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Shaping future financial and fiscal policies for a more circular economy in the UK



Credits and acknowledgements

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The Chartered Institution of Wastes Management (CIWM)

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Executive summary

If resource depletion and environmental pollution are market failures, financial and fiscal policy incentives present a toolkit with which governments can attempt to repair these and build a more circular economy. Such tools can be large and capable of long-term, wide-ranging effects, such as a strong tax increase on virgin resources; or quick fixes, such as a time-limited subsidy for bicycle repair services. The incentives can be negative, pricing in some of the environmental costs of linear activities. They can be positive, rewarding changes that reduce our carbon and material footprints. All involve risks of unintended consequences, which must be managed through policy design, monitoring and evaluation.

The UK and its devolved nations are introducing a range of new financial and fiscal incentives over

the next five years. These will overlay pre-existing ones, from the longstanding Landfill Tax and more recent Plastic Packaging Tax (PPT), to more recent charges on single-use items and subsidies for circular activities. New measures include more ambitious extended producer responsibility (EPR) schemes, deposit return schemes (DRS), and the inclusion of energy from waste (EfW) in the UK Emissions Trading Scheme (ETS). All the incentives, old and new, will need to work together for a coherent policy framework. There are concerns from all stakeholders—producers, local authorities, waste sector companies, and the public—about how forthcoming changes will affect them.

CIWM commissioned this study to explore the main fiscal and financial policy incentives currently in place and coming down the line. The aim was to

aid a better understanding of their intended and unintended consequences, and how they interact, with a view to identifying potential improvements.

The report is structured around three overarching aims of resources policy: decarbonising the waste sector, increasing recycling, and reducing resource consumption. Key fiscal and financial incentives are presented and assessed for each aim.

The diagram below shows how financial and fiscal incentives are distributed across the value chain, in terms of who they primarily target for behaviour change.

Producers			Individuals		Waste sector		
Plastic Packaging Tax	EPR	Circular business subsidies	Charges on single-use items	DRS	EPR	UK ETS	Landfill tax

The themes which emerged from the research affirmed a set of principles in relation to good design and implementation of fiscal and financial policy incentives for a circular economy. These are summarised below, along with some examples of how they could be applied to improve on the UK's current incentives framework. Further examples, specific to each policy incentive, are provided within the main report.

Incentives need more nuance to achieve contemporary circular economy and waste management goals: reuse and reduction, higher quality recycling, and decarbonisation.

Many tools remain too blunt, such as the two-tier Landfill Tax inherited from twentieth century policy, which offers no deterrent to linear use of some of the most carbon-intensive materials. Recycling incentives under EPR schemes don't take into account the quality of recycling outcomes, let alone drive reuse. It is not enough for policy to punish the weakest performance—it needs to be nuanced enough to support high performers to do even better and take the next steps towards circularity.

Incentives need to be coordinated across value chains, so that actors who are limited in their ability to respond gain the support needed from other sectors. This is a concern to all stakeholders, with those responsible for waste management frustrated at the pace of change by producers and households, and vice versa.

Both carrots and sticks are needed—without the levers or the funding to respond, punitive incentives are of limited value. Wales combined its threat of fines on local authorities who did not meet recycling targets with funding to help them comply.

Realistic and reasonable response times to prevent unmanageable short-term costs need to be factored in. For example, ensuring local authorities have the funding to roll out improved plastic packaging collections prior to feeling the effects of the UK ETS on waste management costs.

Strong data, monitoring and enforcement are essential to ensure incentives have the intended effects. For example, adequate oversight is needed to avoid fraudulent misclassification of landfilled waste and irresponsible waste exports, and equally to prevent misleading claims about the recycled content of plastic packaging imported. This will also be important in the future to ensure that UK ETS has the desired impact on waste management.

Where money is raised through financial and fiscal policies, this could be used to drive system change towards a circular economy. The UK governments could decide to channel money from resources and waste taxes and fees into a just transition to a circular economy, but have so far overlooked this opportunity. The challenge of scaling up circular businesses and community facilities is beset by insufficient long-term funding, so this option deserves more serious

consideration. It could also help to gain buy-in from all stakeholders, if they could see the positive impacts of the taxes and fees they face.

When developing new policy incentives, the opportunity cost should be considered. If two years of policy development time and resource is invested in placing a new charge on one specific single-use item, that parliamentary time and public money is unavailable to other, potentially more impactful and cross-cutting policies. Decisions on where to focus could more closely reflect lifecycle carbon and material footprints of sectors and products, and better reflect the waste hierarchy. More systematic policy prioritisation would help to accelerate the transition to a circular, low-carbon economy.

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Introduction: financial and fiscal policies for a circular economy

Overconsumption within a **linear economy** is a barrier to sustainability and a major cause of environmental degradation, climate change, and economic inequality. A linear economy is structured around valuing raw materials cheaply, ignoring upstream and end-of-life impacts. To address these issues, a transition to a **circular economy** would support waste reduction, resource efficiency and resilience.

At present, economic incentives tend to favour a linear economy. To achieve a circular economy transition at scale, incentives must be altered to better reflect the value of materials and the environmental and social impacts associated with their extraction, production and disposal. Fiscal and financial policy incentives are therefore critical levers in shifting the system.

Fiscal and financial policy incentives can discourage linear activities by making key actors bear at least part of the cost of environmental externalities ('push' policies), or can reward more circular activities ('pull' policies). When designed and implemented effectively, such policies should make it easier for actors across the value chain to manage materials sustainably, and support public and private investment in the circular economy transition, such as for skills and infrastructure. This requires well-coordinated and long-term policy packages to provide investors with confidence.

The UK policy context

The UK and devolved administrations have introduced a number of incentives to reduce the impacts of waste management and encourage circularity. When the UK government first targeted resources and waste (prior to devolution of environmental policy in 1999), its aims were to limit landfill expansion, increase recycling, and prevent litter. These aims were reflected in incentives such as the Landfill Tax, Aggregates Levy, and early producer responsibility schemes. As the concept of a circular economy has grown more prevalent, and with the legal requirement to achieve net zero, government policies have started to evolve accordingly, though at different rates across the four nations.

This has led to various strategies and legislation for a circular economy. Scotland launched its *Making things last* strategy in 2016¹ and recently introduced the Circular Economy (Scotland) Act 2024.² Following Wales' considerable achievements in recycling, it published the *Beyond recycling* strategy in 2021.³ The Department for Environment, Food and Rural Affairs (Defra) positioned England's 2018 *Resources and waste strategy* as supporting a circular economy, though measures to date have predominantly focused on waste management.⁴ Northern Ireland published a draft *Circular economy strategy* in 2023,⁵ which interestingly was led by the Department for the Economy, unlike the other nations' strategies, which were all led by environment departments.



The Republic of Ireland published a Circular Economy Act in 2022, accompanied by its Circular Economy Strategy.⁶ A key measure of the act was to re-designate the Environment Fund as the Circular Economy Fund, where levies on single-use items and the landfill of waste are ring-fenced to be invested in environmental initiatives and circular economy projects.

UK policies have been deeply influenced by EU membership and continue to be informed by these post-Brexit, though some differences are emerging such as the UK's Plastic Packaging Tax. Within the UK, devolved policies which aim to restrict or place charges on products are now constrained to some degree by the UK Internal Market Act 2020,⁷ which aims to limit market divergence, as Scotland discovered when its deposit return scheme (DRS) had to be postponed to align with Defra's timetable. In other cases it is simply deemed pragmatic for the four governments to work in lockstep, for example with the new generation of extended producer responsibility (EPR) regulations.

Research aims and approach

A number of new financial and fiscal incentives are expected to be introduced in the UK in the coming decade. These need to function smoothly alongside existing incentives and each other, for a coherent and effective policy framework. They also need to work for each devolved administration. If there are conflicting, poorly-aligned or insufficient incentives, market signals will be confused, thus weakening their impact.

This research therefore aims to:

- Analyse key policy incentives to assess their impact, unintended consequences, gaps, and interaction (conflicts and synergies) with other incentives.
- Identify potential improvements for a more cohesive policy framework in support of circularity.

To achieve this, we have selected current and proposed financial and fiscal incentives and organised them according to three overarching aims of circular economy, resources and waste policy, spanning the waste hierarchy:

Aims ↓	Incentives ↓
Decarbonising the waste sector	Landfill Tax
	The inclusion of energy from waste (EfW) in the UK Emissions Trading Scheme (ETS)
Increasing recycling	Extended produce responsibility (EPR) schemes
	Deposit return scheme (DRS)
	Plastic Packaging Tax (PPT)
Reducing resource consumption	Additional charges on single-use items
	Subsidies for circular businesses and reuse infrastructure

We have not assessed every single fiscal and financial policy related to these aims, instead selecting some of the most prominent measures currently impacting, or soon to impact, resources and waste management. This includes a range of historic, new, and upcoming policies. The selected incentives apply in all UK nations, though some distinct devolved nation incentives are also discussed in text boxes.

The research method was a mix of desk-based research and qualitative stakeholder engagement through one workshop and five interviews with waste and circular economy experts. It also draws on the existing institutional knowledge of both CIWM and Resource Futures. The desk-based research involved a review of reports, academic studies, and government documents. The interviews and workshop were used to confirm the selection of incentives and understand the impacts of incentives from a range of perspectives in the resource and waste industry, in the UK and Europe.

Aim 1

Decarbonising the waste sector



The waste sector produces significant greenhouse gas emissions, primarily due to the volumes of residual waste sent to landfill and energy from EfW facilities.

- **Landfill emissions:** Landfills account for 81% of the waste sector's methane emissions and 31% of the UK's total methane emissions, due to the decomposition of biodegradable waste.⁸ Given that methane is significantly more potent than carbon dioxide at trapping heat in the atmosphere, addressing these emissions is vital for combatting climate change.⁹
- **EfW emissions:** EfW emissions have increased year on year. In 2022, UK EfW facilities emitted 14.4 MtCO₂e of carbon, which is 3.5% of the UK's overall annual territorial greenhouse gas emissions.¹⁰ Some power and heat can be recovered from incinerating waste, but given the UK's relatively green grid, EfW is not a low-carbon form of energy.^{11,12}

In 2018, the waste sector was responsible for 6% of the UK's total greenhouse gas emissions, marking a significant reduction of 63% from 1990 levels.¹³ The Climate Change Committee has set an ambitious goal for the sector to further reduce emissions by 75% from 2018 levels by 2050 for the UK to achieve its net zero goals.¹²

Types of fiscal and financial incentives

Waste sector emissions can be addressed through various strategies, including reducing waste generated, diverting biodegradable waste away from landfills, diverting plastic and other fossil-based waste from EfW, biostabilisation of landfill, improved composting methods, and capturing emissions from facilities (mainly methane from landfills, and potentially carbon from EfW).^{12,14} Financial and fiscal incentives can play a crucial role in supporting these strategies. Focusing on residual waste management, key incentives include:

- Taxes/fees that increase the cost of landfill and EfW.
- Carbon taxes or cap-and-trade schemes that increase the cost of greenhouse gases emitted from the waste sector and can place limits on emissions.
- Subsidies for low-carbon infrastructure and technologies.
- Pay-as-you-throw incentives that increase the cost of residual waste by weight or number of bags.

Approach in the UK

In the UK, Landfill Tax and the Aggregates Levy were early fiscal policy incentives aimed at diverting waste from landfill. Landfill Tax was introduced from 1996 (and later devolved to Scotland and Wales) to increase the cost of

sending waste to landfill and drive more sustainable waste management.¹⁵ The Aggregates Levy, not covered in detail here, aims to ensure construction and demolition waste is recovered rather than landfilled.¹⁶ It does so by imposing a weight-based tax on virgin materials sold as aggregates.

However, as waste was diverted from landfill, the proportion of waste sent to EfW across the UK surged. In 2001, 9% of England's household waste was incinerated.¹⁷ By 2020-21, the share had risen to 48.2% including an increasing amount of plastic, much of which could have been designed out or recycled. To tackle these rising emissions, it was announced in 2023 that the UK ETS would expand to incorporate EfW facilities from 2028.¹⁸ This aims to remove plastic and other fossil-based items from EfW feedstock and increase recycling; and to encourage carbon capture.

The increased cost of incinerating waste is intended to complement the Landfill Tax, providing a stronger driver to reduce total residual waste quantities and promote recycling, reuse, and reduction. However, aligning these financial mechanisms for the best outcomes will come with some challenges.

Consumer-facing pay-as-you-throw policies are not yet common in the UK, beyond charges in some areas for garden waste collections. However, these have proven effective at reducing residual waste in various cities globally.^{19,20,21}

Incentive 1

Landfill Tax

Landfill Tax increases the cost of sending waste to landfill, with a higher rate for more polluting materials, in order to divert waste further up the waste hierarchy and reduce emissions.

Landfill Tax is charged by weight and has two rates:

- **A lower rate for inert waste:** This applies to materials that do not decompose naturally and have low end-of-life emissions. For example, rocks, soils, ceramic, concrete, minerals, and furnace slags.
- **A higher rate for non-inert waste:** This rate targets biodegradable waste which produces high levels of methane emissions, such as wood, paper, textiles and vegetation. It also applies to hazardous waste, and materials with a higher risk of leaching out to pollute the surrounding environment.²²

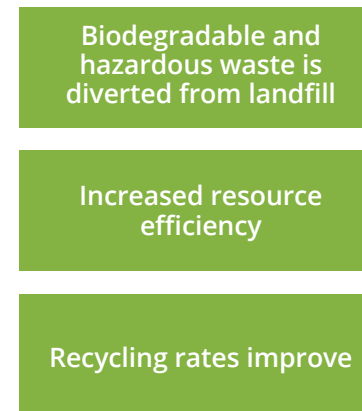
Rates have risen in alignment across the UK annually, with the UK Government uplifting rates for England and Northern Ireland, mirrored by devolved governments in Scotland and Wales. In 2024-25, the lower tax rate is £3.30 per tonne, while the higher tax rate is £103.70 per tonne, compared to the initial rate of £7 per tonne when the tax was first introduced.²³ In 2025-26, the rates will increase further to £4.05 and £126.15 respectively.²⁴ Ireland has a Landfill Levy which covers landfilling, incineration and co-incineration and since 2023 has charged a €85 (£72.98) per tonne and a €10 (£8.58) per tonne recovery levy.²⁵

Landfill Tax Incentives

Incentives



Intended impacts



Unintended consequences



Landfill Tax is widely regarded as having successfully incentivised waste producers and local authorities to divert waste from landfill.⁸ Over the last three decades, Landfill Tax has significantly contributed to reducing the amount of biodegradable municipal waste sent to landfill sites from 35.7 million tonnes in 1995 to 6.3 million tonnes in 2022.²⁶ It sits alongside complementary (non-fiscal) policies such as Scotland's forthcoming ban on sending biodegradable waste to landfill, as well as a suite of recycling policies.

Key issues

Landfill Tax has diverted waste from landfill to incineration. Initially, EfW was perceived as clearly advantageous: with landfill sites filling up, EfW could combine cheap waste management with generation of a 'cleaner' energy source that would reduce the need to burn fossil fuels in coal-fired power plants. However, the picture is less clear in 2024. Firstly, the decarbonisation of the UK's grid means that EfW looks increasingly unattractive as an energy source. Secondly, as the share of fossil plastic in residual waste rises (for example through the successful removal of food waste), the emissions intensity of EfW rises while that of landfill falls.²⁷

The two-rate, weight-based system is a blunt tool for tackling greenhouse gas emissions. If there was more differentiation of costs based on the carbon-intensity of different materials, for example through a carbon tax, this might incentivise more targeted policies to tackle the highest-impact waste streams. Instead, the incentive is simply to reduce the total weight of waste sent to landfill.

There is an insufficient circularity incentive for inert materials. The lower tax rate fails to incentivise resource efficiency, reuse or recycling for these items. For example, in Wales the quantity of inert waste increased by 9% from 2018 to 2024.²⁸ The lower rate is so low because Landfill Tax only considers pollution that occurs after materials have entered landfill, rather than their whole lifecycle impacts. However, a large share of

a product or material's environmental footprint typically occurs during resource extraction and production, often before it is imported into the UK.

This problem can be illustrated with reference to the construction industry, which produces 62% of the waste generated in the UK.²⁵ Common materials in construction and demolition (C&D) waste are steel and concrete. Classed as inert and enjoying the lower tax rate, these materials generate high emissions and other environmental impacts through their extraction, processing, manufacturing and transport. The Aggregates Levy incentivises much of the UK's C&D waste to be used as aggregate,^{25,29} for example in backfilling holes, but fails to incentivise high-quality recycling or reuse. Life-cycle impacts should be taken into account in the design of fiscal incentives for circularity.

The large gap between Landfill Tax rates makes fraud attractive to some. The Landfill Tax gap, where the higher rate has escalated more sharply than the lower rate, incentivises less scrupulous waste producers to misclassify waste in order to pay the lower tax rates.³⁰ It has been estimated that 1 in 4 organisations involved in handling waste engage in a misdescription of waste, resulting in £100 million of tax evasion in 2022-23.³¹ This behaviour can have serious environmental and human health implications, especially if hazardous waste is not properly handled and disposed of.

“
All the parts of the policy framework need to be considered to make sure it reflects the waste hierarchy”
Peter Börkey, OECD

There is a growing concern over pollution caused by poorly-managed anaerobic digestion. Successive governments have encouraged anaerobic digestion as a way of treating food waste, as well as some forms of organic farm waste, to reduce methane emissions.^{32,33} It is a form of EfW as it produces biogas, but also a nitrogen-rich fertiliser known as digestate.³¹ Problems can arise when biogas escapes, or excessive digestate is produced and leaks into the environment. This can happen through accidents and mismanagement, and through excessive or ill-timed spreading of digestate on fields and subsequent run-off. Mismanaged digestate can emit ammonia and methane. The Department for Energy Security and Net Zero (DESNZ) recently consulted on how to improve the policy framework for anaerobic digestion and biomethane production.³² Strengthening environmental protections for this alternative will be important in ensuring that diversion of food waste from landfills does not result in the redistribution, rather than prevention, of negative environmental impacts.³⁴

Potential improvements

Align decarbonisation incentives across residual waste management, and link these more directly to emissions. This aims to encourage targeted action on the highest-impact materials, data-driven decisions on best treatment options for each waste stream, and investment in new methods such as specialised pre-treatment and biostabilisation.³⁵

Create a stronger incentive for circularity, including of inert materials. Incentives should be set at a level that incentivises management of materials further up the waste hierarchy. They should take into account whole life-cycle impacts of materials, not just waste sector emissions, in order to encourage upstream actions to reduce consumption of the highest-impact materials.

Under the current system, this could mean applying a higher rate of Landfill Tax to more inert materials, which may also help to limit the risk of misclassification fraud.

Better monitoring and enforcement to prevent obvious and at-scale misclassification, fraud and waste crime. This is required to limit unintended consequences, from misclassification of waste sent to landfill, and under-reporting of the carbon intensity of waste sent to EfW, to poor management of AD facilities and outputs.

Incentive 2

Inclusion of energy from waste in UK emissions trading scheme

The inclusion of EfW emissions in UK ETS aims to reduce carbon emissions of waste incineration.

In 2023, the four UK governments confirmed their intention to expand the scope of UK ETS to encompass waste incineration facilities, including EfW (subject to further consultation on the details).³⁶ The scheme aims to incentivise a reduction in carbon emissions by:

- **Capping the total emissions allowed from incineration**, pushing the sector as a whole to find ways to cut carbon.
- **Introducing tradeable allowances** to represent emissions. If a facility reduces its emissions to below its limit, it can sell the surplus. If a facility is above its emissions limit, it has to pay to buy further allowances.
- **Encouraging investment** in carbon capture, cleaner technologies, improved energy efficiency and better pre-sorting of materials.

UK ETS will cover fossil-based emissions only, caused by the burning of plastics and other oil-based materials. Biogenic emissions caused by the burning of organic materials, including food, wood and plastics made from biological materials, will not be included. In the UK, only 20% of food waste generated is captured, the rest is lost to residual waste where the high Landfill Tax rate for non-inert waste incentivises it to be sent to EfW.³⁷ To avoid the extra costs of fossil-based emissions, it is hoped that the waste sector and waste producers

Incentives from inclusion of EfW in UK ETS

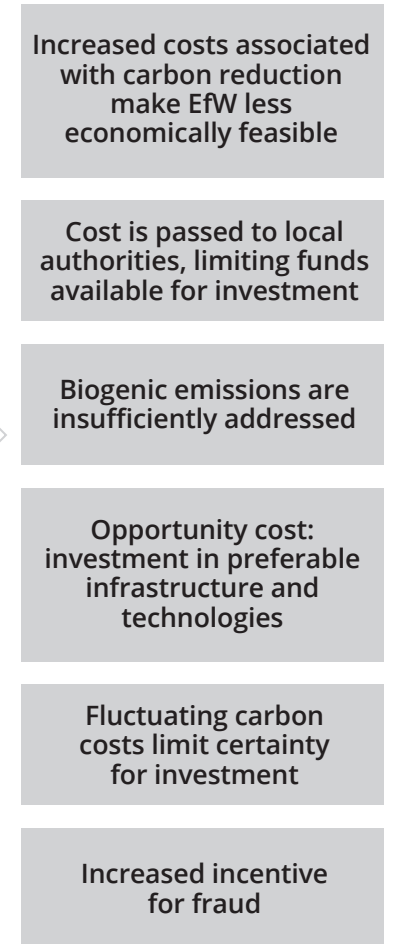
Incentives



Intended impacts



Unintended consequences



will be incentivised to improve pre-sorting and diversion to recycling of plastic waste, and to invest in carbon capture, usage and storage (CCUS), as well as other technologies to increase efficiency.

Different stakeholders across the value chain have roles to play in removing plastics from residual waste. Producers could ensure more plastics are recyclable, designing out problem items.

Households and businesses could improve their recycling behaviours. Local authorities could improve collections (as is expected under the Simpler Recycling and other reforms across the UK, for example expanding plastic film collections). The waste sector could improve sorting and

pre-processing of materials, to divert more for recycling. There could be more public and private investment in reprocessing facilities capable of recycling a wider range of plastic types and quality levels; and finally there could be investment in end markets to generate demand.

As the challenges faced by those lower down the value chain are shaped by decisions made by those further up, much recent discussion around this financial incentive has been around how to ensure that it results in the desired behaviour changes across the board.



Key issues

Local authorities are concerned they will bear the brunt of the incentive. According to the producer pays principle, the cost burden of end-of-life management of products should be placed on producers, whereas ETS costs could disproportionately burden local authorities. EfW operators can adjust gate fees fortnightly to pass any cost increases on to customers. The Local Government Association (LGA) has warned it could add costs of £367 million to £747 million a year to councils.³⁸ This could limit council funds available for investment in waste services and infrastructure.

This will be mitigated to some extent. First, by the roll-out of policies aimed at more consistent recycling collections, including plastic film, prior to EfW being included in UK ETS; and second, by new funds flowing to councils from packaging EPR. Local authorities will be incentivised to reduce the volume of plastic sent to incineration, supporting other policies aimed at increasing recycling rates; but how effectively they can respond will depend on sufficient funding being available, and on producers being sufficiently incentivised through EPR to ensure products placed on the market are recyclable.

Craig Mitchell, Welsh Local Government Association (WLGA), explained that another challenge arises from the potential impact of commercial waste on EfW gate fees. Local authorities with high recycling rates, such as those in Wales, should expect to enjoy relatively low fees. However, if local commercial waste producers are sending large quantities of fossil-based materials

to EfW in the same area, this could push up gate fees for all. This would dilute the incentive for local authorities to improve plastic recycling and would create an unfair situation.

Biological waste emissions and the circular bioeconomy are insufficiently addressed. While sending biodegradable waste to EfW avoids the methane produced when it is sent untreated to landfill, it still generates carbon emissions.^{39,40} Zero Waste Europe advocates for both fossil and non-fossil carbon to be included in the EU ETS, as climate change doesn't distinguish between the two.⁴¹ In addition, by burning biological waste, valuable nutrients are lost from the nutrient cycle and valuable materials from a circular bioeconomy.⁴² More circular alternatives are available, such as anaerobic digestion and composting.⁴³ With Scotland introducing a ban on sending biodegradable waste to landfill at the end of 2025,⁴⁴ and landfills approaching capacity elsewhere in the UK, the amount of biological materials sent to incineration is set to rise. Incentives are needed to encourage the development of more circular treatment pathways.

Monitoring and reporting costs for EfW will rise. To accurately quantify fossil-based emissions and reward reductions over time, better and more frequent waste composition data for EfW feedstock is essential. EfW operators will likely need to carry out independent testing and install new monitoring technology. The added cost and complexity of this increases the risk of companies failing to accurately record and report their

“**Hopefully, packaging EPR will pick up ETS costs.”**
Craig Mitchell, WLGA

emissions; and will further drive up local authority costs. If a large number of operators fail to improve emissions measurement and reporting, this could impact the carbon prices and overall effectiveness of the scheme.⁴⁵

CCUS may be needed, but will make EfW less commercially viable. The commercial feasibility of CCUS for EfW is currently unproven. CCUS technologies aim to cut emissions by capturing carbon dioxide, compressing it and transporting it for usage or storage. From 2026, new EfW developments will require realistic carbon capture plans to receive environmental permits.⁴⁶ Retrofitting and installing CCUS involves significant costs, including for constructing pipelines or for non-pipeline transport. Theoretically, the ETS scheme supports the abatement of these costs by incentivising EfW companies to avoid carbon costs, and to generate revenue from the sale of unused carbon credits.⁴⁷

However, these aims could be difficult to achieve, and potentially unaffordable, in practice.⁴⁸ Judith Harper, ISWA WGER, explains: “The CCUS is going to reduce the amount of available heat and power that can be exported from the plant, and that

income will be lost. There will come a point where the CCUS costs may outweigh any benefits of actually doing energy from waste financially for the commercial operator.” To help with this barrier, DESNZ is offering a complementary fiscal incentive in the form of a subsidy, the ‘Industrial carbon capture business model’.⁴⁹

There is an opportunity cost to investing in CCUS for end-of-life emissions. It is more cost-effective to separate plastic waste before sending it to incineration than to capture emissions.⁵⁰ While not all plastics collected can currently be recycled, the share could be driven up through the introduction of more advanced sorting and cleaning technologies, for example using AI and sensor-based systems, which are not yet widely deployed in the UK.⁵¹ In some cases, chemical recycling technology could also play a role, though it is more energy- and carbon-intensive than mechanical recycling.⁵²

This raises the question of whether industrial subsidies to the waste sector would be more impactful if redirected into supporting the roll-out of advanced sorting and reprocessing facilities for plastic and residual waste, rather than (or in addition to) deployment of CCUS for EfW. This could be supported by stronger incentives for producers to design for reuse and easier recycling, for example using fewer polymer types and removing substances of concern.

Future investments in EfW need to avoid undermining waste and recycling targets.

Incineration will remain necessary for disposal of some materials, such as certain hazardous wastes, until these can be phased out by design or preferable treatment options developed. For the rest, policy incentives should aim to continually reduce the amount of residual waste, in line with the government’s target for England to halve residual waste produced per capita (excluding major mineral waste) from 2019 levels by 2042.^{53,54} In the past, there have been issues with councils being locked into long-term contracts to supply waste to EfW plants. Craig Mitchell, WLGA, noted that some long-term local authority contracts for EfW facilities are coming to an end in the next ten to fifteen years, so it is important that whatever replaces them better supports the waste hierarchy.

In 2021-22, both Wales and Scotland brought in restrictions on new incineration plants due to environmental concerns. (England introduced a temporary ban on permits in April 2023, but it was lifted in May 2024.⁵⁵) Nonetheless, incineration capacity rose in Scotland from 2022-23.⁵⁶ Local authority waste infrastructure plans will need to ensure that waste targets are not undermined in the long run by over-reliance on EfW.

“
Operators would prefer that as much non-biogenic fuel as possible is diverted before it gets to the EfW facility.”
Judith Harper, ISWA WGER



Potential improvements

Use EPR fees to support advanced sorting of municipal residual waste to remove plastics, as well as for investments in plastic reprocessing.

EPR schemes may also be needed for other materials producing fossil-based emissions such as textiles, hard plastics, and absorbent hygiene products.

Use decarbonisation subsidies in support of advanced sorting and reprocessing. These could be used to drive rapid development of technologies and infrastructure for the advanced sorting of residual and plastic waste, and reprocessing facilities for plastic waste; and for the infrastructure needed for a circular bioeconomy.

Include biogenic emissions from EfW in the ETS scheme. This would need to be carefully staged and accompanied by measures to develop and monitor more circular pathways for organic waste, in light of measures to also divert this from landfill.

Introduce requirements for accurate waste composition analysis of local authority waste sent to EfW, to avoid local authority gate fees being affected by commercial waste.

Decrease the cap on emissions from EfW over time, to support waste reduction and recycling targets. To ensure the correct amount of capacity, EfW contracts should also avoid locking councils into delivery of minimum waste quantities over long periods.

“

For the target of zero waste, EfW should be seen as a transitional technology that will be faded out over time.”

Craig Mitchell, WLGA

Spotlight on: Using carrots and sticks to drive up recycling rates

Wales has the best recycling rates in the UK, and the second best in the world. In 1998-99, the Welsh recycling rate was around 4.8%. Since control over waste management was devolved to the Welsh Parliament, they have invested £1 billion to improve recycling rates.⁵⁷ Statutory targets were introduced for recycling a minimum of 64% of waste by 2019-20 and 70% of waste by 2024-25. In 2023, their recycling rate was higher than the statutory target, at an average of 65.7%.⁵⁶

Now, local authority recycling rates vary from 59% in Torfaen to 72% in Pembrokeshire and Swansea.⁵⁸ In Wales, local authorities are incentivised to follow the government's collections blueprint to boost recycling rates and save costs through a consistent approach. The blueprint calls for:

- Reducing residual waste container capacity and collection frequency.
- Weekly separate collection of dry recyclables via kerbside collections.
- Separate food waste collections and promotion of home composting.
- Use of modern multi-compartment vehicles for a single-pass collection of dry recyclables and food waste.

If local authorities follow the blueprint, they can access funding and support. If they do not hit recycling targets, they risk being fined. The synergy between reward and punishment incentives is

necessary to empower and motivate change—even if fines are rarely used in practice. According to Craig Mitchell, WLGA: "Additional funding was really the enabler that got us there. The fines just got it higher up the political agenda."

Fines and punishment

Fines create pressure and place recycling on the risk register of poor-performing local authorities. However, additional financial burdens could be counterproductive when the goal is to improve services. In Wales, if local authorities are due to be fined but can provide a good explanation for why they didn't reach their target, the fines are not always enacted. The potential to avoid punishment also motivates local authorities to develop action plans.

Investment and rewards

Many financial and fiscal policies are focused on raising the cost of polluting activities. However, ensuring that alternative sustainable options are economically viable is crucial for transitioning to a circular economy. The Welsh Government's recycling success also reflects high investment in recycling infrastructure, services, and vehicles.

Overall, the statutory targets created a stable policy context in support of local authority planning, while financial incentives helped to both facilitate and ensure the desired response. Wales is now shifting its focus to incentivising reuse, repair, and reduction.⁵⁹

“

Additional funding was really the enabler that got us there. The fines just got it higher up the political agenda.”

Craig Mitchell, WLGA

Aim 2

Increasing recycling



Recycling extends the lifespan of materials by reprocessing them and using them in new products. Each nation has recycling targets. In Wales and Scotland these are statutory and missing targets in Wales results in fines. Wales is currently exceeding its targets. Elsewhere, progress has stagnated.

- Wales aims to recycle 64% by 2023 and in 2022-23 achieved 65.7%.
- Scotland aims to recycle 70% by 2025 and in 2022-23 achieved only 43.3%.
- Northern Ireland aims to recycle 70% by 2030 and in 2022-23 achieved 50.7%.
- England aims to recycle 65% by 2035 and in 2022-23 achieved 43.4%.
- Ireland aims to recycle 65% by 2035 and in 2021 achieved 41%.

However, the challenges go beyond meeting headline recycling targets. First, not all of what is collected and sent for recycling (reflected in the targets) is actually recycled. There are process losses, such as through the quality or purity of materials, and often only the more valuable materials are actually reprocessed for recycling, with the rest sent for incineration or landfill. Second, the quality of recycling is crucial for maintaining value of secondary materials and reducing resource extraction:

- **High-quality recycling** preserves the value of the materials and allows them to be used again in a similar way to the raw material. This creates 'closed loops' where the recycled products are similar to the originals, and recycling can be repeated, such as for aluminium cans or PET bottles.
- **Low-quality recycling**, often referred to as **downcycling**, is where the materials are used to create something of lower value or quality, which often cannot be recycled again. For example, the downcycling of textiles to furniture stuffing, insulation, or industrial rags. Downcycling is very common for certain materials, such as textiles, plastics, and construction and demolition waste.

Types of fiscal and financial incentives

The recycling system must be designed to prioritise closed loop systems. Incentives need to be placed along the entire value chain to improve the recyclability of products, invest in better collections and recycling infrastructure, and stimulate end markets for recycled materials. Common types of fiscal and financial incentives include:

- EPR schemes to incentivise producers to improve product design for recycling and reuse, by making them pay for these activities (and sometimes provide take-back schemes).
- DRS to incentivise consumers to recycle items and reduce litter, which can also reduce contamination for higher-quality and food-grade recycling.
- Resource taxes to increase the competitiveness of recycled materials compared to virgin materials.
- Public investment in recycling infrastructure, technologies and services.

Approach in the UK

A lot of policy development effort in recent years has gone towards developing policies to address packaging and littering through financial incentives in DRS, EPR schemes, and the PPT. Packaging only represents around 6% of total UK waste generated by weight, but is of interest to the public due to littering and its prominence within household waste.²⁵

Producer responsibility rules were initially introduced as a result of EU legislation. The aim was for producers in certain sectors to cover some of the cost of recycling their products, following the principle of polluter pays. The four UK governments have committed to work together to upgrade some of the existing EPR schemes to ensure that full waste management costs are covered, among other improvements. In the EU, there are also plans to expand EPR to other product types, such as textiles.⁶⁰

DRS aim specifically to increase capture and recycling rates for drinks containers, and have become an accepted practice in a number of countries. An additional charge is added to products, which customers can reclaim by returning their empty bottle or can to a reverse-vending machine or in-store return point. The introduction of DRS' in Scotland and Wales has been affected by post-Brexit legislation, which aims to standardise market rules across the UK.⁶

If more materials are collected and recycled, they must also have an end market. In many cases, including plastics, virgin materials are cheaper than their recycled equivalents. The UK's PPT aims to improve the competitiveness of plastic that contains at least 30% recycled content, which is exempt from the tax. This is one way of pricing in some of the negative environmental impacts of resource extraction and incentivising the use of recycled materials.

Public investment and subsidies have also been used to help local authorities to increase recycling rates. For example, in 2021 Scotland launched the £70 million Recycling Improvement Fund,⁶¹ which local authorities can access to upgrade outdated infrastructure and improve services, supporting compliance with the evolving regulatory framework and improving the quality of recycling.



Incentive 3

Extended producer responsibility

By requiring producers to pay for end-of-life waste management and increase recycling rates of their products, EPR aims to incentivise companies to design more recyclable products and use resources more efficiently, while channelling funds to recycling activities.

Producer responsibility regulations were introduced in the UK nations from 1997, starting with packaging, and later introduced for waste electrical and electronic equipment (WEEE), batteries, and end-of-life vehicles. Regulations require producers to pay a share of the costs for the recovery and recycling of their products and in some cases, offer free take-back. Through this financial mechanism, they are responsible for meeting recovery and recycling targets.

Obligated producers must either join a compliance scheme or register directly with an environmental regulator to report tonnages placed on market and sent for recycling. Approved waste management companies and waste exporters sell evidence notes to producers (often via the compliance schemes), confirming tonnages of waste recycled.

EPR incentives

Incentives

Producers pay to meet recycling targets

Eco-modulation: producers pay more for products that are harder to recycle or reuse

Intended impacts

More funding flows to recycling sector

Recycling rates improve

Producers design for recyclability

Unintended consequences

Quality of recycling is overlooked

Recycling is prioritised over reuse/repair

Waste exports are incentivised

Risk of new LA payments penalising success

Different countries have adopted different approaches to producer responsibility schemes. Notable features of the UK's current approach include:

- A diverse marketplace for producer compliance schemes, which compete for producers as clients.
- Market-based pricing for the notes which provide evidence of recycling, the cost of which fluctuates significantly.
- Producer fees typically only cover reprocessing costs, not the full range of activities required for effective recycling.
- Producer fees can only be spent on waste management activities; they cannot be diverted into wider circular economy initiatives such as repair and reuse initiatives.

New EPR regulations are being rolled out for packaging, and updates are expected for WEEE and batteries in the next few years. The new generation of EPR schemes aim to make producers responsible for the full net cost of recycling the target quantities, including collections, sorting and other intermediate activities, in addition to reprocessing. In the case of WEEE, there are also likely to be enhanced retailer take-back obligations. These changes should reduce the burden on public finances to pay for local authority collections and increase the incentive for companies to design for recyclability. To enhance this incentive, the government is exploring 'eco-modulation' of producer fees, which involves charging more for less recyclable and more problematic materials.

For the new packaging EPR scheme, the UK and devolved governments intend to introduce a single scheme administrator to take responsibility for managing payments. It is expected that local authorities will receive money via the scheme administrator to cover the waste management costs of relevant items; it remains unclear whether reprocessors and exporters will still be able to sell evidence notes directly to producers for recycling activities.



Key issues

EPR schemes do not clearly incentivise high-quality recycling. The current schemes offer a blunt tool to push up headline recycling rates, which typically focus on what is *sent for* reprocessing at approved facilities. However, there can be large differences in recycling *outcomes*. Firstly there can be significant process losses, meaning that the proportion of materials actually reprocessed into secondary materials is well below the reported recycling rate—with the losses sent for incineration or other less desirable forms of treatment. Secondly, as noted above, there is an important distinction between high-quality, closed loop recycling, and low-quality, open-loop ‘downcycling’. The policies do not sufficiently reward producers or reprocessors who achieve lower process losses or more circular forms of recycling, and this holds back investment in technological and process upgrades.

There are two further issues in connection with this:

Producer compliance schemes, which can wield significant market influence, lack a clear incentive to favour higher-performing recycling options. Because compliance schemes compete for business from producers, they have an incentive to keep the costs of compliance as low as possible. This can make cheap-and-cheerful recycling options more appealing, such as WEEE reprocessors who use mechanised ‘bulk and shred’ methods, which greatly limits the potential for reuse of products or components and reduces the quality of recycling outcomes compared to a more manual approach.

The system can incentivise waste exports, which suffer from less transparency and accountability than domestic reprocessing. In packaging waste for instance, there is not perceived to be a level playing field between waste exporters and domestic recyclers. This is because the weight-based payments received for exports are often based on a less processed waste stream, with higher contamination. Exporters are therefore being paid for exporting a certain amount of non-recyclable waste, and this is artificially inflating the reported recycling rate. By contrast, there are stricter requirements for pre-sorting materials sent for recycling within the UK.⁶² While exporting waste for responsible recycling is not inherently bad, there is also a recognised problem with fraud and illegal disposal, given the difficulty of monitoring overseas waste management.⁶³

There are missed opportunities to incentivise reuse through EPR. Taking WEEE as an example, producer targets for reuse are rolled into recycling targets, meaning that it makes no difference whether 1% or 20% of materials sent for recycling are subsequently recovered for reuse. However, the environmental benefits of reuse over recycling are well-documented and this should be built into the policy design.⁶⁴

“

The focus of producer compliance schemes on lowest-cost processing lead to bulk and shred type operations. The quality and value you get at the end is greatly reduced. It’s a very crude form of recycling.”
A business operating in the WEEE reuse and recycling sector.

High-performing local authorities may feel penalised under the new EPR payment mechanism. It is anticipated that payments will be channelled to local authorities with a view to ensuring they can all meet standard requirements for an ‘efficient and effective’ waste service for EPR materials and support recycling targets to be met. This will be welcomed by those local authorities which are struggling to achieve recycling targets. However, many Welsh local authorities have already achieved recycling rates at, or in excess of, targets for packaging and there is a concern that they will not receive what they perceive to be their fair share of EPR funding. This could lead to stalled progress in higher-performing areas, if funding is not made available—whether through EPR or another incentive scheme—to help them make further improvements.

Potential improvements

Design the new EPR schemes to incentivise higher-quality recycling outcomes, for instance through updating and more rigorously applying requirements on best available techniques and technologies.

Use EPR schemes to explicitly promote reuse. Eco-modulation could incentivise design for repair and reuse, and this could be complemented by specific reuse targets, increasing over time. A share of funds from EPR schemes could also be ringfenced to support the development of local reuse initiatives.

Ensure a level playing field for domestic recycling and exports, by standardising requirements for pre-sorting as well as for applying best available techniques, and by continuing to improve monitoring and enforcement.

Measure recycling targets at the point that most accurately reflects actual recycling outcomes.

“
Our concern is how this system starts to cut across local democratic principles, because these functions are devolved functions and a scheme administrator within Defra will be making judgements and influencing funding of services.”
Craig Mitchell, WLGA

Incentive 4

Deposit return scheme

DRS' are designed to incentivise consumers to recycle single-use drink containers and reduce litter.

DRS is one of the few financial incentives for recycling which is targeted at individuals. Under a typical DRS, consumers pay a small deposit fee upon purchasing a drink in a single-use container. This deposit is fully refunded when they return the empty container, motivating responsible recycling behaviour. Traditional DRS' lead to higher-quality recycling through separate collections that decrease contamination. Many European DRS' achieve return rates exceeding 90%.⁶⁵ This improves producers' access to pure recycling streams, thereby supporting the closed-loop recycling of beverage containers.

Plans for DRS implementation initially varied across the UK, with England and Northern Ireland opting to include PET plastic bottles and steel and aluminium cans (matching Ireland), while Scotland and Wales hoped to also include glass bottles. Introduction dates also varied. However, after Scotland was denied an exemption to the UK Internal Market Act in order to include glass, the four nations eventually agreed to more closely align their schemes and launch dates (though the question of whether Wales will include glass is unresolved). After consecutive delays, all schemes are now expected to launch in October 2027.

Deposit return scheme incentives

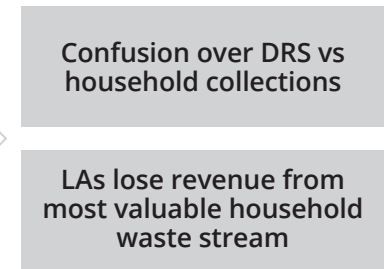
Incentives



Intended impacts



Unintended consequences



In the UK, beverage containers constitute 33.4% of all litter.⁶⁶ Wales and Scotland initially stated the intention to include glass in their schemes, but after Scotland was not granted an exemption from the Internal Market Act for this, plans had to be reviewed.^{67,68} The differing approaches have caused significant delays. The implementation of the English and Northern Irish DRS has been postponed until October 2027, while Scotland's scheme has been delayed from its original launch in March 2024 to potentially October 2025.⁶⁹

The exact scheme design for DRS in the UK still needs to be confirmed. It is likely that retailers of in-scope drink containers will be required to have in-store takeback points, with some exemptions

for small stores, and there may be some form of obligation for online retailers (though online takeback will not be a requirement at the point of launch). One innovative option which the Welsh Government has been exploring is a digital DRS (DDRS) system to work alongside the in-store takebacks. This would allow residents to redeem deposits through kerbside recycling by scanning a code via a smartphone. A serialised code on containers would prevent deposits from being redeemed more than once.⁷⁰

Key issues

Councils will lose revenue from their highest-value packaging waste stream, reducing funds for wider recycling services. Where some other countries have introduced DRS prior to widespread kerbside collections, the UK's DRS needs to complement existing local authority services. The food-grade and highly recyclable containers in scope of DRS generate more revenue for local authorities when sold for reprocessing than other packaging materials, some of which generate a loss. While local authorities will, in theory, be able to claim the deposits from in-scope items coming through kerbside collections, this is expected to be hard in practice due to items being damaged during collections, and the cost of separating materials out.^{71,72}

DDRS could risk increasing contamination, reducing opportunities for closed-loop recycling. A key advantage of DRS is the source separation of very pure waste streams, suitable for recycling into similar products. DDRS systems, which could involve placing in-scope items in existing kerbside recycling bins, might not so effectively keep these items separate. On the other hand, they could help to limit retailer costs associated with DRS (which could be passed to households) and could make it easier to identify the local authorities' share of deposit money.

The emphasis on single-use beverage containers in DRS overlooks other items that have a more significant lifecycle impact and lower recycling rates. In the UK, items in scope (or potentially in scope) of DRS enjoy relatively high recycling rates thanks to kerbside collections: around 81% for aluminium cans in 2023,⁷³ 74% for glass, and 63% for plastic bottles in 2023.⁷⁴ By contrast, just 39% of plastic pots, tubs and trays and 7% of plastic films and flexibles are collected from households.⁷⁴

Related to the above point, the complexities and delays in the policy development of DRS have an opportunity cost, diverting policy capacity and resources from reduction and reuse, and from targeting products with lower recycling rates and worse environmental impacts.

While DRS can incentivise recycling, it may inadvertently perpetuate a single-use culture. By rewarding consumers for purchasing and returning single-use items, DRS could reinforce behaviours that prioritise convenience over sustainability. Many other single-use items out of the scope of DRS will still end up in our streets and oceans.



Potential improvements

Ensure that EPR funding to local authorities takes into account any lost revenue as a result of DRS.

Design any DRS models to support closed-loop systems for food-grade recycling.

Consider expanding DRS to enable reuse and refill systems at scale.

Target future recycling policy development resource where it can have most **environmental benefits**, for example scaling up reuse and refill systems, or targeting items for which recycling rates are particularly low and lifecycle material impacts are high.

“
There is a real risk that huge investments into RVM technologies, infrastructure and contractual tie-ins for the proposed DRS diverts other investment and focus from reusable alternatives and reduced consumption options.”
Peter Wills, Resource Futures

Incentive 5

Plastic Packaging Tax

PPT aims to increase the demand for recycled plastic and incentivise producers to invest in increasing the supply of it.

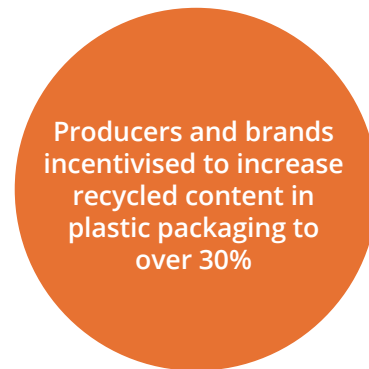
The PPT was first introduced in the UK in 2022 and is designed to stimulate demand for recycled plastic, and lower demand for virgin plastics.⁷⁵ The tax applies to packaging produced or imported into the UK, which is predominantly plastic by weight, and which contains less than 30% recycled content.⁷⁶ The rate for 2024-25 is set at £217.85 per tonne.⁷⁷ The government aims to increase the use of recycled plastic in packaging by around 40%.⁷⁸

The PPT had the advantage of being quicker and more straightforward to implement than other complementary incentives, such as packaging EPR and DRS. It also supports several national and international initiatives aimed at combatting plastic waste and enhancing the market for recycled plastic, such as:

- **The UK Plastic Pact:** This is a public-private partnership that addresses plastic recycling in the UK. The PPT supports its targets such as achieving a recycling or composting rate of 70% for plastic packaging by 2025 and an average recycled content of 30% across all plastic packaging.⁷⁹
- **The Global Plastic Treaty:** The UN treaty is currently still being negotiated, but there are policy calls to set mandatory recycled content targets for industry.⁸⁰

Plastic Packaging Tax incentives

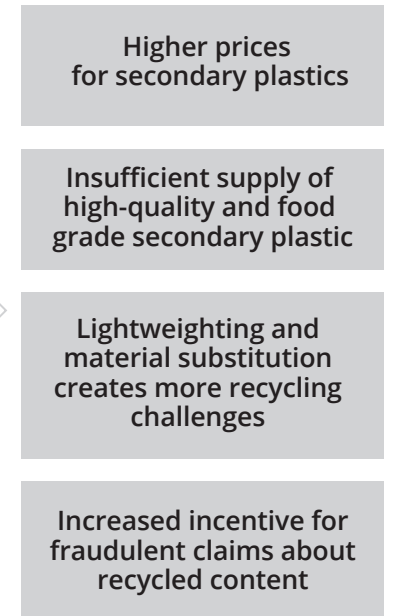
Incentives



Intended impacts



Unintended consequences



Data from the PPT's first two years shows that revenue fell by 6% year on year from 2022-23 to 2023-24, despite the rate per tonne having risen slightly. This suggests that it may be having an impact, albeit limited, on cutting virgin plastic use.⁸¹

Until recently, in practice the PPT only incentivised mechanical recycling. This has changed with the government's October 2024 announcement that it intends to allow a mass balance approach to be applied when determining if chemically-recycled plastics meet the PPT threshold. This could support the development of a wider range of recycling technologies.

Key issues

The strength of the incentive varies according to fluctuating virgin plastic prices. As they are determined by global oil markets, virgin plastic prices can be affected by unpredictable international events. When virgin prices are very low, this undermines the effectiveness of PPT.⁸²

The PPT helps drive demand for high-quality and food-grade secondary plastic, but on its own is insufficient to increase supply to meet demand. The supply of high-quality recycled plastics is constrained by issues throughout the value chain, such as:

- Producers placing hard-to-recycle packaging on the market.
- Materials being missed or contamination occurring in recycling collections.
- Insufficient recycling infrastructure and technologies.
- Difficulties gaining authorisation from the relevant agencies for food-grade recycled packaging.

This demonstrates the limitations of PPT as a market driver and the importance of complementary measures targeting producers, households, local authorities and the waste sector.

As it drives up demand but fails to unlock supply, PPT may be contributing to higher prices for secondary plastic packaging. This exacerbates the challenge of ensuring that recycled plastic is competitive compared to virgin plastics. However, PPT is not the only factor at play here—high demand for recycled content pre-dated the tax's introduction.⁸³

PPT is incentivising lightweighting and material substitution to less recyclable packaging formats. Due to factors including (but not limited to) the limited supply and high cost of recycled plastic, many producers and brands are responding to the tax through two strategies: lightweighting, where heavier rigid plastic packaging is replaced with films and flexibles; and material substitution, either to non-plastic or minority plastic materials. Lightweighting causes problems as soft plastic recycling is not well established in the UK. This is expected to improve by 2027 with the roll-out of more local authority collections, but soft plastic is likely to remain more challenging to recycle mechanically than rigid plastic. Mixed materials, such as combinations of plastic with other materials such as aluminium or card, can also be particularly problematic from a recycling perspective.⁸⁴

Another problematic category of alternative packaging is bio-based plastics. While some are marketed as biodegradable or compostable, the consumer messaging around these can be confusing and suitable collection systems are not

“**Hypothecating the revenue from the PPT should be used to pay for packaging waste & recycling infrastructure.”**

George Atkinson, Valpak

available across much of the UK. As a result, the benefits of compostability are lost as items are sent to incineration or landfill. This is of particular concern as emissions from bio-based plastics will not be covered by the UK ETS, which will only target fossil-based plastics, so there are no incentives to reduce their incineration.

There are concerns about fraudulent claims regarding recycled content, particularly for imported packaging which it is harder to verify.⁸⁵ There is no easy test to determine recycled content levels. HMRC provides guidance, but not hard requirements, on importers to verify this—for example, investigating unusually low prices, and conducting audits of suppliers.⁸⁶ There is limited incentive on importers to do so rigorously, however. If widespread, this could be significantly weakening the incentive for producers to purchase from compliant producers and importers.

Potential improvements

Ringfence PPT revenue to support interventions across the plastic packaging value chain. George Atkinson, Valpak, suggested that revenue should be ringfenced for investment in packaging waste and recycling infrastructure; there is also a case for using it for other measures, such as household behaviour change interventions in support of recycling, reduction and reuse.

Manage unintended consequences by using eco-modulation under EPR to prevent undesirable material substitution, while supporting investment in improved recycling capacity. The multiple barriers to supply of secondary plastic packaging demonstrate the need for a coordinated approach. Eco-modulation could be nuanced, strong and responsive enough to prevent increases in hard-to-recycle and higher-impact packaging materials. EPR funds or other subsidies could support rapid scaling up of high-quality recycling infrastructure.

Change the PPT into a single-use packaging tax, to tackle disposable use of all materials and limit material substitution. In conjunction with EPR and eco-modulation, this could intensify the incentive to scale up reuse and reduction—particularly if a share of EPR funds were ringfenced to support such initiatives.

“**Recycled materials are struggling in the competition with primary and one of the reasons is that these markets are very fragmented.**”
Peter Börkey, OECD

Improve the UK's capacity to produce food-grade recycled plastics. This will be supported through DRS, EPR and consistent collections, but requires specific focus to scale up enough to meet demand while protecting human health. Engagement with the agencies responsible for food safety standards is likely to be beneficial.

Tight verification requirements in respect to recycled content claims by producers and importers.

Once supporting policy incentives are in place, increase the rate of PPT to improve competitiveness of secondary plastic packaging versus virgin materials. The PPT rate could be raised with lower risk of unintended consequences once policies such as packaging EPR with eco-modulation, DRS and consistent collections have been rolled out; more and better recycling infrastructure has been deployed; and stronger monitoring and enforcement is in place.

Spotlight on: Creating inclusive and vibrant markets for recycled materials

As the volume of collected and recycled materials increases, it is crucial to establish pathways for them to be incorporated into new products at their highest possible value. Recycled content targets in combination with tax or EPR incentives are becoming common tools to help develop positive end markets. To address market failures, fiscal and financial policy levers need to not only drive demand for secondary materials, but to do so in a way that ensures equitable and competitive access to these resources, as part of a just transition.

Industry responses to supply constraints

In the plastic packaging sector, some producers are responding to the pressure to raise recycled content, and to supply uncertainty, by investing in closed-loop reprocessing facilities.⁸⁷ In the UK, Defra has said it will explore granting EPR fee exemptions in future to producers who can demonstrate they are meeting recycling requirements in this way.⁸⁸

In the European Union, as plastic packaging taxes and EPR fees proliferate, packaging manufacturers successfully lobbied for rules in the Packaging and Packaging Waste Regulation (PPWR) that allow member states to give packaging producers priority access to recycled materials, where this supports high-value, closed-loop recycling.^{89,90}

Both of these industry responses seek to restrict open competition for secondary materials. There can be significant benefits to closed-loop recycling, such as supporting food-grade quality and preventing supply disruptions in specific

companies or sectors. However, there are also downsides to consider if the market fragments into many, smaller-scale recycling systems.

Risks of a fragmented and monopolistic market

As Peter Börkey, OECD, explained, “Recycled materials are struggling in the competition with primary and one of the reasons is that the markets are very fragmented.” A highly fragmented or restricted secondary materials market threatens to exclude smaller players and create price distortions. If large producers (perhaps in partnership with brands) increasingly own the reprocessing infrastructure, other recycling companies may struggle to compete with vertically-integrated players. Packaging producers granted preferential access to recycled materials would enjoy limited competition and therefore lower prices than on an open market, artificially suppressing the recycling sector’s profitability.

Considering local social and economic value

DRS’ support producers’ access to pure material streams. However, concerns have been raised regarding the ownership of recycled materials. Craig Mitchell, WLGGA, says “The concern for DRS is that the Deposit Management Organisation (DMO) will own the material, which will go wherever it goes in the UK. So, all the material from Wales could flow out of Wales.”

In Wales, this fear has been allayed by the recent announcement of a Wales-only scheme.⁹¹ However, in other cases, the centralisation of ownership of recycled materials could have economic and social implications. Local authorities have a wider duty to communities beyond their environmental remit, and can use local recycling markets as a way to support companies which offer good social value. This reflects tensions over who should control materials – producers paying for waste management, a centralised UK-wide agency, devolved nations or local authorities.

To ensure a competitive market and an even playing field, both large producers and smaller businesses must have access to the growing recycled material market. Government policy incentives need to support a vibrant market, while also balancing this against the need to support local economies and generate social value.

Aim 3

Reducing resource consumption



Resource consumption in the UK is unsustainable and needs to be reduced. Resource policy is a devolved matter, but evidence suggests the aims across the UK should be, at a minimum, to halve overall resource consumption.⁹²

The four UK nations have so far stopped short of setting resource consumption reduction targets, though Defra aims to double resource productivity in England by 2050.⁹³ Scotland's Circular Economy Act grants new powers to set legally-binding targets to encourage circularity; the government has stated its intention to set targets and indicators in 2025 to at least 2030.⁹⁴ The Welsh Government has stated its intention to achieve one-planet resource use by 2050,³ and to support 80 repair cafes across Wales.⁹⁵

Reducing resource consumption prevents virgin resources from entering the economy. It can be achieved by cutting unnecessary production, and by extending product lifetimes through greater durability, reuse (including through circular business models, and by individuals), repair, and remanufacturing.

This is not to be confused with 'waste prevention', which in the UK is defined as preventing *residual waste* and can be achieved through increased recycling and composting. There are significantly greater environmental benefits to cutting resource consumption compared to increased recycling, though this is not currently well reflected in policy.

Types of fiscal and financial policies

Some fiscal and financial incentives to support reducing resource consumption include:

- Financial penalties targeting single-use items.
- Investment and support services for circular business models such as resale, renting, providing products as a service, reuse and refill.
- Rebalancing labour and resource taxes in favour of circular activities which require fewer resources and more labour (though in practice, resource taxes tend to support recycling over consumption reduction).
- Subsidising community facilities for repair and reuse.

Approach in the UK

In the UK, incentives for reducing resource use and scaling up circular activities beyond recycling have received relatively little attention from policymakers compared to recycling and residual waste management. Single-use culture and fast consumption are major barriers to circularity, with many products from packaging through to clothes, toys and electrical items sold cheap, designed for convenience, and disposed of at a fast pace.

As in recycling policy, packaging and similar fast-moving consumer products have received more attention than other resource-intensive sectors, such as construction. The main negative financial incentive applied in all nations of the UK aiming to address single-use consumption and promote reuse is a mandatory charge on single-use carrier bags.

To promote circular business models, Scotland and Wales have provided subsidies in the form of circular economy grants and investment funds, as well as in-kind business support.^{96,97,98} However, much of this funding has been open to companies seeking to improve recycling, rather than focused on reduction and reuse.

Incentive 6

Additional charges on single-use items

Mandatory changes have been placed on single-use carrier bags to incentivise individuals to use fewer single-use bags, adopt reusable items, and decrease litter.

The Welsh Government was the first in the UK to place a levy on single-use carrier bags in 2011, followed by Northern Ireland, Scotland and England in 2015. The legislation varies across the UK nations. In England, the charge originally only applied to plastic bags,⁹⁹ but in 2021 this was amended to cover single-use carrier bags of all materials.¹⁰⁰ In Wales and Scotland all bags designed for single use are covered by charges, including paper, plastic, and plant-based materials.^{101,102} In Northern Ireland, the charge is was amended in 2022 to apply to all new carrier bags with a retail price of £5 or less, covering all materials and bags that are single-use and reusable.¹⁰³ The way this charge is implemented differs by nation, with some extending it to paper and biodegradable bags, and others excluding retailers based on size.

Over the years, the charge has increased from 5p for each single-use carrier bag to 10p. As it is not a tax, retailers are free to use the proceeds as they wish but are strongly encouraged to donate to charitable causes, except for in Northern Ireland where proceeds are required to go to the Department of Agriculture, Environment and Rural Affairs (DAERA).

Incentives from charges on single-use items

Incentives



Intended impacts



Unintended consequences



The additional charge has been reported to decrease single-use plastic bag use. In 2016 to 2017 2.12 billion bags were distributed by retailers and in 2023 to 2024 this was down to only 340 million.¹⁰⁴ Apart from during Covid, the total sales have continued to drop annually according to government figures.¹⁰³ However, this does not account for reusable bags, or 'bags for life', that users shifted to. Shoppers now purchase, on average, more than one bag for life a week, with the 10 largest supermarkets using 1.58 billion bags for life.¹⁰⁵

Additional charges are being consulted on for single-use cups in Scotland.¹⁰⁶ In the Beyond Recycling Strategy, Wales also states they will "develop options for a tax or charge on disposable plastic cups and food containers in Wales."³

Key issues

Retailers have responded by reducing the quality and price of carrier bags marketed as reusable. As a result, it has become more common to use these as disposable bags—and as they are thicker, they use more resources per item.^{104,107} This problem is exacerbated by the requirement in England and Wales for retailers to replace reusable bags free of charge if they wear out – creating a clear incentive to keep using these.^{108,121}

The policy also drives material substitution, where the focus is only on plastics. In England, the policy originally applied to single-use plastic bags. This resulted in retailers swapping the material of bags, such as to paper, bio-based or compostable materials.¹⁰⁹ Material substitution conflicts with policy aims to remove unnecessary bags or encourage customers to reuse bags. Further, some lifecycle assessments of products show that plastic has a lower environmental impact than paper, adding credibility to the concerns that many sustainability claims of new materials can be misleading.¹¹⁰ Whilst the charge on single-use bags now applies to all materials across the UK, lessons on material substitutions should be applied when developing future policies on single-use items.

There are many exemptions. For example, the charges do not apply to bags used prior to check-out for loose items such as fruit and vegetables, for which customers could reasonably bring a reusable alternative.

“**Communication with the public is missing basic things about how the system works. We need to look at the prevalence and impact of items to properly inform incentives for single-use items.”**

Peter Wills, Resource Futures

The limited nature of this incentive means that while it could help to reduce litter, it will do little to reduce the UK’s material footprint overall. Due to high public interest in plastic waste and related issues such as marine litter, policies addressing single-use culture have targeted items based on their visibility and prevalence in litter, rather than based on lifecycle impacts or attempting more systemic change.¹¹¹ The piecemeal approach of banning or adding charges to different single-use items is politically time-consuming and results in unintended consequences.



Potential improvements

Apply a mandatory single-use carrier bag charge to all materials, to limit the risk of material substitution.

Introduce a higher minimum charge for reusable carrier bags of all materials, and remove the requirement for retailers to replace these free of charge, to encourage individuals to use them for as long as possible.

Apply the charge to any additional bags used in-store, which are not necessary for food safety reasons. For instance, bags used to pack loose fruit and vegetables, or to refill containers with dried food and cleaning products, where this is an option.

Require retailers to use revenue from bag sales to support reuse initiatives, whether their own refill and prefill schemes or local community initiatives, to incentivise more systemic change.

Complement mandatory charges with targets for overall bag consumption to reduce, including single-use and disposable bags, and including unnecessary bags used for loose items and refills in store. This could be complemented with targets for overall packaging reduction, an approach which France is developing.

Introduce mandatory charges on more single-use items, such as disposable cups and takeaway food containers, to encourage more widespread behaviour change by individuals and businesses. There are additional considerations for food-contact containers, so collaboration with agencies responsible for food safety would be beneficial in developing such policies.

Refocus policy development efforts to sectors and material streams with higher overall impacts. While there is value to policies which can drive a cultural shift toward reuse and reduction, there is also an opportunity cost each time several years are spent planning a charge on one more category of single-use item. This valuable policy development resource might be better spent creating effective incentives for high-impact sectors such as fashion and construction.

Incentive 7

Subsidies for circular businesses and reuse infrastructure

Grants and in-kind support can support entrepreneurs and existing businesses to trial and scale up circular business models, while stable funding is vital to building reuse infrastructure for local communities, often led by the social sector.

Circular businesses maximise the lifespan of products and materials. The economic activity they generate is much less reliant on resource use. Examples include sharing and renting platforms, products-as-a-service, product life extension through repair, reuse, and refurbishment, remanufacturing, and industrial symbiosis, where an unwanted side product of one business is used as an input for another. They can generate significantly greater carbon savings than strategies such as recycling within a linear business.¹¹² Circular businesses can also have economic advantages compared to linear models. They can increase resource resilience and mitigate against supply chain risks; while lower costs related to extraction, production and disposal can mean higher profits per product.¹¹³

The social sector also plays a critical role in supporting local circular economy transitions, through infrastructure such as repair cafés, libraries of things, reuse hubs and food redistribution initiatives. These offer exciting ways of revitalising high streets and often tie in with social goals.

Incentives from subsidies for circular businesses and infrastructure

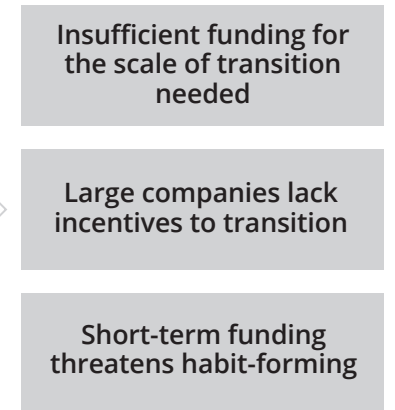
Incentives



Intended impacts



Unintended consequences



Despite the opportunities they present, there is insufficient investment in circular businesses and community reuse infrastructure. Government grants and in-kind support can help with the early-stage development and scaling up of new business models, while capital investments and long-term funding are essential to establish and maintain thriving, accessible, city-centre community reuse facilities.

The subsidies available for circular businesses and reuse infrastructure across the UK have varied in scale and aims. Some recent examples include:

- In England, £1 million was announced in 2021 and £1.5 million in 2022 for small and medium enterprises (SMEs) as part of the NICER research and development programme.^{114,115}
- In Scotland, the £18 million Circular Economy Investment Fund has been issuing grants since 2016 to SMEs with circular business ideas.¹¹⁶ In 2021, a government fund of £310,000 was announced to develop a national network of sharing libraries and repair cafes.¹¹⁷

Wales established the £6.5 million Circular Economy Fund in 2018-19, aiming for businesses to increase the use of recycled materials.¹¹⁸ It also provided £13.2 million for public bodies as part of a wider COVID-19 recovery, to support repair and reuse activities in town centres.¹¹⁹ A further £10 million was announced in 2022-23 for the next three years.¹¹⁷

In Northern Ireland, the draft circular economy strategy includes the aim of establishing a circular economy fund.¹²⁰

In the Republic of Ireland, the Circular Economy Act re-designated the Environment Fund as the Circular Economy Fund. Levies on single-use items and landfill will be ring-fenced for investment in environmental initiatives and circular economy projects.⁵

At sub-national level, ReLondon managed £900,000 from the Mayor of London's Green New Deal fund for small and medium enterprises (SME) grants and in-kind business support, as part of London's COVID-19 recovery.¹²¹ In 2024, it took applications for SME grants related to clothing reuse, drawing on the UK Shared Prosperity Fund.¹²²



Key issues

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Niche models delivered by start-ups and small businesses play a crucial role, but it is now widely recognised that the transition requires circular business models adopted at scale by large businesses.”

**Dr Ann Stevenson,
Resource Futures**



Not enough subsidies are available to scale up circular business models and make them mainstream. Even where funds claim to support the circular economy, in practice they have often focused on supporting recycling or even energy from waste. Funds have not resulted in widespread growth of circular models. Green Alliance estimates that £800 million in public funding is needed to kick-start an even greater private investment in circular business. This could help overcome transitional hurdles, such as developing take-back logistics at scale.¹²³

Business funding has focused on start-ups and SMEs, neglecting larger companies. While it is commendable to support innovative smaller players, incentives also need to target larger, incumbent companies. Industrial decarbonisation subsidies are not restricted in the same way, in recognition of the fact that the entire economy needs to reach net zero. The same is true for the circular economy transition.

Long-term, stable funding for community reuse and repair infrastructure is lacking. Temporary and project-based funds for the social sector, as well as heavy reliance on volunteers, mean that facilities, skills and habits for a circular economy are built up locally, then lost when a grant expires. This undermines efforts to bring about sustained, widespread behaviour change. Such initiatives are not a ‘nice to have’ but an essential pillar of local circular economies, and funding mechanisms should reflect this.

Potential improvements

Expand UK-level industrial decarbonisation funding to support circular business models.

Subsidies managed by DESNZ focus on energy-related interventions for industrial activities within the UK. If they were used to scale up circular businesses, they could also enable decarbonisation of the supply chains of UK businesses—which for many companies represents a majority of their carbon emissions.

Support a just transition to a circular economy by channelling central funding for local growth (such as 'Levelling Up' funds) into community reuse and repair infrastructure.

This could help revitalise town centres while generating local environmental and social co-benefits, such as building circular supply chains, skills and employment opportunities. This could build on and sustain progress made through the various temporary funds.

Make better use of public procurement as a lever to develop circular supply chains. Craig Mitchell, WLGA, explained that a potential lack of awareness and technical barriers are preventing local reuse systems from being supported by local authority procurement. Scotland and Wales have started to develop circular procurement guidance to help public sector buyers to weigh environmental and social benefits against cost efficiencies. However, more work needs to be done to identify and address barriers. This would complement other incentives—for example, local

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A few years ago, a company wanted to create a closed-loop system where they'd use materials we send for recycling to create products that we could procure back from them. But it just proved too difficult to do and that business failed.”

Craig Mitchell, WLGA

reuse and repair hubs and private refurbishment businesses could each play a role in supplying reused office furniture to the public sector.

Ring-fence funds from other policies, such as EPR, single-use charges and resources and waste taxes to support circular business and community initiatives.

This could have the added benefit of generating more widespread support for circular economy policy incentives, by exposing businesses and individuals to visible and tangible local benefits from the fees and taxes imposed on them.

Spotlight on: Tax incentives for a circular economy

Environmental taxes, such as Landfill Tax, can have dramatic impacts when well designed. Even without introducing new ones, rate changes to existing taxes can be made quite dynamically compared to other policy interventions. The Institute for Government has called for better alignment of tax and spending policies with the UK's net zero targets. Research by Green Alliance has demonstrated clear public support for green taxes that support people to make more environmentally-sound choices.¹²⁴

Nonetheless, this particular toolkit is underutilised when it comes to the circular economy. Below are just a few of the tax levers available to accelerate the transition:

Make better use of VAT to support circular purchasing. While sellers enjoy lower VAT rates on many second-hand goods (and charities are exempt), this tax could be more consistently targeted to incentivise individuals and businesses to buy more used, repaired and refurbished items. For example, new-build homes are zero-rated, whereas those who choose to refurbish an existing building pay the standard rate of 20%.¹²⁵ There have also been calls from industry to reduce VAT on companies selling refurbished tech,¹²⁶ and those providing repair services and spare parts.¹²⁷

Improve and expand tax relief on circular activities. Individuals and businesses can get tax relief from donating reusable goods to charity. However, Gift Aid is complex and underused, with only 11% of donors claiming their relief.¹²⁸ Every year, charities lose out on up to £564 million of donations through unclaimed Gift Aid.¹²⁹ There is an argument to increase the subsidies and make the system easier to use, to drive up donations and recognise the social and environmental value of charitable giving.¹³⁰ Sweden has also introduced tax deductions for older people buying repair services. The business providing the repair can deduct 50% of the labour cost before invoicing, then claims it back from the government, making it convenient for the customer.¹³¹

Leverage tax credits to support investment in remanufacturing and refurbishment. New York State offers tax credits of 10-20% on investments made by remanufacturing companies, in order to attract and develop these businesses.¹³² Innovative domestic remanufacturing and refurbishment companies, in sectors such as wind power and construction products, can play a critical role in developing circular value chains for major UK industries.

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In other areas of the world, VAT reductions and discounts are being provided on repair to residents with low income/wealth, including in various EU Member States. These economic signals recognise the added social and environmental value that repair and reuse can offer and provide a stimulus for people to rethink why they buy things new.”

**Dr Ann Stevenson,
Resource Futures**

Conclusions

Fiscal and financial policies offer a range of levers to shift the economy away from a destructive and wasteful linear model. The transition to a circular economy requires measures that not only incentivise resource efficiency and decarbonisation, but also anticipate and mitigate unintended consequences. This report highlights three interconnected policy aims—decarbonising the waste sector, increasing recycling, and reducing resource consumption—and the incentives being used in the UK to drive change.

In some cases, new incentives are being layered onto older ones as policy priorities evolve or to address unintended outcomes. For example, at the turn of the century Landfill Tax was used to address the unsustainable growth of landfill sites. After the tax helped to drive two decades of investment in EfW, attention turned to abating the latter's carbon emissions and ensuring that it did not undermine recycling.

In other cases, stagnation of progress on a policy goal, such as recycling more packaging waste, has led the authorities to introduce additional measures—such as the PPT and new generation of packaging EPR regulations.

Overarching issues

The focus on reactive fixes to existing policy and practice has the unfortunate side-effect of detracting attention from the need to support entirely new activities, such as circular businesses, community reuse and repair hubs, and the wider infrastructure needed for a circular economy. The third policy aim—reducing resource consumption—is the most under-developed. Effective deterrents for over-consumption are absent, such as strong measures to 'turn off the tap' of linear products.¹³³ Subsidies to support circular activities are far below what is needed, and often too fleeting, for systemic change.

Incentives lead to opposition and frustration when those affected feel that they will be punished, but lack the agency to respond as intended. For example, local authorities resent the prospect of higher incineration gate fees due to UK ETS, as they cannot force producers to cut out unnecessary and non-recyclable fossil plastics from packaging, fast fashion and other products. Having complementary incentives along the value chain, and staging the timing of these to support realistic adjustment periods, can lessen the backlash.

It is also apparent that there is a disproportionate focus on fast-moving goods and associated household waste streams, compared to industrial and commercial, or construction and demolition waste. Not only do four of the seven key incentives reviewed here focus on single-use packaging and other short-lived consumer goods (EPR, DRS, PPT,

and charges on single-use items), but Landfill Tax offers little deterrent to some of the most carbon-intensive materials used in heavy industry and construction.

Key areas for improvement

One prominent challenge is to ensure that the next generation of fiscal and financial incentives effectively (and explicitly) **support reuse, and a higher quality of recycling**—recognising that when a material is 'sent for recycling', this is not the end of the story. This requires positive and negative measures to support businesses and social organisations that support us to do more, and better, with less.

Another is to invest in adequate **monitoring and enforcement** to drive the desired outcomes. This is essential to prevent waste crime and irresponsible exports; and to ensure that good-faith actors are not undercut.

Finally, this report calls for the policy community to think about the **opportunity cost** of each future policy chosen. In a climate and nature emergency, decisions need to target the sectors and activities where the greatest environmental benefits can be achieved—on a whole life-cycle basis. The potential for social and economic co-benefits must also be taken into account, for a just transition that can gain and maintain public support.

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