Unlocking investment in circular economy (reuse, repair, and recycling) infrastructure in the UK

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The Circular Economy Institute Limited is a wholly owned subsidiary of the Chartered Institution of Wastes Management (CIWM).

Contents

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CIWM represents the resources and waste sector in the UK and the Republic of Ireland. Although many of the investment principles and findings are valid, in this study the scope was limited to the UK due to resource constraints.

Abbreviations

Abbreviation	Term
3Rs	Reuse, repair and recycling
B2B	Business-to-business
B2C	Business-to-consumer
C2C	Consumer-to-consumer
DRS	Deposit return scheme
EEE	Electrical and electronic equipment
EPR	Extended producer responsibility
IRR	Internal rate of return
LA	Local authority
MCA	Multi-critera analysis
pEPR	Packaging extended producer responsibility
POPs	Persistent organic pollution
PPT	Plastic Packaging Tax
R&D	Research and development
ROI	Return on investment
SME	Small- or medium-sized enterprise
TRL	Technology readiness level
WEEE	Waste electrical and electronic equipment

Glossary

Term	Definition
Capital expenditure (capex)	Money spent on acquiring or upgrading long-term assets (such as building or equipment) that provide value over multiple years.
Consumer packaging	The packaging of common consumer products such as plastic bottles and pots/tubs/trays, cardboard and paper packaging, aluminium and steel tins and cans, and glass jars and bottles.
Electrical and electronic equipment	Includes products such as household appliances, IT and telecommunications equipment, and other consumer electronics.
Extended producer responsibility	A policy approach that makes producers responsible for the environmental impact of their products throughout their lifecycle.
Internal rate of return	The annual rate of return an investment is expected to generate over time, used to estimate the profitability of a project.
Operating expenditure (opex)	Day-to-day expenses required to run operations (such as salaries, utilities, and maintenance).
Plastics	All types of plastic products, including consumer packaging (such as bottles, films, pots, tubs and trays) as well as commercial and industrial plastics used across sectors.

Glossary (continued)

Term	Definition
Plastics converter	A manufacturing company that takes raw plastic materials and processes them into finished or semi-finished products.
Recycling	A process whereby waste materials are reprocessed into new materials or products. This includes mechanical recycling, where materials are physically processed (including steps such as advanced sorting, washing, and shredding), and chemical recycling, breaking down materials through chemical reactions (such as depolymerisation or pyrolysis) into their chemical components. This definition excludes upstream collection and initial material separation.
Refurbish	Improving or restoring a used product to a good/updated condition, including cosmetic and functional upgrades.
Remanufacture	Rebuilding a product to like-new condition, typically involving complete disassembly and replacement of any worn parts.
Repair	Refers to activities that restore a product to working condition after a fault or damage, enabling continued use and delaying disposal.
Reuse	Refers to the process of using a product or material again for the same or a different purpose without significant reprocessing.
Textiles	Refers to materials and products made from natural or synthetic fibres, including clothing, household fabrics, and industrial textiles.

Executive summary

Opportunities from a circular economy transition - investment barriers and opportunities in UK 3Rs infrastructure

The circular economy transition is increasingly recognised as essential to increasing the UK's economic resilience and long-term growth. With more frequent international supply chain disruptions affecting business operations and the cost of living, reuse, repair and recycling ('3Rs') are emerging as critical national infrastructure needs.

However, existing 3Rs infrastructure in the UK remains underdeveloped and underinvested. A lack of infrastructure, and, in some cases, sub-optimal infrastructure (low-quality recycling operations, for instance), results in significant volumes of valuable materials being exported or lost, as well as missed economic opportunities.

While the substantial benefits from circular infrastructure range from improved resource security, jobs and value creation, and to reduced environmental impacts, the level of investment has not matched either the economic opportunity or the UK's policy ambition. This study finds that the central issue is not a lack of capital, but the conditions required to mobilise it.

Scope and methodology

This study into investment barriers and opportunities in UK 3Rs infrastructure was commissioned by the CIWM Policy & Innovation Forum, and examines how to unlock investment across four priority material streams:

- Electrical and electronic equipment (EEE)
- Plastics
- Consumer packaging
- Textiles

The research draws on insights from literature and interviews with investors, advisors and operators in the waste and resource sectors. It identifies key barriers, investment needs and opportunities, and sets out recommendations for investors, industry and government.

Key cross-sectoral findings

Financial capital is available, but investment is undermined by the lack of suitable conditions to boost investor confidence. Instead, investors view circular infrastructure as high-risk, with weak market signals. Key challenges, which vary in severity across sectors, include:

- Lack of offtake guarantees due to uncertain and volatile end markets.
- Low volumes of feedstock materials, with inconsistent quality.
- Insufficient policy clarity, coordination and support for circular initiatives.
- A 'missing middle' in funding for scaling innovative technologies, particularly when comparing support in the UK with what is available abroad (e.g. in the EU).

There is a critical need for greater investment in downstream activities that generate demand for outputs from advanced sorting and reprocessing facilities. Without sufficient demand, improved collection and processing alone are unlikely to unlock investment at scale. A lack of domestic manufacturing (e.g. textiles) and reprocessing capacity (e.g. batteries) is a recurring theme across sectors, reducing the UK's ability to retain value from recovered materials and increasing reliance on export markets. Strengthening domestic end markets and processing capacity will be essential to improving resilience and creating the conditions needed to attract private investment.

Impact and public sector investors are missing opportunities for more robust, data-driven decisions on where to prioritise investment. The environmental and socio-economic benefits of reuse and repair, and of high-quality recycling, can be much greater than those of lowest-common-denominator recycling methods. This report points to relevant data sources.

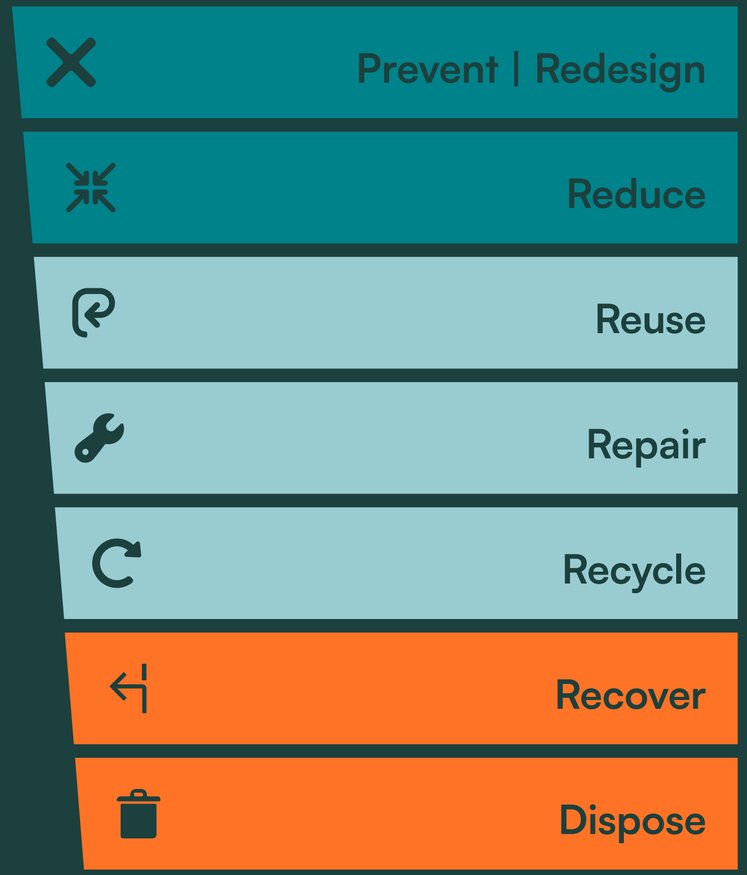


Figure 1: The 3Rs (reuse, repair and recycle) in the context of the waste hierarchy.

In recent years, investments into resources and waste have been weighted to activities further down the waste hierarchy, such as energy from waste, which offer greater scale (but are approaching full UK capacity).. Mission-led investors could go much further in supporting the 3Rs and emerging trends in circular economy policy across the four nations.

Policy plays a key role in de-risking and catalysing circular infrastructure investment, but is currently insufficient. Recurring themes were the lack of long-term policy clarity, and that policy places insufficient focus on supporting domestic processing capabilities and end markets. While it is understood that policy frameworks such as Extended Producer Responsibility (EPR), the Deposit Return Scheme (DRS) and Simpler Recycling will improve material flows, these policy signals are not yet strong enough to unlock investment at scale.

Linked to this is a greater need for targeted public sector funding, which has a central role to play in de-risking 3Rs circular investments and attracting private capital. While strong support exists for early-stage R&D and larger-scale infrastructure, there are two funding gaps. First, there is a 'missing middle' where promising 3Rs solutions require further investment to scale to a size that can attract private capital. Second, there is a gap for smaller-scale 3Rs initiatives; while they may deliver strong environmental and social value, they are unlikely to reach the scale required by many investors.

There is a disconnect between public funds and circular ambitions; for example, the National Wealth Fund (NWF) does not consider the circular economy as a strategic priority. If such funds were aligned, public investment is in a strong position to address both of these gaps. However, another challenge is that many public funding mechanisms are not well-suited to the scale and risk profile of 3Rs projects. Minimum investment thresholds (e.g. NWF's £25m) and risk appetite can effectively exclude a large share of smaller or early-stage infrastructure projects, even where they deliver strong environmental and social value.

There are two roles that public funding can play: first, it can support the scale-up of projects that can become investable at larger scale, and ensuring that smaller, place-based initiatives are also supported. It can also be used to develop domestic infrastructure ahead of clear policy signals, crowding in private investment and helping to establish the capacity needed to meet both supply and demand requirements.

Executive summary
Sector specific insights

EEE and WEEE

- There is a strong demand for reuse and repair activities, particularly for higher-value EEE products. There is also significant untapped value in WEEE, including critical raw materials (CRMs). However, the sector faces few policy incentives and poor collection systems, while outputs from recycling are mainly low value.
- **Key needs** include EEE products with circular design, improved-take back systems, higher quality sorting and recycling, more hubs for reuse and repair, and greater domestic processing capacity for batteries and CRMs.
- **Key enablers** are a strengthened EPR for WEEE, greater emphasis on design for repairability, and collection mechanisms targeted for specific materials (e.g. batteries), policy support for the domestic processing of these streams, and grant funding for local reuse hubs.

Plastics

- The sector is significantly exposed to virgin material prices; mature technologies such as mechanical recycling are viewed as high-risk, while reuse remains significantly underdeveloped.
- **Key needs** include advanced sorting and reprocessing capacity, infrastructure to process flexible or contaminated plastics, and further infrastructure to enable reuse systems
- **Key enablers** include strategic grant funding and higher risk tolerance from public funds, stronger recycled content mandates, and further measures to retain value within the UK.

Consumer packaging

- While well-established, the sector faces challenges from contamination, complex materials and weak end-markets, while reuse systems remain early-stage and difficult to further scale.
- **Key needs** include systems and technologies for reuse at scale, investing in enabling infrastructure ahead of full commercial viability, expanding domestic reprocessing capacity and investing in advanced sorting and re-reprocessing, and developing end-markets for domestically reprocessed materials.
- **Key enablers** include reuse targets for large retailers, reform of the Recyclability Assessment Methodology (RAM) to better incentivise wider system benefits, and increasing mandatory recycled content obligations for locally reprocessed materials.

Textiles

- The reuse sector sees strong growth for higher-value textiles, while repair remains underdeveloped and fibre-to-fibre (F2F) recycling remaining early-stage.
- **Key needs** include accelerated funding for repair models and sustained funding for reuse and repair hubs, investing in circular design of textiles products, further R&D and scaling of F2F technologies, and further development of the UK's end-markets for recycled fibres
- **Key enablers** include long-term policy clarity for investors (e.g. via textiles EPR), strong incentives to increase demand for locally recycled fibres, and cross-sector partnerships to share data and aggregate volumes to enable further scale-up.

Executive summary
Recommendations

Recommendations for investors:

1. Private sector investors to work with universities to drive innovation and investment in novel technologies for a circular economy.
2. Impact investors to incorporate greater risk tolerance and broader value metrics.
3. Public investment funds (e.g. National Wealth Fund) to show greater risk appetite to catalyse circular infrastructure investment.
4. Actively engage in sustainable finance frameworks such as blended finance.

Recommendations for industry:

1. Producers and manufacturers to work with downstream operators to co-develop circular design.
2. Waste and resource sector to shape upstream design and improve data transparency.
3. Reuse and repair stakeholders to integrate further into material value chains.
4. Industry bodies and compliance schemes to strengthen coordination and accountability.

Recommendations for government:

1. Release the Circular Economy Growth Plan and related sector-specific roadmaps as a matter of urgency.
2. Strengthen demand signals for locally recycled and reused materials, to create a reliable ‘pull’ factor.
3. Increase visibility of circular investment opportunities and strengthen investor engagement in the reuse and repair sector (recommendation for government, investors and industry).
4. Facilitate aggregation and coordination of feedstock to unlock investment at scale.
5. Strengthen local authority procurement and target-setting frameworks to unlock private investment and drive reuse, repair, and recycling outcomes.
6. Ringfence UK Emissions Trading Scheme (ETS) revenues to support circular economy infrastructure.
7. Evolve packaging EPR modulation to support system-wide circular outcomes.
8. Strengthen and align UK circular economy policy with leading international frameworks.
9. Expand targeted grant funding to support mid-stage (mid-TRL) technologies and enabling circular infrastructure.

Moving forwards

The UK stands at a pivotal moment in its transition to a circular economy. It must move beyond basic recycling systems which depend heavily on exports to a system that incorporates significantly more reuse and repair. It must develop increased domestic demand for secondary materials and reused products, tying into wider reindustrialisation efforts and supporting national economic security.

As this study finds, the central challenge is not the availability of capital, but mobilising it. To unlock investment, long-term policy clarity is needed, as well as stronger demand for circular outputs and strategic use of public capital to catalyse private investment. This will also require a shift in how value is defined in investment decisions: while financial returns remain the primary driver, broader environmental and socio-economic benefits (such as waste prevention, job creation and reduced pollution) are not consistently measured or prioritised, limiting investment in activities like reuse and repair where these benefits are significant but are more challenging to monetise. Coordinated action across government, industry and investors will be essential.

Without this alignment, the UK risks falling behind its international peers and continue to lose value from its resources. With it, the circular economy can become a pillar for a more resilient, productive and competitive UK economy.

1. Introduction and context

1.1 Introduction

The CIWM Policy & Innovation Forum represents resources and waste professionals in the UK and Ireland, providing thought leadership to drive improvements in the sector and related policy. The Forum commissioned research to identify key barriers and opportunities for investment in infrastructure for a more resource-efficient and circular economy in the UK.

Key research questions were:

- How can the resources and waste sector accelerate innovation and unlock investment to support infrastructure development for reuse, repair and recycling (the '3Rs')?
- What are the priority recommended actions for a) governments, b) investors and c) industry, to catalyse infrastructure development and long-term sustainable growth?

The research focused on four material streams: electrical and electronic equipment (EEE), plastics, consumer packaging (excluding plastics), and textiles. It involved a literature review, interviews, and analysis, resulting in recommendations for investors, industry and the UK and devolved governments. Interviews were conducted with 15 stakeholders, spanning investment funds (including institutional, venture capital and private equity investors), industry advisors, business owners and operators, and a scheme administrator. A detailed methodology is provided in Appendix A.

The literature review focused on the current 3Rs investment and policy environment. An overview is provided as context in Section 1.2, with more in-depth information available in Appendix B. Interviews were conducted with a range of investors from banks, venture capital and private equity, as well as business owners and investment advisors. Sections 2 and 3 outline the findings from both literature and interviews on the current infrastructure investment situation for each of the 3Rs. Section 2 provides an overview of investor needs, the public funding landscape and wider factors affecting investment. Section 3 provides a deeper dive into each material, followed by a summary of the key investment needs and enablers. Detailed recommendations are provided in Section 4, with concluding remarks in Section 5.

As additional resources, an overview of the metrics used by investors, and existing guidance and tools to enable circular investment, are provided in Appendix C and Appendix D.

1.2 Circular economy investment context

1.2.1 The circular economy as a growth strategy

The global risk landscape means that resource resilience is increasingly recognised as essential for a robust, thriving economy attractive to investors. The UK Government is expected to publish a Circular Economy Growth Plan for England in 2026, along with roadmaps for six priority sectors: construction, textiles, chemicals and plastics, transport, electronics and electrical equipment (EEE), and agrifood.[1] This marks a shift beyond a consumer packaging focus, towards structural changes in other high-impact sectors.

Parallel strategies are emerging in the devolved nations. Scotland has recently consulted on a new Circular Economy Strategy, focused on textiles, food systems, built environment and energy infrastructure, as well as developing product stewardship for specific material streams such as mattresses and EEE. Wales' Beyond Recycling strategy sets out commitments to developing recycling infrastructure for materials such as textiles, plastics and EEE, as well as supporting the development of reuse and repair hubs. Finally, an upcoming Circular Economy Strategy in Northern Ireland is expected to target materials such as textiles, EEE, food, and packaging.

Meanwhile, policies and regulatory tools from earlier circular economy and resources and waste plans are coming into play, such as packaging EPR (pEPR), deposit return schemes (DRS), efforts in the four nations to improve and standardise recycling collections,[i] the inclusion of energy from waste (EfW) in the UK Emissions Trading Scheme (ETS), potential landfill tax reforms, and Scotland's proposed ban on sending biodegradable municipal waste to landfill.[2] Scotland and Wales have introduced restrictions on permits for major new waste incineration facilities. A Plastic Packaging Tax, and modest ecodesign policies setting repairability requirements for certain electronic appliances, are already in place; as is a basic EEE producer responsibility system. A more comprehensive overview of key policies and their role in the circular economy transition is provided in Appendix B for reference.

Collectively, it is hoped that these policies will encourage investment into reuse, repair and recycling (3Rs) infrastructure. pEPR in particular aims to generate additional funds for expanding and upgrading systems and infrastructure. More broadly, by setting out roadmaps showing the direction of travel and proposed timing of reforms, the government aims to reduce policy uncertainty. For example, the combination of pEPR, DRS, and Simpler Recycling in England provides a clearer indication of the packaging materials and quantities likely to be available to the recycling sector and those using its outputs. However, repeated timeline changes and

Figure 2: Circular Economy policy landscape for the United Kingdom (2026)

[i] *These include Simpler Recycling in England; Scotland's Circular Economy and Waste Route Map, including plans to introduce a mandatory Recycling Code of Practice; Wales' Collections Blueprint; and Northern Ireland's 'Rethinking our resources' waste management strategy.*

heightened policy risk related to the cost-of-living crisis have undermined efforts to convey policy certainty.

Most national policies to date have prioritised recycling, especially in England, but increasing focus is expected under the new strategies on activities higher up the waste hierarchy. Reuse and repair infrastructure development has often been driven by the private or social sectors, depending on profitability. However, the Welsh Government has channelled investment into reuse and repair hubs, and some local authorities elsewhere in the UK have likewise supported these. Such hubs often go beyond environmental motivations and impacts, presenting opportunities for local social and economic development. Some are well integrated with recycling systems.

English devolution offers new opportunities for combined authorities to approach 3Rs infrastructure more strategically, combining environmental, social and economic objectives. Recognising this, Defra has issued voluntary guidance to mayoral strategic authorities on how to integrate circularity into local growth plans and spatial development strategies.[3]

The UK's existing circular economy infrastructure is insufficient, even for the recycling-focused system created by legacy policies. This is evidenced by high rates of export and incineration of recyclable and reusable materials. As the four nations set their sights on more ambitious systems change in key sectors, a step change is needed in 3Rs infrastructure investment.

1.2.2 Opportunities for economic prosperity

Economic opportunities from the 3Rs are being missed in the UK. A 2025 study found that circular economy practices in four sectors (construction, textiles, packaging, and EEE) could deliver significant economic benefits for the UK, including up to 170,000 jobs and a 0.4% increase in labour productivity, based on a modest transition scenario over 5–10 years.[4] WRAP analysis of trends since 2020 shows that UK companies are leaving money on the table by not adopting circular models, missing out on opportunities for value retention and new revenue streams.[5] Similarly, Green Alliance analysis shows a median increase in GDP of 3% by 2050 under different scenarios for scaling up the 3Rs, adding that the benefits are likely underestimated due to modelling limitations.[6]

Reuse and repair hubs can play a role in local economic resilience and social cohesion, regenerating high streets. This aligns with Scotland's aim of community wealth-building, and Andy Burnham's vision of "good growth in very postcode". People are keen for greater access to these services: A 2025 survey commissioned by the NGO Green Alliance indicated strong public support for circular models, with two-thirds of the public willing to change their lifestyles to support a resource-efficient society.[7]

There is also an opportunity for greater economic resilience. The UK has been historically dependent on imported materials, with over 80% of materials currently imported.[1] Across the past decade, global turbulence has led to an increasing number of supply chain disruptions. These are caused by conflicts and geopolitical tensions (often themselves linked to resource access), more frequent extreme weather events, and transportation bottlenecks in increasingly busy global shipping routes. Risks are compounded in certain supply chains by the concentration of production in particular global locations, and by the increased use of trade restrictions as a geopolitical tool.

The UK's Critical Minerals Strategy acknowledges the role of the circular economy in mitigating such risks.[8] This is urgent: the Green Finance Institute has estimated that supply risks could wipe 6% off the UK's GDP by the 2030s.[9] There is a case to view reuse, repair and recycling as critical national infrastructure, particularly for materials such as EEE and batteries that contain critical raw materials. These activities can provide a buffer to systemic shocks, make the UK less dependent on trade partners, and support domestic reindustrialisation.

1.2.3. Barriers to a UK circular economy

Challenging investment market dynamics

Investment in 3Rs infrastructure can present a number of difficulties. These may include volatile feedstock and energy markets, high capital expenditure (capex) for infrastructure, and significant uncertainty around end-market demand. Potential outputs may be competing against lower-priced virgin materials and new products, so proven demand is critical.

The barriers vary across 3Rs activities. Recycling is more routinely affected by volatile global commodities prices, which can fluctuate greatly over the course of a year, affecting demand for recycled raw materials. Repair and reuse activities compete against new products, rather than materials. While these are not immune to the volatility of global markets, the trends affecting them tend to be slower moving. However, it can be hard to compete with new products on price, convenience, and scale; and compared to recycling, a greater degree of business and consumer behaviour change may be required to develop end markets.

International competition and post-Brexit pressures

The UK must compete for 3Rs infrastructure investment with EU countries, many of which are moving faster and more decisively on circular economy policies under the EU's Circular Economy Action Plan.[10] Member states benefit from unfettered access to the EU market, physical overland connectivity, and EU (and sometimes national) public funding for decarbonisation activities.

The UK's domestic 3Rs infrastructure also faces competition from lower- and middle-income countries, where repairing and reprocessing costs are lower.[11] Exports for reuse, repair and recycling are not always negative or undesirable; but can represent missed opportunities for economic activity and resilience.

Policy incentives

Where the business case is more challenging or less well proven, policy incentives are an important tool for developing and scaling up 3Rs infrastructure. They can help to overcome the inertia in transitioning from a linear to a circular system, in terms of physical assets, skills and behaviours, and investor risk perception. They can make the difference between an investor choosing to locate a novel recycling plant or circular enterprise in the UK or on the European mainland. Conversely, policy uncertainty, delays, and insufficient policy support are often cited as barriers to circular business models.[4,6,12]

1.2.4. The role of the resources and waste sector

The resources and waste sector has a critical role to play in enabling the flow of materials back into the economy at the highest possible value, which is where 3Rs activities come into play. Those working every day in materials management have unique insights into where the opportunities to retain value through circularity exist, and are currently missed. They understand how seemingly minor changes to a product's design, or how it is handled during collection and transportation, can make the difference between a viable business model for reuse or high-value recycling, and downcycling or disposal.

The resource management profession and 3Rs activities are increasingly being integrated into other sectors. There have been multiple success stories of major UK firms creating high-quality jobs and skills for 3Rs activities.[13]

Examples include Screwfix and Currys providing repair, refurbishment and maintenance activities for electrical items, Advanced Clothing Solutions (ACS) providing take-back services for fashion brands, Branston benefitting from resource efficiency and waste reduction in food production, and Renewable Parts rapidly growing a Scottish-based business for repairing and remanufacturing wind turbine components. These and many others are investing in activities such as repair, reuse and waste valorisation, as ways of enhancing their business model and deriving more revenue from products and materials.[14]

Whether actively involved in waste management or embedded in other sectors, resource management professionals play a central role in circular economy as a growth strategy. When it comes to accelerating 3Rs infrastructure development, their insights can inform where to focus for maximum impact on retaining and monetising valuable resources.

2. Current 3Rs investment landscape

2.1 Investor needs

One of the key areas explored in interviews with the investment community was their requirements when deciding to invest in circular projects. While financial incentives and returns on investment were required, interviewees did not specify minimum return rates or payback periods. Instead, they expanded on other requirements including scalability, feedstock certainty, offtake agreements, as well as policy clarity and support. A summary of the most common requirements is provided below (see Figure 3).

In addition, interviewees were asked to indicate how environmental and socio-economic benefits of circular activities were evaluated as part of their investment decisions. Findings from several interviews indicated that environmental and social indicators were not a priority, and were regarded as complementary factors.

A more detailed description of common metrics used by investors is available in Appendix C, identified through interviews and desk research. Various sustainable finance frameworks, project-specific metrics and certification schemes are available to investors to support evaluating circular projects. These frameworks and tools can play an important role in enabling investment into circular infrastructure, complementing the recommendations later in this report for investors, industry and the UK Government.

Figure 3: Common requirements from investors looking to invest in circular projects

2.2. Overview of the public funding landscape

Investors often require some form of risk reduction and revenue certainty to support investment decisions. Public sector funding plays a critical role in catalysing and de-risking investment into 3Rs infrastructure, particularly where fiscal incentives are insufficient, financial returns are uncertain, technologies are in early-stage development, and new business models or consumer behaviours are involved. System and behaviour change will not happen at the pace required through market forces alone; policy-driven action is needed to overcome the inertia of legacy systems.

The current UK funding landscape is structurally imbalanced. It performs well in supporting early-stage innovation through R&D grants, and also deploys large-scale capital for strategically prioritised sectors. However, there is a missing middle, limiting the ability of promising circular economy innovations to move from pilot phases to commercial deployment. Stakeholder feedback indicates that this transition stage (where technologies are proven but not yet fully de-risked) is not prioritised, which as a result constrains investment in new circular business models and infrastructure.

Public support is currently delivered through a combination of regulatory frameworks, public finance institutions, and innovation grant funding. A key source of policy-driven funding is pEPR. Funds are sourced from packaging manufacturers and retailers, securing £1.4bn in 2025/26 for local authorities to use for funding collection, treatment and sorting systems.[15] While this will help with consistency and quality of material supply, a key limitation is that pEPR funds are not intended for capital investment in the reprocessing infrastructure that could boost local jobs and generate more value for the UK economy. This frequently leaves export as the only option for materials such as plastic. (A similar situation exists with the current EEE and batteries producer responsibility systems.) There is also likely to be inconsistency across the UK in how much pEPR money is channelled into recycling systems, with a temptation for cash-strapped councils to divert funds to other priorities.

Public finance institutions such as the UK's National Wealth Fund (NWF) can help to mobilise private capital into specific sectors and activities. With a total capitalisation of £27.8bn, and theoretical capacity to take on five times more risk than commercial banks, the NWF can act as a co-investor and de-risk investments by deploying equity, debt and guarantees.[16] It could use these tools to scale up early-stage circular technologies, helping them reach the commercial maturity required to attract private investment, while providing the essential risk mitigation they need to commit capital.

However, the NWF's investment support for 3Rs infrastructure remains limited; investments for a circular economy were not a priority in the NWF's latest five-year strategic plan.[17] One limitation is the NWF's minimum private investment size of £25m, effectively excluding the majority of 3Rs projects.[18] One stakeholder seeking investment to scale up a novel plastic recycling technology found the NWF to be even more risk averse than the private banks it had approached. Other public finance institutions of note are the British Business Bank (BBB) and the Scottish National Investment Bank (SNIB). Similar to the NWF, the BBB has a greater focus on supporting small and medium-sized enterprises (SMEs), but it does not target circular economy initiatives.[19] The SNIB recognises the circular economy as a core mechanism to achieve its net zero target, and this is reflected in its investment strategy.[20] However, its only circular economy-related investment to date does not reflect resource sector priorities.[21]

More broadly, UK public subsidies and investments related to environmental policy objectives are skewed towards industrial decarbonisation and low-carbon energy infrastructure. These areas have seen large public commitments, such as £1bn for the Clean Energy Supply Chain Fund and £22bn for developing carbon capture, utilisation and storage (CCUS) infrastructure.[22,23] This is in comparison to the relatively smaller funding available for circular innovation and business models; the NICER programme announced £1m in 2021[24] and £1.5m in 2022[25] to be made available for small and medium enterprises (SMEs) in England. There has been some funding support for developing and scaling circular business models (both private and community-led) in Scotland, Wales and some localities such as London, but these have been modest in scale.[26]

Additional support is provided via innovation grant funding

programmes. Innovate UK, which offers grants and collaborative R&D support to help businesses develop and scale new technologies, awarded £9.8bn in grant funding between 2011 and 2021. Among these were some key projects related to the 3Rs, such as the £60m Smart Sustainable Plastic Packaging (SSPP) challenge from 2019 to 2025, supporting projects from feasibility studies up to late-stage large-scale demonstrators.[27,28]

Overall, the comparatively limited funding available for circular economy innovation and scaling suggests that the role of circularity in reducing emissions and supporting economic growth and resilience has not been sufficiently recognised in government industrial and fiscal strategies.[29]

Compared to the EU, the UK benefits from a smaller set of large-scale public financing instruments. The EU provides access to substantial funds (e.g. Horizon 2020 and the LIFE programme), alongside financing from the European Investment Bank, collectively mobilising significant capital for circular economy infrastructure and innovation.[30] EU ETS revenues are used to finance grant funding via the EU's Innovation Fund.[31] Some member states such as the Netherlands also offer significant R&D and entrepreneurial support at national or local level, targeting activities that support their net zero and circular economy objectives.[32] While the UK participates in some elements (e.g. Horizon 2020), access to public funding is significantly more limited, affecting its competitiveness.

At a macro-economic level, the UK has a lower capital investment rate than peer economies in the EU; gross capital investment in 2024 in the UK was 19% of GDP spend compared to Germany (21%) and France (22%).[33] However, R&D spend compares somewhat more favourably at 2.6% of GDP spend in the UK, compared to 2.1% in France and 3.2% in Germany.[34] While R&D investment provides a pipeline of innovation for circular systems, this does not necessarily translate into support for continued scale-up or larger commercial-scale infrastructure deployment, mainly due to factors such as perceived risk, policy support and market demand.

Overall, while a range of public financing instruments exist in the UK, there are significant gaps in how funding is targeted and deployed that can affect its appeal as a 3Rs infrastructure investment location. There is a missing middle in support for scaling innovations (i.e. from pilot to commercial deployment). 3Rs infrastructure is not prioritised within major public funding support programmes, which remain focused on other decarbonisation and growth initiatives. There are also missed opportunities for further de-risking through existing frameworks, such as ringfencing funds for capital investment from producer responsibility and ETS revenues. The combination of these factors constrain the flow of investment into 3Rs infrastructure.

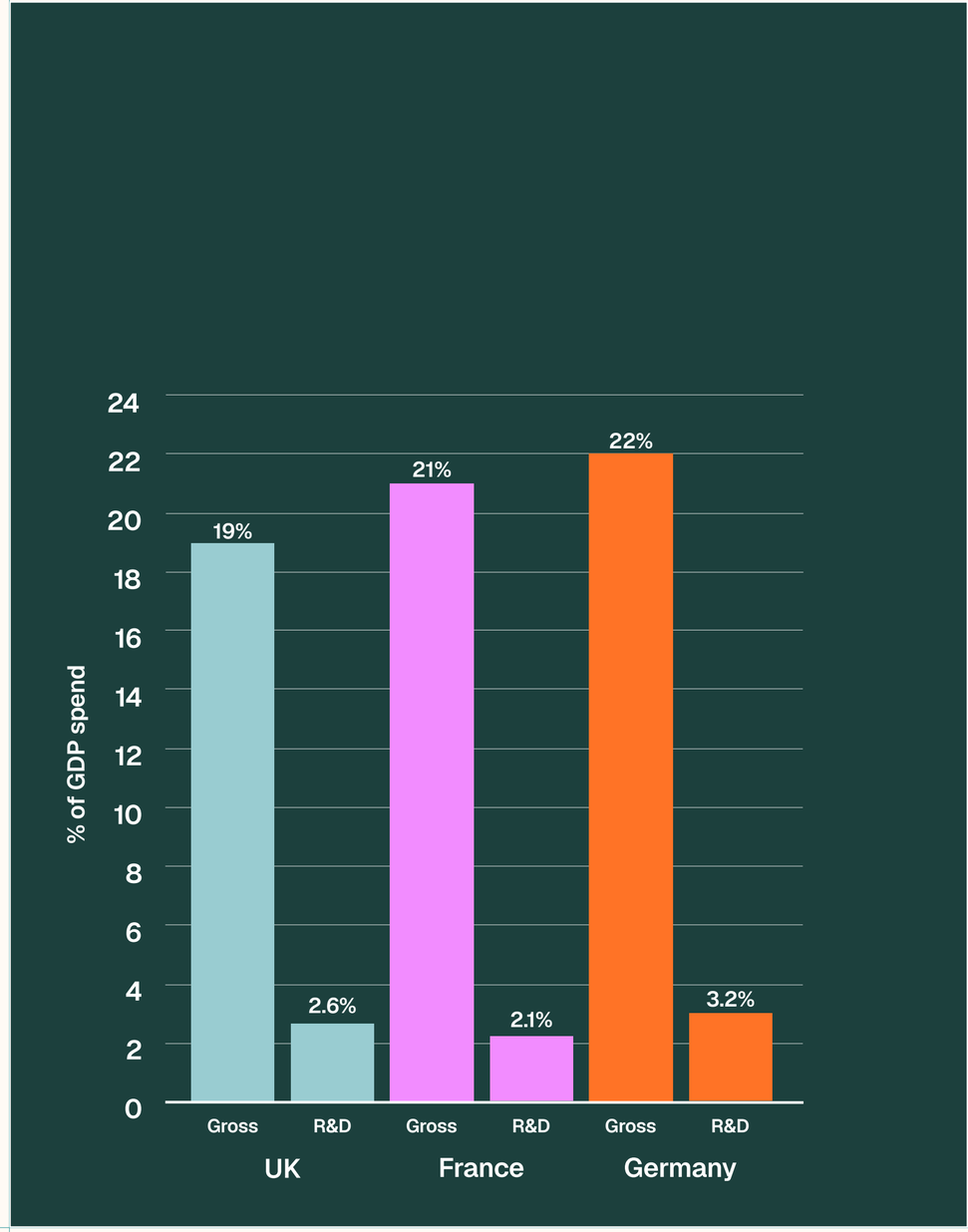


Figure 4: GDP spend on gross capital investment and R&D investment (United Kingdom vs France vs Germany)

2.3. Wider factors affecting investment

In addition to the investor requirements and funding options above, a number of wider factors influencing 3Rs investment were identified, including policy and infrastructure needs, scale, and value of materials. These are explored further below.

Policy signal vs infrastructure need

In interviews with investors, there was a recurring theme around the timing of policy signals versus infrastructure needs. Interviewees noted that investors required policy certainty – often in the form of actual policy implementation – before investing in innovative infrastructure. However, there is a significant risk that if a policy mandating circular activities is implemented before there is sufficient infrastructure, this could undermine the policy's success.

Take as an example the requirement to collect flexible plastics from 2027 under Simpler Recycling. If sorting and reprocessing pathways are not in place, negative media stories could emerge regarding the alternative, less positive disposal routes. This could be used to argue for the policy to be scrapped, before recycling systems have a chance to scale up. This demonstrates the need for public sector de-risking of infrastructure investments essential to policy success.

The importance of value

Another aspect was the importance of the value of the material. While this study covers a range of reuse, repair and recycling activities across several sectors, the economics and business models for each activity will vary significantly depending on the value of the materials in question. For example, the success of textiles reuse ranges significantly depending on the value of the item, with high-value reuse (e.g. via Vinted) being in high demand. Demand for the remaining low-value textiles is limited and likely to require additional policy intervention to support investment.

The importance of scale

Investment approaches and economics vary considerably depending on scale, but a key challenge for the 3Rs is that many infrastructure opportunities do not reach the scale typically needed to attract investment. Larger 3Rs infrastructure can be in the tens of millions, while most other infrastructure types are less; this is significantly lower than other infrastructure projects in other sectors, (e.g. energy from waste), where projects can reach into the hundreds of millions.[35] This is in part due to issues such as inconsistent feedstock supply and uncertain end-market demand.

Overcoming these challenges will require coordination of investment at a regional level (such as via combined and mayoral authorities); to help pool feedstock, standardise contracts and to support the development of larger infrastructure projects. This reinforces the need for policy and collaborations that enable aggregation of feedstock and coordination of infrastructure investment, as explored in the recommendations.

Views on waste crime and leakage

Amongst the participants interviewed, views were mixed on the impact of waste crime and leakage on investment. Some claimed it had a direct impact on investment, and others noted its indirect effects on feedstock, market prices, and business operations.

One recycling operator noted that waste crime impacts investment in the plastics recycling sector due to exploitation of the Packaging Recovery Note (PRN) system. They noted that the system creates a financial incentive to export low-quality bales, pad bales with contamination or heavy materials, or dump waste overseas with minimal oversight. This is incentivised by the low financial penalties compared to the profits made. By undercutting legitimate operations, illegal activities and ineffective monitoring and enforcement make them less competitive, impacting investment.

Venture capital and institutional investors interviewed stated that waste crime was not impacting their investments or willingness to invest. They did acknowledge the potential for media reporting on waste crime to cast the sector in a negative light, and deter some potential investors. They recommended that media reporting should be more balanced to also discuss positive stories, in order to improve the perception of the sector.

Views on public initiatives

One interviewee viewed national circularity pledges, such as the Circularity in Practice initiative, as good for signalling intent regarding investment in the sector. However, they argued that voluntary pledges are insufficient on their own, with need for supportive regulations and frameworks to help drive investment.

3. Material-specific insights

3.1 EEE

The electronic and electrical equipment (EEE) sector places 1.7Mt of products on the market each year.[36] The UK is the second-highest producer of waste EEE (WEEE) per capita in the world.[ii],[37] However, it is estimated that approximately 0.5Mt of WEEE is lost to potential 3Rs activities, by being thrown away, hoarded, stolen, or illegally exported.[38] A 2022 study found there was excess capacity in the WEEE sorting and treatment sector.[36] There is substantial room to move WEEE up the waste hierarchy. One study suggests that suggests that at least 36% of recycled EEE items are potentially suitable for reuse and a further 10% would only require minor repairs.[39]

Batteries value chains are a rapidly evolving sub-sector, driven by electrification and energy storage demand. There is growing concern about securing access to critical raw materials used in batteries. This is increasing the strategic importance of collection and recycling infrastructure for batteries, alongside other WEEE systems more broadly.[40]

EEE in the UK is subject to established producer responsibility schemes, requiring producers to finance the collection, treatment and recycling of WEEE.[41] There have been recent policy discussions on introducing a strengthened WEEE EPR model (including additional cost recovery, new collection methods, and more stringent performance requirements), though implementation timelines remain uncertain.[42] Similarly, there are separate producer responsibility obligations in place for batteries; however, rising volumes from electric vehicles and electronics are placing increasing pressure on current systems, highlighting the need for greater domestic recycling capacity.[43]

The UK also has some limited ecodesign regulations for specific EEE product categories, setting requirements on product durability, reparability and resource efficiency, reducing barriers to 3Rs activities. Overall, the circular economy policy landscape for EEE is stable but less mature than that for packaging or plastics, with a less comprehensive regulatory framework to stimulate large-scale investment in 3Rs infrastructure.

At present, investors appear to be less active in EEE than the other focus material streams. There is little evidence of significant debt funding in the sector due to unattractive risks to banks and, therefore, unviable costs to borrowers.[36]

[ii] *Recorded in 2020 and 2024.*

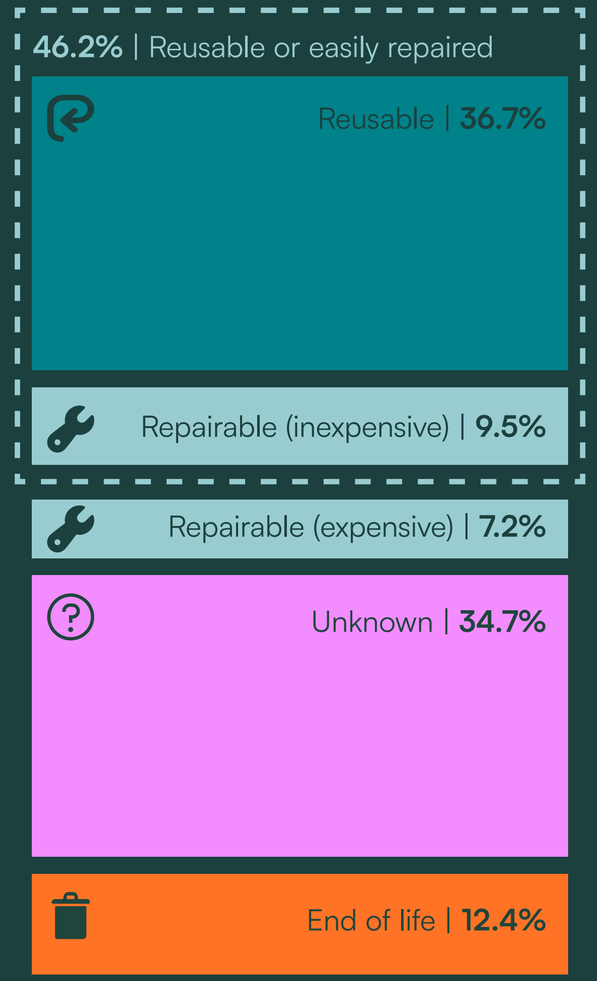


Figure 5: The Restart Project analysis of 299 WEEE items brought to a West London Waste Authority household waste recycling centre (2023)

EEE reuse extends the life of equipment by redistributing it through second-hand sales, donations, or rental/service-based models.

3.1.1 EEE reuse

Market landscape

There is a growing second-hand market for devices, charitable donations, and rental or product-as-a-service schemes.[44] It is focused on higher-value and longer-lasting products, and spans B2C, C2C and B2B markets.[45] Second-hand goods currently represent 34-45% of consumer EEE spending. Around half of the sector's investments in circular business models, estimated at US$0.7bn (£520m) per year globally, go into online second-hand sales, exchanges and rental services.[46]

Opportunities and barriers

Opportunities in the UK are focused on resale. Rental and products-as-a-service are less established; despite their growth, uptake is constrained by limited consumer awareness and some resistance.[47] Takeback schemes are provided by some brands and retailers, such as Vodafone, O2, and Currys, who offer incentives for devices to be traded in where condition and age mean that value is retained.[48] To maximise value and environmental benefits, used devices need to be retrieved as early as possible.[49] Online marketplaces such as eBay, Vinted, and Gumtree facilitate C2C resale, while platforms such as Reboxed, Mazuma Mobile, and Backmarket act as mediators who guarantee the quality of redistributed products.[48]

Barriers to resale include concerns around brand image, liability, and product obsolescence, often connected to software or security updates, affecting retailer resale.[50] Another challenge is its labour intensive process to check and prepare materials for reuse, while unsuitable collection and handling methods (e.g. bulk collection in compliance schemes) can lead to damaged products reducing reuse value, while a lack of convenient return options may deter participation with trade-in and C2C models.[50] Consumer attitudes towards reuse can limit demand , including perceptions around social standing and reliability of used devices.[50] Innovations that improve the efficiency, availability and ease of collections can support reuse; for instance, BackMarket has taken control of the take-back process, providing clear instructions to users packaging returned devices.[50]

Policy landscape

Overall, existing policies do not encourage investment in EEE reuse. UK ecodesign rules support repairability of a small number of products, such as white goods; the EU applies ecodesign to more products. The WEEE Regulations ensure limited avenues for take-back and collections of household WEEE, a minority of which is resold by recyclers, charities or social enterprises. However, there are missed opportunities. The WEEE Regulations do not set a specific reuse target, nor do they mandate collection systems designed to limit damage and maximise reuse potential. The Product Security and Telecommunications Infrastructure Act 2022 missed a chance to mandate minimum software and security update periods. Public procurement rules could be used to drive B2B demand.

EEE repair refers to restoring faulty or degraded electrical and electronic equipment to working condition by fixing or replacing components, ranging from professional repair services and retailer refurbishment, to community-led repair initiatives.

3.1.2 EEE repair

Market landscape

The EEE sector is well placed to benefit from a repair economy. Complex products constructed from discrete components with varying lifespans provide many opportunities for repair, and an economic incentive exists for higher-value items. EEE repair is an established behaviour, with two-thirds of consumers considering it as a first avenue.[51]

Common models include professional repair shops and services, retailer refurbishment schemes, and volunteer-led community repair cafes. Repair is also being scaled by major retailers such as Currys and B&Q, which have developed established and growing repair networks and service offerings.[52] These models reflect a growing recognition within industry that repair can be both economically and environmentally advantageous compared to product replacement, particularly for faulty goods. This includes enterprise-focused businesses, such as Techbuyer, which supplies refurbished office IT equipment.[53]

Yet the UK is far from reaching its potential. In 2023, ReLondon estimated that £1.9bn worth of EEE was discarded that could have been repaired.[51] It is estimated that the percentage of EEE products in use that are repaired or refurbished could rise from 10% in 2023, to 70% by 2035. The share of EEE remanufactured for reuse could rise from under 10% to 80%. Without substantial changes in policy or private sector investment, however, these rates are unlikely to exceed 15% by 2035.[54]

Opportunities and barriers

The economics and ease of repair are a significant barrier to growth, such as the cost and availability of spare parts, high overheads for labour, premises, and equipment, and brand reluctance to support lower prices for repaired items.[54,55] These challenges are exacerbated by complex diagnostic processes and items that are difficult to disassemble, leading to many products being more expensive to repair than replace.[54,55] Finally, consumer concerns surrounding warranties, data protection, quality, safety and lifetime of repaired and refurbished products limits demand for such services.[54]

Innovation is required in business models offering repair which provide accessibility and convenience to consumers, while remaining economical.[56]

Remanufacturing infrastructure requires significant investment; while it can be supported through producer takeback and trade-in schemes, these are often focused on achieving minimum recycling levels for compliance rather than for scaling remanufacturing systems.[57,58,59]

Policy landscape

Similar to reuse, the UK is falling behind the EU in policy support for repair and manufacturing, where emerging frameworks such as Ecodesign for Sustainable Products Regulation (ESPR) and right-to-repair measures are expected to strengthen requirements on repairability and durability. While existing Ecodesign measures require manufacturers to make spare parts available for up to 7-10 years for certain products, these measures are limited in scope.[60]

Local authority support for community-led repair initiatives is limited and uneven. There have been experiments with repair vouchers, including a London-based scheme launched in 2025, but these are not yet widely available.[61] Minimum recycled/reused content requirements do not exist for EEE, limiting the incentive for remanufacturing. As with reuse, the UK is falling behind the EU in policy support for repair and remanufacturing.

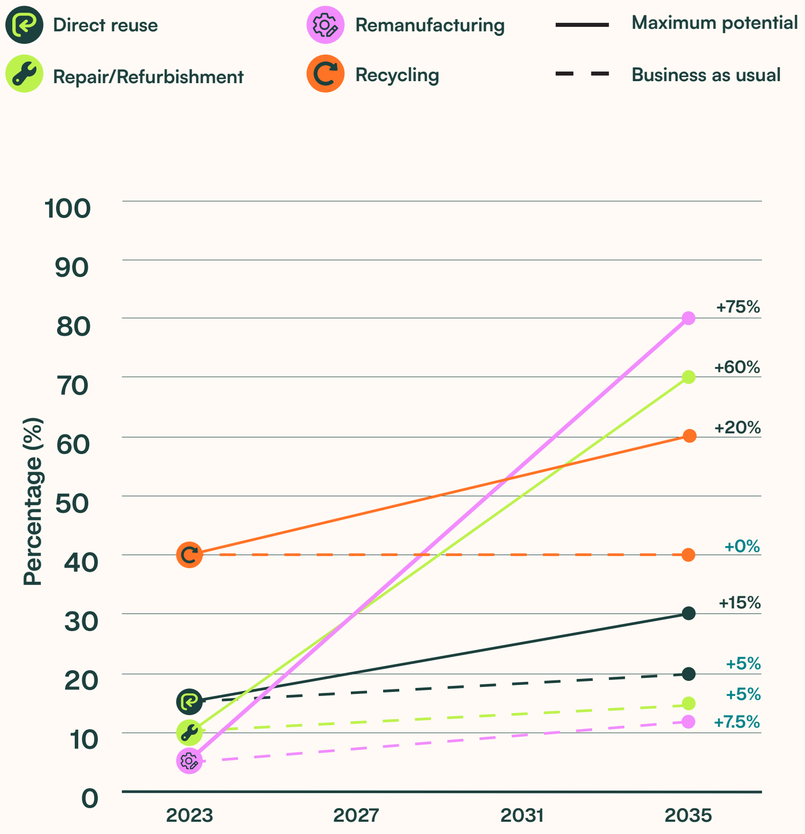


Figure 6: Projected EEE products reused, refurbished, recycled and remanufactured over time (with/without policy support or private sector investment)

EEE recycling requires the careful separation of components into their proper waste streams and the extraction of valuable materials, such as precious metals. Many devices contain batteries, which must be safely extracted and handled. Higher-quality recycling methods extract a wider range of materials and retain more value, but are usually more labour-intensive. There is no policy incentive to do higher-quality recycling at present.

3.1.3 EEE recycling

Market landscape

The UK WEEE market was estimated to be worth approximately £1.11bn in 2024.[62] Collections in 2025 were 510,000 tonnes of household WEEE (a 3% increase from 2024) and 7,800 tonnes of non-household WEEE (a 2% decrease, due to multiple factors including more UK businesses extending equipment lifetimes), the majority of which were received at approved authorised treatment facilities (AATFs) for processing.[63] Where metals are extracted, there is demand from metal dealers who often export for reprocessing.[36,64] There is also growing demand for batteries, due to the critical raw materials (CRMs) they contain. There is little battery reprocessing within the UK, meaning these are also generally exported.[65]

Opportunities and barriers

A 2022 study found there was excess capacity of over 140kt in the WEEE sorting and treatment sector, after a period of market consolidation into a smaller number of larger actors.[36] Most AATFs rely on fast, mechanised, bulk processes that yield lower-grade materials – in some cases, just a fifth of the price of virgin materials.[36] While cheap secondary materials can be attractive to manufacturers, these lower prices fail to cover the high operational costs of e-waste processing. This leaves a market dependency on producer fees and no incentive, or profit margins, to invest in higher-quality recycling methods.[36]

The infrastructure need in the sorting stage is not for more ‘cheap and cheerful’ AATFs; it is for facilities capable of higher-quality disassembly and material sorting, to maximise reuse and recover more value through recycling. Some are making this model work, with the additional value recovered helping to offset higher labour costs. Yet they face competition from operators who are in a race to the bottom, vying for contracts from producer compliance schemes. One WEEE operator indicated that the lack of regulatory enforcement in the sector was a barrier to investment, noting that they could not justify investing in upgrades if competitors faced no penalties for non-compliance.

Growing policy and market focus on CRMs, such as lithium, gallium and tin, is increasing the strategic importance of WEEE recycling as a domestic source of high-value materials. While this is beginning to drive innovation and investment at pilot scale, there remains a need for further domestic processing infrastructure, particularly for batteries, which are emerging as some of the most commercially viable opportunities. However, without more widespread collections and more high-quality collections and sorting at AATFs, there will continue to be large losses of CRMs via bulk shredding. This reduces the availability of high-quality feedstock materials which are needed to support large-scale reprocessing facilities, and as a result weaken demand signals and further slowdown infrastructure development.

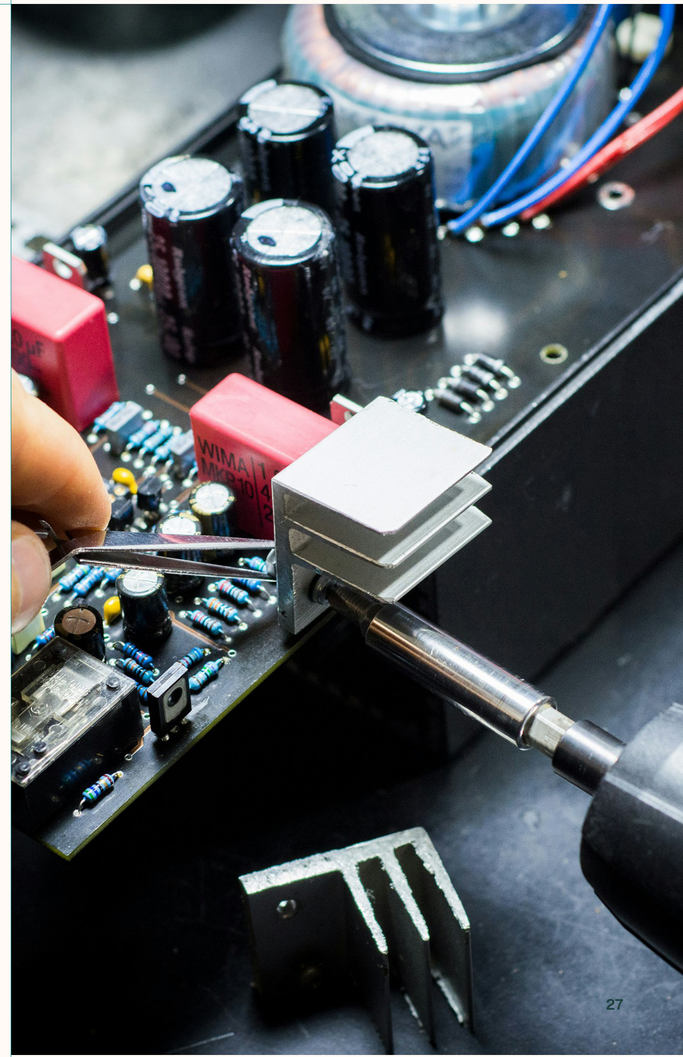
The battery recycling segment is becoming increasingly material within WEEE due to electrification trends, representing a high-growth opportunity for circular investment, albeit with evolving regulatory frameworks and operational risks (e.g. fire hazards) that will shape market development.[40]

Policy landscape

The WEEE Regulations (and similar regulations on batteries) require, and fund, a baseline of collections and sorting for recycling. However, 2025 updates to the WEEE Regulations missed opportunities to cover costs of improved collections or to incentivise higher-quality recycling. There is little policy incentive at present to invest in better AATFs or domestic reprocessing of their outputs, despite growing policy concern about retaining CRMs within the UK.

Another policy gap relates to the safe management of batteries within EEE, which create major fire risks and costs within the waste system. Recent bans on single-use vapes aimed to reduce quantities of vapes entering AATFs, making WEEE sorting safer and more cost effective. Yet stakeholders across the sector are advocating for further interventions, such as DRS for batteries and vapes, or mandatory separate kerbside collection systems, to improve capture rates and reduce safety risks during collection and processing.[66]

Exports of WEEE to and via the EU has come under increased scrutiny thanks to the EU's Waste Shipment Regulations. Other EU policies are likely to drive improvements in the recyclability of EEE entering the UK market (e.g. through more circular design and use of digital product passports).



3.1.4 EEE/WEEE summary

Investor summary: EEE reuse

A range of business and redistributive models for EEE reuse already exist, with clear demand for higher-value products. However, upscaling depends on shifting consumer behaviours, building trust, improving product design (e.g. durability and upgradability), and expanding collection and takeback systems that prevent damage during handling and storage. Without stronger policy incentives (such as a revised EPR for WEEE), investment will remain constrained despite the clear environmental and commercial opportunity.

Investor summary: EEE repair

The sector faces weak commercial economics and operational challenges, limiting private investment despite strong demand and significant potential for value recovery and resource efficiency. Investment in business model innovation, skills and infrastructure is needed but remains high-risk under current conditions. Without stronger policy support (such as an expanded EPR), the sector is unlikely to reach its full potential.

Investor summary: WEEE recycling

A well-established sector with growing importance due to its role in supplying CRMs, WEEE recycling shows some evidence of investor returns and benefits from existing producer responsibility schemes. However, investment challenges include low-value outputs, inconsistent feedstock, and operational risks such as battery fires. Another issue is the reliance on bulk shredding of WEEE, which reduces recovery and availability of high-quality materials. While policy interest in CRMs is increasing, misalignment between WEEE and circular economy policy weakens investment signals. Without stronger incentives for improved collection/sorting systems and more support for domestic reprocessing, large-scale investment in higher-quality recycling infrastructure is likely to remain limited.

Investment needs

- New products applying innovative circular EEE design (reparable, durable and recyclable).
- Brand and retailer vertically-integrated takeback schemes for remanufacturing, refurbishment and resale across a wider range of products.
- Collection and takeback systems that protect EEE from damage.
- AATFs that apply best available techniques to maximise reuse and highest-quality recycling.
- Community/high street reuse, repair and share hubs.
- Domestic reprocessing facilities for batteries and other CRMs that can be extracted from WEEE.

Key enablers

- EPR designed to capture more WEEE, to channel more to reuse, repair and remanufacturing, and to promote recycling best practice for maximum material value retention, such as via local authority WEEE recycling targets and mandatory guidance.
- Targeted collection mechanisms (e.g. DRS) for high-risk items such as batteries and vapes.
- Regulations tackling planned obsolescence and increasing reparability, including ecodesign rules, product information requirements (e.g. reparability indexes; digital product passports), and requirements for longer-term software and security updates, drawing on emerging EU policy (e.g. ESPR and right-to-repair).
- Policy support for domestic reprocessing of batteries / CRMs.
- Grant funding for local reuse hubs – including up-front capital and ongoing support to ensure that hubs can scale and last long enough to bring about behaviour change.

3.2 Plastics

Plastics is a significant industry in the UK, with an annual sales turnover of £32.8bn, 5,700 companies and employing over 160,000 people.[67] The UK virgin plastics market is inseparable from recycling as a significant driver, enabler, but also competitor. Approximately 40% of plastics converters' demand is from packaging.[iii,68] Within packaging, UK plastics had an estimated £4.6bn in revenue in 2025.[69] The OECD predicts global plastic consumption will triple by 2060,[70] with UK plastics growth forecast at 1.9% compound annual growth rate (CAGR) from 2025 to 2030.[69]

The primary challenge facing the plastic recycling sector is the turbulent prices of virgin plastics, which frequently undercuts the commercial competitiveness of recycled alternatives. An added challenge is that large production facilities of virgin plastics benefit from significant economies of scale, benefiting from lower unit costs compared to recycling facilities. When virgin plastic prices drop, manufacturers lack the financial incentive to buy recycled materials, weakening end-market demand for locally recycled products.[71] The situation is further worsened by high domestic energy prices, creating serious economic difficulties for UK manufacturers, making it hard to compete with peers in Europe and Asia.[67] While there has been an increased trend in reshoring production to the UK in response to global supply chain disruptions and prioritising resilience,[72] it has come with significant costs, and the premium from selling 'made in the UK' plastic has not made up for the additional costs for many producers.[67] There is also a significant skills shortage, due in part to negative perceptions of plastics among young people.[67] Without strong plastics production, the domestic supply of reusable plastic products, and the market for utilising recycled plastic material, are uncertain.

A circular economy for plastics packaging is supported by a fairly cohesive policy framework. Simpler Recycling (and similar devolved policies), pEPR, and DRS are expected to improve the consistency, quality and capture of plastic waste, while providing funding and greater certainty for infrastructure investment. Similarly, ETS and landfill tax reforms are increasing the cost of disposal, strengthening incentives to divert plastics into recycling. The Plastic Packaging Tax supports demand for recycled content, though has been critiqued for being too low, too limited in scope, and easy for bad actors to bypass when it comes to verification of recycled content claims – particularly for imports.[73,74]

Policy support is heavily weighted towards recycling rather than reuse; though some common single-use plastic items have been banned. There are currently no meaningful interventions targeting plastics reuse, and key concerns around health, safety, and the need for coordinated systems remain largely unaddressed.[75]

For investors, plastics presents a mixed landscape. There is a need to protect, upgrade and scale the infrastructure that already exists, with some recent high-profile closures of recycling plants.[76] 'Plastic exposure' remains a material issue for consumer-facing companies,[77] driving them to increase recycled content or reduce total plastic use. However, 'lightweighting' of plastic packaging to meet weight-based reduction targets can undermine recyclability. The UK Packaging Pact replaces the UK Plastics Pact, highlighting the need for new circular infrastructure focused on reuse (as well as including recycling). However, whether this initiative will successfully catalyse investment remains to be seen.[78]

[iii] *At the product level, plastic packaging is not often distinguished from non-plastic packaging when discussing trends, market share, and other statistics. Such statistics are referenced in the 'Consumer packaging' section..*

Plastics can play a role in enabling reuse, particularly where durable products replace single-use plastics or other disposable materials. This can involve packaging reuse systems in retail and food and drink, covered under consumer packaging. This section focuses on some wider challenges and opportunities related to displacing single-use plastic items, and using durable plastics to displace disposables more broadly.

3.2.1 Plastics reuse

Key opportunities

There remain some major opportunities – and needs – to replace single-use plastics with reusable alternatives. Plastic-based absorbent hygiene products (AHPs), such as nappies and sanitary products, are a heavy, bulky waste stream of particular concern to local authorities in light of the ETS raising incineration costs. Reusable AHPs have become more mainstream in the past decade in the UK and EU. Some product sub-categories are thriving more than others.[79,80] There is potential for innovation in both products and systems. More broadly, despite bans on a few single-use plastic items such as cutlery, plates and straws, further interventions and system innovations are needed to tackle more products, and to ensure these are replaced with reusable options rather than other disposables. For instance, the Crown Commercial Service is working with suppliers to tackle a wider range of single-use plastics.[81]

There are also opportunities to replace non-plastic single-use items with reusable plastics. Plastic containers can be a lightweight, durable option for logistics, replacing materials such as cardboard with plastic crates and pallets.[82] Some companies are exploring the potential for reusable plastic packaging for e-commerce deliveries.[83] There is evidence of public demand for less wasteful e-commerce systems; for example, a 2019 global survey found that 60% of consumers wanted more sustainable e-commerce packaging, and with one in two willing to pay a premium for this service.[84] Such systems should ensure the reusable plastics are taken back for recycling at end of life.

Successfully scaling reuse systems relies on infrastructure for reverse logistics, washing, storage, and tracking systems, each of which entails costs and needs to be reliable and scalable. For consumer-facing systems, behaviour change is a particular challenge. Finally, public perception of plastics as environmentally harmful may limit uptake of plastic-based reusable products, even where they have proven environmental benefits.[85]

Policy landscape

There are currently no policies that explicitly target plastics reuse beyond packaging and some limited single-use product bans. However, the inclusion of EfW in ETS creates an incentive to find alternatives to single-use plastics.

Plastics recycling commonly involves mechanical methods (sometimes supplemented by optical sorters and AI), separating polymer types and shredding plastic into flakes that can be melted and extruded into plastic pellets. There is continued interest and assessment of chemical recycling, breaking polymers down into their components (e.g. monomers) which can be reprocessed into new plastics. However, variability in the make-up of plastic wastes means that small amounts (e.g. 5%-20% for pyrolysis oil)[86] of these secondary outputs are blended in with virgin materials to reduce contamination.

3.2.2 Plastics recycling

Market landscape

Plastic recycling is a well-established process in the UK, though more common for some polymers than for others. Due to short lifespans, plastic packaging has been the focus for recycling policy and investments. The UK's existing capacity, at maximum utilisation, is 40% of the capacity needed to reprocess all plastic packaging placed on the market.[87] The gap is bigger for contact-sensitive (including food-grade) packaging (capacity only meets 17%)[87] and is growing. This widening gap is mainly driven by a mismatch between infrastructure and supply; while the total volume of plastic packaging placed on the market has remained high at around two million tonnes per annum, the UK's processing capacity has decreased following a reduction in the number of final treatment facilities (including dry recycling facilities) from 1,857 in 2018 to 1,640 in 2022.[88]

Opportunities and barriers

There are many factors that contribute to limited investment in the UK. Demand for recycled plastics is falling, processing costs are increasing, and

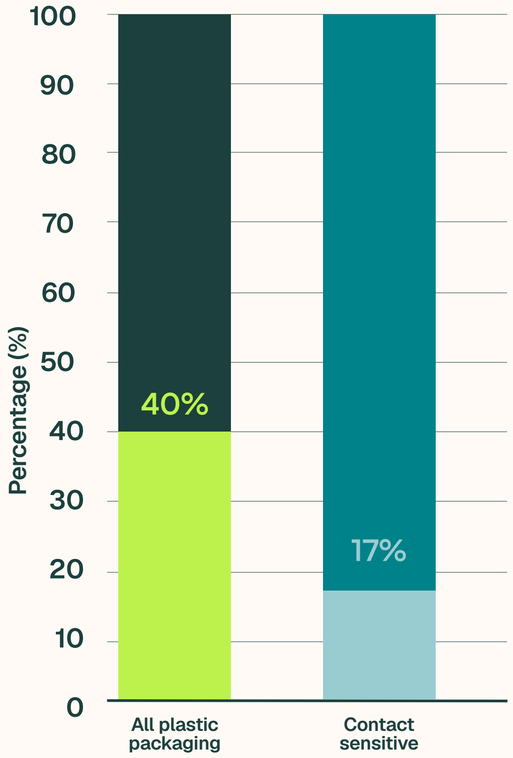


Figure 7: Percentage of capacity met for all recycling plastic packaging vs contact sensitive packaging

Figure 8: Capacity gap % (plastic packaging)

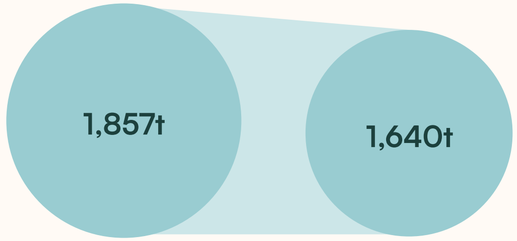


Figure 9: reduction in UK treatment facility capacity (2018-22)

contamination of feedstock remains high.[89,90,91,92] Price competitiveness is also a challenge, as procurement teams tend to prioritise the lowest cost materials in long-term supply contracts (whether virgin or recycled).[93] This dynamic often puts recycled content at a disadvantage, which often struggles to out-compete the lower cost of virgin polymers.

A key challenge is the limited availability of safe, food-grade recycled plastic suitable for meeting minimum recycled content requirements (e.g. 30%), which is driving interest in advanced recycling approaches, though multiple recycling technologies may be needed to address this.[94] One interviewee suggested that virgin polymers tend to be favoured by producers, mainly due to ease of production, fewer marketing issues (e.g. discolouration), and more consistent material properties. Another noted that the outputs from chemical recycling projects appear attractive and are sold easily, however, several chemical recycling projects have failed because they have not accounted for the variability in feedstock from UK waste streams, which can be more heterogeneous due to inconsistent collection systems and contamination,[95] despite having been a success abroad. Following recent UK and European plant closures, the chemicals recycling sector has been called “uninvestable”, calling for incentives for locally recycled content and stronger recycled content requirements.[96]

Policy landscape

Opportunities for investment may arise: proposed changes to remove the incentive to export, as well as increase transparency, are part of an ongoing Government consultation.[97,98] PPT, pEPR, Simpler Recycling, and DRS all also promise to support the recycling of consumer plastic packaging, making investment in the sector more attractive. The Plastic Packaging Tax helps to drive demand for secondary plastics; however, it has been criticised for rates set too low and lacking escalation. pEPR creates funds that local authorities can invest into local recycling infrastructure; however, these are not ringfenced, raising concerns they may not drive innovation. Simpler Recycling is expected to improve recycling rates and quality, while DRS should increase collection of PET beverage containers. The ETS scheme combined with the landfill tax should incentivise stakeholders to find ways to extract more plastics from residual waste.

3.2.3 Plastics summary

Investor summary: Plastics reuse

There is strong potential to scale reusable alternatives to disposable plastics in certain product categories, such as AHPs. However, investment is constrained by limited policy support and uncertain demand, and is dependent on system-wide changes that require reverse logistics, reuse infrastructure and behaviour change. While ETS creates incentives for local authorities to support reusable alternatives, these are not yet sufficient to provide a consistent market pull. As such, plastics reuse is currently investable in specific cases, but not yet investable at scale without stronger policy frameworks and a more coordinated system development approach.

Investor summary: plastics recycling

Plastic recycling is well-established, but investment is constrained by structural and market challenges, including rising costs, inconsistent and contaminated feedstock, and weak demand for recycled plastics. While the sector has strong long-term potential, current conditions make many investments high risk. There is a persistent “chicken and egg” dynamic that limits progress, with demand and investment reinforcing each other. As a result, the sector is not yet fully investable at scale, requiring stronger and better aligned policy signals to unlock growth.

Investment needs

- Reprocessing infrastructure, including new facilities and upgrades to existing ones, capable of handling flexible plastics.
- Advanced and specialised sorting infrastructure, capable of extracting usable materials from contaminated plastics. For example, extracting clean plastics from residual waste; absorbent hygiene products; and soiled plastics from agricultural and aquaculture.
- Pre-processing capacity (e.g. washing, flaking) to increase the value and usability of plastic waste streams prior to export or domestic reprocessing.
- Reverse logistics systems and infrastructure for reusable alternatives to single-use plastics, both within companies' supply chains and in consumer-facing systems such as e-commerce.

Key enablers

- Strategic grant funding, and higher risk tolerance on the part of public investment vehicles, in support of developing and scaling the emerging technologies required to manage a wider range of plastic waste streams.
- Stronger policy incentives for recycled content, which could include additional incentives for domestically processed or recycled materials to promote UK investment (such as extending the tax on virgin plastics beyond packaging or setting minimum recycled content requirements).
- Measures to retain greater value within the UK, such as discouraging the export of low-value or unprocessed plastic waste and encouraging domestic processing of plastic materials.
- Design of collection systems (e.g. DRS and EPR) to prioritise material quality and value retention, including consideration of how collected materials are channelled into domestic reprocessing rather than lower-value end uses.

3.3 Consumer packaging

37%

View brand owners as primarily responsible for packaging sustainability

51%

are not willing to pay more for sustaianble packaging

Consumer packaging comprises mixed materials of varying complexity. These include paper, card, glass, metal, and plastic. The focus of this section is on the non-plastic fractions. These industries can be viewed separately at the sourcing and early manufacturing stages, as well as the reprocessing stage. Once the materials become a packaging product, however, they become less distinct. Packaging is often treated homogenously from the point of becoming a product though to separation, in the home or at a material recovery facility. Because of this, many of the statistics, challenges, and opportunities related to packaging include plastics.

The amount of packaging waste collected in the UK is between 10.8m - 12.7m tonnes per year.[88] The UK packaging market was valued at USD$60.94bn (£44.87bn) in 2025 and is projected to have 11.9% growth by 2030.[99] Paper and card is the sector with the highest turnover, at £6.2bn revenue in 2025.[69] In that year it made up 25% of mergers and acquisitions (M&A) in the packaging sector.[69] Glass has the highest predicted growth rate, with 3.3% CAGR (2025-2030), but reported limited M&A.[69] Similarly, metals reported limited M&A and had the lowest growth rate (1.8% CAGR, 2025-2030) and lowest revenue (£1.5bn).[69]

There are many challenges that the packaging industry faces to realise this growth. Public opinion has a significant impact on packaging as a direct interface between businesses and consumers. UK consumers view brand owners as primarily responsible (37%) for the sustainability of packaging, followed by packaging producers (29%), placing more pressure to invest on the brands (including retailers) rather than on manufacturers.[100] This is further complicated by the public's concern over cost, with a majority (51% in UK as of 2025) of people are not willing to pay more for sustainable packaging.[100]

Non-plastic consumer packaging is relatively well supported by policies focused on improving recycling outcomes, with pEPR and improved collection systems (e.g. via Simpler Recycling) expected to deliver more consistent material streams. DRS will further improve capture of high-value materials, though it will reduce the value of materials from kerbside collections.[101] Gaps remain around end-market support and price stability, which may constrain investment. When it comes to reuse, policy support remains limited and uncertain. While strategies across the UK signal ambition, there are no clear delivery mechanisms, and existing policies have been criticised for favouring recycling or material switching over reuse.[75]

There are opportunities for investors to get involved in the sector. Demands (both legislative- and consumer-driven) for changes in packaging materials require changes to technologies, facilities, and supply chains.[102] Technological advancements, such as AI, have clear applications in advanced packaging sorting, but require investments in upgraded facilities.[102] There is support for investment from the industry too. The UK Plastics Pact has now been replaced with a broader UK Packaging Pact, with around 100 brands signing a commitment to improve the circularity of packaging over the next ten years.[78,103] Investment is not just speculative, but active. 2024 recorded a 22% year-on-year increase in transactions in packaging mergers and acquisitions.[69]

Consumer packaging reuse refers to systems that enable packaging to be used multiple times across supply chains. Key models include in-store refill (e.g. consumers refill containers), in-home refill (e.g. concentrates, delivery models) and returnable packaging (e.g. deposit-return style systems).

3.3.1 Consumer packaging reuse

Market landscape

Reusing packaging remains a fringe activity. Only 5% of UK packaging in 2021 was reusable, mostly in B2B transit packaging.[104] Globally, brand adoption is limited: less than 2% of packaging used by Ellen MacArthur Foundation Global Commitment signatories is reusable,[105] despite 61% having conducted reuse pilots.[105]

Opportunities and barriers

There are opportunities to scale reuse systems. The UK Packaging Pact encourages investment, and UK retailers have trialled models with producers such as Unilever, alongside multiple reusable cup schemes.[106] There have also been multiple reusable cup trials, ranging from those in individual venues or café chains, to city-wide schemes. However, few have led to lasting change, suggesting a requirement for stronger policy incentives or more effective models.[107] Reuse charity Hubbub has suggested that innovations in logistics for backhauling and washing the packaging are needed, along with smart packaging design that enables and encourages reuse, while keeping down transport emissions.[108] Innovations in tracing technology, being explored to support recycling, could be part of packaging design.[109]

Significant challenges remain, as producers, brands and retailers remain resistant to adopting more standardised packaging forms, necessary for efficient large-scale reuse, due to concerns about a loss of brand identity.[110] Potential health and safety risks for

It is estimated that only **5%** of UK packaging and less than **2%** of global packaging is reusable.

food-contact packaging need to be addressed in system design.[110] There are also logistical and cost barriers linked to collection, transport, and cleaning, alongside regulatory considerations for food-contact packaging and the need for behaviour change.[111]

Policy landscape

It is not yet known how England's Circular Economy Growth Plan will drive investment and uptake of reusable packaging, though it is expected to be a focus area. The Scottish Circular Economy Strategy prioritises product stewardship for packaging, which includes promoting reuse systems, but delivery mechanisms remain uncertain. Across the UK, restrictions on single-use plastic packaging have largely driven material switching rather than reuse, and opportunities to incentivise reuse through pEPR and DRS have not been fully realised. One such example is seen from the Recyclability Assessment Methodology (RAM) of pEPR, whose criteria incentivises material choice and design based on the current waste management system; however, it lacks a forward-looking element by not providing incentives for technologies or design choices that may not yet be commercially viable.

In contrast, policy frameworks are developing more rapidly in parts of the EU, particularly France, where regulatory targets and incentives for reuse systems are more advanced.[112] This divergence risks making the UK a less attractive environment for investment in reuse infrastructure. Wales has indicated support for glass reuse in its DRS, though implementation remains uncertain and would not begin before 2031.

Consumer packaging recycling in the UK is a well-established system. Primarily occurring through kerbside collections organised by local authorities, recycling has been available to the majority of the population for many years.

3.3.2 Consumer packaging recycling

Market landscape

The recycling rate for household packaging in the UK is estimated to be between 64.1% - 75.2%.[iv,88] As with plastic recycling, there has been a reduction in the number of final treatment facilities (including dry recycling facilities). There are many challenges facing consumer packaging recycling, including many of the same issues of plastic around collection, contamination, capacity, supply and demand.[90,89] One structural challenge is the UK's continued reliance on exporting certain recyclable materials, particularly lower-quality or harder-to-process streams such as mixed paper and card, due to limited domestic reprocessing capacity. While higher-quality fractions are more likely to be processed domestically, gaps in infrastructure mean that a significant share of material, especially cardboard, is exported, reflecting a shortage of UK-based reprocessing facilities.[113] This reliance on export markets exposes the UK to volatile commodity prices, while limiting the development of a resilient domestic circular economy. Recent closures in the sector, including carton reprocessing capacity, highlight the fragility of parts of the UK's reprocessing base.[114]

Each material faces some specific challenges. Paper and card are easily contaminated and perceived to have a low number of viable cycles.[115] It also faces being more frequently combined with other materials for fibre-based composite packaging, making contamination and recycling a greater challenge.[116] Aluminium is considered much easier to recycle.[115] However, it struggles with remaining competitive with virgin aluminium, despite significant energy savings, as its price is tied to virgin prices.[117] Glass faces similar challenges of cost and the resulting lack of demand.[118] There are also wider sustainability concerns connected with the transportation of this heavier material.[118] This has been reflected in the pEPR fees; because these fees are calculated based on weight (price per tonne) rather than physical size or volume, this disincentivises the use of glass due to its heavier mass, despite its suitability for recycling.[118,119]

[iv] *Range of figures is due to Defra's use of two methodologies (with different data sources) in their waste statistics report. Methodology 1 (64.1%) uses estimates of the total packaging placed on the market, while Methodology 2 (75.2%) uses new data on total packaging supplied and placed on the UK market.*

Policy landscape and opportunities

There is generally good UK-wide policy support for more standardised collections of packaging waste under Simpler Recycling, Scottish Statutory Recycling Code of Practice, and Welsh Collections Blueprint and their interplay with pEPR. This landscape should deliver more reliable funding and targets that need to be met. The UK policy landscape currently supports standardised packaging waste collection through initiatives such as the £70 million Scottish Recycling Improvement Fund, extended through 2026–27,[120] and Welsh Infrastructure Finance Plans linked to 70% recycling targets by 2025.[121] These initiatives remain primarily focused on collection rather than expanding domestic reprocessing capacity, which is a gap that EPSRC-funded projects, such as those running from 2023 to 2026, address through academic innovation rather than large-scale commercial investment.[122]

DRS may generate revenue from unredeemed deposits which could be invested. However, it may also negatively impact the economics of recycling packaging from kerbside collections, by removing the highest-value materials. One interviewee noted significant flaws with pEPR. For example, the policy does not mandate producers to take back recycled material, and it fails to stabilise end-market pricing, undermining circularity. Improved labelling and modulated EPR fees could shift behaviour.

3.3.3 Consumer packaging summary

Investor summary:
Consumer packaging reuse

Consumer packaging reuse remains a relatively nascent market, with limited adoption beyond pilots and challenges with scaling reuse models. While investment is occurring at an early stage (particularly in niche applications such as reusable e-commerce packaging), broader deployment is constrained by weak policy signals, a lack of standardisation, high infrastructure costs, and the need for behaviour change. The limited success of pilots highlights the challenge of developing scalable models. As a result, while the sector continues to attract early-stage investment, it is not yet investable at scale, requiring stronger policy support, standardisation and coordinated system development.

Investor summary:
Consumer packaging recycling

Consumer packaging recycling is a mature and well-established sector, with relatively stable policy support and widespread infrastructure. However, investment is constrained by challenges such as contamination, complex materials, weak end-market demand, and pressures from virgin material prices. Limited domestic reprocessing capacity means the UK relies on export markets for certain materials, increasing exposure to price volatility. While ongoing policy reforms and funding can provide a foundation for further investment, there is still a need for a strong and stable demand pull for recycled outputs. As a result, the sector is investable but constrained, with future growth depending on alignments in policy, upgrades to infrastructure and strong demand signals.

Investment needs

- Systems and technologies that can deliver reusable packaging at scale, learning from the many pilots conducted and taking into account the time needed for consumer behaviour change.
- Investment in enabling infrastructure ahead of full commercial viability, recognising that reuse systems require upfront coordination and scale to become cost-effective.
- Expansion of domestic reprocessing capacity, particularly for materials where the UK remains reliant on export markets (e.g. paper and card).
- Investment in advanced sorting and pre-processing technologies to improve material quality.
- Development of end-market demand for domestically reprocessed materials, including integration into UK manufacturing supply chains.

Key enablers

- Reuse targets for larger retailers.
- Reform of Recyclability Assessment Methodology (RAM) to better reflect whole-system outcomes, including reuse, carbon impact, and infrastructure requirements
- Stronger application of modulated fees to drive more recyclable formats.
- Increasing mandatory recycled content obligations (particularly for locally recycled content).

3.4 Textiles

The UK fashion and textile industry contributes £62bn to the UK economy, including designers, product developers, manufacturers, wholesalers, retailers, fabric repairers, teachers, dry cleaners, and recyclers.[123] Textiles is expected to grow in the UK 4.63% year-on-year until 2030.[124] It was estimated that in 2021 the creating and making subsector supported £15bn in gross value added (GVA) contributions, created 260,000 jobs and supported £4.1bn in tax receipts[123]

Productivity is a key issue sector wide. This has impacted the growth of the UK retail industry with skills shortages and less activity in terms of seeking R&D funding.[125] This is important because larger scale R&D investment is needed into circular business models in order to meet the UK's Sustainable Development Goals.[125] In 2023 it was revealed that a high majority of UK SMEs are early-stage micro enterprises;[126] these types of enterprises have limited capacity to meet the scientific or technical delivery criteria set out by HMRC in their definition of R&D for tax relief and subsidies.[125] Companies in the creative and cultural industries, like fashion and textiles, are not often recognised as contributing towards scientific advancement and therefore do not tend to qualify for R&D investment and tax relief. [125] This lack of innovation in business strategy and the late adoption of technology have 'severely' limited investment in development and knowledge exchange within the fashion, textiles and technology ecosystem.[125]

Policy support for circular textiles in the UK remains limited and fragmented compared to the other material streams, with no specific regulatory drivers for the 3Rs. ETS will increase the cost of incinerating fossil-based textiles, which may incentivise local diversion into reuse and recycling. While the anticipated Circular Economy Growth Plan for England and accompanying textiles sector roadmap is expected to indicate growing ambition (including a potential EPR for textiles), delivery mechanisms remain unknown. The situation is not uniform across the four nations; for example, Wales provides comparatively stronger support through funding for activities such as repair and reuse, although guidance is largely non-mandatory.[127] Scotland is exploring product stewardship for textiles, along with ways to tackle the issue of unsold consumer goods.[128,129] The absence of EPR and ecodesign requirements continues to limit progress, with insufficient incentives for producers to design for durability and recyclability, and limited funding for domestic recycling and reuse infrastructure in the UK.

There is a gap between the potential opportunities for investment, advancement, and growth in the sector and the present reality. Despite the tricky economic conditions, the sector is resilient and there is still significant potential for investment, particularly in technology and innovation.[125]

Textiles reuse exists primarily through the second-hand distribution of clothing. This can be through consumer-to-consumer marketplaces, physical second-hand stores, or donations that are then exported for international reuse. Some rental models also exist.

3.4.1 Textiles reuse

Market landscape

Apparel reuse is gaining traction across second-hand or vintage/pre-loved clothing systems, with platforms like Depop and Vinted reaching multi-billion-dollar valuations.[130] The global second-hand fashion market reached US$100-120bn in 2022 (approx. £74-89bn)[130], spanning C2C and B2C online platforms, charity retail, and exports to lower-income countries. Rental and subscription models are also expanding, valued at US$2.8bn (£2.1bn) in 2026 and projected to reach US$9.1bn (£6.7bn) in 2035,[131] with subscription services such as Rent the Runway,[132] formalwear rental, and C2C clothing apps.[133]

Opportunities and barriers

C2C resale platforms have attracted private investment by helping consumers manage costs pressures while reducing their environmental impact. However, growth is constrained by limited availability of durable, high-quality garments due to the prevalence of ‘fast fashion’ in the wider market. Incentivising design for greater durability and reparability would help to address this.

The success of C2C platforms has diverted higher-value items away from charity and export markets, which depend on a balanced mix of stock. As this balance shifts, their business models can collapse (e.g. Cancer Research UK closing nearly 200 shops).[134] UK textiles exports also face rising costs, market volatility and increasing competition linked to EU textiles EPR policies.[135] Together, these dynamics are likely to result in a growing policy problem of low-quality textiles that lack viable reuse or recycling routes.

Mainstream venture capital remains cautious of innovative circular models (e.g. digital platforms to optimise fabric usage and reduce waste)[130,136], with interviewees citing complex and unclear exit routes. Growth could be supported through a national innovation strategy aligning funding, skills and incentives, alongside dedicated programmes to prepare circular start-ups for investment.130 Proposals include a £500m UK Sustainable Fashion Investment Fund to bridge funding gaps, build specialised expertise and unlock significant co-investment.[137]

Policy landscape

Textiles reuse lacks policy support or direction in the UK; a textiles sector framework roadmap has been drafted by the UK government and is due to be published with the Circular Economy Growth Plan in 2026. Key gaps remain around coordination and funding of system-level infrastructure.[138] A future textiles EPR could address these through funding and reuse targets, supported by incentives for design for reuse and improved collection and processing infrastructure.[138]

Textiles repair has a long heritage but has become increasingly niche in recent decades. Whereas the manufacture and sale of garments have scaled into large industries, the repair business has remained largely local and independent.

3.4.2 Textiles repair

Market landscape

In recognition of the importance of circular business models, several brands have integrated repair into their offering, including Nudie Jeans, Patagonia, Finisterre, The North Face and Uniqlo.[139,140,141,142,143] Of these, only Nudie Jeans offers repairs for free. There are also more traditional, independent and chain tailor services on many high streets, with some online equivalents;[144] and community, volunteer-dependent repair cafes also play an important role in making repairs accessible.

Opportunities and barriers

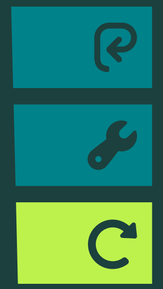
Some emergent tech businesses are facilitating repairs, such as SOJO, which offers a collection and delivery service for garment repairs.[145] Such businesses face challenges with gaining investment. For example, Save Your Wardrobe won the 2023 LVMH Innovation Award Grand Prize but for five years prior to that, had struggled to gain investment.[146] Partnerships between brands and repair services, sometimes in combination with e-commerce returns systems, could be an effective route to investment. This would require less investment on the part of brands than developing their own service.[147] Brands are also well placed to gather the necessary information to develop a robust business case for future investment.[147]

The underlying economics of repair are a significant barrier; the prevalence of low-cost, low-quality garments from fast fashion reduces the financial incentive for repair, due to replacement often being cheaper.[148] This results in the most commercially viable opportunities focusing more on high-value garments to justify any repair costs. In parallel to this, there is a significantly unmet need for investment in local, community-based repair infrastructure to enable behaviour change at scale. While these models deliver significant environmental and social value, they are unlikely to be commercially viable without sustained support. While sponsorships and brand partnerships can play a key role, long-term public funding is likely to be more effective in maintaining accessible repair services.

Policy landscape

While policy clarity is expected in the upcoming Circular Economy Growth Plan, most policy support for textile reuse exists in Wales through Beyond Recycling and associated funding, such as Infrastructure Finance Plans and Circular Economy Funds. This includes support for community repair and share initiatives. No notable policy support exists in England, besides a localised repair voucher scheme in London that covers textiles. Depending how Scotland takes forward its Circular Economy Act power to tackle disposal of unsold goods, and its work on product stewardship, there may be more pressure on brands in future to invest in repair rather than disposing of damaged items.

Textiles recycling is often conflated with textile reuse in the UK. The vast majority of textiles placed in textiles "recycling" banks are actually sorted for resale domestically and overseas. Absorbent textiles unsuitable for reuse may be downcycled into rags; most other materials (such as synthetic fibres) are sent for disposal. The alternative is fibre-to-fibre recycling, which is not well developed in the UK.



3.1.3 Textiles recycling

Market landscape

Fibre-to-fibre (F2F) recycling remains a niche technology globally, accounting for less than 1% of the apparel market.[149] However, due to stronger regulatory frameworks and targeted investment across Europe, the UK faces a disadvantage as it lags behind in scaling the infrastructure further to grow the sector.[124,150] Developments are emerging in the UK (e.g. Project Re:Claim, the UK's first commercial-scale polyester F2F textile recycling plant)[151] helping make post-consumer textiles, once sorted, valuable enough to create mass balance suitable for F2F technologies.[124]

Opportunities and barriers

F2F recycling infrastructure is a key need, in light of the rising quantities of low-quality waste textiles. A major barrier in the UK is the inconsistent supply of suitable feedstock, driven by fragmented and non-standardised collection systems and variable sorting practices. While the UK retains a significant post-consumer sorting and grading capacity, there are constraints due to labour costs, skills shortages, a lack of standardisation, and increasing economic pressures. As a result, parts of the value chain (particularly lower-cost sorting and downstream processing) have been shifted overseas.[150] To scale up F2F recycling would require more widespread and accessible collections, and development of the UK-based textiles and clothing manufacturing sector, which is currently very limited, to scale up demand.[150]

A well-designed textiles EPR scheme could support domestic sorting and recycling infrastructure, while accepting the global nature of the system and enabling a just transition internationally. It could channel producer funding into F2F recycling not just in the UK, but in the lower-income countries which end up indirectly managing end-of-life textiles originating in the UK market. Either EPR or eco-design regulations could be used to promote design for recyclability.[150] In the absence of UK regulations, EU policies are expected to improve the recyclability of textiles entering the UK market. This may create opportunities for more cost-effective domestic recycling.

Policy landscape

One interviewee from the textiles sector argued that the main barrier to investment is the lack of clear UK policy direction, with investors requiring certainty and long-term signals. While policy clarity is expected in the upcoming Circular Economy Growth Plan, there is little regulation currently in place to support textile recycling. The lack of EPR regulations and eco-design requirements are hindering investment in the sector. Without mandated responsibility, brands face little pressure to design for recyclability or to include recycled content. The UK ETS scheme will increase the cost of incinerating fossil-based textiles, but in the absence of better routes, this may simply drive some textiles to waste-to-fuel technologies – for energy recovery rather than recycling.

3.4.4 Textiles summary

Investor summary: Textiles reuse

The investment case for apparel reuse is strong, but uneven. Consumer demand and the scalability of C2C resale platforms are well established, attracting significant investment. However, growth is constrained by challenges such as the low quality of garments driven by fast fashion, as well as infrastructure gaps and limited policy support. These factors restrict circular models, disrupting charity markets and exports. As a result, the sector is selectively investable, with greater capital concentrated in resale platforms rather than more innovative or system-wide circular solutions.

Investor summary: Textiles repair

Textiles repair remains less mature at scale than reuse, and faces significant barriers to scaling up. While some brands are incorporating repair services and new repair technologies are emerging, investment is constrained by weak underlying economics, with fast fashion reducing the financial viability of repair in most cases. Commercial opportunities are largely limited to higher-value garments, while community-based repair models widely rely on ongoing support. As a result, the sector is currently only marginally investable, with greater scaling up dependent on further public funding and stronger incentives for repair, as well as shifts in product quality and consumer behaviour.

Investor summary: Textiles recycling

F2F recycling remains an early-stage sector with significant long-term potential, but investment is constrained by challenges such as inconsistent feedstock supply, a lack of a standard collection and sorting system, and weak domestic demand for recycled fibres. The lack of clear and consistent policy direction undermines investor confidence, especially when compared with policy signals in the EU. As such, the sector is mainly investable at early-stage; large-scale deployment will depend on strong policy signals and wider system coordination to implement a standard approach and infrastructure for collection and sorting systems in the UK.

Investment needs

- Accelerated funding for innovative circular models for repair, such as integrating repair into mainstream fashion businesses, and growth of specialist repair providers and platforms.
- Investment in product durability, repairability and recyclability at the design stage, which will help improve feedstock quality for reuse and recycling.
- Sustained funding for community-based repair and reuse infrastructure (e.g. from public or blended finance funding), which has strong environmental and social benefits but is less commercially viable.
- R&D and scaling of F2F recycling technologies.
- Development of domestic textiles manufacturing businesses, capable of utilising recycled fibres.

Key enablers

- Clear, long-term policy direction for investors and operators, such as via a textiles EPR scheme to help provide further certainty to the market, providing funding to infrastructure, and to provide incentives for more circular design for reuse and repairability.
- Stronger incentives to increase demand for recycled products, and to make repair and reuse more economically competitive compared to fast fashion.
- Cross-sector partnerships (e.g. between brands, repair providers and recyclers) to share data, aggregate volumes and develop circular service models that can be further scaled up.

4. Recommendations

The UK's existing circular economy infrastructure is insufficient to meet the ambition of government and industry, and a step change in 3Rs investment is needed. Building on the key needs, opportunities, and gaps identified, a set of actionable recommendations is proposed below for the investment community, industry and governments. These aim to direct attention to the priority opportunities which can accelerate the transition to a circular economy for the four materials in question.

4.1 Recommendations for investors

The following recommendations target both private sector investors and financial institutions, as well as public investment bodies. Capital from across these sources is an essential catalyst for the circular transition, with private finance providing scale and public funding playing a critical role in de-risking and unlocking investment. There are many commercially viable circular opportunities, both market- and policy-driven, and Section 3 has identified key investment needs that could accelerate this transition.

To fully realise this potential, both private and public investors may need to adapt their approach to risk and innovation. Together, they can play a pivotal role in bridging the "valley of death" between early-stage innovation and commercial deployment. Private investors could proactively partner with innovation hubs, such as universities, to de-risk the development and scale-up of new solutions. Accelerating circular infrastructure will also require impact investors to have greater risk tolerance and to integrate broader value metrics. By embedding environmental and socioeconomic benefits into investment decisions, and aligning public and private capital more effectively, investors can help unlock the circular infrastructure needed in the UK.

01

Private sector investors to work with universities to drive innovation and investment in novel technologies for a circular economy.

Why:
Collaborations with universities can be a stepping stone to scale-up pathways for technologies, particularly those in early stages. These collaborations can help build a stronger pipeline of opportunities by supporting technologies as they progress beyond initial R&D stages. This process can address the "valley of death" funding gap, by improving the technical and commercial readiness of innovations and positioning them to attract follow-on capital where public funding alone is insufficient.

How:
While currently underutilised, there is an opportunity for private investors to further engage with technology transfer offices to foster collaboration and support spin-outs. For example, using the USIT guide to facilitate partnerships between universities and venture capitalists, providing direction and advice in such areas as equity share and intellectual property.[152] This offers an opportunity to build on earlier stage R&D funding received by universities, helping to bridge the transition from publicly funded research into commercially viable ventures.

4.1 Recommendations for investors

02

Impact investors to incorporate greater risk tolerance and broader value metrics.

Why:
Many circular economy projects (particularly those higher up the waste hierarchy such as reuse models) deliver significant environmental and socioeconomic benefits (e.g. carbon reduction, resource efficiency, and job creation) that are not captured through traditional financial return metrics. While mainstream investors are primarily focused on financial returns, impact investors have a mandate to consider broader outcomes. However, our research indicates that although a range of tools exist to measure investment impact, fewer approaches place sufficient emphasis on quantifying environmental and socio-economic value. As a result, circular activities with the greatest benefits risk being undervalued relative to lower-hierarchy options, and as a result are underfunded.

How:
Impact investors should strengthen the integration of environmental and socio-economic metrics into investment decision-making, using available evidence as a baseline. Our findings in Appendix D indicate comparative data based on existing studies, highlighting parameters such as carbon intensity and job creation of reuse, repair and recycling activities; such studies can be used as a starting point to ensure that circular business models, particularly reuse, are given appropriate weighting.

This approach can be complemented by greater alignment with public investment strategies. Targeted public funding, aimed at de-risking and catalysing investment into circular activities, can help crowd in private impact capital (further expanded in the recommendation below). As a result, impact investors can play a key role alongside government in accelerating the development of circular markets, while remaining in line with their financial and impact objectives.

4.1 Recommendations for investors

03

Impact investors to incorporate greater risk tolerance and broader value metrics.

Why:
The investment community has consistently highlighted the need for public capital to play a stronger de-risking role, particularly for technologies transitioning from pilot to commercial scale. Targeted public investment can help bridge the “valley of death” between early-stage innovation and private finance, accelerating the deployment of critical circular economy infrastructure and improving its investability for institutional capital. As delivery of circular economy policy goals will require investment in less mature or higher-risk business models, public investment must be configured to support these priorities more directly.
A more risk-tolerant public funding landscape can also create the conditions for greater private sector participation, including through blended finance frameworks (see Recommendation 4.1 #4).

How:
Embed circular infrastructure more explicitly within the long-term strategies of public investment bodies (e.g. the National Wealth Fund), ensuring that their investment decisions support policy delivery. This should include a clear expectation for public investment funds to accept higher risk profiles and, where aligned with national priorities, lower financial returns in exchange for broader economic, environmental, and societal value.
By aligning these mandates with circular economy ambitions and adopting a flexible approach to returns, public funds can attract more private capital, allowing investors to play a key role alongside government in accelerating the development of circular markets.

4.1 Recommendations for investors

04

Actively engage in sustainable finance frameworks such as blended finance.

Why:
Even with public sector funding, early-stage circular infrastructure projects can remain unattractive for commercial investors, mainly due to their risk profile and limited track evidence. Blended finance (combining private equity with public capital) creates a highly effective risk-sharing mechanism, making otherwise unattractive projects viable.frameworks (see Recommendation 4.1 #4).

How:
Investors should actively seek out co-investment opportunities alongside public financial institutions such as the NWF. Through frameworks such as blended finance, private investors can leverage public capital to absorb early-stage risks, improving the risk-return profiles of circular infrastructure projects.
This approach complements the role of public institutions such as the NWF in taking on greater risk (as outlined in Recommendation 4.1 #3), creating a more investable pipeline of circular opportunities. CIWM could collaborate with investors to raise awareness and build understanding among public financial institutions regarding the need and benefits of priority 3Rs investments.

4.2. Recommendations for industry

A key barrier to scaling investment in the circular economy is the weak alignment between upstream product design and downstream systems for reuse, repair, and recycling. Many products are not designed for the realities of end-of-life treatment, while downstream operators often lack influence over design decisions and visibility of future material flows. This disconnect leads to lost value and reduced confidence from investors. To unlock investable circular markets, industry must take a coordinated, system-wide approach, moving beyond optimising within individual parts of the value chain. This requires stronger collaboration between producers, retailers, resources and waste management companies, and 3Rs operators. By connecting these actors and aligning incentives across the value chain, industry can improve material outcomes and strengthen the investment case for circular infrastructure, and capture greater economic value within the UK.

01

Producers and manufacturers to work with downstream operators to co-develop circular design

Why:
There is a significant disconnect between product design and real life end-of-life pathways. Products may be technically recyclable but are not recycled at scale due to complex materials and contamination, undermining any value retention.

How:
Producers should work directly with waste management companies and 3Rs operators to co-develop practical standards for circular design. This could include testing products in real conditions and incorporating feedback from downstream operators into design specifications. These collaborative activities could take place as part of voluntary agreements, focusing on maximising value retention throughout products' lifecycles.

4.2. Recommendations for industry

02

Waste and resources sector to shape upstream design and improve data transparency

Why:
While the resources and waste sector has critical insights into material performance and recovery rates, this knowledge is not always fed back into product design. Limited data transparency and inconsistent reporting also create a greater due diligence challenge for investors.

How:
Resources and waste management companies should take a more proactive role by providing structured feedback to producers on material performance and recyclability issues, and sharing data on material flows and end-of-life outcomes (including reuse and repair streams). This process can help support the development of any standardised approaches of data reporting by the sector, and can help strengthen the investment case into 3Rs infrastructure via better alignment with upstream stakeholders.

03

Reuse and repair stakeholders to integrate further into material value chains

Why:
Reuse and repair activities remain underdeveloped relative to recycling activities, despite their potential to help maximise value retention. This is in part due to a lack of integration with manufacturers and retailers.

How:
Reuse and repair operators can strengthen partnerships by collaborating with manufacturers and retailers to design products and systems to enable reuse and repair activities, as well as establish agreements to access material streams of unsold or returned products. These collaborations can help move towards scalable collection and sorting models, helping to increase volumes and improve the business case for higher-value circular opportunities.

4.1 Recommendations for investors

04

Industry bodies and compliance schemes to strengthen coordination and accountability

Why:
While industry bodies and compliance schemes play an important role in shaping market behaviour, current approaches allow a focus on minimum compliance rather than maximising value retention. These inconsistent practices or weak accountability can undermine investor confidence in circular outcomes.

How:
Industries bodies such as the CIWM and compliance organisations should aim to facilitate strong alignment between manufacturers and the waste and resources sectors, particularly with regards to circular design. This could involve defining what best practice standards look like, focusing on maximise value retention. This action can help coordinate a more unified and influential industry voice to the UK government (e.g. as part of roadmap initiatives led by Defra and Zero Waste Scotland) to ensure policies are both ambitious and deliverable.

4.3. Recommendations for government

These recommendations are aimed at the UK and devolved governments. A recurring theme was the critical need for greater policy clarity and long-term support, both of which are foundational to boosting private sector confidence in 3Rs investment.

There is a growing recognition that 3Rs infrastructure should be treated as critical national infrastructure, underpinning the UK's resource security, resilience and international competitiveness. As global competition to attract circular economy infrastructure increases, the UK needs to position itself as an attractive destination for capital. This will require the government to move in step with (and ahead of) peers such as the EU, while being willing to challenge policy norms.

The last generation of resources and waste strategies have driven important changes in recycling infrastructure. The next generation needs to go further, creating the infrastructure for not only higher quality recycling, but also the expansion of systems that enable reuse, repair and product takeback at scale.

This transition also presents an opportunity to support a broader economic renewal; one that is built from the bottom up and rooted in local systems, focused on delivering good growth across all regions. Circular infrastructure can play a central role in this, creating skills jobs and maximising value retention within local communities. By creating a grounded yet ambitious policy environment, government can unlock private investment while ensuring that the benefits of the transition are widely shared.

01 SHORT TERM

Release the Circular Economy Growth Plan and related sector-specific roadmaps as a matter of urgency.

Why:
Investors have highlighted that policy vision and clarity from government is crucial to send the right signals to investors. The sector-specific roadmaps on EEE, textiles, and chemicals and plastics could provide much-needed direction on growth opportunities such as increasing fibre-to-fibre recycling. They could inform the strategy of key public investors.

How:
Accelerate publication of these documents, ensuring they provide clear timelines for action across priority material streams.

4.3. Recommendations for government

02 MEDIUM TERM

Strengthen demand signals for locally recycled and reused materials, to create a reliable ‘pull’ factor.

Why:
Stakeholders highlighted that investment in recycling infrastructure is often constrained by a “chicken and egg” dynamic, where operators are reluctant to invest in advanced technologies without guaranteed demand, while recycled materials struggle to become cost-competitive without that investment.

Current policy signals do not provide sufficient economic incentives to support the use of recycled materials and reused goods at scale. Companies selling these must compete both against virgin/new items, and against imported recycled materials. Weak or inconsistently enforced price signals can limit market confidence and undermine investment in UK infrastructure.

How:
Boost domestic demand for recycled and reused content, while strengthening verification of recycled content claims. Measures could include:

- Mandatory requirements on minimum percentage of recycled content in products and public procurement, creating reliable end markets for secondary materials.
- Stronger fiscal incentives (e.g. a higher rate of Plastic Packaging Tax; positive tax incentives for reuse and repair) to better reflect the environmental value of recycled materials.
- Effective monitoring and enforcement of these measures, including stricter controls on the quality and safety of imported recycled materials, helping to level the playing field for UK operators, which could be facilitated by closer cooperation with the EU.
- Explore mechanisms to provide longer-term demand certainty for secondary materials, such as offtake agreements or strategic procurement approaches (e.g. for critical materials, recycled fibres and plastics), helping to de-risk investment in domestic processing capacity.

Together, these measures can provide clearer price and demand signals, improving revenue certainty and helping to unlock investment in domestic infrastructure.

4.3. Recommendations for government

03 MEDIUM TERM

Increase visibility of circular investment opportunities and strengthen investor engagement in the reuse and repair sector (recommendation for government, investors and industry)

Why:
A key barrier to scaling circular investment is the limited visibility of credible, investment-ready opportunities, particularly in the reuse and repair space, which is less mature than recycling markets. While investor interest is growing, a lack of awareness and demonstrable financial performance is a blocker to the deployment of capital. As such there is a need for increased structural engagement between government, industry and investment community to help bridge this gap.

How:
Government departments (e.g. the Department for Business and Trade) should play a stronger convening role by increasing engagement with the investment community on emerging circular business models, particularly reuse and repair. This could include targeted investor briefings, showcasing pipelines of investable projects, and supporting demonstrator case studies. In parallel, industry should prioritise developing commercially viable propositions, with clear revenue models and risk profiles, to ensure that increased exposure translates into actual capital investment.

Given the cross-sector audience, these discussions could be used to further support the coordination and design of system-level solutions (e.g. as needed for packaging reuse systems), helping align infrastructure investment and deployment, logistics, and business participation before such solutions become fully commercially viable.

4.3. Recommendations for government

04 MEDIUM TERM

Facilitate aggregation and coordination of feedstock to unlock investment at scale.

Why:
Fragmentation across local authorities limits the availability of consistent, high-volume feedstock, undermining the commercial viability of circular infrastructure. This is particularly a challenge for under-supplied or difficult waste streams (e.g. flexible plastics and contaminated materials), where inconsistent volumes and variable quality deter investment. Aggregating waste streams can reduce supply risk, improve economies of scale, and enable more effective pre-sorting and treatment, enhancing project bankability.

How:
Encourage and enable greater coordination between local authorities (e.g. through regional partnerships) to aggregate feedstock and standardise contracting arrangements. Build on existing frameworks (e.g. WRAP joint procurement toolkits), with a stronger focus on long-term feedstock agreements and targeted aggregation of specific waste streams to support scalable, investable infrastructure. For certain material streams, policy measures may be required alongside material aggregation, such as restrictions on the export of low-value or unprocessed materials, or targeted collection systems for high-risk or high-value products (e.g. batteries and vapes), to ensure that valuable resources are retained within the UK economy.

This approach would also align with the introduction of statutory reuse, repair and recycling targets for local authorities for priority materials, by improving access to consistent, higher-quality material streams needed to meet these objectives.

4.3. Recommendations for government

05 MEDIUM TERM

Strengthen local authority procurement and target-setting frameworks to unlock private investment and drive reuse, repair, and recycling outcomes.

Why:
Stakeholders highlighted that current local authority procurement practices, particularly short-term contracts (e.g. two to five years), are a significant barrier to private finance, as they do not provide the long-term revenue certainty required for long-term infrastructure investments. Furthermore, existing policy frameworks do not consistently set explicit reuse or high-value recycling targets or require collection systems to prioritise higher-value materials, limiting demand signals for circular activities.

This study has shown that for certain materials (e.g. EEE/WEEE), the underlying economics often do not sufficiently incentivise higher rates of collection, reuse, repair or recovery of high-value materials. In the absence of strong financial and regulatory drivers (such as clear targets and effective enforcement), investment in advanced circular infrastructure can remain constrained.

How:
Consider introducing reuse, repair and recycling targets for a broader range of material streams at the local authority level, aligned with circular economy objectives. This could be supported by embedding reuse, repair, and recyclability criteria into public procurement requirements to drive B2B demand for circular products and services.

Alongside this, there is benefit to strengthening incentives within EPR, such as:

- Introducing clearer and more ambitious targets for reuse and high-quality recycling.
- Enhancing compliance fee structures, enforcement mechanisms, targeted collection approaches (e.g. for batteries/vapes under a WEEE EPR) to incentivise higher collection and improved material outcomes.
- Aligning producer funding more closely with quality outcomes (e.g. reuse, durability, damage prevention, and high-value material recovery), ensuring higher-performing systems are adequately supported.

Local authority statutory targets (supported by EPR funding and monitoring) could act as a key delivery mechanism across material streams, helping to provide more predictable feedstock volumes and stronger revenue certainty to underpin investment. Further evidence may be needed (e.g. via calls for evidence, impact assessments) to assess the investment case and delivery risks, ensuring that changes and target-setting mechanisms are optimally designed.

4.3. Recommendations for government

06 MEDIUM TERM

Ringfence UK ETS revenues to support circular economy infrastructure

Why:
While the UK ETS generates significant revenues, these are not systematically directed toward scaling circular infrastructure and technologies, which play a critical role in reducing emissions but continue to face funding gaps and investment risks (e.g. reuse and repair hubs, advanced recycled technologies, etc). Ensuring that a proportion of ETS revenues is directed towards activities that deliver measurable carbon and resource efficiency benefits would help maximise the overall effectiveness of the scheme, while providing clearer signals to investors.

How:
Establish clearer mechanisms to link UK ETS revenues to decarbonisation outcomes, including investment into circular infrastructure. This could include allocating a defined share or to support priorities such as reuse and repair networks and innovative recycling technologies. This could be implemented alongside criteria and reporting frameworks to demonstrate how ETS revenues are being deployed, providing long-term funding visibility to help de-risk investment and support the scaling up of reuse, repair and recycling infrastructure.

07 MEDIUM TERM

Evolve packaging EPR modulation to support system-wide circular outcomes

Why:
Current EPR modulation (e.g. RAM) primarily incentivises material-level improvements within existing waste systems, but does not sufficiently support system-wide solutions such as reuse. As these models require coordinated infrastructure and are not yet fully commercially viable, investment remains constrained despite their long-term environmental and economic benefits.

How:
Broaden modulation criteria to reflect whole-system outcomes, including reuse potential and carbon intensity. This could be alongside strengthening incentives within pEPR to support infrastructure development and early adoption of reuse systems, with appropriate safeguards and enforcement.
Alignment with wider policy levers (e.g. EPR funding flows, local authority targets, and potential for using ETS-linked funding) is needed to enable system-wide implementation.
In addition, there is an opportunity to work with industry to develop a practical and scalable approach drawing on emerging international examples, such as the EU Packaging and Packaging Waste Regulation (PPWR) or retailer-led initiatives.

4.3. Recommendations for government

08 LONG TERM

Strengthen and align UK circular economy policy with leading international frameworks.

Why:
Policy misalignment and regulatory uncertainty can create an uneven playing field, discouraging investment in UK circular infrastructure relative to other markets. Clear, ambitious, and consistent policy signals are critical to underpin long-term investor confidence.

How:
Accelerate the development and implementation of UK circular economy policy in line with leading jurisdictions (e.g. the EU), with particular focus on Extended Producer Responsibility (EPR) for textiles and strengthening WEEE regulations. This should include more robust and consistent economic incentives and enforcement mechanisms to increase collection rates and improve the commercial viability of higher-value circular activities (e.g. reuse and high-quality recycling). This may involve tighter targets, strengthened compliance fee structures, and clearer requirements to prioritise value retention across different material stream. This will also need clear timelines, robust enforcement mechanisms, and long-term policy clarity (e.g. publishing sector-specific roadmaps from the Circular Economy Growth Plan).

09 LONG TERM

Expand targeted grant funding to support mid-stage (mid-TRL) technologies and enabling circular infrastructure.

Why:
There is a persistent funding gap for technologies that have proven technical feasibility but require capital to scale to commercial deployment. Without targeted support at this stage, many circular innovations fail to progress, limiting the pipeline of investable opportunities. In addition to this, certain enabling activities (including reuse infrastructure) requires consistent support, but may not be commercially viable in the short term.

How:
Increase the availability and accessibility of government grant funding for mid-TRL circular technologies, with a focus on demonstration and first-of-a-kind commercial projects, particularly for challenging or under-served waste streams (e.g. flexible plastics, textiles, etc). Alongside this, there is a need to provide targeted grant support for enabling infrastructure (such as local reuse hubs). This should be designed to crowd in private capital by reducing technology and execution risk ahead of full-scale investment.

5. Concluding remarks

Concluding remarks

This study highlights a complex and uneven landscape for investment in circular economy infrastructure across the UK. Across the four priority material sectors (EEE, plastics, consumer packaging and textiles) and across reuse, repair and recycling activities, there is no single consistent investment narrative. Instead, the findings point to a range of maturities, risks, and opportunities, ranging from well-established and policy-supported systems (such as consumer packaging recycling) to emerging niche models that remain constrained by uncertainty (such as plastics reuse and fibre-to-fibre textiles recycling).

Despite these differences, a consistent theme is that all materials demonstrate unmet potential for investment to drive circularity. Even the most mature systems continue to face structural challenges, such as market volatility and insufficient end-market demand, while less developed circular services and technologies require support to move beyond early-stage deployment. All require further capital, innovation and system-wide coordination to reach their full potential.

Crucially, the findings indicate that the availability of capital is not the main issue. Instead, the central challenge lies in creating the right conditions for capital to be deployed with confidence. Across the four sectors, investors consistently emphasised the importance of a small number of enabling factors: clear and stable policy signals, reliable feedstock supply, secured end markets, and scalable business models. Where these conditions are present, investment is more likely to flow; where they are absent or uncertain, capital remains constrained, even if the activities lead to environmental or socio-economic benefits.

This reflects a more fundamental dynamic within the current investment landscape: investment decisions continue to be driven primarily by financial return, with environmental and socio-economic benefits often playing a secondary role. While metrics such as carbon reduction are increasingly used to support investment cases, broader impacts such as job creation, waste prevention, social value and reduced pollution, remain inconsistently measured and are rarely a deciding factor. Addressing this imbalance will be critical to unlocking the full value of circular economy investment, particularly for activities such as reuse and repair, where environmental and societal benefits may be substantial but less readily monetised.

These findings point to a central overarching requirement: there is a need to build and maintain investor confidence. Confidence depends not only on individual project viability, but on the wider investment landscape. This includes policy clarity and credibility, the strategic use of public funding to de-risk innovation, improved transparency and data on material flows, and stronger coordination across value chains. Without these conditions, there is a risk that policy ambition may exceed infrastructure capacity and readiness, reducing the effectiveness of circular economy interventions.

Finally, the report highlights that unlocking investment in circular infrastructure is inherently a shared challenge. While government policy plays a critical role in setting direction and reducing risk, industry must develop investable, scalable business models and improve data transparency, and investors must be prepared to engage with and evaluate circular technologies with different risk profiles. Therefore, progress will depend on coordinated action across these three groups.

In this context, the recommendations set out in this report are intended not as standalone actions, but as part of a broader, system-wide effort to create the conditions for sustained investment and growth of circular infrastructure in the UK. By aligning policy, market incentives and investment approaches, the UK has a clear opportunity to accelerate the transition to a more resource-efficient and resilient circular economy.

Appendices

Appendix A
Methodology

An overview of the approach used to carry out the research and analysis is provided below.

Steering group

An expert steering group was formed to direct the project scope, provide guidance on the methodology, and offer constructive feedback at key points during the research. Steering group members were:

- Dan Cooke, Director of Policy, Communications and External Affairs, CIWM
- Tina Benfield, Technical Services Manager, CIWM
- Anne Laleman, Director, Alpha-Financials Ltd
- Jacob Hayler, Executive Director, Environmental Services Association
- Chris Jonas, Consulting Director, Tolvik

Scoping

This study focuses on four sectors: EEE, plastics, consumer packaging (excluding plastics), and textiles. For each sector, information was gathered around the current investment landscape across reuse, repair and recycling (3Rs) activities. The findings at a later stage in the project indicated that two specific activities (plastics repair and consumer packaging repair) had very limited information as they were not regarded as 'real' activities, and as such were excluded from this study.

While this project included a literature review element, the main focus of the findings was from engaging stakeholders in the investment community. In terms of topics explored, this study focused on barriers and opportunities around investment, while acknowledging their subsequent effect on innovation in the circular infrastructure space.

Literature review

A rapid literature scan was conducted to collate publicly available information on the circular economy as growth strategy within the UK, and the role of the resources and waste sector in investment in the circular economy. Gaps and barriers to investment and innovation were also identified, as well as key opportunities for each of the four focus sectors. For each of the material streams, specific evidence was identified relating to 3Rs activities. The following information was identified for each material stream and activity:

- General information on volume of items placed on market, waste generation, and reuse, repair or recycling data.
- Investment challenges and opportunities.
- Innovation challenges and opportunities.
- Relevant case studies.
- Specific policy developments and/or investment instruments.

For each material stream and activity, several key sources were identified to provide an initial overview and to inform the scope of the stakeholder interviews. These sources included research conducted by academics and organisations such as Green Alliance, UKRI, and Zero Waste Scotland; and sector-specific organisations such as UKFT, Aluminium Federation, and Material Focus.

Interviews

To build upon the literature review findings, interviews were conducted. The interviews sought to gain insights across the different material streams and 3Rs from the perspective of different types of investors such as banks, venture capital and private equity, as well as other knowledgeable experts in the sector such as business owners and investment advisors.

Interviewees were selected to ensure representation across different investor types and material stream focus. The goal for the number of interviewees selected per material stream was initially based on the availability of insights from the literature in order to address data gaps. However, due to challenges recruiting stakeholders, more cross-sector stakeholders with broader insights into the UK investment landscape were included. A total of 15 interviews were conducted between March and June 2026. A breakdown of the number of interviews by stakeholder type and by sector is provided in Table 1 and Table 2.

While the interviews adopted a semi-structured format to allow flexibility to explore emerging insights in greater depth, specific proformas were developed for investors and advisors and for business owners in order to structure discussion. Topics covered included:

- Current investment profile.
- Investment potential for different materials streams/3Rs.
- Requirements for investment in reuse, repair of recycling projects or businesses.
- Barriers to investment in reuse, repair of recycling projects or businesses and how barriers could be addressed.
- Opportunities for investment in reuse, repair of recycling projects or businesses.
- Impact of waste crime and the media coverage on investment.
- Assessment of the impact of circular investments.
- Voluntary initiatives and pledges.

The insights from the interviews have been anonymised and consolidated during analysis to ensure participant confidentiality and to encourage more open discussion.

Table 1: Number of interviews by stakeholder type

Stakeholder type	Interviews
Investment or industry advisor	6
Business owner / operator	4
Institutional investment fund	1
Venture capital fund	2
Private equity fund	1
Scheme administrator	1

Table 2: Number of interviews by material sector

Material stream	Interviews
WEEE	2
Textiles	1
Consumer packaging	1
Plastics	2
Cross-sector	9

The aim of the interviews was to:

- Understand the investment barriers and opportunities across the different material streams and the 3Rs.
- Identify and explore the factors that impact investor decision-making.
- Identify future investment priorities.
- Understand data needs, and if and how firms measure the impact of investment.

Thematic analysis and co-creation of recommendations

A range of steps were used to analyse the findings from both the interviews and the literature scan. Findings relating to successes, barriers and opportunities to unlock investment across the four priority sectors were compiled into a spreadsheet and categorised by requirement type (such as financial incentive, input and output certainty, risk exposure, etc). In addition to setting out findings on the current investment situation, cross-sectoral factors influencing 3Rs investment were identified, noting any specific themes, such as the role of public funding and aspects around material value and scale.

This was followed by a thematic analysis approach, identifying recurring themes across the sectoral findings to point to key areas which were identified as key blockers and gaps to unlocking investment into circular infrastructure. These themes were consolidated into four key areas (see Section 2.1). Initial recommendations targeting these key areas were developed for different actors (investors, industry and the UK Government) across different timelines. These early recommendations were presented and discussed with the Steering Group during a co-creation workshop, leading to constructive discussion and allowing to refine and add any recommendations where required.

Signposting metrics, guidance and tools for investors

In addition to identifying key barriers and opportunities, one objective of this study was to understand the current metrics used by investors and to signpost guidance to frameworks, metrics and tools that can be used to evaluate and invest in circular projects. As such, a review of the metrics utilised by investors was undertaken, to indicate what criteria was used in investment decisions and which measurement tools were utilised (available in Appendix C). This was supplemented with an overview of various guidance and frameworks available to the investment community, including:

- An overview of sustainable finance frameworks.
- An overview of environmental and socio-economic factors available for measuring impacts of 3Rs activities.
- Metrics specific to projects focusing on minimise resource loss.
- Certification schemes to recognise benefits and provide a more holistic assessment of sustainability.

Appendix B
Policy landscape

Packaging Extended Producer Responsibility

pEPR requires those placing packaging on the market to fund its waste management costs and meet recycling targets for each material. The intended impact is to provide reliable funding for waste management including infrastructure investment, and to give more certainty on the materials coming through.

Evidence has found that the funds generated through pEPR are already being used to develop infrastructure.[153] pEPR, in combination with Simpler Recycling and DRS, has also helped to provide more longer-term policy clarity, which is beneficial for investment. However, some councils are still being cautious about investing while waiting to see overall impact of policy changes, including ETS.[154]

Simpler Recycling

Simpler Recycling involves the standardisation of household kerbside recycling collections in England. The policy covers the main packaging materials and food waste, with the addition of flexible plastics from 2027. The intended impact of the policy is greater certainty, standardisation and quality of material streams, supporting long-term investments.

In conjunction with pEPR, Simpler Recycling should ensure greater standardisation certainty and quality of material streams. pEPR funding, and temporary Defra funds for food waste collections roll-out, can be used to adapt or improve infrastructure as needed.[155]

FlexCollect has shown that most MRFs can adapt to receiving bagged soft plastics with quite minor changes to facilities and picking resource.[156] If local authorities choose loose flexible collections (e.g. comingled), more sorting infrastructure investment may be needed. At present, end-market demand for flexible plastics is insufficient (i.e. mechanical and chemical recycling facilities taking the sorted materials). There is also a risk that flexible plastics collections as well as DRS could cause practical problems for sorting facilities/MRFs and reduce revenue (e.g. due to higher sorting costs).

WRAP have forecasted recycling infrastructure capacity gaps for each packaging material.[157] Particularly big shortfalls in recycling capacity are predicted by 2030 for plastic and paper/card; there will also be a shortfall for glass. All materials rely heavily on export destinations, suggesting potential for domestic recycling to play a greater role across the board.

Deposit return schemes (DRS)

DRS will require retailers over a certain size to provide take-back infrastructure for common single-use drinks containers. The Deposit Management Organisation will be responsible for transporting, sorting and selling the collected material. The sale of material will part-fund the scheme's costs (incl. retailer handling fee), with the remainder covered by producer fees and unredeemed deposits. Its intended impact is to ensure investment in take-back infrastructure and services, and support investment in high-quality recycling infrastructure.

Evidence shows limited impact on investment in reuse. Wales has stated its intension to support glass container reuse through its DRS.[158] The UK scheme, however, intends to exclude both glass and reuse and it is unclear whether Wales' ambitions will be blocked by the UK Government.

Defra's impact assessment found that the cost of poor quality recyclate for UK reprocessors was, on average, £16 per tonne, which should be reduced by DRS (for facilities receiving DRS materials).[159] Unredeemed deposits will be reinvested – estimated to be ~£1bn annually in 2028-29 before levelling out at around £453m annually.[159] By removing higher-value recyclable materials from DMR,

MRF revenue will be lost, which currently offsets costs to local authorities of managing lower-value waste streams.[160] Additionally, if certain facilities do not receive DRS materials, and are left with lower-quality kerbside materials, that will negatively affect revenue. Cost per tonne to manage remaining DMR may therefore increase,[160] with the effect potentially compounding from 2027 with the introduction of flexibles plastics under Simpler Recycling.

Plastic Packaging Tax

The Plastic Packaging Tax (PPT), introduced in April 2022, applies a tax on plastic packaging with less than 30% recycled content for manufacturers and importers of over ten tonnes of plastic packaging annually. In 2024-25, the rate was £217.85 per tonne. HMRC allows chemically recycled plastic to be used in mass balance approach for calculating recycled content, with the aim of supporting policy certainty for unlocking investment in chemical recycling infrastructure.

The proportion of packaging meeting the recycled content threshold is increasing (51% in 2024-25), and tax revenue has decreased annually since 2022. In 2024-25, HMRC collected £259m, based on 38% of plastic packaging being taxable.[161] However, the revenue generated is not ringfenced for investment in recycling infrastructure. Waste management companies have criticised the lack of investment in infrastructure, arguing that the tax could be strengthened by escalating the minimum content requirements and tax rate in line with targets.[162] There is suspicion amongst the sector that imported plastics may be mislabelled as meeting the recycled content requirements without verification.[163] Other concerns include the difficulty certifying food-contact recycled plastics, limiting businesses' ability to comply.[164]

Emissions Trading Scheme

From 2028, the UK Emissions Trading Scheme (ETS) will include EfW and incineration facilities, requiring them to purchase carbon allowances for fossil-based emissions. Because plastic packaging contributes up to 60% of the fossil carbon found in residual waste, it drives the majority of these purchases.[165] While this could initially expose local authorities to face charges up to £747m by 2028,[166] the government intends to align ETS with pEPR; this would allow for carbon costs of incinerating packaging waste to be passed back to the producers.

As a result, the policy acts an incentive for brands to design out fossil-based plastics. By using pEPR, the UK government intends to provide LAs with the necessary funding to invest in sorting and recycling infrastructure.[167] However, any non-packaging costs of incineration could still restrict LA budgets for wider 3Rs initiatives, especially as ETS revenue ring-fenced and goes back into the general Government budget.[168]

Appendix C
Metrics, guidance and tools for circular investment

Key metrics

All of the investors interviewed noted that they assess the impact of the circular businesses they invest in. In addition to financial metrics such as earnings before interest, taxes, depreciation, and amortization (EBITDA), carrying out environmental, social, and governance (ESG) and social value assessments were common practice according to interviewees, informing understanding of impact, confidence in future investment decisions, and improving credibility. Carbon related metrics, however, are often prioritised by investors compared to other environmental metrics.

Ultimately, it was understood that for several investors, environmental and social indicators from projects were not a major priority; one interviewee indicated that such metrics were not a primary driver for investment decisions but, instead, were used to build credibility and support future opportunities.

One investor with EU operations did indicate that all investment managers in the EU are required to disclose sustainability risks and impacts, regardless of whether they are investing in 'sustainable' businesses or projects under the EU's Sustainable Finance Framework. They noted their obligation to measure environmental impact due to their status as an Article 9 fund under the framework.

Article 9 Funds, also known as Dark Green Funds, are products whose sole objective is 'sustainable investment' or a reduction in carbon emissions. Fund managers under Article 9 are subject to enhanced disclosure requirements to ensure transparency and inform end investors about the sustainability performance of the funds in relation to the environmental or social benefits and objectives pursued.[169]

Guidance and tools available to investors

Sustainable finance frameworks available to the investment community

A range of sustainable finance frameworks and instruments are increasingly being deployed to mobilise capital towards circular economy outcomes, each playing a distinct role in shaping investment flows.

- Taxonomies, such as the UK Green Taxonomy under development, provide a classification system that defines which economic activities can be considered environmentally sustainable. These frameworks guide investors by establishing clear criteria for circular activities (such as resource efficiency and waste reduction), helping to direct capital towards credible projects and reduce the risk of greenwashing.
- Sustainability-linked loans (SLLs) link the cost of borrowing to the achievement of a company's ESG targets. For circular businesses, this could include metrics such as waste reduction and use of recycled content. These instruments incentivise improved performance over time while providing flexible financing that can support the scaling of circular business models.

- Green bonds represent another key mechanism, whereby capital is raised specifically to finance or refinance eligible green projects, including circular infrastructure such as recycling facilities or reuse systems. By ring-fencing proceeds for defined purposes, green bonds provide transparency and accountability for investors, while opening access to large pools of institutional capital seeking sustainable investment opportunities.
- Finally, blended finance structures combine public or concessional capital with private investment to reduce overall project risk. This is particularly relevant in the circular economy, where early-stage technologies or business models may carry higher perceived risks. By absorbing initial losses or providing guarantees, public capital can improve the risk-return profile of projects and crowd in private investors at scale.

Collectively, these instruments can play a critical role in overcoming persistent barriers to circular investment in the UK, including risk perception and greater revenue certainty. However, their application within the circular economy is not yet well-established. There is therefore a clear opportunity for investors and industry actors to make greater use of these tools to unlock capital and accelerate the deployment of circular infrastructure.

Overview of measuring environmental and socio-economic impacts

A comparative assessment of the environmental and socioeconomic impacts from reuse, repair and recycling activities across the four priority material streams has been undertaken as part of this project. A summary table of comparative factors is provided in Appendix D, and is an indicative snapshot of the potential advantages of reuse and repair over recycling activities, using data available in the public domain.

Project-specific metrics

There are a range of approaches to understanding the circularity of a project. Assessors can focus on the products involved or measure the system as a whole. They can monitor impacts by mass of material or by its value. The method chosen will be dependent on the characteristics and requirements of the assessment.

Research by Betts, Gutierrez-Franco, and Cueto[170] identifies a suite of metrics that can be used collectively or independently. They cover the different scenarios mentioned. They also complement and can facilitate larger assessments such as life cycle assessments (LCAs) or material flow analyses (MFAs). The metrics provide comparative indicators for the circular potential of products or systems as well as the existing circular inputs or content. Uniquely there are metrics that account for reusability (or inner loops) not just recycling (or outer loops). They are:

- Cycle Potential Index.
- Cycle Content Index.
- Reuse Index.
- Total Material Flow.
- Total Logistics Cost.
- System Cycled Content.
- Reuse Cycle Minimum for CO2e emissions.[v]
- Breakeven Reuse Cycles for CO2e emissions.[vi]

These metrics can provide comparable circularity performance indicators that are industry-agnostic. They can be used to compare the performance of a business over time, but also to compare businesses that create disparate products. While they may be indicative of the success of a circular project, there are other metrics that are more appropriate to that task.

[v] *Only based on fabrication and manufacturing emissions.*

[vi] *Based on fabrication and manufacturing and forward transportation for single use. Reuse additionally includes reverse transportation and processing between uses.*

Green Bond Principles

The Green Bond Principles have identified a suite of core and supplementary indicators to measure the impact and define the success of circular or eco-efficient projects. Their core indicators fall into four categories:

- Circular design and production – including the use of materials, creation of products that support circularity, and the substitution of virgin materials.
- Circular use – including producing products from repurposed or remanufactured products.
- Circular value recovery – including production of secondary raw materials, valorisation of biodegradable waste.
- Circular support and products – including tools and services that enable circular economy.

These indicators largely focus on percentage change, therefore making them useful tools to assess a projects impact.

Circle Economy Foundation

Circle Economy Foundation has developed a product level key performance indicator (KPI) for investors in circular economy companies. The KPI measures linear resource use avoided and helps to standardise the way investment funds measure circularity.

Certification schemes

The use of third-party verified certification schemes moves the burden of validation from investors onto trusted institutions. It can also provide a more holistic assessment of sustainability, depending on the certification, than independently collected metrics.

Two certifications have been identified that are particularly suitable for informing investment into these activities: the Cradle to Cradle Certified product standard from the Cradle to Cradle Products Innovation Institute; and the ISCC PLUS certification and Carbon Footprint Certification.

The Cradle to Cradle Certification covers a wide range of sustainability issues, from health impacts from material use to water and soil stewardship. There are four levels of certification, from bronze to platinum, and the award is based on the lowest level achieved across their five categories. The gold standard for circularity requires cycled content to meet standards set by industry leaders, greater than 90% of material to be cyclable to a high value, an implemented circular business strategy, and evidence that the product is actively cycled.

ISCC PLUS is a voluntary certification to support the use of secondary and alternative raw materials. It focuses on traceability and transparency throughout the supply chain to verify the recycled content in a product.

The ISCC Carbon Footprint certification is less holistic, focusing on CO2e emissions, but with support for circular solutions built in. It can be combined with the ISCC PLUS for bio-based raw materials, with support for other raw materials in development

Appendix D
Environmental and socio-economic impacts

Below is a compilation of quantitative and qualitative indicators found in the public domain relating to the environmental and socio-economic impacts of reuse, repair and recycling across the four priority materials. It illustrates the comparative benefits and opportunities of the different activities.

Material	Area	Climate impact: carbon intensity *(kgCO2e/tonne of material)*		Socio-economic impact *Paid jobs FTEs/T*	
		Value	Source	Value	Source
EEE/WEEE	Reuse	-2,208	WRAP 2024	0.0137	WRAP 2018
	Repair	-2,208	WRAP 2024	0.2	McMahon et al 2021
	Recycling	-978	WRAP 2025	0.0054	WRAP 2018
Plastics	Reuse	-3,172	DESNZ 2025	0.02331	GAIA 2021
	Recycling	-829	WRAP 2025	0.007	CPRE 2011
Consumer packaging	Reuse	-3,202	DESNZ 2025	0.001332	GAIA 2021
	Recycling	-1,895	WRAP 2025	0.0004	CPRE 2011
Textiles	Reuse	-10,140	WRAP 2024	0.0168	WRAP 2018
	Repair	-10,140	WRAP 2024	0.01665	GAIA 2021
	Recycling	-732	WRAP 2025	0.005	WRAP 2018

Below is a compilation of quantitative and qualitative indicators found in the public domain relating to the environmental and socio-economic impacts of reuse, repair and recycling across the four priority materials. It illustrates the comparative benefits and opportunities of the different activities.

Material	Area	Waste and pollution			
		Waste prevented/diverted		*Pollution/Toxicity risk*	
		Opportunity for waste diversion	**Source**	**Qualitative assessment of toxicity risk of material**	**Source**
EEE/WEEE	Reuse Repair Recycling	407,100	Innovent Recycling 2024	**High:** Contains concentrated heavy metals (e.g. lead, mercury, cadmium) and brominated flame retardants (BFRs). Any unregulated dismantling can release Persistent Organic Pollutants (POPs).	Butturi et al 2020
Plastics	Reuse Recycling	1,111,000	Defra 2025	**Medium-high:** Risks are driven by hazardous additives (phthalates, BPA) and the threat of microplastics. Some polymers like PVC are considered highly toxic due to dioxin formation.	HEAL 2019
Consumer packaging	Reuse Recycling	3,462,000	Defra 2025	**Low:** Generally composed of more inert or biodegradable materials. Aluminium is generally highly recyclable and non-toxic. Card and paper pose minimal toxicity unless they contain specific coatings.	SAC n.d.
Textiles	Reuse Repair Recycling	675,450	WRAP 2024	**Medium:** Primarily a source of plastic microfibres, but chemical risk comes from dyes, pesticides (in natural fibres), and finishing agents (e.g. water repellents).	Undas et al 2023

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