

The Collection and Packaging Reforms – a summary of the impacts

Executive summary

This document is designed to give an overview of the analysis undertaken for three policies collectively known as the “Collection and Packaging Reforms”. These are a deposit return scheme (DRS) for drinks containers in England, Wales and Northern Ireland, consistent municipal recycling collections in England and reforming the packaging producer responsibility system in the UK. The purpose of this document is to explain how the analysis has been constructed to reflect policy interactions and how the impacts to different interested parties flow across the analysis. It also provides a synthesis of how different DRS decisions impact on the other two reforms, given the open nature of the DRS consultation.

The analysis presented here is based on the options that deliver the highest net benefit from an economic perspective based on our latest evidence base and do not reflect final policy decisions. For further detail on the impacts of the collection and packaging reforms, please refer to the relevant Impact Assessment (IA) documents.

Please note that the figures used in this document have been adjusted slightly from those referenced in the Impact Assessments. This has been done so that the costs and benefits across the three reforms are presented consistently (with the same price-level (2019 prices) and the same approach to discounting figures (figures are discounted from 2021), such that they can be accurately added together and viewed as a programme of reforms.

The policy objectives of the collection and packaging reforms are as follows:

Consistent municipal recycling collections (consistent collections) in England:

Local authorities (LAs) will be mandated to collect a consistent range of dry materials from households across all localities in England, a weekly separate food waste collection and garden waste collection. Non-household organisations that produce consumer waste (e.g. schools, businesses, offices) will also be required to recycle the same consistent range of dry materials, and where feasibly separate food waste. The improved material segregation and consistent approach to waste disposal across England will help to make it easier for households, businesses and public organisations to recycle and, in turn, drive up recycling rates beyond current levels.

Reforming the packaging producer responsibility system in the United Kingdom:

Obligated producers¹ will be mandated to reimburse LAs and businesses/organisations that dispose of packaging waste, for the costs of managing the packaging that they place on the market. This payment will be facilitated via a modulated fee system which will be set using specific criteria relating to the packaging’s environmental impact and treatment cost. Modulated fees will be designed to reward producers who use packaging that contributes positively to scheme outcomes (e.g. recyclable packaging) and to penalise producers who use packaging that does not. This extends a producers’ responsibility to include post-consumer impacts of the packaging they place on the market.

In addition to recovering the costs of managing packaging waste from producers the following proposals are presented: mandatory recyclability labelling on packaging, separately collected plastic film packaging for recycling (funded by producers), and a requirement on sellers of filled disposable paper cups to provide for the separate collection of used cups (a ‘take back’ service).

Introducing a Deposit Return Scheme (DRS) in England, Wales and Northern Ireland:

¹ The consultation proposes that the producers who will be obligated to pay the costs of managing packaging waste will be Brand Owners, Importers, “Distributors” (those who sell unfilled packaging to unobligated producers), Service Providers and Online Marketplaces (for filled-packaging that is imported as a result of a sale through their marketplace).

A DRS will require consumers to pay a deposit at the point of purchase, and then return their drinks container to a specific return point for recycling, in order to redeem their deposit². The financial incentive offered to consumers for returning their drinks containers to designated return points, provides the incentive to increase the recycling of drinks containers, and will improve the quality of the recycled material and minimise the amount of littered drinks containers in the environment.

Each reform focuses on reducing waste and increasing recycling. This will be achieved by:

- 1) Incentivising producers to **reduce the amount of packaging** (including hard to recycle packaging) that they place on the market, by increasing the financial burden they will incur for doing so, and;
- 2) By increasing the **ease by which consumers and/or businesses are able to separate recyclable waste** from non-recyclable waste through a combination of approaches, notably consistent waste collections, clearer labelling on packaging, and the provision of return points for DRS drinks containers.

It is important that the three consultations are viewed as a package due to the connected nature of the policies and how they interact with the spectrum of waste management systems across the UK. A summary of the cumulative costs and benefits of all three policies can be seen in table 1, and the cumulative carbon savings are presented in table 2:

Table 1 – summary of the costs, benefits and NPVs associated with each reform³

EPR (2023-2032)			All-in DRS (2022-2032)			Consistent collections (2023 – 2035)			Total
Costs	Benefits	NPV	Costs	Benefits	NPV	Costs	Benefits	NPV	NPV
£16,942 m	£17,216 m	£275m	£6,829m	£12,920m	£6,091m	£6,843m	£9,610m	£2,766m	£9,132m

Table 2 - Total carbon savings over the entire appraisal period, MtCo2e⁴

EPR (2023-2032), (MtCo2e)	All-In DRS (2022-2032), (MtCo2e)	Consistent collections (2023-2035), (MtCo2e)	Total
4.38	3.41	53.9	61.69

This document outlines the impacts of the collection and packaging reforms on the different actors, according to analysis carried out for the second consultation Impact Assessments (IAs). The actors that are expected to be impacted by the implementation of the collection and packaging reforms are listed below.

Businesses – A number of different types of businesses will be impacted by these reforms – retailers, businesses that sell packaged products on the UK market, drinks manufacturers placing drinks containers in-scope of the DRS⁵ on the UK market, waste management companies and businesses/public sector organisations that pay for waste collection services. Producers placing packaged products and drinks containers on the market will face significant additional net costs (£11.85bn over the appraisal period⁶, or £1,185m per year), whereas organisations that pay for waste

² Under an 'All In' DRS, PET plastic bottles, glass bottles, aluminium and steel cans sold in single-format and multipack-format will be in-scope of the DRS.

³ All figures are discounted to a 2020 Present Value and they are in 2019 prices

⁴ These figures are still undergoing quality assurance checks

⁵ Under an 'All In' DRS, PET plastic bottles, glass bottles, aluminium and steel cans sold in single-format and multipack-format will be in-scope of the DRS.

⁶ Producers of DRS in-scope drinks containers will face costs of £3.6bn – this cost is reduced by the material revenue received (£373m), such that the net cost to DRS producers is £3.25bn. The costs for obligated producers under the EPR packaging scheme amount to £12.95bn, these

collection services will benefit from the reforms (£2.5bn over the appraisal period, or £253m per year⁷). Retailers will be financially reimbursed for costs incurred through complying with the DRS requirements. Retailers that place packaged products on the market will be obligated to comply with the EPR requirements for their 'own brand' products.

Local government – The net impact on local authorities will be positive – we have estimated that the benefit to local authorities will amount to £0.96bn per year over the appraisal period⁸. Local authorities will be reimbursed for the full cost incurred of managing household packaging waste, including the collection and treatment of packaging waste from kerbside, household waste recycling centres (HWRCs) and litter. Local authorities will also be reimbursed accordingly for DRS containers that end up in these waste streams. However, local authorities that currently charge for garden waste collections, will lose this income under the proposals for free garden waste collections. In addition, the costs of transitioning to the new waste collection systems are expected to be significant. Any costs to local authorities will be assessed in accordance with the new burdens principles, from the date that the new burden is introduced.

UK Government – Implementing the reforms will come at a cost to central government. The most significant cost will be the loss of landfill tax receipts due to the reduction in residual waste (estimated to be £446m⁹ per year). The UK Government will also have to fund the development of new IT systems to support the implementation of EPR and DRS (£14m) and fund ongoing support to local authorities and public organisations/businesses to help them transition to consistent collections (£11m per year).

The environment – These reforms will deliver significant benefits to the environment due to their impact on reducing waste (and in turn reducing GHG emissions), reducing litter and reducing our reliance on virgin materials. The reduction in GHG emissions has been valued at £3.8bn over the appraisal period¹⁰.

Society – Members of society will benefit from reduced litter disamenity (valued at £1.2bn per year), free garden waste collections (a saving of £91m per year), and possible new employment opportunities (due to expected private investment in UK reprocessing). There may be some time costs to individuals from complying with the reforms, but we expect these to be negligible.

costs are reduced by savings from no longer having to acquire evidence of recycling (packaging recovery notes) as required by the current Packaging Waste Regulations (2007) (£3.89bn) and savings in waste management costs, such that the total net costs to EPR obligated producers will be £8.6bn.

⁷ This benefit is based on the assumption that businesses that pay for waste management services benefit from reduced landfill tax, rather than the waste management company that collects the waste. This assumption will be reviewed for the final IA.

⁸ Includes income from EPR, reduced litter clean-up costs under DRS and transition and ongoing costs associated with consistent collections.

⁹ This figure is under review because of uncertainties around the amount of NHM waste and the future capacity provided by Energy from waste (EfW) facilities. It is possible that this might be an overestimate.

¹⁰ 2023-2032 (EPR and DRS) and 2023-2035 (Consistent collections)

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Glossary

Municipal sector: Consumer waste that ends up in household (HH) and non-household municipal (NHM) bins.

Household municipal: Consumer waste that is collected from households.

Non-household municipal (NHM): Consumer waste that is similar to that disposed of in household bins, but is instead disposed of in non-household settings (e.g. schools, businesses, offices, hospitals).

Household collection: synonym of kerbside collection

Household-like: synonym of non-household municipal waste

C&I: Commercial and Industrial waste and transit / distribution packaging which is not included in scope of full net cost fees.

Twin stream collections: Dry recycling materials are presented for collection in two separate containers, for example fibres (paper and cardboard) in one and other dry materials in another.

Multi-stream collections: Dry recycling materials are presented for collection by the household in three separate containers

Co-mingled collections: Dry recycling materials are presented for collection together in one bin.

Manual return point: A shop that offers a take-back service for drinks containers that are in-scope of DRS

Reverse vending machine (RVM): A machine that returns a consumer's deposit when they dispose of their drinks container within it.

1. Introduction

We are consulting for the second time on the three policies listed below:

- **Consistent municipal recycling collections in England**, to make it easier for households and businesses to recycle.
- **Reforming the packaging producer responsibility system in the United Kingdom**, to ensure producers meet the full net cost of managing the packaging that they place on the market once it has been used.
- **Introducing a Deposit Return Scheme (DRS) in England, Wales and Northern Ireland**, to increase the recycling of drinks containers, to improve the quality of the recycled drinks containers, and to reduce the amount of drinks containers littered in the environment.

Each reform focuses on reducing waste and increasing recycling – this is instigated by incentivising producers to reduce the amount of packaging (in particular hard to recycle packaging) that they place on the market, as well as by increasing the ease with which consumers and businesses are able to separate recyclable waste from non-recyclable waste. All three reforms are expected to contribute to increasing the proportion of municipal waste that is recycled to 61% by 2032 – in the absence of intervention, this recycling rate would likely remain static at 44%-45%, the rate it has been since 2015¹¹. The reforms will also increase the proportion of packaging waste that is recycled, from 61% in 2019 to 78% by 2032.

It is important that the three consultations are viewed as a programme due to the connected nature of the policies. In turn, this has implications when reading the Impact Assessments (IAs) – the analysis has been developed to assess the cumulative costs and benefits of the policies by assuming that they're implemented sequentially.

Please note that the DRS consultation is an 'open' one, i.e. the UK government has not set out a preferred option for England. Nevertheless, the interconnected nature of the three reforms means it is necessary to choose a DRS outcome to be able to frame the scope of the other analyses. For this reason, we decided to take forward the DRS option that yielded the highest net benefit from an economic perspective. This is the All-in DRS option.

Aside from the programme of collection and packaging reforms that Defra is developing, the UK Government will introduce a plastic packaging tax at a rate of £200/t¹². The tax will apply to plastic packaging manufactured or imported into the UK that contains less than 30% recycled plastic. This tax will deliver environmental benefits by stimulating demand for recycled plastic and reducing the use of virgin-materials in plastic packaging.

The tax and the collection and packaging reforms are complementary policies – combined they will facilitate a market for recycled plastic material and optimise the environmental benefits associated with each standalone policy. For the purposes of this analysis we have assumed that the tax increases demand for recycled plastics, and the implementation of the collection and packaging reforms will increase the supply of recycled plastic.

A description of the three policy proposals can be found in Annex A, with full details to be found in the three consultation impact assessment documents published alongside this document.

How the Impact Assessments are set up to be read

Ordering the analysis has been key to producing a rigorous assessment of the programme of reforms. It is important that the impacts of the reforms are viewed as a whole programme, whilst also ensuring that the impacts of each policy can be identified individually.

¹¹ Currently at 44-45%

¹² <https://www.gov.uk/government/publications/introduction-of-plastic-packaging-tax/plastic-packaging-tax>

To appraise a manageable suite of options, the DRS IA identified the economic option with the highest net present value which was then taken as a baseline for the economic analysis of consistent recycling collections. The preferred option from this analysis then served as the baseline for the reform of the packaging producer responsibility scheme.

The approach to ordering the Impact Assessments (IAs)

- The **DRS IA** concludes that the economic option with the highest net present value is an All-in DRS.
- The **consistent collections IA** therefore assumes that an All-in DRS will operate in the baseline of the analysis¹³. It presents the additional impact of the consistent collections proposals, such that the costs/benefits can be added to those outlined in the DRS IA to give a cumulative impact. The consistent collections IA, concludes that the preferred option is the collection of recyclable materials from households through 'optimised' collection systems¹⁴, the provision of separate weekly food waste collections and free garden waste collections. For businesses, the preferred approach is assumed to be the collection of dry mixed recyclables (DMR), separate glass and separate food waste (where feasible)¹⁵.
- The **EPR IA** assumes the preferred consistent recycling collections option and an All-in DRS are implemented in the baseline scenario. Again, this means the EPR analysis can be bolted on top of the DRS and consistent collections analysis to understand the cumulative impact of the collection and packaging reforms, or can be read as a standalone document to understand the impacts that EPR for packaging alone offers.

The economic case for a DRS for drinks containers is considered first because, if implemented, it would have an immediate effect of removing drinks containers from kerbside waste. This will impact the kerbside waste collection costs and therefore the removal of DRS materials should be accounted for in the analysis of consistent collections. Furthermore, drinks containers are in scope of the current packaging producer responsibility scheme. However, as drinks containers in scope of a DRS would not be in scope of the packaging extended producer responsibility system (on the basis that they would instead be in scope of the DRS) it is reasonable to assume for the EPR IA that the DRS is present in the baseline.

Proposed implementation timeline

There is some discrepancy between implementation dates for the collection and packaging reforms in the consultation documents and in the Impact Assessments (IAs). The analysis in the three IAs is based on a 2023 implementation of the three reforms, as set out in the Resources and Waste Strategy¹⁶. However, some elements of the reforms are now proposed for 2024 implementation. Due to the quality assurance and scrutiny process necessary for regulatory Impact Assessments, it has not been possible to factor this change into the analysis without delaying the consultations. We expect the impact of this change on overall costs and benefits to be small and will account for any revisions to implementation dates in the final Impact Assessments. The timeline below reflects the timings that are assumed within our Impact Assessments (i.e. a 2023 implementation for all three reforms).

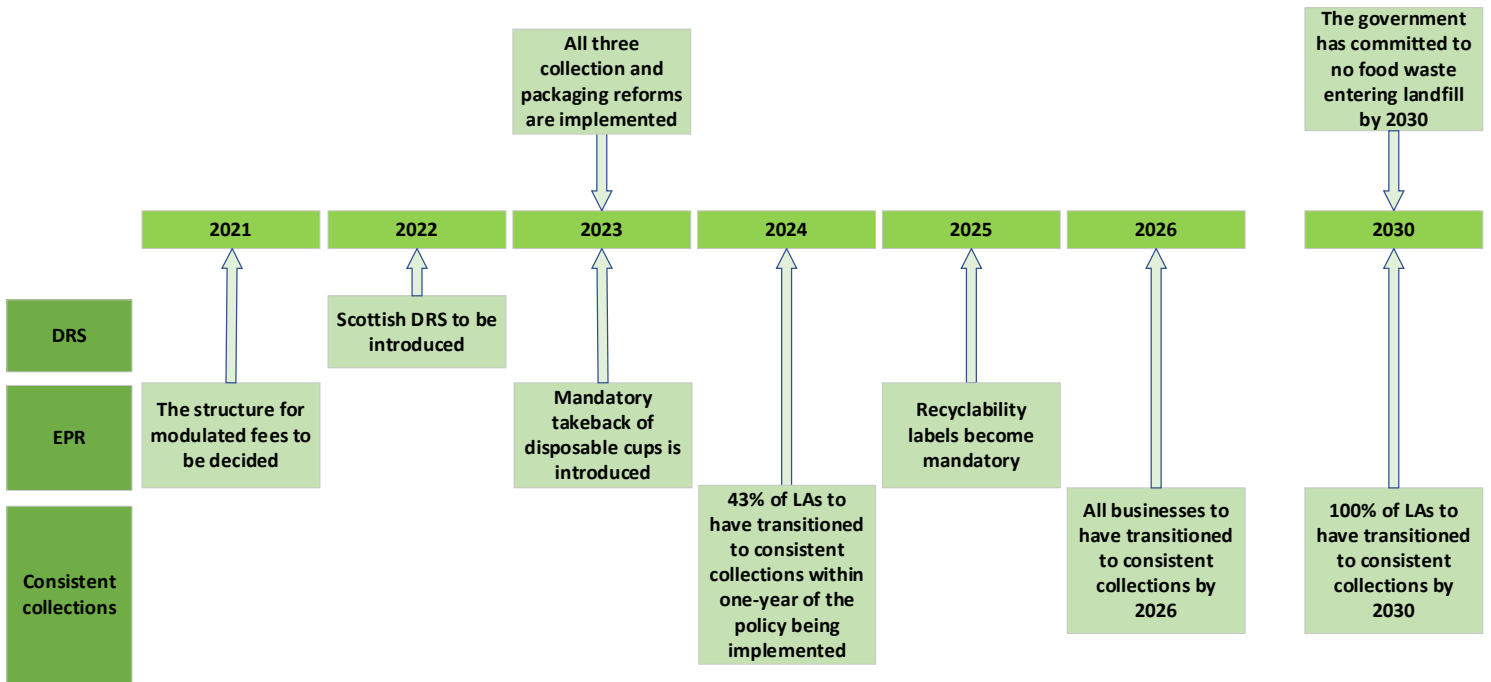
¹³ The consistent collections analysis assumes that ~85% of DRS material is removed from kerbside collections, street bins and litter to derive the baseline figures.

¹⁴ Local Authorities use the least cost option for their recycling collections (between multi-stream, two-stream or commingled (mixed) collections). This means that Local Authorities will rely on one of the exemptions applying where they are unable to collect recyclable waste streams separately.

¹⁵ Micro businesses are assumed to be exempt from separating their waste into the required waste streams.

¹⁶ <https://www.gov.uk/government/publications/resources-and-waste-strategy-for-england>

Figure 1 – Timeline of the implementation of the collection and packaging reforms used within Impact Assessments – note for the latest on delivery timelines, please refer to the consultations



2. The overall impact

The three policies combined are projected to deliver the following impacts:

- **Cost effective societal benefits** including NPVs of **£6.1bn** (DRS), **£0.3bn** (EPR) and **£2.8bn** (Consistent collections), see table 3.
- **Increased municipal waste recycling rates** from **44%** in 2019 to **61%** by 2032.
- **Increased packaging waste recycling rates** from **61%** in 2019 to **78%** by 2032
- **Carbon savings** of **22.8 million tonnes (traded)** and **38.9 million tonnes (non-traded)** between 2021 and 2035.

Summary of costs / benefits / NPVs

All three reforms result in positive NPVs – with the programme of reforms amounting to a total **net benefit of £9.3bn**. The key benefits driving the positive total NPV are the benefits to society (£16.9bn) – notably the GHG reduction benefit due to the consistent collections reform (£3.4bn¹⁷) and the disamenity reduction benefits (£12bn¹⁸) due to the DRS.

The most significant costs are the costs to producers – obligated producers for packaging in scope of EPR will face additional net costs of £8.6bn¹⁹, and obligated producers for packaging that is in scope of DRS will face additional net costs of £3.3bn²⁰.

Local authorities are expected to be net beneficiaries of the programme of reforms, with net benefits amounting to £9.4bn over the appraisal period.

Whilst the NPV for the EPR policy is relatively small in comparison with the NPVs for the DRS and consistent collections policies, the policy is an essential component of the reforms. The EPR policy results in a significant cost transfer from the public purse to the private sector. This transfer in financial responsibility for the management of packaging waste will incentivise reduced use of packaging materials and greater use of recycled packaging by the private sector which will result in significant environmental benefits.

¹⁷ Discounted, for the period 2023 – 2035, (2020 Present Value and 2019 prices)

¹⁸ Discounted, for the period 2022 – 2032, (2020 Present Value and 2019 prices)

¹⁹ Discounted, for the period 2023 – 2032, (2020 Present Value and 2019 prices)

²⁰ Discounted, for the period 2023 – 2032, (2020 Present Value and 2019 prices)

Table 3 – summary of the total costs and benefits incurred to each party under each of the reforms. **Costs are presented in brackets**²¹

All costs / benefits ²²	EPR (2023-2032)			DRS (2022-2032)			Consistent collections (2023 – 2035)			Total
	Costs	Benefits	NPV	Costs	Benefits	NPV	Costs	Benefits	NPV	NPV
	£16,942m	£17,224m	£275m	£6,839m ²³	£12,920m	£6,091m	£6,843m	£9,610m	£2,766m	£9,132m
Business costs	(£16,837m) <i>EPR producers: (£12,947m)²⁴</i> <i>PRN compliance schemes: (£3,890m)</i>			(£3,628m)* <i>DRS producers (£3,628m)</i>			(£317m) <i>Businesses that pay for waste management: (£317m)</i>			(£20,782m)
Business benefits	£7,323m <i>Recycling sector: £203m</i> <i>EPR producers: £4,352m</i> <i>Businesses that pay for waste management: £2,769m</i>			£373m <i>DRS producers (£373m)</i>			£5,061m <i>Businesses that pay for waste management and waste management companies: £5,061m</i>			£12,757m
net impact	(£9,514m)			(£3,235m)			£4,744m			(£8,025m)
Local gov't costs							(£840m)			(£840m)
Local gov't benefits	£9,529m			£712m						£10,241m
Local gov't net impact	£9,529m			£712m			(£840m)			£9,401m
Central gov't costs	(£105m)						(5,686m)			(£5,791m)
Society benefits	£372m			£11,835			£4,549m			£16,756m

* Business costs will depend on policy decisions regarding the extent to which unredeemed deposits will be used to fund the operation of the scheme. The current assumption in the DRS IA is that unredeemed deposits will account for 50% of the net cost of running the scheme (£3.2bn).

A more detailed breakdown of what contributes to each of the costs and benefits is captured in Annex B.

Summary of recycling rates

All three reforms will increase the projected packaging waste recycling rates and projected municipal waste recycling rates.

In total, the collection and packaging reforms are expected to increase the **packaging waste recycling rate** by ~17 percentage points, and by a total of ~2.17mt. See table 4 for a full breakdown.

²¹ All figures are discounted to a 2020 Present Value and they are in 2019 prices

²² All figures are discounted to a 2020 Present Value and they are in 2019 prices

²³ The total costs in the DRS exceed the sum of the business and government costs. This is because 50% of the net costs are assumed to be financed by unredeemed deposits. This is not calculated as a cost to consumers as consumers choose to forego this deposit if they do not return their drinks container.

²⁴ Includes costs associated with mandatory take-back of cups

Table 4 - Packaging recycling rates (2032)

	Packaging recycling rate	Difference (% point) ²⁵	tonnage	Difference (tonnes)
Baseline	61%		7,786,189	
+ DRS (All-in)	66%	+ 5%	8,369,250	+ 583,060
+ Consistent collections	73%	+ 7%	9,244,983	+ 875,733
+ EPR	78%	+ 6%	9,956,128	+ 711,145

To demonstrate the positive impact of the collection and packaging reforms on packaging waste recycling rates, table 5 benchmarks the projected recycling rates for each packaging material against the 2030 EU packaging recycling targets²⁶. The table shows that for all packaging materials, the UK is projected to surpass the 2030 recycling rates set for EU packaging.

Table 5 – projected packaging recycling rates for 2030

	2030 (no intervention)	2030 (collection and packaging reforms)	2030 EU target
Paper	70%	86%	85%
Glass	69%	93%	75%
Aluminium	57%	69%	60%
Steel	83%	92%	80%
Plastic	42%	62%	55%
Wood	38%	39%	30%

The three reforms combined are expected to increase **drinks container recycling** from 70% to 95%, once fully operational²⁷. This is an increase in material recycled of 587kt per year²⁸.

The projected 2032 **municipal waste recycling rate** is expected to increase from 44% to 61% as a result of the collection and packaging reforms. Consistent collections are due to have the most significant impact on recycling rates (+15%) due to the scope of materials involved in the reform (i.e. all municipal waste). For the purpose of the IA, we have only modelled projected recycling rates to 2032 as this is the end of the appraisal period for the DRS and EPR policies.

Table 6 – Municipal recycling rates (2032)

	Municipal recycling rate	Difference (% point)	tonnage	Difference (tonnes)
baseline	44%		21,999,749	
+ DRS (All-in)	45%	+ 1%	22,345,880	+ 346,131
+ Consistent collections	60%	+ 15%	29,646,550	+ 7,300,670
+ EPR	61%	+ 1%	30,357,695	+ 711,145

Map of the financial flows between different parties

Figure 2 below demonstrates the financial interactions between different parties when the collection and packaging reforms are introduced. The arrows represent financial costs and benefits to parties – where the arrow flows away

²⁵ Rounded

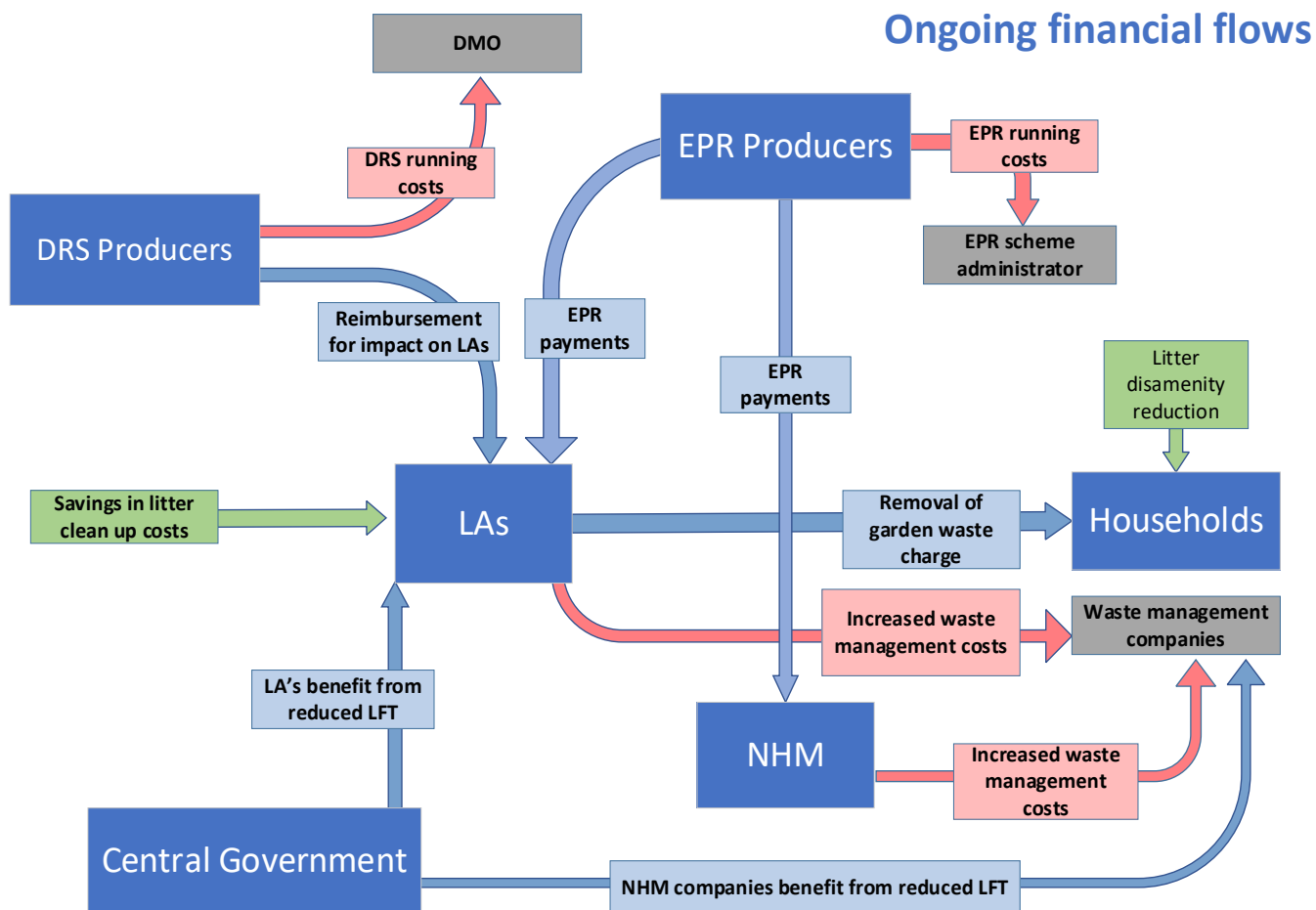
²⁶ Under the Northern Ireland Protocol (NIP), Northern Ireland will need to continue to report to the EU annually and meet EU targets

²⁷ Assuming that an All-in DRS is implemented

²⁸ Assuming that an All-in DRS is implemented

from a party a cost is incurred, and where the arrow points towards a party, a benefit is received. The blue arrows represent transfers, the red arrows represent new costs and the green arrows represent new benefits. This is a very simplified map of interactions – in some cases **other parties may be involved** (e.g. there will be a scheme administrator for EPR which will facilitate the payment of EPR fees from EPR producers to local authorities). Each of these costs and benefits is described in more detail below.

Figure 2 – map of financial flows between different parties²⁹



LFT: Landfill tax

3. Impact on businesses

Producers obligated under EPR packaging regulations

A key objective of EPR is to make the producer responsible for the costs of managing packaging at the end-of-life stage. This cost will be passed on to producers obligated under EPR through the requirement to pay modulated fees on the packaging they place on the market.

In the EPR IA we projected that producers' average annual costs will **increase** by approximately £835m³⁰ per year, as a result of the requirement to pay packaging waste management costs. The money raised through producer fees will fund the collection, sorting and treatment costs of packaging waste, currently incurred by local authorities and businesses/public organisations that pay for their packaging waste to be collected.

At the time of producing the EPR impact assessment, we had estimated that payments to business that currently pay

²⁹ This graphic does not include transition costs

³⁰ Discounted, 2019 prices, 2020 present value

for their packaging waste to be collected, would be in the region of £249m-£413m per year over the 10-year appraisal period. However, more recent analysis (that we believe uses a more robust methodological approach) suggests that these payments will likely be somewhere between our original estimate and £1.5bn per year. Despite this estimated increase in payments, this does **not** impact on the NPV of any policy option as these costs are a transfer from local authorities/waste holders to obligated packaging producers.

Table 7 – projected change in average annual costs (2023-2032) to EPR packaging producers

	Average annual cost ³¹
Projected cost of compliance under the current packaging producer responsibility scheme (baseline) costs ³²	£389m
Projected cost of packaging waste management costs under EPR ³³	£1,224m
Increase in costs	£835m

The financial burden of packaging waste management costs/modulated fees to an individual producer will depend on the amount and type of packaging placed on the market by an obligated producer – the fees will be set at levels that reward eco-design and penalises poor design. Modulated fees will therefore encourage producers to make changes to the way in which they design and use packaging.

Besides the full net costs of managing packaging waste under EPR, additional costs arising from the introduction of mandatory labelling, communication costs, scheme administration and governance costs and employee familiarisation and training costs will also be borne by obligated producers.

Table 8 – Total costs to EPR producers per year, £m

	Total cost, 2023-32 (discounted) ³⁴
Transition costs (familiarisation and training)	£83m
Communication and other costs	£31m
Administration costs (running the EPR scheme)	£98m
Packaging waste management costs (net of material revenue)	£12,242m
Total	£12,454m³⁵

The EPR IA also considers the proposal that sellers of filled disposal paper cups will be required to provide for the separate collection of used cups (either generated in-store or consumed ‘on-the-go’), through both instore and front of shop collection points, and to arrange for the collection and recycling of these cups. It is assumed that most sellers will provide bins at their premises. These businesses will also need to cover staff training and familiarisation costs associated with this requirement.

³¹ Discounted, 2019 prices, 2020 present value.

³² This figure has been calculated assuming that an All-in DRS is in place in the baseline. Therefore, DRS material, and DRS producers are excluded.

³³ Includes all costs associated with the management, sorting and treatment of packaging collected from kerbside, HWRCs and litter.

³⁴ Discounted, 2019 prices, 2020 present value.

³⁵ Whilst the cost incurred by packaging producers under EPR will be large in sum, ~7,000 businesses³⁵ are obligated to comply with the current packaging producer responsibility regime.

Table 9 – Total costs to sellers of filled paper cups, per year

	Total cost, 2023-32 (discounted) ³⁶
Cup collection costs (ongoing cost)	£67m
New bins (transition cost)	£9m
Familiarisation and training (transition cost)	£6m
Total	£82m

The total net impact on EPR producers, including the impacts on retailers obligated by the mandatory take-back of disposable cups requirement, and all transition costs is presented below in table 10.

Table 10 – Net impact on EPR producers per year, £m

	Total cost, 2023-32 (discounted) ³⁷
Total cost of complying with packaging EPR	£12,454m
Total cost of complying with disposable paper cup take-back scheme	£82m
Savings from no longer having to comply with the current packaging producer responsibility scheme	- £3,890m
Total	£8,646m

‘Producers obligated under DRS regulations’

In this section we present the estimated costs to DRS producers under both an All-in DRS, and an OTG DRS. We have presented both options in this section due to the uncertainty around the preferred approach to the DRS.

Regardless of the scope of the DRS (All-in or OTG), a DRS will be run by a Deposit Management Organisation (DMO). The DMO will be a single organisation established to manage the operation of the DRS.

The costs involved in running the DMO include:

- The set up and maintenance of reverse vending machines (RVMS) and the labour costs of manual take back operations;
- Organisational set-up costs;
- Logistical costs associated with transporting returned drinks containers to bulking points;
- IT installation costs;
- Central administrative costs;
- Enforcement costs;
- Relabelling costs, and;
- Counting centre costs.

The DMO will be financed by a combination of:

- i) Fees levied on obligated producers of materials;
- ii) Revenue generated from the sale of recycled containers to reprocessors and;

³⁶ Discounted, 2019 prices, 2020 present value.

³⁷ Discounted, 2019 prices, 2020 present value.

- iii) Any unredeemed deposits from consumers.

At the time of finalising the Impact Assessment, our modelling assumption was that DRS packaging producers will cover 50% of the net costs of running the DMO, with the remaining running costs being financed by unredeemed deposits. This should not be taken as a policy decision but simply a modelling assumption. We will seek further views on this at consultation which sets out a preferred approach where unredeemed deposits are reinvested into the system to keep the costs to producers to a minimum. A decision will be reflected in the final impact assessment following consultation.

Besides the DRS fees for setting up and running the DMO, there will be additional costs to DRS producers manifesting in the form of relabelling costs and training and familiarisation costs.

The costs to DRS producers under an All-in DRS are captured in table 11, and the costs to DRS producers under an OTG DRS are captured in table 12³⁸.

Table 11 – Total net costs to DRS producers (under an All-in DRS)

	Total cost, 2022-2032 (discounted)³⁹
DMO set up costs	£2,053m
DMO running costs	£4,722m
Relabelling costs	£39m
Familiarisation and training	£15m
Material revenue used to offset DMO costs	£373m
URD used to offset DMO costs	£3,201m
Total (net cost to DRS producers)	£3,255m

Table 12 – Total costs to DRS producers (under an OTG DRS)

	Total cost, 2022-2032 (discounted)⁴⁰
DMO set up costs	£1,180m
DMO running costs	£2,561m
Relabelling costs	£19m
Familiarisation and training	£15m
Material revenue used to offset DMO costs	£107m
URD used to offset DMO costs	£1,831m
Total (net cost to DRS producers)	£1,837m

Retailers

DRS

Retailers will be impacted under the DRS – however, they will be financially reimbursed for all costs incurred, as outlined below.

³⁸ Unlike in the EPR analysis, savings to DRS producers from no longer complying with the current regulations have not been included in the DRS analysis.

³⁹ Discounted, 2019 prices, 2020 present value

⁴⁰ Discounted, 2019 prices, 2020 present value

As ‘return to retail’ is our proposed method of returning drinks containers, retailers would be required through legislation to accept the take-back of empty in-scope containers from consumers and provide payment of redeemed deposits⁴¹.

Reverse vending machines (RVMs) capable of accepting all the materials in scope would be installed in retail outlets wishing to operate a return point via this method. The obligation will be for retailers to host a return point only – retailers will be able to choose to host a return point with an RVM, or alternatively host a manual return point. This will be agreed with the DMO.

Retailers will be reimbursed from the DMO for the costs they incur in hosting a return point via a handling fee. The fee paid to retailers will be based on a series of criteria which will be set out in legislation taking into account all the likely costs to a retailer of operating a return point. These criteria should take into account the requirements for costs of purchase, lease, maintenance or upkeep of any collection/storage infrastructure, including any vehicle used for collections; costs of materials for collection/storage of containers; space requirements and opportunity costs associated with return point⁴²; staffing and utility costs of operating the return point (e.g. electricity). The calculation of the retailer handling fee will be left to the DMO to determine, most likely using a third-party consultancy/accountancy firm to model the fee based on various criteria of a retailer’s circumstances. In addition, and separate to the handling fee, the DMO will also reimburse retailers for the deposits they pay out on containers returned by consumers to their return point.

In certain cases, retailers will be able to apply to the DMO for an exemption to the obligation to host a return point where they are in close proximity to another return point or they are not able to host a return point on the basis of a compromise of safety. It is most likely that it will be smaller retailers hosting manual return points who may apply for an exemption. The exemption process would be managed by the DMO who will be responsible for ensuring adequate provision of return points remains available for consumers. However, as the number of exemptions that will be provided is unknown, for the purpose of this analysis it is assumed that all retailers will host a return point.

Table 13 and table 14 below outline the costs that will be incurred by in-scope retailers under an All-in and an ‘OTG’ DRS – before the costs are reimbursed by DRS producers.

Table 13 – impacts on retailers as a result of the All-in DRS – all costs will be reimbursed by the DMO (funded by DRS producers)

	Total cost (discounted)
Opportunity cost of space	£209m
Labour time costs	£300m
Handling costs	£576m
Maintenance costs	£843m
Retail rental cost	£163m
Total	£2,091m

⁴¹ The proposals for a DRS in England, Wales and Northern Ireland are that all retailers will be required to operate a return point (either via an RVM machine or manual take-back).

⁴² For example, retailers would face a space cost of placing an RVM on the shop floor, and of storing bottles after unloading from machines. These costs were estimated by applying the potential profits lost to the average floor space required to comply with the DRS.

Table 14 – impacts on retailers as a result of the ‘OTG’ DRS – all costs will be reimbursed by the DMO (funded by DRS producers)

	Total cost (discounted)
Opportunity cost of space	£104m
Labour time costs	£107m
Handling costs	£320m
Maintenance costs	£503m
Retail rental cost	£90m
Total	£1,124m

EPR

Under the preferred policy design for EPR, the proposal is that sellers of filled disposable paper cups will be required to fund the separate collection and recycling of used cups. The impact of this is described in the ‘EPR obligated producers’ section above.

In addition, retailers/sellers who place own-brand products on the market will be obligated producers under the EPR packaging scheme. The associated cost impact is captured within the ‘EPR obligated producers’ section above.

Waste management companies (WMCs)

The collection and separation of recycled waste by WMCs is a more labour-intensive process than that of residual waste management. Consequently, the increase in supply of recycled material is estimated to lead to an increase in the number of employees in WMCs⁴³. In addition, increased capital investment may be required given the increased pressure placed on recycling infrastructure.

Not only will the quantity of recycled material handled by waste management companies increase, but the quality of this material will too. As a result of the separation of different waste streams, as proposed under the consistent collections reform and implicit within DRS, coupled with the improvements resulting from labelling requirements for packaging materials and the inclusion of plastic film packaging in recycling collections, we would expect the level of contamination in recyclable waste streams to reduce. By increasing the quality of recycled waste collected, we would expect materials to remain in the economic cycle for longer and therefore increase circularity⁴⁴.

An improvement in the quality of recycled material is modelled to increase the profit margins that WMCs can benefit from in secondary markets. This amounts to an estimated £227m through the EPR policy⁴⁵.

Waste management companies are also expected to benefit from reduced landfill tax costs in line with reduced residual waste being collected – possibly by as much as £389m⁴⁶ per year. We do not know the extent to which waste management companies will pass savings onto businesses/organisations that pay for the waste collections⁴⁷.

Businesses that pay for waste collections

EPR is expected to place a significant financial benefit on businesses and public organisations that produce consumer

⁴³ No attempts have been made to quantify the net employment increase across the waste management sector given the inherent uncertainty in doing so.

⁴⁴ Circularity in recycling refers to material being recycled into their original form (or as close as possible to their original form). For example, a plastic bottle being recycled into a plastic bottle represents perfect circularity in recycling. Circularity in recycling is only feasible where material does not significantly degrade during use, collection, sorting or the recycling process.

⁴⁵ The consistency IA and the DRS IA did not model benefits to WMCs from increased material revenue.

⁴⁶ This figure is under review because of uncertainties around the amount of NHM waste and the future capacity of Energy from waste (EfW) facilities. It is possible that this might be an overestimate.

⁴⁷ We will investigate this for the final IA.

packaging waste as the costs of collecting and sorting this waste for recycling will be recovered from obligated producers. In the EPR IA this benefit has been estimated to amount to £2,769m⁴⁸ over the appraisal period.

*At the time of producing the EPR impact assessment, we had estimated that payments to business that currently pay for their packaging waste to be collected, would be in the region of £249m-£413m per year over the 10-year appraisal period. However, more recent analysis (that we believe uses a more robust methodological approach) suggests that these payments will likely be somewhere between our original estimate and £1.5bn per year. Despite this estimated increase in payments, this does **not** impact on the NPV of any policy option as these costs are a transfer from LA's/waste holders to obligated packaging producers.*

The introduction of consistent collections will impose additional waste management costs on some of these businesses (£317m). Large businesses are estimated to experience some savings in their overall waste management costs (e.g. because they can further reduce their frequency of residual waste collections or number of associated bins). Medium and small firms are expected to experience an increase in their costs (e.g. they might require some additional recycling bins). These costs also include the increase in wages necessary to compensate the time spent by employees attempting to correctly dispose of the different waste types in their corresponding waste stream.

Under the consistent collections policy, businesses may benefit from reduced waste management costs as a result of reduced landfill tax (estimated to be £389m⁴⁹ per year). However, this benefit will initially be incurred by the waste management company and may therefore not be passed on to the business that pays for their waste to be collected. We are reviewing this assumption for the final Impact Assessment.

Impact on local government

Overall local government is expected to be a net beneficiary from the collection and packaging reforms, as presented in table 15 below. The benefits are driven by the EPR payments that LAs will receive under the EPR for packaging policy.

Table 15 – Summary of the net impact on the local government - All costs/benefits described in this section are in their undiscounted form

£m	Consistent collections transition costs	LA's net service cost ⁵⁰ of running consistent collections	DRS Litter clean up savings	EPR Benefits for LAs ⁵¹ (saving)
2023	- £225	- £2	+ £ 64	+ £1,125
2024	- £89	- £5	+ £ 77	+ £1,169
2025	- £72	- £15	+ £ 86	+ £1,204
2026	- £111	- £16	+ £ 86	+ £1,229
2027	- £86	- £3	+ £ 86	+ £1,246
2028	- £76	- £1	+ £ 86	+ £1,259
2029	- £67	0	+ £ 86	+ £1,265
2030	- £68	+ £4	+ £ 86	+ £1,273
2031		- £47	+ £ 86	+ £1,274
2032		- £47	+ £ 86	+ £1,275
2033		- £48		
2034		- £49		

⁴⁸ Discounted over the period 2023-32 (2019 price base year and 2020 present value base year).

⁴⁹ This figure is under review because of uncertainties around the amount of NHM waste and the future capacity of Energy from waste (EfW) facilities. It is possible that this might be an overestimate.

⁵⁰ including landfill tax savings, loss of garden waste income and operational costs / savings.

⁵¹ Includes reduced waste management costs as a result of EPR payments for managing household packaging waste.

2035			<i>Appraisal period ends in 2032⁵²</i>	<i>Appraisal period ends in 2032⁵³</i>
		- £50		
Total	-£794	- £278	+ £828	+ £12,318

Costs to local government

Consistent collections (2023 – 2035) – the impacts below are assumed to cover English LAs only

LA transition costs:

We have estimated that the costs of transitioning to consistent collections will be **£794m⁵⁴** over the period of 2023-2030:

- Those LAs that do not currently operate their least cost collection system would change to a new scheme with the lowest cost to them⁵⁵. This would require the LAs to invest in new containers and vehicles once out of contract. Further investment would be needed for separate food waste and garden waste collection if LAs do not provide them. We estimate that new container capital and further vehicle spend in the period to 2030, will require investment of £700m.
- The wider transition costs⁵⁶ are estimated to be around £94m.

LA's net service costs:

Overall, the consistent collections analysis estimates an increase in net service costs to LAs of **£278m⁵⁷** over 13-years, or £21m on average per year.

This cost includes average annual savings associated with bulking and treatment costs, and savings associated with cheaper bulking, treatment and disposal due to the removal of DRS material from kerbside collections. LAs will see their annual operating and communications costs increase, along with increases in annualised vehicle spending and bin-container capital post transition period.

Embedded within these operating costs are annual costs to LA's in the form of lost revenue from the removal of the garden waste charge (£1,661m in total⁵⁸). Free garden waste collections have two main implications on the LAs costs:

- LAs would lose the income received from households.
- LA data indicates that free garden waste collection systems are more efficient in raising households' recycling participation. In particular, free collections can achieve up to 80-90% participation rate in households with garden waste when compared to estimated 35% only under charged services⁵⁹. We estimate an increase in the household recycling rate to be around 3% to 4%, compared to the baseline (which assumes 65% of LAs charging for their garden waste collection).

⁵² These savings will continue beyond 2032.

⁵³ These savings will continue beyond 2032.

⁵⁴ undiscounted

⁵⁵ In practice, not all LAs will be able to transition to their least cost collection system. This is because the requirement is to have the recyclable waste streams to be collected separately from each other except where this is not technically or economically practicable or there is no significant environmental benefit from collecting separately.

⁵⁶ These include the costs of project management, re-routing of vehicles, roll out communication costs, depot hire for containers, engagement staff costs, call centre costs and delivery costs of new containers.

⁵⁷ Not discounted

⁵⁸ Not discounted

⁵⁹ See key household scenario assumptions for more evidence on garden waste.

DRS (2022 – 2032) - the impacts below are assumed to cover all UK LAs

The DRS has an impact on LA collection costs, but these costs will be fully reimbursed by the DMO:

- Materials Recycling Facility (MRF) gate fees will increase – there will be increases in price per tonne in entrance charges to waste collection authorities, due to valuable drinks containers being removed from the recycle.
- Reduced material revenue – LAs will forego the revenue for selling DRS material as this material is now captured under the DRS.
- Residual disposal savings – residual waste costs will reduce as DRS tonnes are removed from residual waste.
- Dry bulking cost savings – with DRS material removed there will be fewer tonnes on which to pay for bulking.

Benefits to local government

DRS (2022 – 2032) - the impacts below are assumed to cover all UK LAs

The DRS will result in a reduction in litter cleaning costs, of approximately £86m⁶⁰ per year from 2025, amounting to a total saving of £712m⁶¹ over the appraisal period.

A deposit on a container makes consumers more likely to return it in order to get their money back, and therefore less likely to litter. In addition, drinks containers that are littered are likely to be picked up by other people in order to gain the deposit.

EPR (2023 – 2032) - the impacts below are assumed to cover all UK LAs

There will be savings to LAs due to waste management costs of packaging waste from households (including kerbside collection and sorting, HWRC management and litter clean-up costs) being paid by producers.

The approach to local authority payments will seek to fairly distribute funding to local authorities whilst also incentivising the collection and sorting of high-quality of packaging waste and encouraging good practice and efficiency in recycling collections.

Table 16 – Summary of benefits to local government as a result of EPR for packaging

(2023-2032)	Discounted ⁶²
Collection and sorting costs	£8,350m
Litter costs	£848m ⁶³
HWRC management costs	£331m
Total	£9,529m⁶⁴

⁶⁰ Not discounted - £64m in 2023 and £77m in 2024.

⁶¹ Discounted (2019 price base year and 2020 present value base year)

⁶² 2023 – 2032 (discounted with 2019 price base year and 2020 present value base year)

⁶³ This is based on preliminary analysis from Wrap/Eunomia, the final report which is being finalised suggests these costs might be higher.

⁶⁴ The benefits described below differ slightly from the costs to LAs. This is because, the intervention of EPR will increase packaging recycling and hence reduce waste management costs. EPR producers pay the reduced waste management costs but the intervention results in savings to LAs of what they would expect to pay in the absence of EPR for packaging.

4. Impact on UK Government

The total undiscounted costs to the UK Government are presented in table 17 below.

Table 17 – Summary of the net impact on the UK Government - *All costs described are in their undiscounted form*

£m	Defra		HMRC	
	HH and NHM: Policy cost to support consistent collections	EPR IT costs	landfill tax revenue losses (consistent collections)	landfill tax revenue losses (EPR)
2023	-£17	-£12	-£94	-£3
2024	-£17	-£4	-£281	-£6
2025	-£17		-£449	-£10
2026	-£17		-£623	-£11
2027	-£17		-£661	-£13
2028	-£17		-£682	-£15
2029	-£16		-£695	-£16
2030	-£16		-£706	-£18
2031	-£12		-£711	-£19
2032	-£12		-£712	-£21
2033	-£12	<i>Appraisal period ends in 2032⁶⁵</i>	-£712	<i>Appraisal period ends in 2032⁶⁶</i>
2034	-£12		-£712	
2035	-£12		-£712	
Total	-£195	-£15m	-£7,750	-£132

Costs to the UK Government

Consistent collections (2023 – 2035)

HH and NHM policy costs These costs are estimated to amount to **£146m⁶⁷** over the appraisal period. The policy interventions include running national communication campaigns, random site visits, mailing and design costs and other policy support activities essential for effective transition to higher recycling.

Loss of landfill tax

The consistent collections analysis shows that by 2035, only 8-12% of municipal solid waste (MSW) will be sent to landfill compared to 27% in baseline. This means that the UK Government will forego £5,540m in tax revenue⁶⁸.

Given data limitations associated with the NHM sector and a high degree of uncertainty about future waste arising more widely, there is a risk that we may have significantly overestimated potential costs/savings associated with the landfill tax. However, the landfill tax represents a transfer of money between government and businesses and does not affect the overall NPVs. This will be investigated further once we complete our externally commissioned research on future waste arisings.

⁶⁵ These savings will continue beyond 2032.

⁶⁶ These savings will continue beyond 2032.

⁶⁷ Discounted (2023-2035), with 2019 price base year and 2020 present value base year.

⁶⁸ Discounted (2023-2035), with 2019 price base year and 2020 present value base year.

EPR (2023 – 2032)

New IT costs

New IT systems are required to support the running of the EPR scheme. The new IT system is expected to cost £14m⁶⁹ in total. There will also be ongoing IT maintenance and development costs associated with this IT system.

Loss of landfill tax

EPR will reduce the amount of packaging that ends up in residual waste and as such the amount of packaging that ends up in landfill. This results in a loss to HMRC of £98m⁷⁰ over the 10-year appraisal period.

⁶⁹ Discounted (2023-2032), with 2019 price base year and 2020 present value base year.

⁷⁰ Discounted (2023-2032), with 2019 price base year and 2020 present value base year.

5. Impact on the environment

The programme of reforms delivers the following environmental and societal benefits: reduced carbon emissions, reduced litter, reduced use of landfill sites, improved quality of material collected for recycling and reduced reliance on virgin materials. Most of these benefits stem from a reduction in residual waste flows and increased recycling.

Despite attempts to increase domestic recycling, such as the introduction of colour-coded recycling bins on highstreets as part of the 'Recycle OTG' initiative launched in 2007, England's recycling rate has failed to increase beyond 44% in recent years. The reforms are expected to result in a substantial increase in both the quantity and quality of recycled material, coupled with a decrease in the amount of waste that is not recycled. **This will have two core benefits for the environment:**

Firstly, there will be increased **use of secondary material** in the economy and a subsequent reduction in the use of natural virgin materials. This occurs as a result of more material being recycled, and more material of higher quality being recycled. This will help to advance resource efficiency across the UK.

Secondly, the reduction in non-recycled waste will reduce the use of the natural environment for landfill, and our use of incineration plants. Treatment of waste at these endpoints contribute to **GHG emissions**, notably through the generation of methane emissions, the generation of leachate⁷¹ and the emission of CO₂ from the incineration of plastic. Subsequently, by reducing the proportion of waste captured in residual waste streams, particularly non-biodegradable waste, the production of GHG emissions will fall. The projected reduction in GHG production, as a result of the implementation of all three reforms, is presented below.

Table 18 - Total carbon savings over the entire appraisal period, MtCo_{2e}⁷²

Carbon savings (MtCo _{2e})	EPR (2023-2032)	DRS (2022-2032)	Consistent collections (2023-2035)	Total
	4.38	3.41	53.90	61.69

Table 19 - Total carbon savings over the entire appraisal period, £m (Discounted)⁷³.

Carbon savings (£m)	EPR (2023-2032)	DRS (2022-2032)	Consistent collections (2023-2035)	Total
	372	100	3,360	3,832

⁷¹ An acidic liquid which needs to be extracted and specifically treated

⁷² These figures are still undergoing quality assurance checks

⁷³ 2019 price base year, 2020 present value base year

6. Impacts on society

Free garden waste charge

A key benefit to society will be the provision of free garden waste collections. As of 2018/2019, 65% of LA's charged residents for the provision of this service. By transferring this financial burden from households to LAs, there will be a welfare transfer to society equivalent to **£1,189m**⁷⁴ over the appraisal period.

Employment opportunities

There will likely be an increase in investment and employment in the recycling sector as a result of the collection and packaging reforms. This may be coupled with a reduction in investment in the non-recycling sector. However, it is expected that the net impact on employment will be positive. This is because the collection and sorting of recycling waste is more labour-intensive than residual waste collection and disposal, and therefore a greater number of new jobs in the recycling sector will need to be created than the number of jobs that may be lost in the non-recycling sector.

Litter disamenity

The implementation of the collection and packaging reforms, notably EPR and DRS, is likely to substantially reduce the prevalence of littering in society. Through the financial incentive provided to consumers to return their disposable drinks containers, as per DRS, it is estimated that 85% less drinks containers will be discarded as litter. EPR will also incentivise reduced litter through the increased provision of bins for disposable paper cups, provided by retailers, in line with the proposal for mandatory takeback of paper cups for recycling. In addition, because obligated producers under EPR will be financially responsible for the costs of managing littered packaging waste, it is expected that they will try to reduce litter through supporting anti-littering campaigns and other initiatives.

The assumed reduction in litter disamenity will generate substantial benefits for society – reduced litter disamenity will ensure the better preservation of local natural landmarks for residents and tourists alike, as well as the very ecosystems that inhabit them. We have monetised the impact of reduced litter disamenity as a result of the DRS being implemented to be **£12bn** over the appraisal period⁷⁵.

Disamenity from increased bins

The additional number of waste containers for different waste streams that businesses/public organisations and LAs will be mandated to provide may present a visual disamenity for households, businesses and public organisations.

Consumer costs of complying with new waste management infrastructure

The additional effort to separate waste into more streams by households, businesses and public organisations may cause an inconvenience. This additional effort requirement will also be prevalent under the DRS, as in order to redeem one's deposit consumers will have to keep and return their container. We expect that most consumers of DRS material will return their container as part of their usual shopping trips. However, there will be time costs associated with queueing and physically returning the container at an RVM or manual return point – we expect these time costs to be negligible.

Consumer research by Kantar identified that return points will need to be in a range of places (from large supermarkets to OTG locations) to ensure convenience, with a majority of survey respondents feeling they could easily fit the scheme into their everyday lives.⁷⁶ With this in mind the DRS Impact Assessment has assumed sufficient return points will be introduced to reflect the policy intention that deposits can be redeemed in settings that fit different consumer daily routines. For instance, the number of return points, including the number of the

⁷⁴ Discounted over the period 2023-2035 (2019 price base year, 2020 present value base year)

⁷⁵ Discounted over the period 2022-32 (2019 price base year, 2021 present value base year)

⁷⁶ Kantar, "Consumer research to inform the design of an effective deposit return scheme";

<http://sciencesearch.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=220&ProjectID=20253>

latest design RVMs (which being automated are high speed), will be much higher pro rata in this case than pertains in comparable schemes elsewhere⁷⁷.

Possible increase in prices

The additional financial burden placed onto obligated producers (under both EPR and DRS) may be partially passed onto consumers in the form of higher retail prices. The extent to which this will be the case is dependent on a range of factors, including the extent of the financial burden and the types of product that the burden will be levied on⁷⁸. As per modelling carried out by WRAP and Eunomia, the retail price of goods affected by the introduction of **EPR** is estimated to increase by between 0.23% - 0.78%⁷⁹.

⁷⁷ Using data from the main European DRS schemes which on average provide 1 RVM per 1,900 people. Scaling this to the UK population gives an estimate of 34,758 RVMs for the UK. However, because of the stipulation that an obligation will be placed on virtually all retail outlets, to have return points, using detailed figures from the British Retail Consortium the estimated number of RVMs for an All-in DRS would be about 52,280.

⁷⁸ For example, some packaged such as milk are relatively *price inelastic*, meaning that a greater proportion of the cost increase can be passed onto consumers without necessarily reducing demand *ceteris paribus*.

⁷⁹ Eunomia <https://defra.sharepoint.com/:b:/t/Team419/EURb8965h1xKmcSNpITnHLEBgPgZ3lBjK1E9KZBiSajT7Q?e=8GilZe>

7. Impact of an OTG DRS being implemented instead of an All-in DRS

For the purpose of this paper, and the EPR and consistent collections IAs, an All-in DRS has been assumed to be the preferred economic option as it generates the highest NPV. However, it is unclear at this stage whether an All-in or an OTG DRS will be implemented in England. Subsequently, the analysis presented in this paper is indicative only.

We are not able to present a comprehensive analysis of the collection and packaging reform impacts with an OTG DRS. This is partly due to a lack of OTG empirical data and partly because this would require external stakeholders running new analysis.

As an alternative, we have instead presented a scenario whereby no DRS is implemented. This demonstrates a more extreme example of the expected impacts of moving away from an All-in DRS. We have then included some purely indicative figures for the implementation of an OTG DRS as per the table below. These impacts were derived using the All-in/OTG DRS ratio for the POM and NPV.

Table 20: Summary of impacts with an All-in, OTG and no DRS in place £m (discounted⁸⁰)

	All-in DRS	NO DRS	OTG DRS
			NPVs
DRS NPV	6,091		424
EPR NPV	275	331	322
Consistent collections NPV	2,766	2,741	2,745
Total NPV	9,132	3,072	3,491

Recycling rates all-in vs OTG

An OTG DRS will result in **327k tonnes** less recycling compared to the All-In DRS, across all packaging. This equates to a reduction of **3.6bn drinks containers** being recycled – and a decrease in the **overarching packaging recycling rate (rr)** of 2% points.

Table 21: Summary of packaging recycling rates (rr), tonnages recycled, and containers recycled under the different DRS options

	Packaging rr	Tonnage recycled	Difference (tonnage)	Difference (containers)
No DRS	74%	3,873,028		
DRS (OTG @ 85% rr)	76%	4,129,502	+ 256,474	+ 2,900,315,956
DRS (All-in @ 85% rr)	78%	4,456,088	+ 326,586	+ 3,599,834,206

The additional recycling under an All-in DRS compared to no DRS, is 583,060 tonnes or 6.5bn containers

The tables below present the change in the packaging recycling rate, tonnage of recycled material and number of containers recycled for each material under an All-in DRS and an OTG DRS.

⁸⁰ 2019 prices and 2020 present value

Table 22: Summary of packaging recycling rates, tonnages recycled, and containers recycled under the different DRS options for different materials

Plastic packaging	Packaging rr	Tonnage recycled	Difference (tonnage)	Difference (containers)
DRS (All-in)	65%	1,666,871		
DRS (OTG)	63%	1,621,193	-45,678	-1,522,825,690

Aluminium packaging	Packaging rr	Tonnage recycled	Difference (tonnage)	Difference (containers)
DRS (All-in)	69%	178,649		
DRS (OTG)	61%	156,737	-21,912	-1,204,279,304

Steel packaging	Packaging rr	Tonnage recycled	Difference (tonnage)	Difference (containers)
DRS (All-in)	93%	488,433		
DRS (OTG)	92%	485,229	-3,204	-100,704,895

Glass packaging	Packaging rr	Tonnage recycled	Difference (tonnage)	Difference (containers)
DRS (All-in)	93%	2,122,135		
DRS (OTG)	82%	1,866,342	-255,793	-772,024,316

DRS consumer impacts

The consumer impacts of DRS will be further explored in 2021. There are ongoing concerns related to the impact that a DRS will have on consumers, particularly those from low-income households.

Different consumers are expected to respond differently to the DRS. Broadly speaking, these responses can be split along the following lines:

- (i) Those who would return their empty bottles as part of their regular shopping visit. In most cases the incremental time of returning the container would be minimal.
- (ii) Those who treat the deposit as a form of recompense for their time involved and make an economically rational decision accordingly. If they have time abundance with a low value on a marginal unit of their time, they may consider the return deposit as a positive recompense on this time and vice versa for those whose time is scarce and who thereby place a high marginal value on it. As an example, it has been reported that in South Australia when a DRS was introduced, wealthy, busy, people would leave bags of empty containers outside their gates so that poor or unemployed people, would return the bottles to collect the deposits. If the former does not do this but feel that their time is more valuable than the amount of the deposit, they may simply not return the bottles.
- (iii) Those who will participate and return bottles for a civic duty or an altruistic motivation. They will mainly not be interested in the cost of their time involved in this context.

Annex A – Description of the policies

A Deposit Return Scheme (DRS) for drinks containers

The provision of a deposit return scheme (DRS) for drinks containers is a form of producer responsibility. The objective of a well-designed DRS is to incentivise and make it easy for consumers to return drinks containers, which can then be recycled. Under the proposed policy, consumers pay a deposit at the point of purchase, and then return drinks containers to designated return points (such as reverse vending machines⁸¹, or manual return points⁸²) for recycling in order to reclaim their deposit. A well-designed DRS can achieve very high recycling rates (upwards of 90%).

The DRS Impact Assessment includes a ‘do nothing’ option (Option 1) and then considers two options for reform; an On-The-Go (OTG) system that covers PET plastic bottles, glass bottles, aluminium and steel cans **sold in single-format and under 750ml** (Option 2), and an All-in system covering the same set of materials, but with **no restrictions on size of containers** (Option 3).

The three key impacts of a DRS are:

- **Higher recycling rates** for the materials in-scope⁸³. Recycled materials can replace virgin materials in production, thereby reducing the greenhouse gas emissions associated with creating new products. In addition, recycling minimises the waste going to landfill and incineration plants, avoiding further greenhouse gas emissions that would have been emitted.
- **A reduction in litter** which generates significant amenity benefits from reduced litter, environmental benefits, and litter clean-up cost savings.
- Collecting material via a DRS allows for a **high-quality stream of material** for provision to secondary reprocessing markets. Drinks containers collected via a DRS are less likely to become contaminated with non-target materials, in comparison to collecting the material via a mixed recycling kerbside collection. This stable provision of high-quality waste materials has the potential to stimulate domestic reprocessing markets.

The DRS Impact Assessment considers the costs and benefits of introducing a deposit return scheme **UK-wide**. The consultation is for England, Wales and Northern Ireland only, as Scotland has already consulted and made legislation on introducing a DRS. We envisage any DRS should be designed to facilitate a coherent scheme across the UK. As the DRS requires significant infrastructure investment ahead of the implementation of the scheme, the appraisal period begins in 2022.

Consistent collections

Local authorities have a statutory duty to collect waste from households. Over time, the ways in which local authorities collect waste and the range of what can be recycled has evolved. This has resulted in a variety of collection practices across English local authorities, which can lead to confusion among households on what can be recycled. English household recycling rates have been slow to rise in the last 5 years and are currently at 44-45% with few local authorities expanding services to collect additional waste material streams.

We are consulting on proposals for all households to be able to put out for recycling the **same set of dry materials**. There will also be proposals to have a **weekly separate food waste collection**, and **free garden waste collection**. Additionally, we are consulting on municipal businesses being required to **segregate dry materials** and (where

⁸¹ A reverse vending machine (RVM) is a machine that returns a consumer’s deposit when they dispose of their drinks container within it.

⁸² A retailer that offers a take-back service for drinks containers that are in-scope of DRS

⁸³ Drinks container recycling rates have reached more than 90% in some international DRS systems, although the rates can vary quite appreciably.

applicable) **food waste to be collected**. This will help boost recycling rates and improve the quality of materials available to secondary materials markets, in turn making it more likely that producers will use recycled materials. These outcomes are vital if England is to reach the ambitious target to recycle 65% of municipal waste by 2035⁸⁴.

The Impact Assessment looks at the costs and benefits of applying these changes to household kerbside and municipal business collection systems through four different municipal recycling options. The preferred option – based on the most likely collection arrangements is as follows:

Household sector: The collection of recyclable materials through ‘optimised’ collection systems⁸⁵ (plastics, metal, glass, paper and card, food waste and garden waste); separate weekly food waste; and free garden waste.

Non-household municipal sector: The collection of dry mixed recyclables (DMR), separate glass and separate food waste. Micro businesses will be exempt from separating their waste into the required waste streams⁸⁶.

We are legislating in the Environment Bill to introduce a set of recyclable waste streams to be separately collected for recycling from households across England. The Bill also requires similar recyclable waste streams to be presented and separately collected from non-domestic premises that produce consumer waste⁸⁷, this includes schools, offices, retailers and hospitals. The recyclable waste streams must be collected separately from each other except where this is not technically or economically practicable or there is no overall environmental benefit from collecting separately.

Through mandating materials to be collected for recycling across businesses and households in England, we expect recycling to become easier leading to higher recycling rates by both sectors as well as lower contamination and better compliance with our requirements.

Our consultation-stage analysis estimates that around 43% of local authorities would be able to switch to a new service within the first year of implementation, with all the remaining 57% transitioned to the new collection system by 2030/31⁸⁸.

The Consistent collections analysis is based on an **England-only** policy intervention.

Extended Producer Responsibility (EPR) for packaging

Packaging waste makes up a large proportion of household waste (~26%), and accounts for about a quarter of local authorities’ collection and treatment costs. The UK Government together with the Scottish Government, the Welsh Government and the Department for Agriculture, Environment and Rural Affairs in Northern Ireland have committed to reforming the current packaging producer responsibility system to incentivise producers to take greater responsibility for the environmental impacts of their packaging.

We are proposing that **producers fund the full net costs of managing packaging waste**. Producer funding will be distributed to local authorities for the collection and management of household packaging waste and to non-domestic entities (offices, schools, retailers etc.) to support the collection for recycling of household-like packaging waste arising outside households. This policy will therefore result in a cost transfer from the public purse and

⁸⁴ Published in the Circular Economy Package (CEP)

⁸⁵ Local Authorities use the least cost option for their recycling collections (between multi-stream, two-stream or commingled (mixed) collections). This means that Local Authorities will rely on one of the exemptions applying where they are unable to collect recyclable waste streams separately.

⁸⁶ Given that micro businesses constitute ~85% of all affected waste producers and 25% of all waste tonnages produced by the non-household sector, we are also consulting on an option where micro businesses are phased into requirements, two years after the consistent collections go-live date.

⁸⁷ Consumer waste includes household waste, and household-like waste produced on non-household premises

⁸⁸ The majority of LA collections (60%) are operated by in-house services which are able to move into new services more quickly than contracted services. A smaller number of the out-sourced services are also available to change given the timing of their contract renewal dates in line with the scenario.

organisations that dispose of household and household-like packaging, to those producers that place the packaging on the market.

The approach to local authority payments will seek fair distribution of funding whilst also incentivising high-quality recycling of packaging waste and encouraging good practice and efficiency in the provision of collection and recycling services.

The fees paid by producers will vary according to specific criteria relating to aspects of the packaging's treatment cost, including environmental impact and be set at levels that incentivise recyclability of packaging by rewarding good design and penalising poor design.

In addition to full net cost payments, there are three other elements of the packaging producer responsibility reforms that we are consulting on and have therefore included within the analysis in the Impact Assessment:

- **Mandatory plastic packaging film (e.g. salad bags) collections** for recycling from households and businesses. The costs of these collections will be recovered via producer fees.
- The implementation of clear and easy to understand **recyclability labelling** on packaging, and producer-funded consumer communication campaigns⁸⁹.
- **Mandatory 'take back' of disposable paper cups**. In order to overcome the issue of low paper cup recycling rates, sellers of filled cups will be expected to provide for the separate collection of used cups through both instore and front of shop collection points, and to arrange for the collection and recycling of these cups⁹⁰.

The EPR analysis is based on a **UK-wide** policy intervention.

⁸⁹ This should bring an uplift in packaging recycling rates and a reduction in the levels of contamination in packaging materials sent for recycling.

⁹⁰ This intervention has been included under EPR as currently only 0.25% of disposable paper cups are estimated to be recycled, with the rest being discarded in residual waste or as litter.

Annex B - Monetised impacts of all three reforms:

All costs / benefits ⁹¹	EPR (2023-2032)			DRS (2023-2032)			Consistent collections (2023 – 2035)			Total ⁹²
	Costs	Benefits	NPV	Costs	Benefits	NPV	Costs	Benefits	NPV	NPV
	£16,942m	£17,216m	£275m	(£6,829m) ⁹³	£12,920m	£6,091m	£6,843m	£9,610m	£2,766m	£9,132m
Business costs	(£16,837m) - New labelling costs (£83m) - Additional admin costs (£98m) - Comms and other costs (£31m) - New disposable paper cup bin costs (£9m) - Increased waste management costs (£519m) - Mod fees [transfer]: o From LAs (£9,440m) <i>Transfers between business of £6,658m have been included in the above total cost to business figure.</i> <i>These include savings in the cost of compliance under the current packaging producer responsibility scheme (PRN costs) to EPR producers, which are losses to compliance schemes (£3,890m), and savings to businesses that pay for waste (£2,769m) that will be funded by EPR producers.</i>			(£3,628m) - Organisational set-up costs (£2,046m) - IT installation costs (£7m) - Training and familiarisation costs (£15m) - Central admin costs (£258m) - Enforcement costs (£12m) - Counting centre costs (£228m) - Relabelling costs (£36m) - RVM maintenance costs (£843m) - RVM handling (labour costs) (£576m) - Retailers opportunity costs (£209m) - Retail rental costs (£163m) - Manual take-back labour costs (£300m) - Logistics (post-return) costs (£2,133m) <i>Costs of running the DMO are reduced by unredeemed deposits which are currently assumed to account for 50% of the total net costs of running the DRS (costs minus material revenue), + £3,201m</i>			(£317m) - Waste management costs to businesses			(£20,782m)
Business benefits	£7,323m - Material revenue: £227m - Reduced waste management costs: £438m <i>Transfers between businesses of £6,658m, have been included in the above total cost to business figure.</i>			£373m - Material revenue			£5,061m - Reduced business expenditure on landfill tax [some of this will be a <u>transfer</u> (landfill tax)]			£12,757m

⁹¹ All discounted, all figures are in their 2019 price levels with 2020 present values

⁹² When summing the costs and benefits, the unredeemed deposits (£3201m) should be counted as a cost.

⁹³ The total costs in the DRS exceed the sum of the business and government costs. This is because 50% of the net costs are assumed to be financed by unredeemed deposits. This is not calculated as a cost to consumers as consumers choose to forego this deposit if they do not return their drinks container.

	<i>These include savings in the cost of compliance under the current packaging producer responsibility scheme (PRN costs) to EPR producers, which are losses to compliance schemes (£3,890m), and savings to businesses that pay for waste (£2,769m) that will be funded by EPR producers.</i>			
net impact	(£9,514m)	(£3,255m)	£4,744m	(£8,025m)
Local gov't costs			(£840m) - Net change in management costs (£185m) ⁹⁴ - New containers, vehicles and wider transition costs (£654m)	(£840m)
Local gov't benefits	£9,529m - Savings to LAs in reduced waste management costs [transfer of costs to EPR producers]	£712m - Litter clean up savings		£10,241m
Local gov't net impact	£9,529m	£712m	(£840m)	£9,401m
Central gov't costs	(£105m) - IT Investment costs (£14m) Landfill tax loss [transfer to LAs] (£91m)		(£5,686m) - New policy costs (£146m) Landfill tax loss [transfer] (£5,540)	(£5,791m)
Society benefits	£372m - GHG emission savings	£11,835m - Reduction of disamenity of litter +£11,808m - GHG emission savings +£27m	£4,549m - GHG emission savings (£3,360m) - Savings to HHs from removing garden waste charging (£1,189m)	£16,756m

⁹⁴ lost income (FGW) adds £1,189m to these costs