CIWM Presidential Report 2018

RDF Trading in a Modern World

prepared by SLR Consulting Ltd

Summary of Findings

1.0 Background and Scope

Emerging over the last decade in a response to the landfill levy/tax and European demand, exports of refuse derived fuel (RDF) now play a significant role in the management of residual waste in the Republic of Ireland and the United Kingdom.

Over the last 10 years, across the Republic of Ireland and the four UK administrations, RDF exports have made beneficial use of residual waste that would otherwise have been disposed to landfill, in lieu of domestic energy from waste (EfW) capacity.

Despite the rapid expansion in the RDF export market, however, uncertainties exist around the future of the industry. Pressures include the possible implications of rising recycling rates coupled with increases in domestic EfW capacity, as well as the ramifications of Brexit on the economics of export from the UK. In this context, CIWM has commissioned the 2018 Presidential Report to assess the current state of the RDF export market, and consider how the sector may evolve out to 2030. Accompanying the Presidential Report, this paper sets out a synopsis of findings.

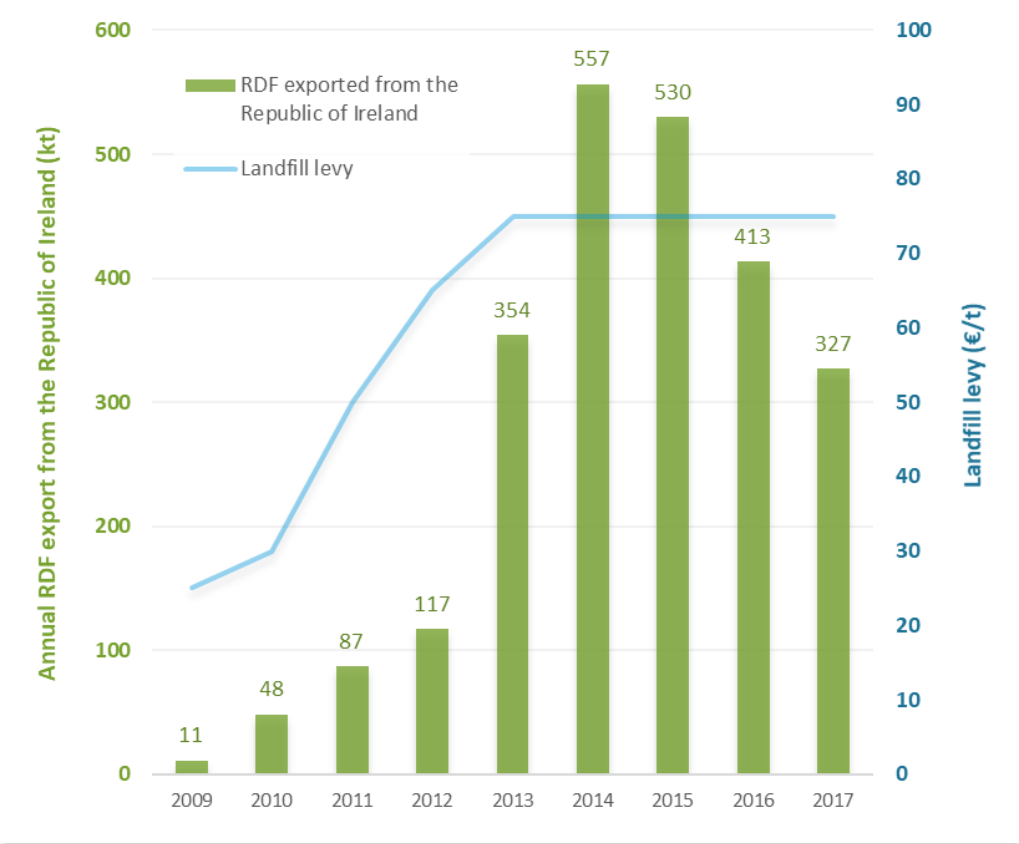
2.0 A Brief History of Market Development & Regulation

Research Findings

Beginning in 2010, RDF exports rose steadily, and are now making a major contribution to management of residual waste in the Republic of Ireland and UK.

In the Republic of Ireland, exports peaked in 2014. However, analysis of the most recent publicly available data (see Figure 1-1) indicates that export levels have declined significantly over the last two years.

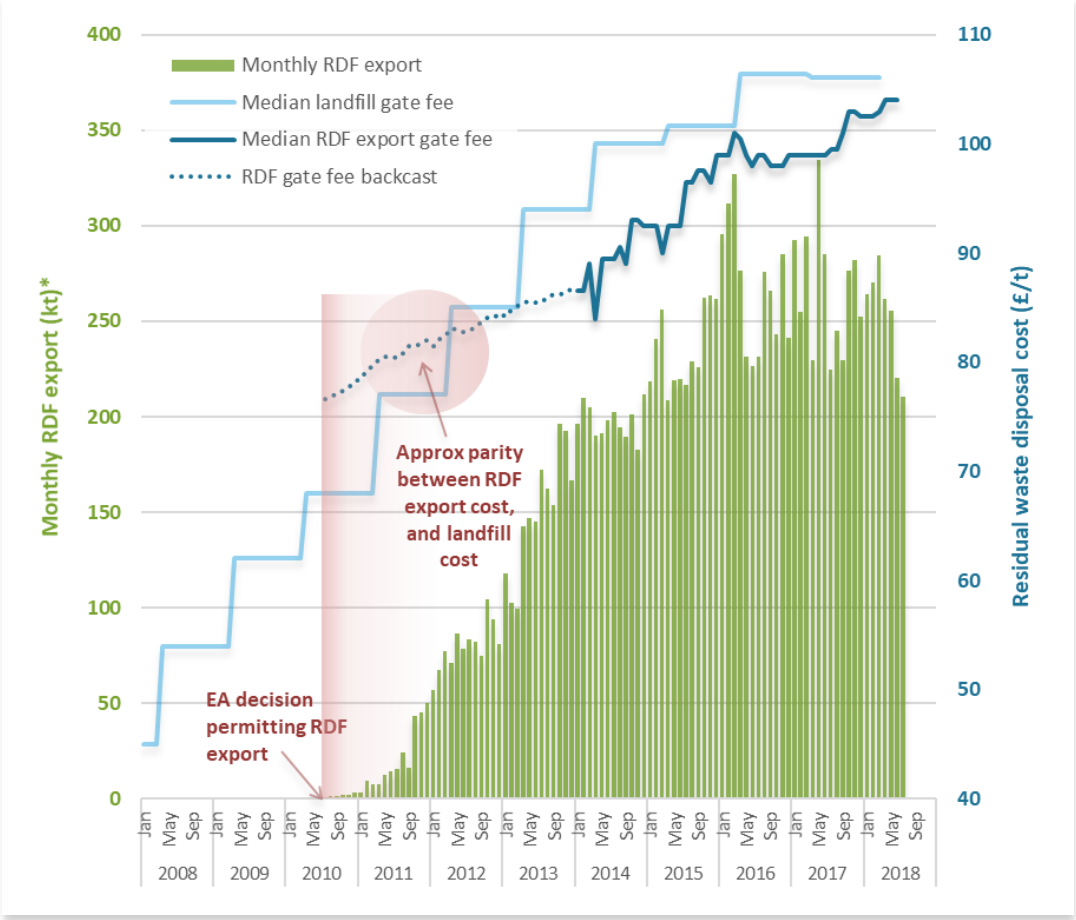
Figure 1-1 – Annual RDF Exports from the Republic of Ireland



DAERA data shows a relatively stable RDF export tonnage of 140-160ktpa between 2014 and 2016 for Northern Ireland, which has the greatest reliance on exports on a per capita basis. In contrast, Scotland and Wales currently place relatively little reliance on RDF exports.

In the case of England, export tonnages appear to have largely plateaued at 3.2 Mtpa over the last two calendar years (see Figure 1-2). In fact, the most recent provisional Environment Agency dataset shows a decrease in RDF exports in the year through to July 2018, relative to the year through to July 2017 – though this may be a result of monthly fluctuations, rather than a genuine downturn.

Figure 1-2 – Annual RDF Exports from England [1]



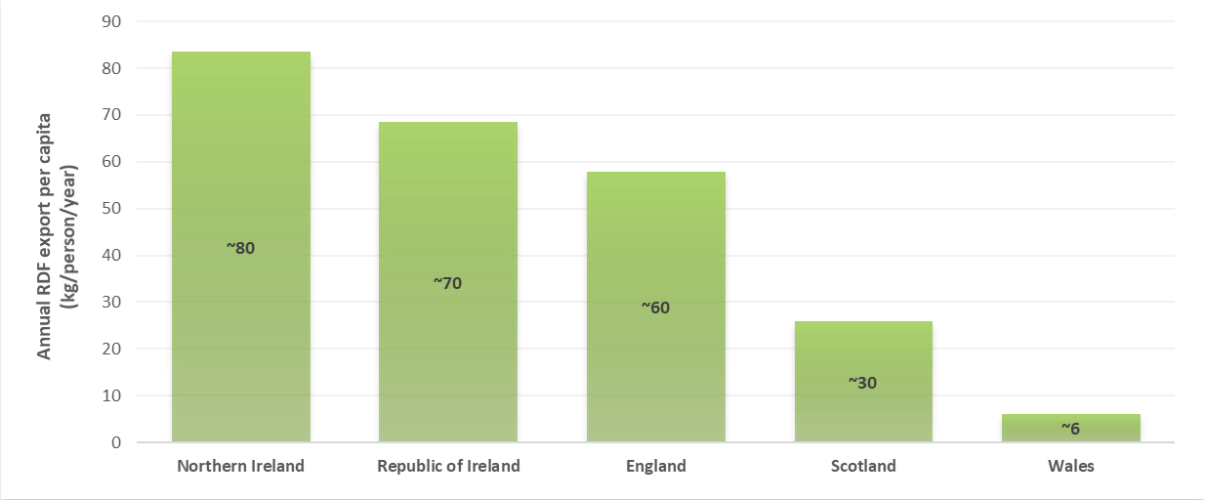
The relative importance of RDF exports in the waste sectors of each country can be gauged by comparing quantities of RDF exported per capita in each country (see Figure 1-3).

On a per capita basis, Northern Ireland currently has the greatest reliance on RDF exports at circa 80 kg/person/year, with the Republic of Ireland ranking second at 70 kg/person/year. English exports amount to circa 60 kg/person/year, while in Scotland and Wales RDF export plays a relatively small role on a per capita basis.

Overarching legislation governing RDF export at EU level is the EC Waste Shipment Regulations (WSR), in tandem with the revised Waste Framework Directive (WFD). Export of RDF for energy recovery is permitted under the WSR 'Amber' waste list, which permits export given

[1] As reported by the EA (England and Wales to November 2014, England only thereafter).

Figure 1-3 – RDF Export per Capita



prior notice (generally annual) to relevant authorities. Interpretation of the EC Waste Shipments Regulations and enforcement of procedures for RDF export is the responsibility of relevant regulatory agencies in each country:

- In the Republic of Ireland, RDF exports are controlled by the National Trans-Frontier Shipments Office (NTFSO). Application of European Waste Catalogue (EWC) codes to exported materials is the responsibility of the Environmental Protection Agency (EPA). In contrast to the case of the UK, in addition to RDF (EWC code 19 12 10) and mechanically treated residual waste (coded 19 12 12), the EPA permit export of mixed municipal waste (coded 20 03 01) destined for energy recovery.

- In England Defra and the Environment Agency (EA) continue to allow export of RDF meeting a 'light-touch' definition:

  "Refuse derived fuel (RDF) consists of residual waste that complies with the specifications in a written contract between the producer of the RDF and a permitted end-user for the thermal treatment of the waste in an energy from waste facility …". Export of code mixed municipal 20 03 01 is prohibited, though it should be noted that in practice, waste codes 19 12 10 and 19 12 12 may be municipal waste which has undergone only minimal processing (e.g. shredding with ferrous metals removal). Prevailing approaches in Scotland, Wales and Northern Ireland are similar.

3.0 What Does the Market Currently Look Like?

For the case of the Republic of Ireland, RDF export records show a relatively consolidated market with five companies (Indaver, Greenstar, Greyhound, Panda and Clean Ireland) being responsible for over 90% of the 327 kt exported in 2017. In England, the top five operators (Biffa, SUEZ, N+P, Geminor and Seneca) account for circa 50% of the 2017 total export of 3.2 Mt.

Outflows of RDF from England are predominantly via ports on the East Coast with Dover, Felixstowe and Immingham being the top three ports used by exported volume. While export port data is not available for the Republic of Ireland, it is understood that the significant RDF export routes include the ports of Cork, Limerick, Waterford, Galway and Drogheda.

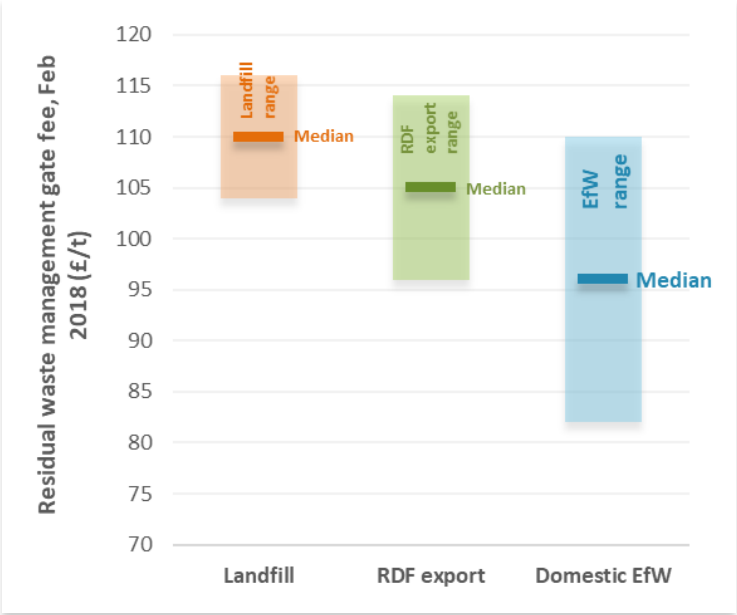
The Netherlands is currently the largest recipient of RDF from the Republic of Ireland (accepting 153 kt in 2017), followed by Germany (70 kt) and Sweden (51 kt). The same three countries accept the majority of RDF exported from England, the Netherlands taking the largest volume (1,540 kt), Germany again ranking second (641 kt) and Sweden third (529 kt).

Denmark and Sweden currently rank as the top export destinations by volume for Northern Ireland RDF, and notably the Republic of Ireland ranked as the third major recipient of Northern Ireland RDF in 2017, receiving 28 kt.

The most recent available data on UK export prices (see Figure 1-4) indicates that RDF occupies an intermediate cost niche between landfill (for which tax is the overwhelming component) and domestic EfW, which is relatively inexpensive.

While median prices are clearly stratified, full ranges in market price for these management options show a significant overlap. For example, dependent on geographical location and contract opportunities available, landfill may remain the most cost-effective option in some cases.

Figure 1-4 – UK Gate Fees for Management of Residual Waste



4.0 Domestic Residual Waste Mass Balance

Research Findings

Findings on the comparative pricing above indicate that production and export of RDF is typically more cost effective than landfill. However, RDF production and export is generally likely to be more costly than gate fees paid at domestic EfWs, with some specific exceptions, and contingent on factors including exchange rate as well as gate fees at European facilities.

This being the case, the outlook for RDF exports is highly dependent on the domestic residual waste treatment capacity gap, namely the balance between:

- supply of residual waste; and
- demand for this material at domestic waste treatment facilities (largely energy from waste).

To inform its consultancy work in the waste sector, SLR actively maintains in-house projection models for the residual waste supply-demand balance in the Republic of Ireland and the UK.

Assuming that the Republic of Ireland complies with the EU Circular Economy Package (EU CEP) target for 60% recycling by 2030 and

accounting for projected increases in domestic treatment capacity, the residual waste capacity gap is expected to approach zero by 2030.

In the event that the UK complies with EU CEP targets, modelling indicates that from 2026 onwards the capacity gap will begin to constrain the level of RDF exports, with a capacity gap of less than 2 Mt by 2030.

It should be emphasised that these outcomes are highly contingent on levels of waste generation, recycling rates attained and success of developers in building out domestic EfW capacity.

5.0 What Will Shape Future Market Demand?

Research Findings

Within the UK, the impact of Brexit remains a significant concern to the RDF export industry. Particular concerns cited include;

- imposition of tariffs on RDF imports; and
- increased friction to RDF movements due to the imposition of customs controls and disruption of process for notifying shipments in the event of a no deal Brexit.

Of particular relevance to the issue of tariffs is EC No 1186/2009, which defines European reliefs for customs duties, and states that *'any consignments made up of goods of negligible value dispatched direct from a third country to a consignee in the Community shall be admitted free of import duties'.* Given the likelihood that RDF would be classified as having negligible value (effectively having negative value, while the regulation applies a threshold of €150 per consignment), it appears unlikely that a tariff would apply, regardless of the form which Brexit ultimately takes.

At a stakeholder briefing in August, Defra reported that its view, which is supported by HMRC and the World Trade Organisation (WTO) was that "the export of waste for recovery does not constitute a sale of goods but the provision of a service" and will therefore not be subject to tariffs.

Nevertheless, the issue of customs controls remains a significant concern. Following Parliament's rejection of continuing membership of the European Union Customs Union (EUCU), the approach to customs controls remains a central matter of contention in Brexit negotiations. Future requirements for customs declarations / checks could lead prolonged transit times and additional administrative requirements, increasing the cost of RDF export. The issue of customs controls is clearly particularly

critical for movements of RDF/SRF over the Irish border (in 2017, 28 kt of RDF/SRF was exported from Northern Ireland to the Republic of Ireland).

The long-term future of RDF export sectors in the Republic of Ireland and UK is also clearly reliant on the ongoing demand for this material in Europe. Sustained demand requires continuing capacity oversupply, which is a function of conditions in recipient countries (largely the Netherlands, Germany and Sweden) including population growth, build out of new EfW capacity, increase in recycling towards EU CEP targets, as well as decommissioning of existing EfW facilities.

Demand for RDF from the Republic of Ireland and UK in major recipient countries might also be diminished if export flows from other Member States increase in line with the EU CEP, which limits the proportion of residual municipal waste disposed to landfill to 10% by 2030.

6.0 Export Volumes Future Gaze

Research Findings

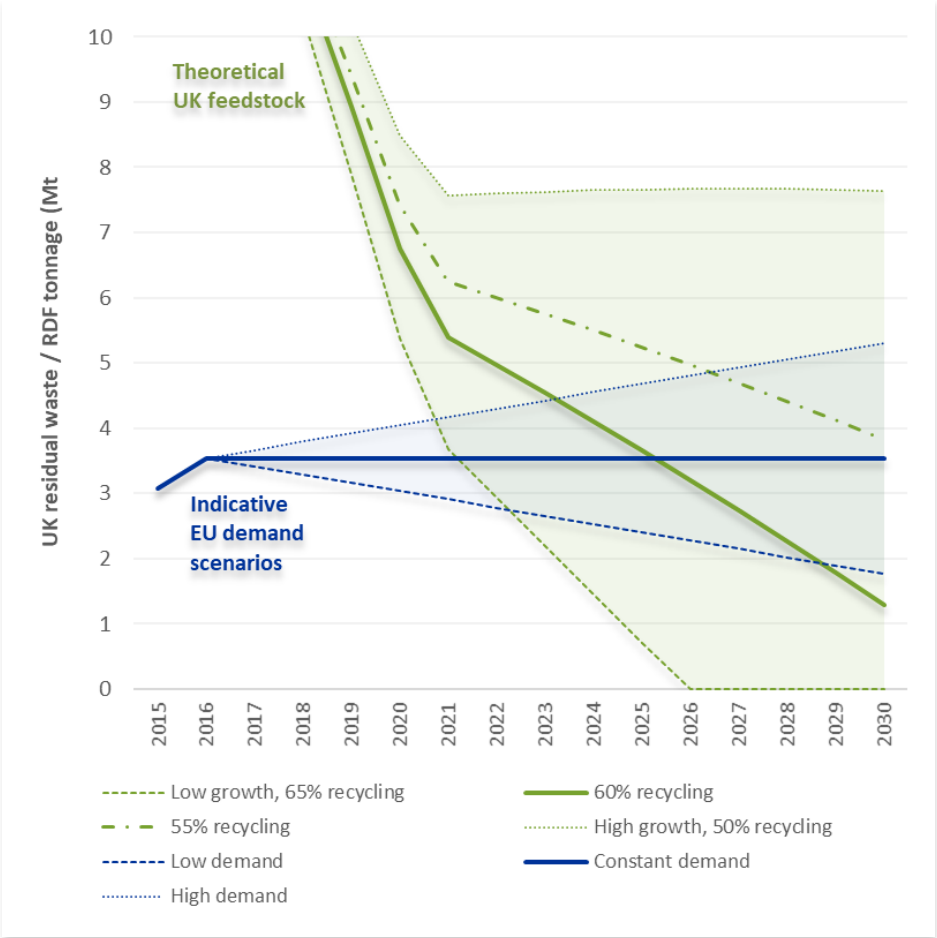
To inform understanding of the outlook for exports, SLR has developed mass balance projections for the waste sectors in the Republic of Ireland and the UK. In both countries, forecasts show that in the event that the EU CEP 2030 requirement for 60% recycling is achieved, RDF exports may contract significantly.

Notwithstanding this overarching finding, differing market conditions prevail in the Republic of Ireland and the four UK administrations. As shown in Figure 1-1 , it appears that in the Republic of Ireland new domestic EfW capacity has already begun to impact on export volumes, with further reductions expected in the early 2020s. Assuming that the Republic of Ireland achieves EU CEP recycling targets and planned domestic EfW capacity is developed, limited remaining residual waste will be available for export in the form of RDF.

Export volume modelling results for the UK are illustrated in Figure 1-. Here, the theoretical UK feedstock (shown in green) is equated to the projected UK capacity gap, with varying scenarios accounting for possible waste growth and recycling. The requirement for RDF from the EU (shown in blue) is then indicatively projected with scenarios at +/-50% relative to current levels, and a constant case. As shown, supply of residual waste feedstock does not currently directly limit exports from the UK. However,

assuming compliance with the EU CEP target of 60% recycling by 2030 (solid green line), constraint to residual waste feedstock supply is likely to put significant downward pressure on export levels. These findings are, however, highly contingent on recycling levels ultimately attained by the UK – as shown by the width of the residual waste forecast envelope (green shaded area).

Figure 1-5 – UK Gate Fees for Management of Residual Waste



7.0 How Should the Industry Position Itself?

Research Findings

A range of organisations across public and private sectors are affected by the RDF export market, and will be impacted by future changes in export pricing and volumes. Taking each type of organisation in turn, SLR has evaluated these impacts and put forward strategy considerations in the

context of the evolving RDF market. While this assessment is set out in full in the Presidential Reports, findings include the following:

- RDF exports provide a flexible and potentially economical solution for management of residual waste (for councils not contracted to domestic EfW).
- For Scottish local authorities, RDF export could present a rapidly deployable solution to meet the requirements of the 2021 ban on biodegradable waste to landfill. It should, however, be noted that some Scottish Councils may also opt to transport residual waste to landfills or EfW facilities in the North of England.
- In Northern Ireland, RDF exports potentially provide a relatively low cost disposal option in lieu of domestic EfW capacity. However, having the greatest reliance on RDF exports (when expressed on a per capita basis) Northern Ireland is also particularly vulnerable to fluctuations in demand, and the potential impacts related to Brexit as outlined above.
- In the event of rising RDF export costs (e.g. due to devaluation of the Pound or onerous customs requirements post-Brexit, regulatory infractions are likely to increase – particularly in relation to time limits on the storage of material as well as the possibility of 'orphaned' waste in the event that exporters become insolvent.
- In the longer term, assuming a decline in overall RDF export volumes, exporters may increasingly look to establish supply agreements with emerging domestic EfW capacity.

8.0 Headline Findings

Analysis of the RDF markets shows a variety of different factors at play in the Republic of Ireland and the four UK countries:

- The Republic of Ireland is likely to see a significant reduction in RDF export tonnages as new domestic EfW capacity is developed and recycling rates increase in line with the EU CEP.

- In England, build out of domestic EfW capacity may erode export tonnages, while future recycling levels are also pivotal to the long term outlook for exports. In the current absence of a national strategy to increase recycling rates (although this is expected shortly from the Government) it is not possible to project the future recycling rate with any certainty. However, overall it is clear that,

accounting for an increase in domestic EfW capacity, achievement of EU CEP recycling targets in future implies the cessation of large scale RDF exports.

- On a per capita basis, Northern Ireland has the greatest reliance on RDF exports and this reliance is likely to continue until domestic EfW projects are successfully developed. Current exports to the Republic of Ireland may be impacted by the post-Brexit border settlement.

- Scottish local authorities may rush to expand RDF exports to meet the 2021 ban on landfill of biodegradable waste – although some may also opt to comply via haulage of residual waste to EfW facilities or landfills in the North of England. In the longer term, Scottish residual treatment requirements are likely to be met by emerging Scottish EfW capacity.

- With the strongest recycling performance and two major EfW facilities in the North and South, Wales is likely to have very limited reliance on RDF exports. By specifically targeting residual waste treatment funding to domestic EfW projects, Welsh Government disincentivises export.

- In the case of the UK, there remains a risk that the impacts of Brexit may weaken the economics of RDF exports, for example as a result of currency fluctuation, import tariffs, or friction to export movements.