in the analysis as it is out of scope. Moreover, also waste rejected at kerbside is not included as is out of scope.

Option 1 – do not transpose the Circular Economy Package

Under a ‘do nothing’ option, there are no additional costs or benefits as a result of not transposing the CEP package, except for potential infraction fines from the European Commission for failing to transpose the package. The following sections describe the current practice in relevant areas.

Landfill and incineration restrictions

Currently a proportion of waste separately collected for preparing for reuse and recycling is either sent to landfill or incineration either because it is too contaminated (i.e. it is rejected from its intended purpose and has to be treated as residual waste) or it is non-target material⁴ for either the recycling and reprocessing sectors. If separately collected waste presented for recycling is so contaminated that it is rejected at Material Recycling Facility (MRF) gates, it is managed through a mix of incineration (possibly via Refuse Derived Fuel production) and landfill. The choice of which treatment option depends on local location and contract arrangements of most waste holders.

England and Wales

In England and Wales, Schedule 9 (part 2) of the Environmental (England and Wales) Permitting Regulations 2016 requires MRFs to sample materials collected for recycling before and after they are sorted into separate material streams. For Wales, this is the case for MRFs that handle more than 1,000 tonnes of waste per year.

⁴ E.g. plastic packaging included in ‘plastic bottles only’ collections

This is to determine the extent of material that is not suitable for recycling or not specifically targeted for recycling.

Permits to handle waste issued to some municipal waste incinerators now include conditions that restricts waste being accepted that has been separately collected for recycling. This is to ensure that only waste unsuitable for recycling, for example where it is contaminated, is accepted by the plants. However, these restrictions do not currently apply to all incinerators likely to accept wastes covered by the new Article 10(4) provision within the CEP. Unlike the new Article 5(3)(f), landfill operators are not currently required, through permit conditions or otherwise, to refuse waste separately collected for recycling.

In Wales, through Towards Zero Waste and the sector plans, the Welsh Government has adopted the target of no more than 5% of total waste to landfill by 2025. The Welsh Government also intends to consult on a potential target to halve food waste by 2025, which will also further reduce the landfilling of biodegradable waste. In Wales, landfills generally do not receive separately collected fractions, and Energy from Waste facilities (incinerators) are not authorised to accept separately collected recyclate unless it can be demonstrated it is unsuitable for recycling and therefore expect no impact on Welsh operators and no increase in cases per year.

Northern Ireland

Northern Ireland is proposing to further amend regulation 9 of the Landfill Regulations (Northern Ireland) 2003 (S.R. 2003 No.496) to prohibit other separately collected waste being landfilled. We are transposing the landfill and incineration restriction for England and Wales only, therefore we have not analysed impacts for Northern Ireland.

Scotland

Separately collected waste is banned from going to both landfill and incineration in Scotland. It is banned from landfill under Regulation 11 of the 2003 Landfill (Scotland) Regulations, and banned from Incineration under Regulation 29 of the Pollution Prevention and Control (Scotland) Regulations 2012).

The Waste (Scotland) Regulations 2012 introduced a ban on separately collected metal, glass, paper, card and food from being landfilled or incinerated from January 2014⁵. The regulations also provided that, from January 2021, all bio-degradable municipal waste will be banned from landfill.

Hazardous waste and waste oils

Article 18 of the Waste Framework Directive, which bans the mixing of hazardous waste, was implemented through Regulation 20 of the Hazardous Waste (England and Wales) Regulations 2005 (as amended) in England and the Hazardous Waste (Wales) Regulations 2005 (as amended) in Wales. In Northern Ireland, regulation 14 of the Hazardous Waste Regulations (Northern Ireland) 2005 implements Article 18. The regulators have issued guidance to their officers on the requirements of this Article of the Waste Framework Directive who, in turn, provide guidance to operators on how to comply with their authorisation. In Scotland a ban on mixing of special waste such as Hazardous waste and waste oils is already in place under Regulation 17 and 17A of The Special Waste Regulation 1996.

Once waste oils, which are hazardous wastes, have been stored separately by waste producers, oil waste holders cannot currently mix them with different types of oils, other wastes, substances or materials. This would be a breach of regulation 19 of the Waste Regulation 2011, which implements the mixing ban in Article 18 of the Waste Framework Directive. They can, and do routinely, bulk together oils of the same type.

Article 21(1)(c) sets further requirements on mixing that relate to waste mineral and synthetic oils only. The effect of this Article is to place further restrictions on waste oil even at an authorised facility. Article 21(1)(c) is implemented through regulation 19(4) of the Hazardous Waste (England and Wales) Regulations 2005 as amended by the Waste Regulations 2011 and the Hazardous Waste (Wales) Regulations 2005 (as amended). In Northern Ireland, Article 21(1)(c) is implemented through regulation 19(5) of the Hazardous Waste (Northern Ireland) Regulations 2005 as amended by the Waste Regulations (Northern Ireland) 2011. In Scotland, Article

⁵ Scottish Environment Protection Agency (2019), [Zero waste](#).

21(1)(c) is implemented through Regulation 15 of the Waste Management Licensing (Scotland) Regulations 2011.

The current record keeping requirement is implemented by Regulation 49 of the Hazardous Waste (England and Wales) Regulations 2005 and the Hazardous Waste (Wales) Regulations 2005, which require all holders of waste to keep a register containing the required information that is relevant to them. Further to this, those waste holders that have an environmental permit to keep, treat or dispose of waste must also keep records of waste received and waste removed in accordance with permit conditions. The requirement to provide information on request is implemented by Regulation 53 of the Hazardous Waste (England and Wales) Regulations 2005, and the Hazardous Waste (Wales) Regulations 2005, which requires hazardous waste consignees to submit returns to the Environment Agency or Natural Resources Wales.

Option 2 – Transposition of amendments to Articles 10(4), 18, and 21(1)(c) of Directive 2008/98/EC on waste (Waste Framework Directive) and Article 5(3)(f) of Directive 1991/31/EC on the landfill of waste (Landfill Directive) into UK law

The following sections discuss the key elements of 2020 measures and our current understanding of implied costs and benefits per each measure over the period of next ten years (2020-2029).

Landfill and incineration restrictions across the UK

Article 5(3)(f) is a new measure in the Landfill Directive which requires us to take measures to ensure waste separately collected for re-use and recycling is not accepted in landfill, with the exception of waste resulting from subsequent treatment operations of the separately collected waste for which landfilling delivers the best environmental outcome.

Similarly, Article 10(4) under the Waste Framework Directive requires us to take measures to ensure that waste separately collected for recycling or recovery operations should not be incinerated with the exception of waste resulting from subsequent treatment operations of the separately collected waste for which incineration delivers the best environmental outcome.

As both Articles aim to achieve the same objective, this RTA proposes the same policy option to meet Article 5(3)(f) and Article 10(4). This would put in place a regulatory change that will introduce statutory permit conditions to which all landfill and incineration sites should adhere to. This will mean that a legislative condition on all English landfill and incineration permit holders will be introduced to not accept any separately collected waste that has not undergone some form of recovery operation, where feasible.

In Wales, landfills generally do not receive separately collected fractions, and Energy from Waste facilities (incinerators) are not authorised to accept separately collected recyclate unless it can be demonstrated it is unsuitable for recycling and therefore expect no impact on Welsh operators and no increase in cases per year.

We have considered other options such as varying all existing landfill and incineration permits. There are currently 19 municipal waste incineration plants and 150 landfill sites in England, 11 incinerators and 19 landfill sites in Wales whose permits would need to be amended. This would need to include conditions that would restrict the acceptance of separately collected waste for recycling that has not undergone any recovery operation. These are estimated to cost £5,600 and £8,000 per permit⁶, respectively. However, this option is more costly to businesses than other options and therefore has been ruled out. On this basis, we assess the costs and benefits of introducing a regulatory change that will allow for statutory permit conditions. This is our preferred option as presented below.

Under our preferred policy option, landfill and incineration operators will not be allowed to accept any waste that was separately collected for reuse or recycling and has not undergone any other treatment operation. Some materials that are separately collected may be rejected at the gates of material recovery facilities (MRFs) if, for example, they are contaminated to such an extent that they would reduce the quality of recycling. Reject rates at MRF gates is estimated to be 0.4%⁷. Waste holders will continue to apply the waste hierarchy when seeking

⁶ These estimates are based on EA's permit revision costs charged to either landfill or municipal waste incinerator permit holders

⁷ This is based on a 3 year average calculated from WasteFlow database.

further treatment for gate rejects; for example, waste should be sent for further treatment, such as MBT, where facilities are available and present the best environmental outcome.

For Scotland, we expect no changes to the current practice. At present separately collected waste is banned from going to both landfill and incineration. It is banned from landfill under Regulation 11 of the 2003 Landfill (Scotland) Regulations and banned from incineration under Regulation 29 of the Pollution Prevention and Control (Scotland) Regulations 2012.

In terms of the size of the landfill and incineration restrictions, we estimate that these CEP requirements would affect around 0.4% of total waste collected for recycling in 2020⁸. This is based on the estimated tonnage collected for recycling in the municipal sector, in line with Defra's consultation RTA on the consistent municipal recycling collections (Option 3M)⁹, and then applying assumed recycling reject rates at recovery facility gates. We have anecdotal evidence that this rejects rate is lower for non-household municipal waste, however because we do not have a robust evidence to apply to Non-Household Municipal (NHM) waste we have used the 0.4% rate. This means that the tonnages considered below are an overestimate, and in turn also costs (see Annex A for other types of collections and materials).

Table 1 shows the tonnages of recycling rejects that we expect to be moved up the waste hierarchy, e.g. either diverted from landfill and incineration to MBT facilities. This rejected waste is highly contaminated so other options to dispose of this waste, for example exporting it, would not be feasible. In terms of the net impact on MBTs, we assumed that all the estimated rejects in England would be additional to the current practice since we are not aware of detailed data reported on rejects' current treatment. This means that the net impact on MBTs might be lower in reality. Tolvik (2017) reported the total residual waste inputs to MBT facilities in the UK in 2015/16 were 2.6Mt, or around 9% the total market. Almost all of this residual waste was delivered by local authorities under term contracts. The total 2017 capacity operational or in construction was estimated to be around 4.0Mt¹⁰. Therefore, we expect minimal new infrastructure implications on the MBT facilities from this measure.

Table 1: Recycling rejects to be diverted from incineration and landfill (-/+ decrease/increase) over 2020-2029, England

Diverted from	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
<i>Landfill</i>	-615	-639	-641	-591	-552	-586	-613	-648	-700	-727
<i>Incineration</i>	-5,533	-5,748	-5,768	-5,322	-4,964	-5,276	-5,518	-5,834	-6,300	-6,539

Under the new regulation these recycling rejects will not be allowed to go to incineration or landfill unless they have gone through a treatment process and provide the best environmental outcome.

Tables 2 and 3 provide the estimated costs and benefits of the proposed changes respectively, all in nominal values.

In England we expect to see increased costs to waste holders (both local authorities and private waste management companies) caused by diverting waste from landfill and incineration to MBT plants. This is because MBT plants gate fees are, on average, higher (£97/tonne) than when sending waste to energy from waste plants (£89/t) but cheaper than landfill treatment (£113/t, including landfill tax)¹¹. Net costs to waste holders are estimated at £2.1m over 10 years (between 2020 and 2029), i.e. costs to waste holders of using MBT services

⁸ This would not affect the reported recycling rate as these rejects are removed before recording recycling tonnages.

⁹ Defra (2019), [Consistent municipal recycling collections in England](#).

¹⁰ TOLVIK Consulting (2017), [Mechanical Biological Treatment - 15 years of UK experience](#).

¹¹ See Annex A for price details. EfW and landfill costs are median not averages as MBT.

less savings from reduced landfill and incineration use. Of this, we estimate £0.7m to be associated with household recycling rejects managed by local authorities and £1.4m with private business waste holders (discounted values).

In England, incineration operators see a reduced stream of rejects and thus a net loss in revenue of £4.3m over the 10-year period (discounted values). MBT operators largely benefit from this policy, with additional revenue of £6.5m over the same period (discounted values). Recycling sector sees a slight increase in revenue as a result of recyclates captured by MBT plants, resulting in additional revenue of £0.5m over the period¹².

All these costs are regarded as economic transfers to other parties in the recycling and waste management sector that are benefitting from these changes.

¹² The waste industry impacts, in terms of additional revenue or reduced revenue, are all based on the tonnage processed in a given scenario and gate fee prices observed at the market (see Annex A). Thus, this analysis shows a net revenue impact rather than a net profit impact as we do not have robust data on profit margins made across different waste treatment plants. These benefits are however excluded from the EANCDB.

Table 2: Undiscounted costs of introducing statutory permit conditions, £m¹³

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
England											
Increased costs to LA waste holders of using MBT services¹⁴	£0.10	£0.10	£0.10	£0.08	£0.08	£0.08	£0.08	£0.08	£0.08	£0.08	£0.9
Increased costs to private business of using MBT services¹⁵	£0.14	£0.14	£0.14	£0.14	£0.14	£0.15	£0.16	£0.17	£0.19	£0.20	£1.6
Net loss in revenue to incineration operators due to waste holders shifting to MBTs¹⁶	£0.5	£0.5	£0.5	£0.5	£0.4	£0.5	£0.5	£0.5	£0.6	£0.6	£5.1
Net loss in revenue to landfill operators	£0.01	£0.02	£0.02	£0.01	£0.01	£0.01	£0.01	£0.02	£0.02	£0.02	£0.15

There are greenhouse gas (GHGs) emission savings attributed to slight increase in recycling and, mainly, reduced amount of waste going to energy from waste and landfill sites. We applied the relevant carbon factors per each recycling and waste treatment option and material to derive the GHGs emission savings. These are the UK GHGs emissions savings of 0.06 million tonnes CO₂e in traded and 0.03 million tonnes of CO₂e in non-traded sectors over the decade. Applying the relevant carbon prices results in discounted societal savings of £6.4m in England between 2020 and 2029.¹⁷

¹³ These costs might be different from other places in the RTA because they are presented as undiscounted

¹⁴ These costs are net of savings from reduced landfill use

¹⁵ These costs are net of savings from reduced landfill use

¹⁶ This loss in revenue to incineration operators is net of the increase in revenue from MBTs as more waste will shift from incineration to MBTs facilities. Therefore this loss in revenue in England is net of the increase in revenues that MBTs facilities will gain as waste coming to those facilities will increase. Equation is: net loss in revenue = loss in revenue from incineration operators – increased revenue from MBTs operators

¹⁷ See Annex A for details on used carbon factors and carbon prices.

Table 3: Undiscounted benefits of introducing statutory permit conditions (transfers in italic), £m

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
England											
Gain in revenue to MBTs from waste holders	0.75	0.76	0.77	0.71	0.66	0.70	0.74	0.78	0.84	0.88	£7.6
Gain in revenue to recycling sector	0.06	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	£0.6
GHG emissions savings (traded, non-traded)	£0.5	£0.5	£0.6	£0.6	£0.6	£0.7	£0.8	£0.9	£1.1	£1.2	£7.7

Note: Figures may not add up due to rounding of numbers

Waste Framework Directive Article 18 – Ban on mixing hazardous waste

Article 18(1), which sets out the mixing ban, and Article 18(2), which provides a derogation from the ban, remain unchanged. Article 18(3) amendments requires illegally mixed hazardous waste to be separated in certain circumstances.

In particular, Article 18(3) has been changed to remove the ability to consider economic feasibility when deciding whether illegally mixed waste must be separated. Separation must now be carried out if technically feasible and necessary to protect human health and the environment from the impact of waste management.

Secondly, a new second paragraph has also been added to Article 18(3). This requires that, where separation is not required, the illegally mixed waste is treated at a facility that is authorised to accept it. It is proposed to remove the words ‘and economically’ from regulation 20(1)(b)(i). It is already an offence to mix hazardous waste without a permit in England, Wales and Scotland under regulation 65(A) of The Hazardous Waste (England and Wales) Regulations 2005 (as amended), The Hazardous Waste (Wales) Regulations 2005 (as amended) and The Special Waste Regulations 1996 17 and 17A (England, Wales and Scotland) and NI Hazardous Waste Regulations 2005.

Costs and benefits: Amending the hazardous waste regulations to reflect the new wording will require minimal change from the regulators and industry. This is because mixing hazardous waste is already illegal, and the change means those undertaking the illegal mixing are more likely to have to pay to separate the illegally mixed waste. The change therefore provides a further economic incentive to comply with existing law and may possibly benefit the legitimate businesses in terms of higher profits.

There may be costs to those that had previously not followed the guidance and used the argument of ‘expensive separation’ to avoid separating illegally mixed waste. From now on, they can no longer use such arguments as they have an option of sending such hazardous waste to sites that are permitted to separate them. It is not possible to place financial value to this amendment at the moment due to data limitations.

Waste Framework Directive Article 21(1)(c) – Mixing of waste oils

Article 21 (1)(c) removes the caveat that the prohibition on mixing waste oils with other waste oils of different characteristics, or other waste, only applies if it is technically and economically viable not to mix waste oils. There is also a change to clarify that priority should be given to regeneration when treating waste oils and that the mixing of wasting oils of different characteristics should not impede regeneration.

We intend to transpose this by amending Regulation 19(4) of the Hazardous Waste Regulations 2005 (England) and the Hazardous Waste (Wales) Regulations 2005 (as amended) to reflect the new wording of Article 21(1)(c). Northern Ireland will amend regulation 19(5) of the Hazardous Waste (Northern Ireland) Regulations 2005. In Scotland the mixing of waste oils has already been banned under Regulation 15 to the Waste Management Licensing Regulations 2011. Therefore, no costings for Scotland will be required at any stage of this RTA.

In addition to this, the Environment Agency (EA), Natural Resources Wales (NRW) and Northern Ireland Environment Agency (NIEA) will have to review operational practices at any sites that are permitted to mix waste oils to ensure that mixing does not impede regeneration.

Costs and benefits: The impact of this change depends on how waste oils are currently managed by industry. If waste oils are mixed at permitted sites because it was not technically or economically viable to keep them separate, then this practice must stop. Similarly, if waste oils are mixed in a way that does not impede treatment, but does impede regeneration, this will also need to stop. Our understanding from discussions with the relevant trade association and regulators is that this change will have little impact on waste oil managers. This is because few permits authorise the mixing of waste oils and waste oils are not routinely mixed in a way that would impede regeneration.

Waste Framework Directive Article 35 – Record keeping of hazardous waste

The CEP amends Article 35 of the Waste Framework Directive (2008) to address a number of aspects:

- a) Records must now be kept of the quantity and nature of materials and products resulting from preparation for re-use, recycling or other recovery of hazardous waste.
- b) Where relevant, records must also be kept on the mode of waste transport
- c) All the records required by Article 35 must now be made available to the relevant regulators through the electronic registry system required by Article 35(4)

Any treatment of hazardous waste that produces materials or products will be carried out under the conditions of an environmental permit/license, or in some cases, a registered waste exemption. We intend to amend the quarterly waste returns, which permit holders are already required to submit to the regulators, to require provision of this additional information.

Exempt sites are not required to submit waste returns so we are proposing a different approach to transposition of this requirement at these sites. The relevant Regulations in England, Wales and Northern Ireland will be amended, as appropriate, to implement this requirement for exempt site operators to keep and make available records. The exact form and frequency of submission will be determined by the regulators.

Furthermore, we will develop a simple and proportionate approach that allows the Consignee Return system to be used for the collection of information on mode of waste transport.

This is appropriate given that UK Government is currently working with the devolved administrations and considering the development of a new electronic waste tracking system that may replace the systems that are in place after 2020.

The costs to business will include administrative costs such as familiarisation costs (the time necessary to read, understand and implement the requirements) with additional requirements. Based on our understanding of the amendments, we estimate this could be about two hours of operators' time per quarter which translates to about one official day of operators' time per year. This task would be carried out by an administrative member of staff, i.e. costs of £97.70 per site per year¹⁸. With 4,075 hazardous waste treatment sites in the UK this will cost businesses circa £398,000¹⁹. We assume the familiarisation costs to occur in the first two years of the implementation period.

As with compliance, there will also be transitional costs to hazardous waste operators in the form of oversight functions which will be carried out by waste managers at each site. This will include development of a new process so that the required information is recorded and made available to staff members responsible for reporting. We estimate one-off costs in the first year to be £15.9m. This is estimated by assuming waste

¹⁸ This is simply the expected wage/salary cost of £80.08 (ONS, Annual Survey of Hours and Earnings) plus overheads. Overheads are assumed to be 22% of the wage rate as per [RPC guidance](#). i.e. £80.08*1.22=£97.70

¹⁹ As per information sourced from environment agencies, number of hazardous authorised and exempt treatment sites affected by the policy in each nation: England (3,260), Scotland (349), Wales (282), Northern Ireland (184). See Annex A – Table A.5 for further details.

managers will need to spend four working weeks²⁰ over the first year, with an average salary cost (including overheads) of £3,909 across 4,075 hazardous waste treatment sites in the UK²¹.

There will be an additional cost in sourcing and procuring the additional information related to the quantity and nature of materials and products to the regulators and potentially amending IT systems to report this additional information. Permitted hazardous sites will be required to report on a quarterly basis while exempt hazardous waste sites will only be required to report annually. The impact of this element is impossible to quantify at this stage due to lack of data around the reporting costs, although we would expect minimal costs.

Costs to UK environment agencies of amending IT systems to collect information on mode of transport have been estimated to be one-off costs of £25,000 for England and for Wales. Costs of amending IT systems to collect information on materials and products are also estimated to be one-off costs of approximately £100,000 for England and Wales. These estimates were provided through engagement with experts in the Environment Agency and Natural Resource Wales

Overall, the costs to Welsh and English environment agencies to amend their IT systems to collect information on mode of transport and materials and products are estimated at around £250,000 in the first year.

There will be compliance cost to the regulators in making sure that operators adhere to the additional information reporting and potentially amending IT systems to report this additional information, which would be about two-hours of work per quarter; hence one day of cumulative staff cost over one year. This is determined by the average fully costed wage of an employee in the EA hazardous waste team including overheads which is £571/week, prorated to £114/day, or £137 a year once including 20% overheads with a probable span of two years. Therefore, for the UK as a whole we anticipate these costs to be around £548 per year over the first two years. These costs have been sense-checked by policy officials in Defra and the Environment Agency.

There will also be some transitional costs to regulators of advising hazardous waste treatment sites operators on new requirements – based on the discussions with policy experts and the Environment Agency, we assumed this to be one month's work (one-off) of an EA Grade 5 whose fully costed monthly salary is £6,521 once including overheads. Therefore, total costs for all UK regulators are estimated at £26,084. These are expected to occur over the first two years.

Given our estimates above, overall costs to the public sector are anticipated to be around £276,632 in the first year and £26,632 in the second year (remaining compliance costs to regulators).

²⁰ This is an estimate

²¹ Methodology: 4,075 hazardous sites x £3,909 (ONS, Annual Survey of Hours and Earnings) = £15,929,175.

Table 4: Costs of Article 35 amendments – hazardous waste record keeping (£m, undiscounted)

£m	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	Total
Business admin costs in submitting additional information	£0.4	£0.4	£0	£0	£0	£0	£0	£0	£0	£0	£0.8
Business admin costs of adjusting to new requirements	£15.9	£0	£0	£0	£0	£0	£0	£0	£0	£0	£15.9
Regulator costs²²	<£0.03	<£0.03	£0	£0	£0	£0	£0	£0	£0	£0	<£0.06
Regulator costs of amending IT systems	£0.25	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0.25

Businesses are expected to benefit from greater transparency of the hazardous waste movements and from better information around the availability of secondary materials derived from such hazardous waste treatments and processes. It is expected that with the compliance to the new policy, hazardous waste treatment operators would keep records of valuable secondary materials and products created during hazardous waste treatment.

The policy would make this information more accessible to the Regulator and businesses. There will be potential efficiency savings associated with availability of additional information on secondary materials and products.

Furthermore, the new CEP requirements will help regulators have more streamlined and centralised record keeping of hazardous waste which will facilitate easier referencing, operational research and investigations of activities. This will also allow greater visibility and transparency on operators' activities with regards to hazardous waste and the ability to detect non-compliance seamlessly. Improved record keeping could lead to an improved understanding of waste flows, allowing the regulator to identify and combat waste crime; improve efficiency of landfill tax collections; fill data gaps and improve information on the availability of underutilised waste materials. These benefits remain unquantifiable.

Small and micro business assessment (SaMBA)

This section discusses estimated costs and benefits to small and micro businesses with respect to the quantified measures only. At this stage, it is not possible to assess impacts of other measures on small and micro businesses, though the overall impacts are thought to be either minimal or are currently unknown.

Landfill and incineration restrictions

As discussed above, private business waste holders, incineration operators and landfill operators are estimated to experience increased net costs or reduced revenue. On the other hand, mechanical biological treatment (MBT) plant operators and recycling facilities are expected to experience net gains when additional revenues are taken into account.

The waste collection sub-sector is one of the main types of waste holders. ONS figures, as presented in Table 5, show that within the waste collection sub-sector 94% of businesses are classed as micro or small and these businesses generate 8% and 15% of sub-sector turnover respectively. As shown in Tables 2 and 3, waste holders are estimated to see additional net costs of £1.6m (undiscounted) over 10 years which equates to £0.16m annually on average. Costs to waste holders accrue through the requirement to divert waste from landfill and incinerators to MBTs which have a higher gate fee per tonne of waste accepted than incinerators but lower gate fee than landfill. Costs to individual businesses are therefore proportional to the volume of waste handled, which in turn is expected to be proportional to turnover. On this basis, we estimate that micro and small waste collection businesses would encounter total annual net costs of £13,000 and £2,000 respectively. Small and

²² Compliance costs to regulators (£548/year) and transitional costs to regulators of advising hazardous waste treatment sites on new requirements (£26,084).

micro waste collection businesses generate combined turnover of £2,100m, however this figure is inclusive of hazardous waste businesses who are not impacted. Further ONS figures show that hazardous waste businesses make up 4% of businesses in this sub-sector. Assuming this is proportional to turnover, it is estimated that small and micro non-hazardous waste collection businesses generate £2,008m in turnover. As shown in Table 6, additional costs to small and micro waste holders represent 0.001% of this turnover.

Due to the high capital costs of energy from waste facilities it is not expected that any incinerator operators would be classed as micro, however some are classed as small. Further, some landfill businesses may be classed as micro. Incinerator and landfill operator businesses fall within the waste disposal sub-sector. In this sub-sector 63% of businesses are classed as micro and 26% are classed as small. These businesses account for 20% and 23% of turnover in this sub-sector respectively. Landfill operators are estimated to encounter additional net costs of £0.15m (undiscounted value) with incinerator operators' additional net costs at £5.06m (undiscounted value) over 10 years. This works out at £0.02m and £0.5m annually on average respectively. Again, additional costs, in the form of revenue losses, to these businesses occur on a volume basis and are therefore expected to be proportional to turnover. As such we estimate that micro and small business landfill operators would expect total additional annual costs of £3,000 and £4,000. Small incinerator businesses would see additional net costs of £0.12m annually. Small and micro waste disposal and treatment businesses generate £1,684m in turnover. This includes turnover generated by hazardous waste businesses, who make up 10% of the sub-sector and are not impacted. Additional net costs to small and micro landfill operators and small incinerator operators represents 0.0082% of the £1,516m of the estimated turnover of small and micro non-hazardous waste treatment and disposal businesses.

Table 5: Sub-sector number of businesses and turnover by business size²³

Sub-sector (SIC code)	Business size	Number of businesses	Number of businesses as percentage of sub-sector	Turnover (£m)	Turnover as percentage of sub-sector
Waste collection (381)	Micro	1,265	69%	£734	8%
	Small	455	25%	£1,366	15%
Waste treatment and disposal (382)	Micro	815	63%	£770	20%
	Small	515	26%	£914	23%
Materials recovery (383)	Micro	755	63%	£873	11%
	Small	370	31%	£2,220	29%

MBT plant operators and other recycling sector businesses are expected to see net gains overall with increased revenues of £6.5m and £0.5m respectively (10 year period – discounted values). These businesses fall within the materials recovery sub-sector. In this sub-sector micro and small businesses make up 63% and 31% of businesses and generate 11% and 29% of turnover respectively. This is a particularly diverse sub-sector and it is therefore difficult to know whether these figures are representative of the MBT and recycling businesses impacted by this regulation. However, based on the high proportion of micro and small businesses in this sub-sector, there is potential that some of the increased revenues will accrue to small and micro businesses.

Table 6: Net cost to businesses (undiscounted over 10 years)

²³ BEIS, Business Population Estimates for the UK and Regions 2019

Business type	Additional net cost to businesses for full 10-year appraisal (£m)	Annual net cost to small and micro businesses (£m)	Costs to small and micro businesses as percentage of sub-sector small and micro non- hazardous waste business turnover
Waste holders	£1.59	£0.02	0.001%
Landfill operators	£0.15	£0.01	<0.001%
Incinerator operators	£5.06	£0.12	0.0082%

6.2 Article 35 Hazardous waste record keeping

Hazardous waste disposal firms fall within the waste disposal sub-sector. As shown in Table 5 in the previous section, ONS figures show that micro and small businesses make up 63% and 26% firms and generate 20% and 23% of turnover in this sub-sector respectively. Additional costs to hazardous waste firms are only estimated for two years with the maximum additional annual cost at £16.4m. Again, if additional costs to micro and small firms are proportional to their sub-sector turnover, we estimate additional costs of £3.2m and £3.8m respectively for this year for these firms. Hazardous waste disposal firms make up 10% of the whole waste disposal subsector. Assuming small and micro hazardous waste firms generate 10% of the £1,684m turnover generated by small and micro businesses in this sub-sector, these additional costs represent 4% of the turnover generated by small and micro hazardous waste disposal firms²⁴.

Implementation plan

The legislative process will commence to ensure the required legal provisions are in place for when the measures are due to enter into force.

Monitoring and Evaluation

At this stage we are unable to provide a clear overview of what will be reviewed and when.

Annex A: Description of key assumptions, data and risks

This Annex provides further details on the key sources and assumptions made through the RTA. It then discusses key risks associated with the current analysis.

Tables A.1-A.2 below show the main technical and price assumptions made with respect to modelling landfill and incineration restrictions.

²⁴ As in the previous section, it is not certain as to whether turnover is proportional to the number of businesses in this context however this estimate is still able to give an indication of the scale of additional costs to micro and small businesses.

Table A.1: Assumed recycling rejection rates and other waste treatment assumptions, UK, Percentages

Assumptions		Source
Kerbside pre-gate rejects	Multi-stream collection ²⁵ : 2% of tonnage collected	WRAP Routemap model assumption
	Twin stream collection: 8% of tonnage collected	WRAP Routemap model
	Co-mingled collection: 12.5% of tonnage collected	WRAP Routemap model
Material reprocessing facility - gate rejects	Dry material recycles ²⁶ : 0.4%	Defra 2018 published Q100 data
MBT mass balance	MBT residual waste input: 100% Incineration / refuse derived fuel exports: 77% Moisture loss: 5% Plastics recycling: 4% Metals recovery: 2% Heavies (glass and stone): 2.5% Rejects to landfill: 9%	Based on Tolvik 2017 MBT briefing report 27 and expert judgement

Table A.2 Price assumptions

Assumed price		Source
MBT output material prices	Energy from waste / RDF: £86	Comparing the costs of alternative waste treatment options, WRAP, 2018
	Plastics: £65	Tolvik 2017 MBT briefing report ²⁸
	Ferrous metals: -£50	Tolvik 2017 MBT briefing report
	Non-ferrous metals: -£300	Tolvik 2017 MBT briefing report
	Heavies (glass and stone): £50	Tolvik 2017 MBT briefing report
Residual waste treatment costs (gate fee)	MBT plants: £97	Comparing the costs of alternative waste treatment options, WRAP, 2019
	Landfill: £24 (£113 with landfill tax)	
	Energy from waste: £89	

²⁵ These include materials from households such as paper, cardboard, cans, glass, plastic bottles, plastic pots, tubs and trays.

²⁶ These include materials from wider municipal, non-household sector such as paper, cardboard, plastic, metal and glass.

²⁷ TOLVIK Consulting (2017), [Mechanical Biological Treatment - 15 years of UK experience.](#)

²⁸ TOLVIK Consulting (2017), [Mechanical Biological Treatment - 15 years of UK experience.](#)

Tables A.3-A.5 present underpinning information used to calculate the GHGs emissions impacts of the landfill and incineration restrictions. This covers used carbon prices, materials' carbon emissions factors and derived emissions savings.

Table A.3: Traded and non-traded carbon prices, UK, 2020-2029

Year	Traded prices (£/t CO2e)	Non-traded prices (£/t CO2e)
2020	27.69	103.91
2021	37.04	105.65
2022	46.40	107.38
2023	55.75	109.11
2024	65.11	110.85
2025	74.46	112.58
2026	83.82	114.31
2027	93.17	116.04
2028	102.53	117.77
2029	111.88	119.51

Source: BEIS UK traded carbon values for policy appraisal; Table 3 from Green Book's supplementary guidance – supporting the toolkit and the guidance. The value placed on changes in greenhouse gas (GHG) emissions is currently under review, now the UK has increased its domestic and international ambitions. Accordingly, current central carbon values are likely to undervalue GHG emissions, though the scale of undervaluation is still unclear. The potential impact of placing a higher value on GHG emissions can be illustrated by using the existing high carbon values series. HMG is planning to review the carbon values.

Table A.4: Traded and non-traded greenhouse gas emissions' factors

Tonnes of CO2e avoided per tonne of material diverted	Recycling vs. landfill (traded)	Recycling vs. landfill (non-traded)	Recycling vs. energy-from-waste (traded)	Recycling vs. energy-from-waste (non-traded)
Paper/board	-0.06	-1.04	-0.06	0.33
Glass (mixed)	-0.09	-0.01	-0.09	-0.01
Aluminium	-4.03	-2.56	-4.03	-2.56
Steel	-1.27	-0.01	-1.27	-0.01
Plastics (average)	-1.05	-0.01	-1.05	-0.78
Wood	-0.14	-0.83	-0.14	0.51

Source: WRAP/Defra greenhouse gas emissions' factors

Table A.5: Traded and non-traded emission savings, thousand metric tons of CO2 equivalent, 2020-29

Country	Sector	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2020-2029
England	Traded	61.0	63.3	63.3	58.6	54.8	58.4	61.2	64.8	70.2	73.0	628.8
	Non-traded	27.7	28.8	28.9	26.6	24.9	26.6	28.0	29.7	32.2	33.6	286.9

Note(s): Column totals may not add up due to rounding of numbers; Defra own calculations

Article 35: Records keeping of hazardous waste

We list below some of the key assumptions made and data sources used with respect to costing Article 35:

- Administrative cost to business consists of the cost of employee time and effort associated with procuring and recording the additional required information.
- Cost estimate to the Regulator, of amending the existing electronic recording system have been applied where appropriate to provide some measure of possible one-off cost of about £165,000.
- Our focus with regards to operators on this RTA is on authorised and exempt hazardous waste treatment in the UK. There are currently a total of 2,061 authorised hazardous sites in England, 281 in Scotland, 172 in Wales and 128 in Northern Ireland. The number of exempt hazardous sites in England, Wales, Scotland and Northern Ireland are estimated at 1,199, 110, 68 and 56 respectively, as reported by the EA, NRW, SEPA. SEIA. Thus, the total cost to business covers 4,075 sites (See Table A.5 below).
- The average fully costed wage of an administrative staff to a hazardous waste treatment site operator is about £19,219/year prorated to £80.08/day. Also, the average fully costed wage of a waste manager to an operator to carry out a compliance role is given to be £39,097/annum, hence £3,258/month/site. To estimate the costs accounting for overheads, we multiply the salary by a factor of 1.2.
- These annual salaries were taken from the ONS Annual Survey of Hours and Earnings 2014 and adjusted to current average salaries based on an average wage growth rate.

Table A.5 shows the number of hazardous sites in the UK. It reports on all sites that submit consignee returns to relevant Environment Agencies in the UK.

Table A.6: Number of hazardous waste treatment sites in the UK, 2019

	1.IED permitted treatment sites (Installation permits)	2.Pollution Prevention & Control permitted sites	3.End-of-Life Vehicles	4.Other hazardous waste treatment sites (Including WEEE)	Total authorised sites (1+2+3+4)	5. Exempt sites	Total authorised and exempt sites (1+2+3+4+5)
England	208	-	1,684	169	2,061	1,199	3,260
Scotland	-	48	208	25	281	68	349
Wales	-	38	114	20	172	110	282
Northern Ireland	-	12	105	11	128	56	184
United Kingdom	208	98	2,111	225	2,642	1,433	4,075

Note(s):

- 1) Scotland's Pollution Prevention and Control permitted sites and End-of-life vehicle hazardous sites include 2 and 44 inactive sites, respectively. All 68 exempt sites are WEEE Reuse sites.
- 2) IED permitted Hazardous sites are sites permitted as 'installations' under the Industrial Emissions Directive with a 'listed activity' that allows treatment of hazardous waste.

Key risks

Article 35: Hazardous record keeping

Our £15.9m transitional costs to hazardous waste operators in the form of oversight functions, which will be carried out by waste managers at each site, are based on Defra's policy expert judgement. The cost per hazardous waste operator are based on a waste manager's salary for a month. This is because we assume waste managers will need to spend a month's worth work over the first year.

Additional costs to businesses of sourcing additional information relating to the quantity and nature of materials and products to the respective regulators, and potentially amending IT systems to report this information, are currently unknown. However, our policy experts judge these to be minimal given the current practice.

Other non-quantified CEP measures: Article 18 – Ban on mixing hazardous waste; Article 21(1)(c) – Mixing of waste oils

As discussed through the RTA, the impacts of these CEP measures have not been quantified at this stage. This leads to a risk that our overall cost and benefit estimates may be underestimated.