

# **A Deposit Return Scheme for Scotland**

## Full Business Case Stage 1 Addendum



**March 2020**

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## Executive Summary

The publication of the Full Business Case (FBC) Stage 1 for a Deposit Return Scheme (DRS) in Scotland followed the Scottish Government's announcement of a climate emergency in April 2019. The FBC Stage 1 set out the case for proceeding with an ambitious scheme to increase recycling, reduce littering, and cut emissions in Scotland.

The FBC Stage 1 follows the HM Treasury Five Case Business Model process, starting with the Strategic Outline Case (SOC), moving to the Outline Business Case (OBC) and onto the Full Business Case (FBC). This staged approach incorporates the five cases (Strategic, Economic, Commercial, Financial and Management) at each point but with increasing detail.

It was initially proposed that the FBC be developed in two stages, with Stage 1 providing the overarching framework for the preferred scheme design and commercial approach, and Stage 2 further developing the approach to, and delivery route for, the scheme.

We have carefully considered how best to give effect to HM Treasury guidance in providing a finalised Government view of the business case for DRS, to accompany the Regulations. The development of the Commercial Case at FBC Stage 1 concluded that, as a form of extended producer responsibility, the scheme should be operated by producers. The development of the Full Business Case should result from the procurement phase of the project, following negotiations with potential service providers and prior to the formal signing of contract(s). Those negotiations are a matter for industry, likely supported by a single scheme administrator, as opposed to Government. As such, the remaining stages of the business case process will fall to industry to develop.

From discussions with industry in the period since publication of the Full Business Case Stage 1, it is clear that a scheme administrator will only be established once the Regulations have been finalised. It is only at this point that they will have certainty about the nature of the legal obligations being placed on them.

The Scottish Government and Zero Waste Scotland, working with Deloitte, have nevertheless been working closely with representatives of the producer, wholesale and retail sectors to update key aspects of the Economic and Financial cases presented in the FBC Stage 1.

This includes an updated and refined analysis of the key areas that have been of interest to Parliament and stakeholders, namely the total cost, the handling fee and the producer fee, as well as the overall economic case for the scheme. In line with Treasury guidance, the figures allow for areas of remaining uncertainty through the use of optimism bias/sensitivity analysis. We have completed all of the analysis which we believe is feasible in advance of the creation of the scheme administrator.

The intention is that this analysis will be provided to industry to support them in progressing commercial negotiations, which will then form the basis for the business plan of a scheme administrator.

The figures presented in this document therefore represent the Government's final view of the business case for the scheme, ahead of the handover to industry leadership of the implementation process.

## 1 Modelling Assumptions – Summary of Changes

- 1.1 Since FBC 1 a number of figures relating to the scheme operating costs and overall NPV have been updated including:
  - Scheme administrator costs (driven largely by container number increases and changes to the handling fees)
  - Retailer costs (relating to installation, running and maintenance of automatic return points)
  - Regulatory costs, and
  - Carbon pricing.
- 1.2 The number of containers falling within scope of the scheme has been increased from 1.67 billion to 2.17 billion based on an updated estimate arrived at following further engagement with industry representatives. Additional adjustments to average weights for containers (for PET, aluminium, steel and glass), the proportion of drink to non-drink glass containers and the split between on-sale and off-sale containers have also been made based on stakeholder feedback. Resultant changes to the NPV for individual actors and overall for the scheme are summarised in Table 1 and presented in Section 2.
- 1.3 The carbon metric figures applied for the purposes of the FBC stage 1 have been refined to reflect the change in end use for materials and residual waste disposal route in the early 2020s to account for the delay to implementation of the landfill ban<sup>1</sup>.
- 1.4 Benefits to the public have increased since FBC Stage 1 following revisions to the value of carbon based on updated traded carbon values (£/tCO<sub>2e</sub>) published by the Department for Business, Energy and Industrial Strategy (BEIS).
- 1.5 The collection targets for target materials have been aligned to reflect those in the Regulations, setting a 70% target in the first full year, rising to 90% by year 3.
- 1.6 The optimism bias has been reduced from 41% to 20%, as a result of improved confidence in the input assumptions, giving a smaller range of costs.

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<sup>1</sup> The Scottish Government has committed to ensuring that no biodegradable municipal waste and no more than 5% of all waste goes to landfill by 2025.

**Table 1: Presentation of Scheme Design: Net Present Value (NPV)**

Actor	SCHEME DESIGN: 25 YEAR NPV (£) <sup>2</sup>			
	Costs (£m)	Benefits (£m)	Net benefit (£m)	
<b>Scheme Administrator</b>	(1,514-1,817)	1,836-2,139	322	<p>All of the costs of delivering the DRS scheme (scheme administrator) including logistics, counting infrastructure, staff and reimbursing return points via the handling fee.</p> <p><b>Due to the increase in container numbers since FBC Stage 1, the associated handling fee element has increased along with costs associated with logistics and fraud management.</b></p> <p>Benefits are the income streams for the scheme (unredeemed deposits, material sale, producer fee). <b>The revenue figures have risen since FBC Stage 1 as a result of the increase in unredeemed deposits (associated with a greater throughput of containers) and producer fees (balancing the increased handling fees)</b></p> <p>It is assumed income will broadly equal expenditure. The net benefit is a result of unredeemed deposits in years 1-5 being reserved until sufficient evidence has been accumulated to allow these to be treated as a revenue stream by the scheme administrator.</p>
<b>Return Points</b>	(937-1,125)	963-1,151	26	<p>All costs associated with operating a return point under return to any place of purchase (staff, value of space, purchase of Reverse Vending Machines (RVM) or other appropriate containerisation and utility costs) reimbursed via handling fee.</p> <p><b>An increase in costs since FBC Stage 1 has resulted from increased container numbers combined with refinements made to installation, running and maintenance costs of automated return points. This is countered with an increase in handling fees to maintain the net zero benefit.</b></p> <p><b>The realisation of a small net benefit since FBC Stage 1 is due to the estimated value of RVM advertising, a monetary benefit previously apportioned to the public.</b></p>

<sup>2</sup> Brackets around NPV figures indicate a negative value, i.e. these are costs.

<b>Producers / Supply Chain</b>	(824-1,150)	720	(104-430)	<p>Costs relate to the producer fee (to cover any shortfall in finances for the scheme administrator), upfront costs associated with the introduction of a market specific barcode, and ongoing costs associated with having to operate these additional Stock Keeping Units. This figure includes broader impacts across the supply chain such as changeovers, logistics, and increased stockholding.</p> <p>The benefit to producers involved in DRS is the avoided compliance costs that they would be required to pay in order to achieve compliance with the Circular Economy package, and to deliver the same outcomes against the four stated investment objectives.</p> <p><b>Increases to the producer fee since FBC Stage 1 have been driven by changes in container numbers and material revenue rates which have increased direct scheme costs. Increased benefit from revisions to estimated EPR scheme compliance costs, has reduced net costs over the 25-year period.</b></p>
<b>Local Authorities</b>	(46)	214	168	<p>Costs are driven by a combination of reduction in income and increased costs associated with sorting the remaining materials left in kerbside collections. The benefits to local authorities are collection efficiencies for both bin collections and from litter collections, and reduced costs for disposal of materials.</p> <p><b>A reduction in benefits has arisen since FBC Stage 1 due to changes in the split between DRS and non-DRS containers, resulting in more materials remaining at kerbside for collection</b></p>
<b>Commercial Premises</b>	0	23	23	<p>Business premises that are currently paying for the collection and disposal of material will realise savings, as the scheme administrator will provide this collection free of charge.</p> <p><b>A reduction in benefits has arisen since FBC Stage 1 due to changes in the split between DRS and non-DRS containers, resulting in more materials remaining at kerbside for collection, at a cost to the commercial premises.</b></p>
<b>Other Sectors</b>	(165)	151	(14)	<p><u>Private Waste Management companies:</u> The income generated from the provision of existing waste management services is expected to reduce, resulting in a reduction in profit. There will, however, be benefits realised through increased availability of resource which may be diverted to other activity. <b>The cost and benefits to private waste management companies has decreased as a result of the</b></p>

				<p><b>reduced weights of containers applied since FBC Stage 1, in turn impacting on collection costs and material income.</b></p> <p><u>RVM suppliers:</u> Costs are linked to the provision of services to return point operators undertaking automated returns. Income is generated through the charging of businesses to deliver this activity, resulting in an overall profit for these actors. <b>The cost and benefits to RVM suppliers have increased since FBC Stage 1 due to revised figures for installation and maintenance costs provided by industry.</b></p> <p><u>Regulators:</u> Costs are linked to staff time for enforcing the scheme. <b>The cost to regulators has been increased since FBC Stage 1 based on updated estimates provided by SEPA who will regulate the scheme.</b></p>
<b>Public</b>	(1,019)	1,187	168	<p>Costs are driven by:</p> <ul style="list-style-type: none"> <li>• individuals not claiming back their 20p deposits on containers (10% of containers over 25 years)</li> <li>• a financial value being placed on public time associated with returning containers to have the deposit redeemed. This is £10m per year.</li> </ul> <p>The benefits are avoided disamenity from reduced litter in towns and neighbourhoods, based on the large reduction in volume by removing a significant amount of drinks containers from the litter stream. Benefits also include the value of carbon reduction resulting from the Emissions Trading System (ETS) and non-ETS eligible carbon savings.</p> <p><b>Estimated costs to the public have increased since FBC Stage 1 due to the increase in container numbers and therefore associated value of unredeemed deposits.</b></p> <p><b>Benefits to the public have increased since FBC Stage 1 following revisions to the value of carbon based on current traded carbon values (£/tCO<sub>2e</sub>), provided by the Department for Business, Energy and Industrial Strategy (BEIS)<sup>3</sup></b></p>
<b>TOTAL</b>	<b>(4,505-5,322)</b>	<b>5,095-5,585</b>	<b>590-263</b>	

1.7 The scheme has a total net benefit of £590 million over the 25-year Net Present Value (NPV).

## 2 NPV Analysis – Summary of Changes

2.1 This section provides an overview of the changes to NPV to individual actors within the DRS, taking account of the updates made to underlying assumptions and figures since FBC Stage 1.

### 2.1 Scheme Administrator

2.2 The total costs of delivery of the scheme over 25 years is £1,514 million - £1,817 million and correspondingly the total benefit is £1,836 million - £2,139 million. No assumptions are made about how this accumulated balance is then distributed.

2.3 Operating expenditure has risen since FBC Stage 1, driven mainly by the impact of increased container numbers which has resulted in increased costs relating to logistics, processing (counting centre costs), and fraud. In addition, the revised assumptions adopted for the handling fee calculation have also increased scheme administrator costs.

2.4 The range of figures associated with these costs are shown in Table 2 below:

**Table 2: Scheme Administrator costs**

<b>Scheme Administrator Tasks</b>	<b>Cost Range</b>
<b>Handling Fee to Retailers</b>	(£937 million-£1,125 million)
<b>Cost of Collection Logistics</b>	(£333 million-£400 million)
<b>Staff and Infrastructure Costs</b>	(£135 million-£162 million)
<b>Fraud</b>	(£109 million-£131 million)
<b>Total</b>	(£1,514 million-£1,817 million)

2.5 While the main income streams for the scheme administrator remain unchanged since FBC Stage 1, the proportion coming from unredeemed deposits has increased (due to increased container numbers) and the revenue from the sale of materials has decreased (due to adjustment in material market values). The producer fee contribution has risen to balance increased return point handling fees.

2.6 The range of figures associated with these benefits are shown in Table 3 below:



**Table 3: Scheme Administrator benefits**

<b>Scheme Administrator Tasks</b>	<b>Cost Range</b>
<b>Unredeemed deposits</b>	£854 million
<b>Revenue from material sales (selling individual materials collected for recycling)</b>	£277 million
<b>Producer Fee (producer financial contribution to scheme costs)</b>	£705 million-£1,008 million
<b>Total</b>	£1,836 million-£2,139 million

2.7 Over the course of Year 0 to Year 5, referred to as the Observatory Period, the scheme administrator will be collecting evidence on consumer behaviour to support the establishment of an assumption that reflects the amount of deposits that are never to be redeemed in a given period, and therefore can be recognised as revenue. Unredeemed deposits are therefore reserved in years 1-5, resulting in a £322 million increase in the producer fee contribution required to cover the scheme costs. No assumptions are made about how this accumulated balance is then distributed. However it is clear that providing the necessary evidence to allow access to this revenue stream would dramatically reduce producer costs.

## **2.2 Return Points**

2.8 The total cost to return points of facilitating returns over 25 years is £937 million - £1,125 million and the total benefit is £963 million - £1,151 million. The net benefit is therefore £26 million, which is the estimated value of RVM advertising space previously apportioned to society as a benefit.

2.9 Return point costs have increased since FBC Stage 1 due to the increased throughput of containers, refinements to the assumptions concerning installation, running, and maintenance costs of automated return points and updates to staffing costs, following industry and supplier feedback. This is balanced with an equivalent increase in handling fees.

2.10 This results in the return profile shown in Table 4.

## **2.3 Producers**

2.11 The total cost to Producers from implementation of the scheme over 25 years is £824 million - £1,150 million and correspondingly the total benefit is £720 million. The net cost is therefore £104 million - £430 million.

2.12 Increases to the producer fee since FBC Stage 1 have been driven by the increase in the return point handling fee and a reduction in the sale of materials revenue, in combination requiring a greater contribution from producers to balance costs.

2.13 The range of figures associated with these costs is shown in Table 5. The producer fee balancing figure incorporates the £322 million of unredeemed deposits which the scheme administrator must reserve throughout years 1-5. This results in an increase of £322m to the producer fee across the first 5 years.

**Table 4: Return profile**

Return Point Type	Automatic	Manual
No of containers returned per year	1,661 million	293 million
Return point costs	(£937 million - £1,125 million)	
Handling Fee	£937 million - £1,125 million	
Value of RVM advertising space	£26 million	N/A
Total net benefit	£26 million	£0

**Table 5: Producer costs**

Producer Costs	Cost Range
Set-up costs for establishing separate label	(£46 million-£55 million)
Ongoing costs associated with creation of two labels for UK market	(£73 million-£88 million)
Producer Fee	(£705 million-£1,008 million)
Total	(£824 million- £1,150 million)

## 2.4 Local Authorities

2.14 The total cost to Local Authorities over 25 years, as a result of DRS, is £46 million and correspondingly the total benefit is £214 million. The net benefit is therefore £168 million. £137 million of these benefits come in the form of reduced disposal costs.

2.15 There has been a reduction in benefits since FBC Stage 1 due to changes in the split between DRS and non-DRS containers, which has increased the quantity of materials remaining at kerbside for collection, and the associated costs for local authorities.

## **2.5 Commercial Premises**

- 2.16 There are £0 costs to commercial premises over 25 years and £23 million in benefits. The net benefit is therefore £23 million.
- 2.17 There has been a reduction in the net benefit since FBC Stage 1 due to changes in the split between DRS and non-DRS drinks containers, resulting in a smaller proportion of materials being collected free of charge by the scheme administrator.

## **2.6 Other Sectors**

- 2.18 Costs to regulators over 25 years are £17.3 million and there are £0 benefits, resulting in a net cost of £17.3 million. The costs are staff and overhead costs associated with ensuring compliance across all actors involved in DRS. Costs primarily fall to the Scottish Environment Protection Agency (SEPA) (£16.9 million), with the remaining amount (£0.4 million) accounting for ad hoc contact with other regulators such as Fire and Police services.
- 2.19 The cost to regulators has increased since FBC Stage 1 based on updated estimates provided by SEPA who will regulate the scheme. As there are no financial benefits, this has resulted in an increase to the net reduction in NPV over the 25-year period.
- 2.20 Commercial waste management operator costs over 25 years are £23.4 million and the benefits are £22.7 million, resulting in a net cost of £0.7 million. The cost and benefits to private waste management companies has decreased as a result of the reduced weights of containers applied since FBC Stage 1, in turn impacting on collection costs and material income. This has resulted in a small decrease in overall net cost over the 25-year period.
- 2.21 RVM service provider costs over 25 years are £124 million and the benefits are £128 million, resulting in a net benefit of £4 million. The cost and benefits to RVM suppliers has increased since FBC Stage 1 due to revised figures for installation and maintenance costs provided by industry. This has resulted in a small increase in net benefit over the 25-year period.

## **2.7 Public**

- 2.22 The total cost of the scheme to the public over 25 years is £1,019 million and the total benefit is £1,187 million. The net benefit is therefore £168 million.
- 2.23 Costs to the public have increased slightly since FBC Stage 1 due to the increase in container numbers and the corresponding value of unredeemed deposits.

2.24 Benefits to the public have increased since FBC Stage 1 following revisions to the value of carbon based on current traded carbon values (£/tCO<sub>2e</sub>), provided by BEIS<sup>4</sup>.

2.25 The figures associated with these costs and benefits are (Table 6):

**Table 6: Impact on the public**

Impact on Public	Costs	Benefits
Unredeemed deposits	(£854 million)	N/A
Value of public time	(£165 million)	N/A
Improved amenity resulting from the reduction in litter	N/A	£998 million
Monetised benefit from carbon emission reduction	N/A	£190 million
<b>Total</b>	<b>(£1,019 million)</b>	<b>£1,187 million</b>

## 2.8 Sensitivities

2.26 Section 3.4 sets out the Highest Foreseeable Cost Case modelled on industry feedback, where the impact of a 25% increase in the number of RVMs and an increase in lost staff time per machine from 1.5 hours to 7 hours per week is calculated.

2.27 To assess the sensitivity of the costs to these factors, Table 7 summarises the resultant Net Present Value under the Highest Foreseeable Cost Case. Even at this significantly higher cost level the 25-year NPV of DRS is still positive.

**Table 7: Highest Foreseeable Cost Case based on industry feedback: Net Present Value**

Actor	SCHEME DESIGN: 25 YEAR NPV (£)		
	Costs (£m)	Benefits (£m)	Net benefit (£m)
<b>Scheme Administrator</b>	(2,008)	2,330	322
<b>Return Points</b>	(1,403)	1,429	26
<b>Producers / Supply Chain</b>	(1,317)	720	(597)
<b>Local Authorities</b>	(46)	214	168
<b>Commercial Premises</b>	0	23	23
<b>Other Sectors</b>	(165)	151	(14)
<b>Public</b>	(1,019)	1,187	168
<b>TOTAL</b>	<b>(5,959)</b>	<b>6,054</b>	<b>96</b>

<sup>4</sup> [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/794188/2018-short-term-traded-carbon-values-for-modelling-purposes.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/794188/2018-short-term-traded-carbon-values-for-modelling-purposes.pdf)

### 3 Financial Case – Summary of Changes

#### 3.1 Approach

- 3.1 As a form of extended producer responsibility, the costs of operating DRS will largely be borne by drinks producers. We expect producers to opt to discharge their obligations through a single scheme administrator funded by a per-container producer fee. The FBC Stage 1 therefore presented the Financial Case from the perspective of the scheme administrator; this Addendum to the FBC follows the same approach.
- 3.2 The Financial Case continues to treat deposit inflows and outflows in a similar way to the Norwegian DRS, recognising the net benefit of these flows, i.e. the value of unredeemed deposits, as revenue in the profit and loss account of the scheme administrator and applying it against scheme expenses. It will be for the scheme administrator to finalise the accounting for the company.
- 3.3 Since the publication of FBC Stage 1, further work has been undertaken to gather additional evidence for the key assumptions that drive the revenue and costs of the scheme. This work has included a series of workshops with industry to better understand their plans for responding to the Regulations, further engagement with RVM manufacturers and ongoing discussions with operational international schemes.
- 3.4 Where there was confidence that the evidence provided was robust, an update has been made to the financial modelling assumptions (as set out in section 3.2) to arrive at a Revised Base Case. Where the evidence was considered less robust, an alternative scenario has been modelled to provide a range of possible outturns for the cost of the scheme (as set out in section 3.4).

#### 3.2 Modelling Assumptions – Summary of Base Case Changes

- 3.5 Table 8 summarises those assumptions that have been updated as described at paragraph 3.4 and the additional evidence which supported the change. All other assumptions remain in line with those described in section 4.3 of FBC Stage 1.

**Table 8: Financial Modelling Assumption Movements**

Assumption	FBC Stage 1	Revised Base Case	Evidence
<b>Key Drivers</b>			
Container Numbers	1.67bn	2.17bn	British Soft Drinks Association submission as revised by Eunomia analysis.

Assumption	FBC Stage 1	Revised Base Case	Evidence
% Materials Eligible for sale	PET 97% Alumin/Steel 97% Glass 97%	PET 97% Alumin/Steel 97% Glass 95%	Stakeholder agreement to PET and aluminium/steel assumptions. Revised assumption for glass based on additional evidence provided by British Glass.
Sale of materials (£/tonne)	PET £200 Alumin/Steel £1,300 Glass - Flint £17, Green £6, Brown £12	PET £200 Alumin/Steel £1,000 <sup>5</sup> Glass - Flint £20, Green £15, Brown £17	Stakeholder feedback validated PET and provided evidence to support increase to glass assumptions. Evidence was also identified to support a reduction in the aluminium/steel assumptions based on Eunomia research.
Average Container Weights	PET 0.033kg Alumin/Steel 0.017kg Glass 0.350kg	PET 0.027kg Alumin/Steel 0.014kg Glass 0.270kg	Reduction in container weights based on further information provided by British Glass, Eunomia research and Transparency market research.
Producer fee (Methodology)	Average annual contribution by producer	Producer fee as offset by material specific revenues	Agreed with producers (and consistent with other international examples) that the producer fee should consider the value of material.
<b>Handling Fee</b>			
% Split Lease v Acquisition	100% leased	60% leased 40% acquisition	Based on stakeholder evidence. This has a marginal impact as a result of a reduction in the level of lease premium being applied
Installation cost per unit	£700 per unit (one-off)	£1,500 per unit (one-off)	Range provided from stakeholders from £1,000 to £8,000. Clearest evidence provided was in the range of £1,000 to £2,000 including direct evidence of experience in other countries. Mid-point of £1,500 adopted.
Maintenance cost per unit	£1,900 per unit pa	£2,500 per unit pa	Range provided from stakeholders suggested reasonably consistent view of £2,000 to £3,000, based on international experience and specific RVM contracts. Mid-point adopted.
Running cost per unit	£150 per annum	£300 per annum	Stakeholders indicated higher costs but were often also including maintenance costs (see above) in estimates. Acceptance of increase to costs based on stakeholders experience elsewhere. The revised assumption does not have a significant overall impact.

<sup>5</sup> It is assumed that 99% of the containers in this category will be aluminium and therefore the price is based on aluminium as opposed to steel.

Assumption	FBC Stage 1	Revised Base Case	Evidence
Lost staff time	<ul style="list-style-type: none"> <li>£690 per return point per annum</li> <li>1.25 hours per week x £10.66 per hour x 52 weeks</li> </ul>	<ul style="list-style-type: none"> <li>£920 per return point per annum</li> <li>1.5 hours per week x £11.80 per hour x 52 weeks</li> </ul>	<p>2 key movements:</p> <ul style="list-style-type: none"> <li>The wage-rate assumption has moved from £10.66 per hour to £11.80 per hour (including on-costs assumption of 25%). The base rate reflects the median hourly wage for <i>'Retail sale in non-specialised stores with food, beverages or tobacco predominating'</i> on the basis of evidence from the Office for National Statistics (ONS);</li> <li>Lost time associated with operation of a return point has moved from c. 1 hour a week to 1.5 hours per week. A range of estimates were received from stakeholders, ranging from 10 min through 154 minutes per day (one retailer suggested 1 FTE would be required). Evidence was provided based on trials undertaken to date and experience in other countries. The final position of 1.5 hours aligns more closely with evidence provided by RVM Manufacturers.</li> </ul>
<b>Non-Operating</b>			
Interest on borrowing	3%	10%	It has been recognised through further discussions that commercial lenders would not fully fund any borrowing, and there is a preference from producers not to fully fund set-up costs of the scheme. The expectation is therefore that the cost of borrowing will be a combination of equity from producers at a higher rate, and commercial borrowing at a lower rate. The increased assumption of 10% is considered reasonable to apply although the final figure will be subject to refinement as discussions with lenders/producers continue.
Corporation Tax	Nil	£0.7m	In light of additional clarity on the likely structure of the scheme administrator, it is deemed appropriate to apply corporation tax to trading profit.
<b>Operating Costs</b>			

Assumption	FBC Stage 1	Revised Base Case	Evidence
Workforce Costs and General Operating Costs – Counting Centres	£3.8m pa (average y6-9)	£4.8m pa (average y6-9)	A 30% increase in costs has been adopted to reflect the increase in container numbers passing through the scheme.
Cost of Fraud	£5.3m pa (average y6-9)	£6.9m pa (average y6-9)	A 30% increase in costs has been adopted to reflect the increase in container numbers passing through the scheme.
Logistics costs	£16.5m pa (average y6-9)	£20.2m pa (average y6-9)	The logistics cost is derived by multiplying the volume of material in tonnes by a respective £/tonne rate. The movement reflects the 30% increase in container numbers but this is partially offset by the reduction in the assumed weights of containers.
Regulator compliance Fee	£0.250m per annum	£0.965m per annum	Movement based on updated information provided by SEPA.

Source: Zero Waste Scotland (ZWS) Analysis

### 3.3 Financial Impact

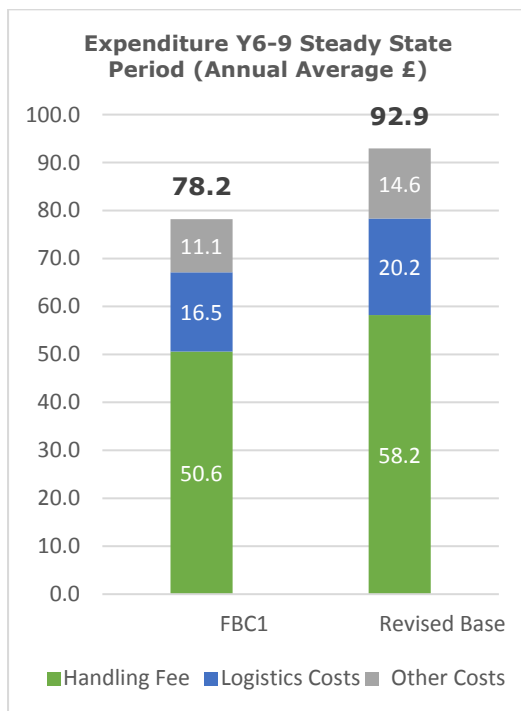
3.6 The impact of these updated assumptions is described below.

#### Operating Costs

3.7 Current modelling indicates an increase in average annual expenditure during steady state from £78.2m to £92.9m. This represents an increase of £14.7m, or 19%. Movements in the annual cost base can be attributed to the increase in container numbers (30%). However, this is partially offset by the decrease in assumed container weight assumptions which reduces the impact on costs that are calculated on a tonnage basis i.e. logistics fees.



**Figure 1: Steady State Expenditure FBC1 versus Revised Base**



Source: Deloitte Analysis

- 3.8 Logistics costs have increased by £3.7m (22%). While a lower £/tonne cost has been applied compared to FBC Stage 1, overall costs have increased due to a 30% increase in the assumed number of containers, partially offset by a reduction in the assumed weight per container.
- 3.9 Other costs have broadly increased in proportion to the container number increase.
- 3.10 The handling fee has increased by £7.6m (15%); taking into account the 30% increase in container numbers, this results in a reduced pence-per-container figure. The cost increases are mainly driven by increases to the assumptions for maintenance costs (£4.6m increase), running costs (£1.2m increase), lost staff time compensation (£0.9m increase) and installation costs (£0.6m increase). These costs reflect estimates prior to commercial negotiations and are derived through consultation with industry, RVM manufacturers and the experience of other jurisdictions.
- 3.11 As the total costs are being recovered over a higher number of containers, the handling fee decreases from the FBC Stage 1 assumption of 3.1p per container for automated returns to 2.8p per container. The weighted average handling fee for manual return also decreases from 1.5p at FBC Stage 1 to 1.1p. This is due to staff-time compensation no longer being applied where drinks are sold exclusively for on-site consumption, reducing the overall costs to be compensated. This is consistent with the approach taken to the handling fee in the DRS Regulations.

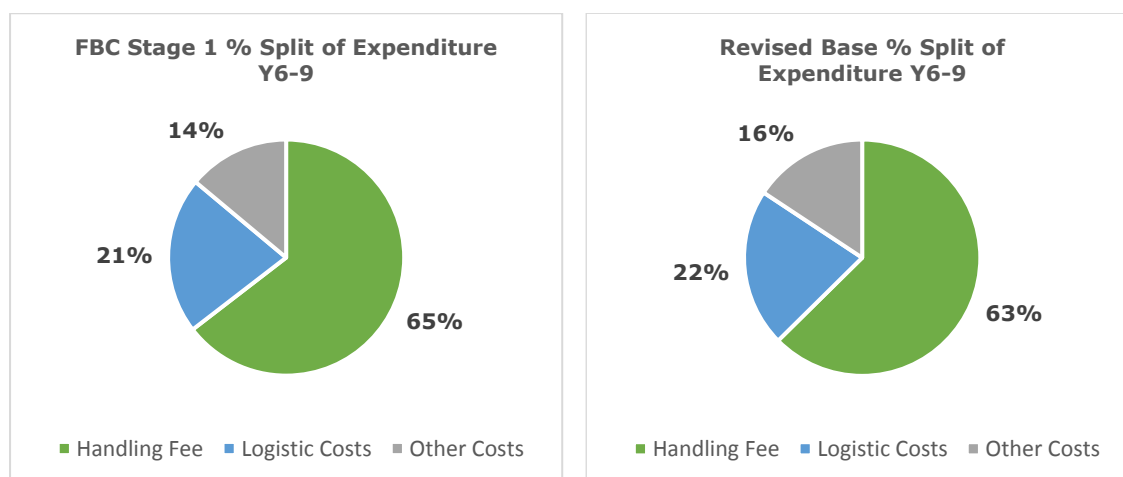
**Table 9: Summary Handling Fee Movement**

Category	FBC Stage 1	Revised Base Case	Movement (£)	Movement (%)
Containers in System	1.67bn	2.17bn	0.5bn	30%
Containers Returned	1.53bn	1.93bn	0.4bn	26%
Handling Fee	£50.6m	£58.2m	£7.6m	15%
Auto Handling Fee (p/container)	3.1p	2.8p	(0.3p)	(10%)
Manual Handling Fee (p/container)	1.5p	1.1p	(0.4p)	(27%)

Source: Deloitte Analysis

3.12 The overall split of operating costs remains broadly consistent with FBC Stage 1. The largest cost remains the handling fee, at 63% of the overall operating costs (although this is a marginal reduction from FBC Stage 1); this is a result of handling fee costs per container decreasing while the logistics and other costs have broadly remained static on a per-container basis.

**Figure 2: % Split of Expenditure during Steady State**



Source: Deloitte Analysis

Source: Deloitte Analysis<sup>6</sup>

## Non-Operating Costs

3.13 Non-Operating costs relate to financing costs, depreciation and tax.

<sup>6</sup> Note, values in this chart do not equate to 100% due to rounding.

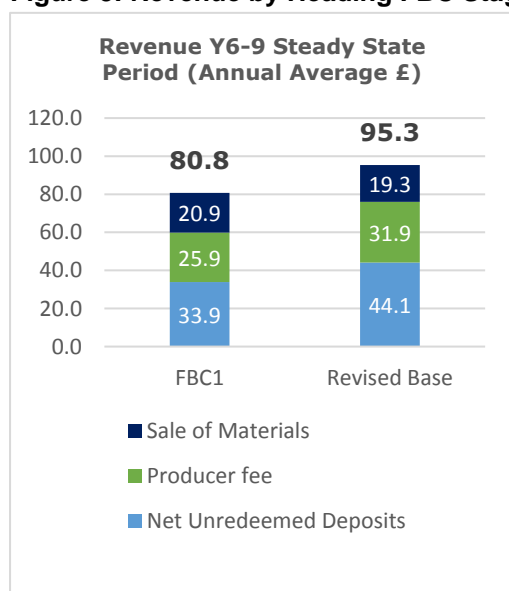
3.14 The average steady-state financing costs have increased from £2.9m<sup>7</sup> to £3.6m (principal repayment and interest). This is as a result of the assumed borrowing rate increasing from 3% in FBC Stage 1 to 10%. The figure of 10% better aligns with the expectation of a blended rate, reflecting a funding solution that will require both member loans and commercial borrowing.

3.15 Depreciation costs remain consistent with FBC Stage 1.

3.16 No tax costs were reflected in FBC Stage 1. The financial model now reflects an assumption that, as a Company Limited by Guarantee, corporation tax will be payable on trading profits. While these are minimal at present, a tax cost of £0.7m per annum during steady state has been assumed.

## Operating Revenue

**Figure 3: Revenue by Heading FBC Stage 1 vs. Revised Base**



Source: Deloitte Analysis

3.17 Current modelling indicates an increase in average annual revenue during steady state from £80.8m to £95.3m (£14.6m, 18%). This is driven by the increase in the costs of the scheme administrator which necessitate additional revenue to break even.

3.18 Revenue from sale of materials has reduced by £1.6m (8%) from FBC Stage 1. While container numbers have increased, this has been offset by reductions in the assumed weights and prices of materials (per section 3.2).

3.19 Net Unredeemed deposits have increased by £10.2m to £44.1m per annum in line with the increase in container numbers (30%).

3.20 The producer fee is in effect the balancing item for revenue purposes. Total costs have increased by £14.6m and revenue from the sale of materials has fallen by £1.6m. Net unredeemed deposits increase by £10.2m (directly in proportion to the increase in container numbers). The remaining £5.9m requirement is funded from an increased producer fee (from £25.9m to £31.9m per annum). This amounts to a 23% increase in the revenue to be raised from the producer fee; as this is less than the 30% increase in container numbers, the producer fee per container falls from 1.5p to 1.4p.

<sup>7</sup> Principal element is consistent between FBC Stage 1 and Revised Base at £2.8m

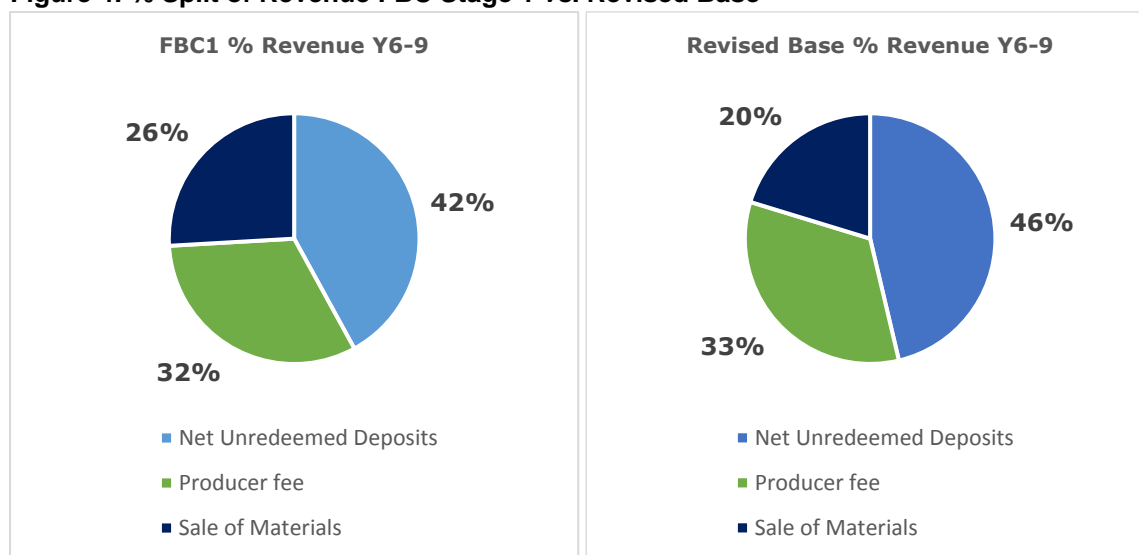
**Table 10: Summary Producer Fee Movement**

Category	FBC Stage 1	Revised Base Case	Movement (£)	Movement (%)
Containers in System	1.67bn	2.17bn	0.5bn	30%
Producer Fee	£25.9m	£31.9m	£5.9m	23%
Producer Fee (p/container)	1.5p	1.4p	(0.1p)	(7%)

Source: Deloitte Analysis

3.21 The proportion of revenue funded by unredeemed deposits increases to 46% during the steady state period, compared to 42% in FBC Stage 1. This offsets the reduction in the sale of materials (from 26% to 20%), so the producer fee continues to account for around 33% of total revenue.

**Figure 4: % Split of Revenue FBC Stage 1 vs. Revised Base**



Source: Deloitte Analysis

Source: Deloitte Analysis<sup>8</sup>

3.22 In FBC Stage 1, the producer fee was calculated on a ‘whole of scheme’ basis in order to understand the contribution required to achieve full cost recovery. Further work has been undertaken subsequent to FBC Stage 1 to understand the impact of calculating the producer fee by material type. This approach takes account of the contribution that different material types make to the scheme in terms of material sales revenues. The methodology may be further developed by any scheme administrator going forward but initial figures have been identified per Figure 5.

<sup>8</sup> Note, values in this chart do not equate to 100% due to rounding.

**Figure 5: Producer Fee by Material Type in Steady State**

Based on 2.17b Containers (Revised Base Case)

Producer Fee by Material Type		
	Observatory Period	Steady State
Non-material specific	3.1 pence	1.4 pence
PET	3.4 pence	1.8 pence
Aluminium / Steel	2.6 pence	0.8 pence
Glass (average)	3.4 pence	1.8 pence

All estimates as per Scottish DRS Full Business Case Analysis Stage 2

Source: Deloitte Analysis

## Non-Operating Revenue

3.23 Recognising unredeemed deposits as revenue results in significant cash balances being built up by the scheme administrator during the observatory period. It is assumed that interest can be earned on this cash balance. During FBC Stage 1 the average cash balance during steady state was around £200m, resulting in interest earned of £2.0m per annum. As a result of the increased container numbers and proportionate increase in unredeemed deposits, the average cash balance held rises to around £360m, increasing interest earned to £3.6m.

## Profit and Loss

3.24 Table 11 sets out the resultant average Profit and Loss (P&L), including a comparison between the FBC Stage 1 and the Revised Base Case position.

3.25 In summary, the overall annual revenue required to fund the scheme has increased from the FBC Stage 1 by £14.6m (18%) to £95.3m. This is mainly driven by an increase in the operating costs of £14.7m (19%), although this is partially offset by movement on the non-operating costs and revenues. The producer fee is set to provide a profit after tax matched to the principal repayments on borrowing (£2.9m during steady state).

**Table 11: Summary P&L Movements from FBC Stage 1 to Revised Base Case**

£m (Nominal)	FBC1 (Ave Y6-9) (£m)	Revised (Ave Y6-9) (£m)	Movement (£m)	Movement (%)
<b>Revenue</b>				
Deposits Received from Producers	339.4	441.4	102.1	30%
Sale of Materials	20.9	19.3	(1.6)	-8%
Producer Fee	25.9	31.9	5.9	23%
<b>Total Revenue</b>	<b>386.2</b>	<b>492.6</b>	<b>106.4</b>	<b>28%</b>
<b>Expenses</b>				
Deposits Unredeemed and Outstanding (Deposit Liability fund)	-	-	-	-
Deposits Paid to Retailers (Cash Reimbursement)	(305.4)	(397.3)	(91.9)	30%
Handling Fee	(50.6)	(58.2)	(7.6)	15%
Logistics Costs - Collection - Automatic	(12.9)	(15.8)	(2.8)	22%
Logistics Costs - Collection - Manual	(3.6)	(4.4)	(0.8)	22%
Workforce Costs - Counting Centres	(2.6)	(3.3)	(0.7)	29%
General Operating Costs - Counting Centres	(1.2)	(1.5)	(0.3)	29%
System Administration Costs	(1.3)	(1.3)	-	-
Cost of Fraud	(5.3)	(6.9)	(1.6)	30%
Communications	(0.5)	(0.5)	0.0	0%
Regulatory Compliance Fee	(0.3)	(1.1)	(0.8)	273%
<b>Total Expenses</b>	<b>(383.6)</b>	<b>(490.2)</b>	<b>(106.6)</b>	<b>28%</b>
<b>EBITDA</b>	<b>2.6</b>	<b>2.4</b>	<b>(0.2)</b>	<b>-7%</b>
Depreciation	(1.5)	(1.6)	(0.0)	2%
Interest paid	(0.2)	(0.9)	(0.8)	521%
Interest received	2.0	3.6	1.6	82%
<b>EBT</b>	<b>2.9</b>	<b>3.5</b>	<b>0.7</b>	<b>22%</b>
Tax	-	(0.7)	(0.7)	-
<b>Profit after tax</b>	<b>2.9</b>	<b>2.9</b>	<b>(0.0)</b>	<b>-1%</b>

Source: ZWS Analysis

Note: Total Revenue includes the deposit income and Total Expenses includes deposit expenditure, which results in the differences from the figures set out in Figure 1 and Figure 3. The difference between Deposits Received from Producers (£441.4m) and Deposits paid to Retailers (£397.3m) is £44.1m. The £44.1m plus the Sale of Materials (£19.3m) and Producer Fee (£31.9m) totals £95.3m as reflected in Figure 3. The total expenses of £490.2m less the deposits paid to retailers (£397.3m) gives operating costs of £92.9m as reflected in Figure 1.

## 3.4 Sensitivities

3.26 In addition to the Revised Base Case position outlined through this document, an alternative scenario has been considered that examines the impact of changes to some key assumptions.

3.27 The Highest Foreseeable Cost Case based on industry feedback assumes the number of RVMs increases to 3,888 (25% increase), broadly in proportion to the increase in container numbers. In addition, it also reflects a higher assumption for compensation for lost staff time. This increases from 1.5 hours per week to 7 hours per week. It should be noted that the evidence underpinning these assumptions is considered less robust than that adopted for the Revised Base Case position.

3.28 The outputs of this scenario are set out below:

**Table 12: Scenario Summary Outputs**

£m (Nominal)	Scenario - Foreseeable High			
	Revised Base	Foreseeable High Scenario	Movement	Movement (%)
Revenue	95.3	123.7	28.3	29.7%
Operating Costs	(92.9)	(121.3)	(28.3)	30.5%
Non-Operating Costs	1.2	1.2	(0.0)	0.0%
Tax	(0.7)	(0.7)	0.0	0.0%
Profit after tax	2.9	2.9	-	0.0%
Handling Fee	(58.2)	(87.6)	(29.4)	50.6%
Handling fee (p/container) (automatic)	2.8	4.3	1.5	54.2%
Handling fee (p/container) (weighted-average manual)	1.1	1.1	(0.0)	-1.7%
Producer Fee	31.9	60.2	28.3	89.0%
Producer Fee (p/container)	1.4	2.7	1.3	89.0%
% of Revenue from Unredeemed Deposits	46.7%	35.7%		-11.0%

Source: ZWS Analysis

Note: Total revenue and operating costs reconcile to Figure 1 and Figure 3. The differences from Table 11 relate to the Deposit inflow and outflow being combined to reflect the 'Unredeemed Deposit Revenue' figure of £44.1m. Non-operating costs are the total of Depreciation, Interest Paid and Interest received in Table 11.

3.29 Under the Highest Foreseeable Cost Case scenario, handling fee costs rise by £28.3m. This increases the per-container figure from 2.8p to 4.3p. This is funded in full by an increased producer fee, resulting in an increase from 1.4p to 2.7p. The final costs of the scheme will be the responsibility of the scheme administrator and will be dependent on the negotiations with producers and retailers to agree an acceptable position for the handling fee and producer fee.



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