



Source Segregation: A golden opportunity for UK recycling

The UK has set ambitious and laudable targets for its paper and card recycling rates over the next decade to close the gap compared to its European counterparts. However, the current trend shows that the disparity between the ambitious targets and the actual recycling rates will only continue to grow unless we rethink our approach to recycling. One key element is the tangible rise in e-commerce which adds to the quantity of paper-based packaging found in the UK's domestic waste streams. Not only does this pile pressure on the current (commingled) waste collection infrastructure, but without a source segregated system in place, the risk of losing valuable fibres is magnified further.

However, the current policy agenda of the UK's Department of Environment, Food & Rural Affairs (Defra) includes the Environment Act 2021 consultations, offering us a **golden opportunity** that cannot be missed. At DS Smith, we look forward to continuing to work with the Government and the recycling sector to make sure we can effect positive change and continue to fulfil its infrastructure commitment to 'Build Back Better'.¹

Within this paper we have set out the background on the UK's current approach to recycling and associated legislation, the issues posed by TEEP (Technically, Environmentally, and Economically Practicable) as we see them, and the contribution that source segregation can make in helping the UK meet its ambitious paper and card recycling rates.

There will be a variety of incentives for stakeholders to reassess the historic methods of recycling in the UK and to engage with the UK Government in building a more efficient and effective alternative. For Policy Makers there is the draw of better national recycling rates, and for Recycling Officers and other Local Authority stakeholders, the clear benefits of improved recycling revenues, clearer recycling systems, and higher recycling rates. Finally, higher recycling rates and improved quality achieved through optimised recycling systems will result in a more efficient recycling industry, with less wastage of valuable resources that can be used in the circular economy.

There is a real opportunity here for the UK Government and stakeholders in the recycling supply chain to work together to improve recycling in the UK both in terms of quantity and quality.



John Melia,
Director of Strategy & Innovation
Recycling Division, DS Smith

Summary

- In March 2022, the UK Government proposed new targets for packaging waste for 2030 in the Extended Producer Responsibility (EPR) consultation feedback. The proposed target for the overall recycling rate is 76%, with a target of 89% for paper and card recycling rates.
- In reference to the Environment Act 2021 consultations on EPR, Deposit Return Scheme and Collection Consistency, we are concerned that exemptions under TEEP assessments will continue to apply to the revised legislation, thereby enabling local authorities in England to continue collecting paper and board as part of commingled waste collections.
- The collection of paper and card in a commingled system acts as an obstacle to achieving the UK's ambitious recycling targets given the higher levels of contamination which are found in paper and card from commingled systems. These systems do not produce the required quality of recovered paper, nor sufficient volumes of recyclable material to achieve national recycling targets.
- Moreover, the proposed inclusion of plastic film and flexibles in the household recycling system by 2028, if not collected separately, would further impact the quality of recycled fibre as it would result in any commingled material being unrecyclable due to the complexity of separating paper and card from plastic film.
- To address this, we urge that **separate collections of paper and board from households and businesses must be mandatory, with the ability to apply TEEP to paper and board collections removed.** In turn, this will support the UK Government's ambitious recycling targets and greatly improve the UK's waste and recycling system to promote quality as well as quantity. A simpler, standardised system of recycling would provide clarity for the public over the coming decades and enable the UK's recycling efforts to be maximised.
- The wider industry, including the Confederation of Paper Industries and The Recycling Association, are supportive of DS Smith in the development of this paper. We stand together in reinforcing our message: separate collection of paper and board is a 'must-have' if the UK is to meet our fast-approaching recycling targets.

Background



In accordance with the EU Waste Framework Directive (Articles 4 and 13, November 2008), the UK Environment Agency set regulations on the separate collection of waste. Since January 2015, the Waste Regulations (England and Wales) have required waste collectors of **both** household and business waste to separately collect plastic, paper/card, glass, and metals where it is 'Technically, Environmentally and Economically Practicable' (TEEP) and to ensure that waste is recovered or recycled.

The purpose of this regulation has been to increase the quantity of waste for recycling as well as the quality of recycled material (by lowering the level of contamination).² The TEEP approach allows local authorities to make a case for not collecting these materials separately. Examples of the reasons used in TEEP assessments to justify commingled collections include



Technically practicable: For example, when there is not enough space to separate and store different material streams.



Environmentally practicable: For example, when the environmental benefit does not surpass that of commingled collections.



Economically practicable: For example, when the net cost of separate collections is higher than that of commingled collections.

By allowing exemption from separate collections, TEEP has enabled waste collectors to continue providing commingled collection services, regardless of their effect on the quality and quantity of materials for recycling.

As a result of this failure to adopt separate collection systems, only a modest increase in recycling rates of 3.2% has been achieved (from 41.2% in 2010 to 44.4% in 2020³), rather than the 8.8% increase required to meet the UK's target of recycling 50% of waste from households by 2020. Without making systematic changes across the UK's waste collection systems to support improved recycling rates, we will continue to fall short in our ability to meet future recycling targets.



There are also consequences for the recycling supply chain - plastic and other contamination can cause significant challenges at paper mills, adding additional costs and waste into paper making. Unsurprisingly, there is a significant environmental impact too, with large volumes of plastic ending up in paper recycling streams; in 2021 alone, the equivalent of 391 million bin bags of plastic contamination was collected at Kemsley Mill, which is destined either for energy recovery or landfill, rather than being recycled.



The Current Recycling Landscape

Legislation in the UK jurisdiction:

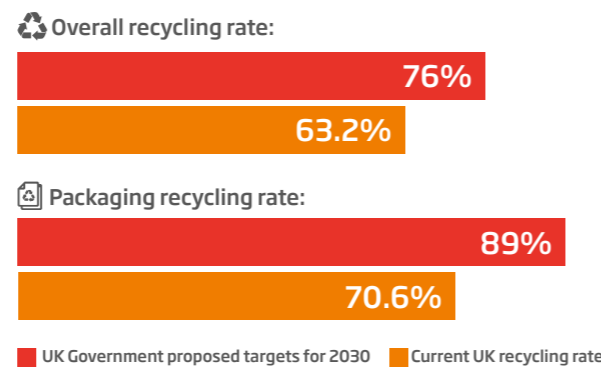
Under the umbrella of the Environment Act 2021, DEFRA has recently proposed three major reforms with the aim of achieving higher recycling rates, increasing resource efficiency, and creating a circular economy:



- 1. Consistency in Waste Collections** for household and business recycling collections in England (which is where TEEP is applicable);
- 2. Deposit Return Scheme (DRS)** for drinks containers in England, Wales and Northern Ireland;
- 3. Extended Producer Responsibility for Packaging (EPR)** to reform the UK packaging producer responsibility system.

Recycling rates and targets:

In March 2022, the UK Government proposed new targets for packaging waste for 2025 and 2030 in its feedback to the consultation on Extended Producer Responsibility. The proposed target for the overall packaging recycling rate in 2030 is 76%, with a target of 89% for paper and card packaging. Currently the UK has an overall packaging recycling rate of 63.2% and a paper and card packaging rate of 70.6% (provisional 2021 data⁴). In comparison to other European countries in 2019/20, the UK ranked 21st for packaging recycling rates and 29th for paper and board packaging.

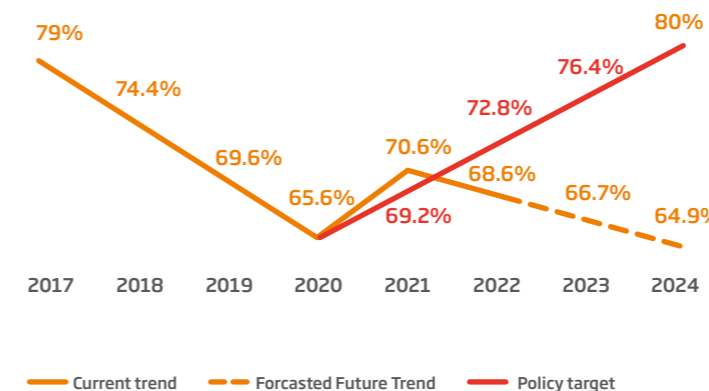


UK ranking within Europe:



In the EPR consultation document, Defra modelled different implementation scenarios for EPR, DRS and consistent collection implementation to derive estimates of the overall packaging recycling rates for each scenario.⁵ The model indicates that the combined impact of these three reforms is a forecasted 15 percentage-point increase in paper and card packaging recycling rates by 2030 compared to the scenario where there is no change.

On top of this, if the past 5-year trend is taken into consideration and no changes were to be implemented, the paper and card packaging recycling target will be missed by 15.1 percentage points (see graph below). **This disparity between the ambitious targets set and actual recycling trends underlines the need for consistent and mandatory separate collection of paper and card.**



Waste collection systems:

In 2019, Waste and Resources Action Programme (WRAP) reported that the prevailing recycling waste collection method used by Local Authorities (LAs) in the UK was commingled collection at 44%, followed by two-stream and multi-stream collection.⁶ In the UK there is not a consistent approach to collection, with varying streams collected in different authority areas depending on the choices made by each LA, whereas other countries in Europe apply consistent collection systems on a national basis. Most European countries (24 in total) already collect, or are transitioning to collect, paper and card packaging waste separately, with only eight European countries operating a commingled system. The benefits of a source segregated system are evident; according to Eurostat⁷ the top 10 countries for municipal recycling rates in Europe all have consistent separate collection systems.

By no later than 2028, England is planning to collect plastic film from households, which will create a significant and further risk of contamination in the paper and board stream. As a result, should commingling of paper and card with other materials continue, paper and card from commingled sources are likely to be too heavily contaminated for use in paper mills in the UK and overseas and the resultant material will not meet the 'European List of Standard Grades of Paper and Board for Recycling' (EN643). The unintended consequence of this would be that paper and card from commingled sources would likely end up in energy recovery facilities, rather than paper mills.

Our Perspective



Many local authorities operating commingled systems have been hesitant to change to separate collections due to the perceived effort and costs involved. Despite this reluctance to adopt segregated collections, DS Smith interviews with local authorities found that generally they do understand the benefits to material quality that separate collections of paper and card deliver. Our perspective is that TEEP is no longer a justifiable argument to maintain commingled collection systems for paper and card material streams, as outlined below:



01 Technically practicable:

One of the main arguments for the separate collection of paper and card not being technically practicable is the challenge posed by residential high-rise buildings where there is a high population density and a limited amount of space for recycling facilities. This space limitation can result in the provision of different bins for separate waste streams being a challenge. However, there are ways around this problem, as has been proven in other

European countries. For example, in the city of Rotterdam in the Netherlands, which has numerous high-rise buildings such as New Orleans (45 floors) and Montevideo (43 floors), separate collection of paper and card for these buildings is achieved through a network of paper collection points located at convenient points throughout the city, with residents encouraged (successfully) to take their paper and card to the designated recycling points. Given the high recycling rate of 91% for paper and card in the Netherlands, this example demonstrates that technical practicability is not an issue for high rise buildings as other collection methods exist that yield high recycling rates. Moreover, the Netherlands has a higher percentage of their population living in high-rise accommodation than the UK (16.7% and 11.6% respectively)⁹, so having a significant portion of the population living in high rise buildings or flats need not impede separate collection or the achievement of high recycling rates.

We believe that the UK's existing housing infrastructure shouldn't be a barrier to implementing source segregation.



02 Environmentally practicable:

Environmental practicability is less commonly used in TEEP assessments to justify commingled collections. Examples of challenges in this area tend to focus on the number of vehicles or vehicle movements required to collect source-segregated materials from the kerbside. Whilst this may be true for some rural areas, in many towns and cities it is proven that a single multi-stream kerbside sort collection vehicle can adequately replace one rear-end loader (REL) commingled collection vehicle to collect the same volume of material from residential areas.

One of the main reasons why separate collection of paper and card is environmentally desirable is the contribution it makes to the circular economy. By failing to collect paper and card separately, a considerable amount of valuable material is lost that could otherwise be retained in the recycling loop and help to support and grow the circular economy. There are two aspects to this: the loss of quality due to contamination and the loss of quantity of fibre due to loss or rejection during the commingled sorting process. These are outlined below:

Loss of quality: Evidence gathered from analysis of recycled paper feed streams at DS Smith's paper mills has shown that recovered paper coming from commingled

sources, such as Materials Recovery Facilities (MRFs), has double the contamination levels compared to material coming from separate collection systems. The fact that paper and card are at a higher risk of being contaminated in commingled collection than other streams, such as metals and plastics, is also confirmed by industry, academic reviews, and research.

Loss of quantity: The second failing of commingled collection systems is the loss of fibre during the sorting process. An external report from Valpak⁹ showed that up to 9% of material is lost through MRF sortation on average and the 'net loss' of material through commingled systems compared to source segregated is 6.8%. Similarly, the European Commission¹⁰ reported that for paper waste streams the amount of unusable material (contaminated and non-target material) varies between 5% and 20% in commingled collection, compared to 1% in source separated collection. This residual material, which will include recyclable paper and card, is either landfilled or sent to an energy from waste plant (EfW) which is the lowest value and least desirable form of resource recovery.

We believe that the environmental benefits of separate collection of paper and card greatly outweigh any adverse environmental effects and so the 'environmentally practicable' argument should not be applied to this waste stream.





03 Economically practicable:

Economic practicability has been a popular argument in TEEP assessments to justify commingled collections, as this could be regarded to be the cheapest collection system by most local authorities, where less investment in bins and specialist vehicles are required. However, there are examples of TEEP assessments conducted by LAs which have used the economic argument both in favour of and against separate collection of paper and card.

On the one hand, some LAs (such as Boston Borough Council (BBC))¹¹ have demonstrated the financial feasibility of a two-stream collection system for paper and card (whereby paper and card are collected as one stream, and all other recyclables are collected together). In the BBC case, economic feasibility is underpinned by the absence of extra transport costs combined with savings of over £100 per tonne in processing costs due to the higher quality of the paper and card.¹²

On the other hand, Nottinghamshire Waste partnership has shown that separate collection of different dry recycling streams is not economically practicable due to the additional cost of purchasing new vehicles and bins.¹³

Despite the above case studies, DS Smith believes that ‘economic practicability’ should not be used by local authorities as an argument against separate collection of paper and card as the proposed EPR fees will cover a significant proportion of the collection costs (See “other laws and regulations”).



04 The UK’s ability to export recovered paper:

The UK’s ability to export recovered paper will be positively impacted by having separate collection of paper and card. Regulations on exporting waste are becoming more demanding, both in the country of export and the destination countries, to prevent states transferring their waste problems and pollution to other countries. The UK is reliant on export markets of recovered paper (approximately 3.69 million tonnes in 2020) as the generation of paper and card packaging waste in the UK is significantly greater than the domestic recycling capacity. Therefore, it is crucial that paper and card is of the highest possible quality (EN643 standard as a minimum) to maintain the ability to export surplus material and meet our recycling targets, and to avoid unnecessary incineration or landfill of otherwise highly recyclable material.



Effects of other laws or regulations on the separate collection of paper and card:

Extended Producer Responsibility (EPR) places an obligation on producers who place packaging on the UK market to fund the full net cost of recycling and recovering this packaging, resulting in the financial burden of separate waste collections shifting away from LAs who “operate a good practice, efficient and effective waste management system”. The implementation of EPR has been delayed until 2024 and phased until 2025 for the full implementation and roll out of modulated fees (whereby harder to recycle packaging faces higher EPR costs compared to easy to recycle packaging). This provides LAs the opportunity and time to plan a transition to efficient separate collection and waste management systems to benefit from EPR funding.

The Deposit Return Scheme (DRS) proposed by Defra aims to boost recycling levels for in-scope beverage containers, reduce the amount of littering, offer the enhanced possibility to collect high quality materials in greater quantities, and promote recycling through clear labelling and consumer messaging¹⁴. DRS will not be implemented until August 2023 in Scotland and late 2024 for the rest of the UK. Our view is that when DRS is implemented it will not have a direct effect on the need for separate collections of paper and board from households. However, it will result in volumes of beverage packaging no longer arising at the household and therefore increase the relative volumes of paper and board collected for recycling compared to other materials. Paper and board will become the predominant recycling material collected from households.



The wider industry perspective



DS Smith has chosen to engage with the wider industry in developing this paper, and can provide the below endorsements of our position:



The Confederation of Paper Industries is firmly committed to the source segregation of paper and boards in recycling collections. The materials required to drive the circular economy and its decarbonisation and waste minimisation benefits can only be secured by the highest quality paper for recycling, which will in turn only be achieved if it is collected separately from contaminants such as plastic films and glass.

Andrew Large, Director General of CPI



Single stream collections of paper and card are an absolute must to achieve the ambitious targets set by government within a circular economy. We do though have significant concerns that TEEP could undermine this objective, and especially given the new core materials likely to be collected under the consistency of collections proposals, allied to the funding provided by EPR, TEEP should be removed from the decision-making process for the collection of paper and card.

Simon Ellin, CEO of The Recycling Association



Source segregation: The Golden Opportunity

There is strong evidence to support the environmental and technical practicability of separate collection of paper and card; with the advent of EPR, the economic burden of funding the cost of collections will be borne by packaging producers. Exemption under TEEP should no longer be available as a mechanism for adopting commingled collection systems for paper and card material streams.

We strongly urge that TEEP assessment be removed for paper and card waste streams so that household waste collection in the UK is consistently based on separate collection of paper and card, as this will:

- 1. Achieve higher recycling rates and increase resource efficiency:** There is evidence of higher contamination and material loss in commingled collections that will drag down the 'true recycling rate' of paper and card. Through the consistent separate collection of paper and card we have a unique opportunity to implement a system that can achieve an 89% recycling target by 2030 for paper and card and deliver high quality and volume of material.
- 2. Propel the UK's transition to a circular economy:** More material of higher quality will be retained in the recycling loop, thereby reducing the need for more virgin materials to meet the growing demand of the packaging market driven by the ongoing growth of e-commerce.
- 3. Simplify and harmonise the system** Implementing a consistent recycling system across the UK will provide clarity for the public and enable future legislation to be implemented more seamlessly.

Without changes to the current waste management and recycling systems across the UK, it is highly unlikely that recycling and environmental targets will be met, and the UK will lose this golden opportunity to reform its current approach to recycling and legislation, falling further behind its European counterparts.

We would welcome the opportunity to discuss the points raised in this Briefing Paper alongside working in partnership with the UK Government, Local Authorities and other stakeholders to deliver the recycling and waste infrastructure required to meet the commendable targets set by HM Government.



- 1 UK Government Policy Paper: 'Build Back Better: Our plan for growth', 3 March 2021. (<https://www.gov.uk/government/publications/build-back-better-our-plan-for-growth>)
- 2 Separate collection of waste paper, plastic, metal or glass - GOV.UK (<https://www.gov.uk/guidance/separate-collection-of-waste-paper-plastic-metal-and-glass>)
- 3 Progress report on recycling and recovery targets for England 2020 - GOV.UK (<https://www.gov.uk/government/publications/progress-report-on-recycling-and-recovery-targets-for-england-2020/progress-report-on-recycling-and-recovery-targets-for-england-2020>)
- 4 UK statistics on waste - GOV.UK (<https://www.gov.uk/government/statistics/uk-waste-data/uk-statistics-on-waste>)
- 5 1-1.-targets.pdf (https://consult.defra.gov.uk/extended-producer-responsibility/extended-producer-responsibility-for-packaging/user_uploads/1-1.-targets.pdf)
- 6 Two-stream collection is when there are two separate dry recycling streams collected. Multi-stream is when there are more than two separate dry recycling streams collected. Both can include materials that are commingled, alongside some materials that are collected separately.
- 7 Statistics | Eurostat (https://ec.europa.eu/eurostat/databrowser/view/SDG_11_60/default/table)
- 8 Statistics | Eurostat (https://ec.europa.eu/eurostat/databrowser/view/ILC_LVH001__custom_940488/bookmark/table?lang=en&bookmarkId=bef1a6fc-d621-4fac-b21b-ef7a645efaec)
- 9 Microsoft Word - Valpak Packaging Recycling Assessment Final (https://www.valpak.co.uk/docs/default-source/information-zone/valpak-packaging-recycling-assessment.pdf?sfvrsn=71e16d10_2)
- 10 070201/ENV/2014/691401/SFRA/A2
- 11 Appendix B. TEEP Assessment.pdf (<https://democracy.boston.gov.uk/documents/s11494/Appendix B. TEEP Assessment.pdf>)
- 12 Appendix B. TEEP Assessment.pdf (<https://democracy.boston.gov.uk/documents/s11494/Appendix B. TEEP Assessment.pdf>)
- 13 TEEP Appendix 1 (<https://www.nottinghamshire.gov.uk/DMS/Document.>)
- 14 Introducing a Deposit Return Scheme (DRS) in England, Wales and Northern Ireland: Executive summary and next steps - GOV.UK (<https://www.gov.uk/government/consultations/introducing-a-deposit-return-scheme-drs-for-drinks-containers-bottles-and-cans/outcome/introducing-a-deposit-return-scheme-drs-in-england-wales-and-northern-ireland-executive-summary-and-next-steps>)

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