A Deposit Return Scheme for Scotland

Strategic Outline Case

Scottish Government
Riaghaltas na h-Alba
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2. THE STRATEGIC CASE

Overview

The strategic business case for Scotland's Deposit Return Scheme will deliver on national outcomes 12 and 14:

We value and enjoy our built and natural environment and protect it and enhance it for future generations.

We reduce the local and global environmental impact of our consumption and production

Programme for Government 17-18

A Nation with Ambition[1] – The Government's Programme for Scotland 2017-18, published in September 2017, commits to developing a deposit return scheme for drinks containers for roll-out across Scotland. The scheme will be tailored to meet Scotland's specific needs, and with the specific aims of increasing recycling rates and reducing littering.

Making Things Last

Scotland's first circular economy strategy[2] sets out the Scottish Government's priorities for moving towards a more circular economy – where products and materials are kept in high value use for as long as possible. This will result in the following benefits to Scotland:

- The environment – cutting waste and carbon emissions and reducing reliance on scarce resources;
- The economy – improving productivity, opening up new markets and improving resilience, with potential savings of £500 million to £800 million per year identified in the food and drink and broader bio-economy sectors; and
- Communities – more, lower cost options to access the goods we need, with opportunities for social enterprise.

The section on Recycling notes that action is driven by long-term Scottish targets to recycle 70% of all waste, and to send no more than 5% of all waste to landfill, both by 2025. The strategy states that the role that a Deposit Return Scheme could play in Scotland will be further considered.

Towards a Litter-Free Scotland

Towards a Litter-Free Scotland[3]: A strategic approach to higher quality local environments, is Scotland's first national litter strategy with a focus on litter prevention. This will be delivered by encouraging people to take personal responsibility by activities related to infrastructure, information and enforcement.

[1] A Nation with Ambition: The Government's Programme for Scotland 2017-18
[2] Making Things Last, a Circular Economy Strategy for Scotland
[3] Towards a Litter-Free Scotland, Scotland's National Litter Strategy

The aim of the strategy is to reduce the estimated £46 million of public money spent removing litter and flytipping from the environment each year and the wider negative impacts of litter; at least a further £25 million in costs on our society and economy. It will also enable the lost value of resources to be recovered; littered material could be worth at least £1.2 million a year.

Marine Litter Strategy

A Marine Litter Strategy for Scotland[4], was launched in 2014 as a sister document to Towards A Litter-Free Scotland, focused on protecting Scotland's coastal environment as a major resource. This will contribute to collaborations under the OSPAR Convention and the Marine Strategy Framework Directive.

Other legislation and strategies informing our work

The introduction of a Deposit Return Scheme for Scotland will contribute to objectives set out in the **Climate Change (Scotland) Act 2009[5], and the Climate Change Plan, Third RPP[6].** Scottish Government's proposals for a Climate Change Bill in 17-18 will set even more ambitious targets for the reduction of greenhouse gas emissions and ensure that obligations under the Paris Agreement are met.

Resource use and waste generation are recognised as key sources of greenhouse gas generation and the Scottish Government reports on progress against both territorial and consumption emissions.

United Nations Draft Resolutions on **Marine Litter and microplastics[7] (2017)** and **Management of Marine Debris**[8] (2014), both reference the role that Deposit Return Schemes can have on preventing the harmful escape of plastics into marine environments.

In 2015, the Scottish Government signed up to support the **United Nations Sustainable Development Goals[9]**. The ambition behind the goals is to end poverty, protect the planet and ensure prosperity for all as part of a new sustainable development agenda. A Deposit Return Scheme will have a positive impact on a number of these goals, most explicitly Goal 12: Responsible Consumption and Production.

The purpose of this paper is to articulate why an intervention is required, the objectives that any intervention should deliver and assess a broad range of options against these objectives. It will then propose a shortlist of options that best meet the agreed objectives for full analysis at the next stage, the development of an Outline Business Case

[4] A Marine Litter Strategy for Scotland
[5] Climate Change (Scotland) Act 2009
[6] Climate Change Plan: The Third Report on Proposals and Policies 2018-2032
[7] The United Nations Environment Programme (December 5, 2017) Draft resolution on marine litter and microplastics
[8] The United Nations Environment Programme (November 7, 2014) Draft resolution on Management of Marine Debris
[9] UN Sustainable Development Goals

3. THE NEED

Current recycling rate

Scotland's household recycling rate has increased substantially in the last decade. The latest figures, published in September 2017[10] by the Scottish Environment Protection Agency, confirm that in 2016 the recycling rate reached 45.2%.

This has been driven by substantial investment by central and local government in kerbside collections. The result has been a dramatic increase in the number of households who have access to recycling facilities. All 32 Local Authorities are now nearing completion of these rollouts, covering most of the properties in their area.

The rate of growth, has however, been slowing. Since 2014, and the introduction of a new methodology for calculating recycling rates, it has only increased by 2.4%. A complex range of factors contribute to this limited improvement and it is clear that further interventions are required to stimulate growth in recycling rates, in order to achieve national recycling targets for 2025 and beyond.

Target material capture rate

As well as the above observations on the household recycling rate, the capture rates for those materials potentially within scope of a Deposit Return Scheme demonstrate that there is scope for improvement, as shown in the table below.

Focusing on drinks containers, there are limitations in the available Scottish specific data in relation to sales, waste by material type and material reprocessing. Nonetheless, using a number of sources[11], Zero Waste Scotland estimate the following capture rates ranges:

Target Containers	Current Scottish Recycling Rate Range
Plastic Bottles	47-52%
Glass Bottles	70-80%
Metal Cans	40-60%
Beverage Cartons	Less than 30%
Multi-Material Pouches	N/A
Single Use Cups	Less than 1%

Zero Waste Scotland will regularly review these figures to ensure they are kept as current as possible. As the proposed ranges were gathered from a call for evidence in 2016-17, we are not expecting any dramatic changes.

Plastic bottles, glass bottles, metal cans and beverage cartons are widely recycled, either in kerbside collections or via recycling points and centres. Despite this there is

[10] SEPA 2016 Household Waste Data

[11] Based on analysis that includes Zero Waste Scotland's waste compositional analysis, Valpak's Scottish Packaging Recycling 2015, Defra's 2017 Waste Digest, Valpak's Scottish Packaging Recovery Note Report, Recoup 2017 Plastic Recycling Report

clearly scope for improving capture rates, with the best performing Deposit Return Schemes in the world achieving a 90%+ capture rate.

Single use cups are an area which has attracted high profile coverage in the media, especially “coffee cup” style containers consisting of a paper cup with a plastic and/or metal foil lining. These are most frequently used in Quick Service Restaurants, coffee shops and food takeaway shops and so are consumed on the go. These types of cups can be recycled with collections for beverage cartons.

Multi-material pouches are a composite of different material types, including different plastics and metal. These are often used for sugary fruit drinks and are not currently economical to recycle.

It is worth noting here that a Deposit Return Scheme operates to collect “Single Use” drinks containers and not “Refillable” containers. Across many countries in Europe organised schemes for “Refillable” glass bottles are also in operation. These schemes are logistically and commercially separate from Deposit Return Schemes but where both types of scheme are present in the same nation (e.g. in Finland or Denmark) they often work alongside each other.

Refillable Schemes utilise a standard glass bottle design and industry participants also agree standard collection crate designs, shared logistics and infrastructure arrangements (such as bottle washing and refilling facilities) amongst themselves. Such schemes usually include brewers and soft drink companies covering a specific range of products. There may be scope for such a scheme to be developed in Scotland in the future, in addition to a Deposit Return Scheme. The potential for such would be dependent on a suitable collaboration of industry participants and the availability of the right infrastructure, however a Refillables Scheme is out of scope for this programme.

Quality of end-materials

As well as assessing the amount of targeted material captured, it is also important to consider the end destination for those materials. A true “circular economy” approach is one where the quality of material collected is high enough, that it can displace virgin materials (e.g. plastics made from oil, or aluminium made from bauxite) in high value uses.

As noted above, detailed data specifically on Scottish waste materials often does not exist. The majority of these materials are however currently collected co-mingled i.e. mixed together with other household packaging. For glass, even where it isn’t co-mingled, the collection method makes it difficult to separate different colours.

So, while a majority of a material type is being captured, the overall amount suitable for high value recycling could be very different. This is a result of contamination from other comingled materials, and/or the cost of separating materials to achieve a high value being uneconomic.

Contribution to Litter

The costs of litter, both direct and indirect, are identified earlier in this report. Zero Waste Scotland[12], has identified the average composition of the litter stream in Scotland.

The categorisation doesn't differentiate between drinks containers and other containers but the following breakdown, by weight, was identified: plastic bottles (9%), glass bottles (9%) and metal cans (4%). It isn't possible to identify beverage cartons, pouches or single use cups within the categories used.

When assessing the contribution to indirect costs, such as visual disamenity, then volume, rather than weight, is a more accurate indicator of impact. Measured by volume, drinks containers would make up a greater proportion of the litter stream than indicated above.

The Marine Conservation Society's Great British Beach Clean 2017[13], provides a breakdown of the sources of litter and types of materials found. Over 30% of material comes from the public and 46% remains unsourced, primarily because it has broken down into fragments too small to identify. Glass and container caps & lids both appear in the top 10 items found in these surveys.

Impact of carrier bag charge

Scotland's carrier bag charge was introduced on 20th October 2014 and required all retailers to introduce a minimum 5p charge for single use carrier bags. Zero Waste Scotland reviewed the impact of the charge[14], one year after its introduction.

It is estimated that single bag use dropped by 80% in the grocery sector, resulting in 650 million fewer bags being taken. After taking account of any displacement or substitution purchases, this is the equivalent reduction of 4,349 tonnes of material resources and 2,692 tonnes equivalent of CO_2 emissions.

This demonstrates that putting an economic value on a resource, which was previously free "at the point of consumption", can have a significant and immediate impact on public behaviour.

Economic opportunity

Both Scotland's Economic Strategy[15] and Manufacturing Action Plan[16], recognise the economic opportunities presented by "making things last". Creating the conditions for a more circular economy helps companies embrace new business models and manufacturing processes and transforms used products into assets. In addition to ensuring that the lifecycle of all resources is maximised, this approach also helps to protect against increased volatility and vulnerability in the supply of raw materials.

[12] Scotland's Litter Problem
[13] MCS Great British Beach Clean
[14] Carrier Bag Charge, One Year on Report
[15] Scotland's Economic Strategy, March 2015
[16] A Manufacturing Future for Scotland

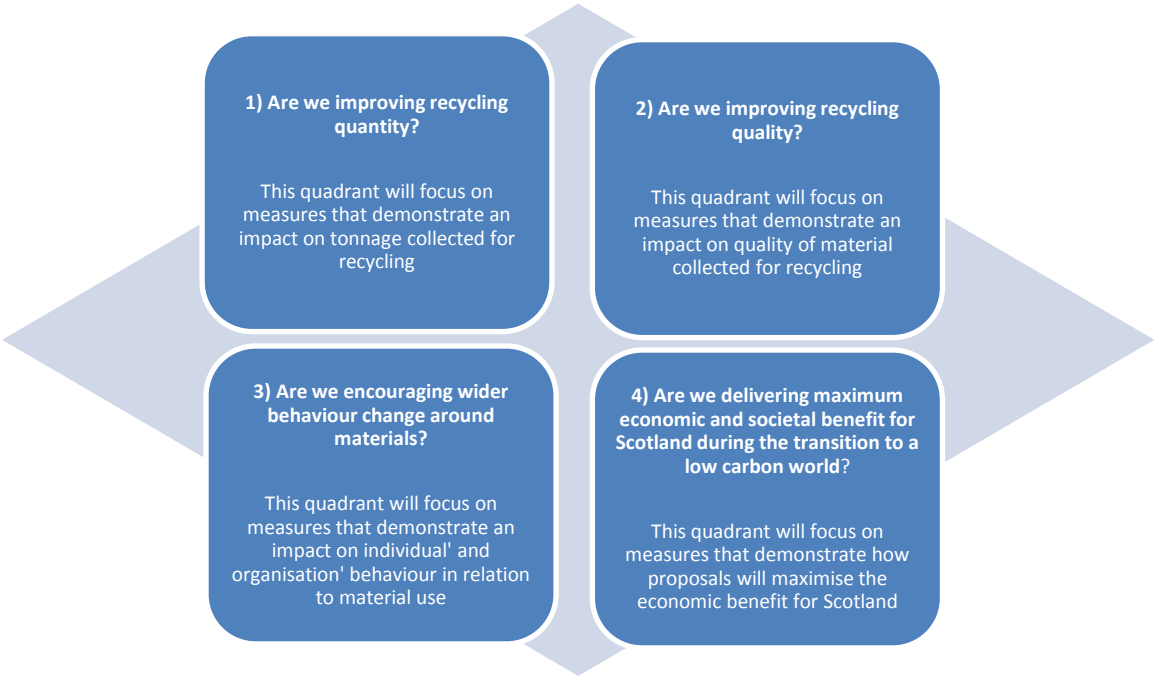
A Deposit Return Scheme provides opportunities as an exemplar of circular business practices, maximising the financial value of secondary resources to Scotland and creating a potential high value feedstock for industry in Scotland.

4. WHY INTERVENTION IS NEEDED

Potential benefits arising from an intervention are significant and varied. They are also spread across many actors from businesses, academia, the public sector and societal benefits. Some of these are measurable and quantifiable while others are more difficult to assess, requiring a more qualitative approach.

To organise benefits and ensure alignment with the overarching strategic objectives, four high level aims have been developed for the Deposit Return System. Under each aim is a series of metrics, which are used to help assess the impact as either a quantifiable contribution to Net Present Value or as a weighted qualitative impact which contribute to the Weighting and Scoring Matrix.

In parallel to the development of an Outline Business Case, an Equality Impact Assessment, Business Regulatory Impact Assessment and Strategic Environmental Assessment will be developed. These assessments will identify positive and negative impacts and environmental effects and help to identify mitigation measures at the policy development stage.



Overall strategic objective 1 – Increasing recycling quantity?

Measures in this area relate to improving the overall quantity of material captured for recycling and therefore diverted from landfill, energy from waste or becoming litter. The specific metrics proposed are:

- Increase the tonnage and percentage of targeted materials captured for recycling.
- Increase the total amount of material collected for recycling in Scotland i.e. avoiding any unintended consequences that result in a reduction of other materials being collected for recycling.

The effect of these measures is a change in disposal costs, which may be positive or negative, for a range of actors across Scotland. The most significant impact will be on Local Authorities and private Waste Management operators, as they handle the largest tonnage of materials.

There will also be an impact on organisations who have their waste collected, where either this is charged by weight or where there is a significant drop in volume, allowing a change in container size or frequency of collection.

Examples of potential changes include lower collection costs, lower disposal costs due to less going to landfill, higher gate fees for co-mingled recycling and loss of revenue for servicing commercial customers.

There are other benefits associated with diverting a larger quantity of material from these other disposal routes and these are captured under the other strategic objectives.

Overall strategic objective 2 – Increasing recycling quality?

Measures in this area relate to improving the quality of material generated in Scotland, maximising its economic value as a feedstock for high value manufacturing activities. The specific measures proposed are:

- Increase the tonnage and percentage of targeted materials suitable for high value recycling
- Increase the total amount of material collected in Scotland that is suitable for higher value recycling i.e. ensuring that other material currently achieving this goal is not diverted to lower value recycling.

The effect of these two measures should be a larger amount of the targeted material achieving high value recycling and this quality being achieved in Scotland. The impact is that industry in Scotland either benefits from the higher value through use of this feedstock or generates higher income by selling it.

Overall strategic objective 3 – Encouraging wider behaviour change around materials?

Measures in this area relate to the indirect benefits on material use and disposal by the introduction of a Deposit Return Scheme. These go beyond changing the value of the disposal route and value of materials. The proposed metrics are:

- Reduce the quantity of single use beverage containers that are littered by the public.

- Encourage “circular” product design by beverage packaging producers e.g. making packaging lighter, increasing recycled content in containers, or designing for increased recyclability.
- Enable education and engagement on key circular economy messages and challenging aspects of our throwaway society e.g. utilising advertising space at return points.

By capturing more of the targeted material for recycling, it reduces the number of containers that could potentially enter the litter stream. This would reduce the direct costs to landowners of collecting this material and the scale of a number of indirect impacts of litter.

Influencing product design is also possible within the scheme design, particularly in regard to ensuring a more consist specification of material – as this maximises the quality of recycled material for resale. There is also scope to utilise variable fees within the scheme to motivate other design choices.

A successful Deposit Return Scheme will achieve an extremely high capture rate of target materials. To do so, requires interaction with the almost the entire population on a regular basis via return points where the public take back containers to redeem the deposit. These locations provide valuable advertising space, which could be utilised to communicate other messages related to the circular economy.

Overall strategic objective 4 – Delivering maximum economic and societal benefit for Scotland during the transition to a low carbon world?

As well as broader impacts on material use and disposal, the scheme also has the potential to have wider economic, social and environmental impacts. The proposed metrics for evaluating these are:

- Demonstrate a net overall positive economic impact (including but not exclusively contributing to a low carbon economy, develop new reprocessing opportunities and generating additional jobs or securing existing jobs).
- Ensure a fairness for all demographic groups e.g. considering the impacts of the deposit level on households on lower incomes.
- Maximise accessibility to all demographic groups e.g. ensure there is no need to access a private vehicle to redeem deposits.
- Deliver exemplar “circular” business practices while still delivering value for money e.g. leasing models for Reverse Vending Machines.
- Create employment opportunities for socially disadvantaged groups such as the long term unemployed or those with disabilities.
- Create opportunities to raise funds for charitable causes, where use of the money can have wider societal benefits.
- Optimise the positive impacts for SME businesses including small retailers.

These metrics will ensure that the full environmental, economic and social impacts are captured. The completion of a Business Regulatory Impact Assessment will also help to establish where the benefits and costs are distributed.

Ensuring fairness and accessibility are key metrics for the Scottish Government and, in this context, links to the principle of climate justice. This is defined as "ensuring collectively and individually we have the ability to prepare for, respond to and recover from climate change impacts – and the policies to mitigate or adapt to them – by considering existing vulnerabilities, resources and capabilities"[17].

Providing an exemplar business model for the adoption of circular economy thinking provides an opportunity to maximise the economic gains in Scotland, inspire other organisations with practical examples, and help create markets that otherwise wouldn't exist.

The delivery of a Deposit Return Scheme will generate a range of employment opportunities across management, operational and administrative roles. It is likely that a proportion of these will be entry level jobs, creating opportunities for those furthest from the labour market to learn new skills and gain experience.

The collection of a high volume of deposits may generate significant sums of money which could be invested in causes which generate social or environmental benefits. This could be through existing charities or new channels and could enhance the net benefit to society from the money raised.

In March 2017, SMEs accounted for 99.4% of private sector enterprises in Scotland and accounted for 55.0% of private sector employment and 40.1% of private sector turnover[18]. It is important therefore to consider how a Deposit Return Scheme would interact with these.

4.1 Dis-benefits of intervention

Some negative consequences of the intervention have been identified and are relevant to deciding on whether to proceed. These will be fully explored as part of the process for assessing the impacts against each of the four objectives identified above. Some of the high level disadvantages are outlined below.

Separation of these materials into a new dedicated collection operation will impact on existing contracts and collection arrangements for Local Authorities and private waste management companies. This may require renegotiation of any longer-term contracts and investment to realign and optimise collection operations.

The requirement to provide consumer information and mitigate fraud within any proposed scheme is likely to require some degree of Scottish specific labelling. This will represent a change for any business involved in the production and/or logistics of any relevant drinks containers, as currently labelling requirements are consistent across the UK. The creation of a Scottish Stock Keeping Unit, (effectively a unique product barcode) will have a combination of one-off and ongoing costs including printing, increased changeovers during production, increased stock management and impacts on logistic operations and flexibility.

[17] Banks et al 2014, Climate change and social justice: an evidence review
[18] Businesses in Scotland, Headline Figures

The placing of a financial value on containers, that otherwise doesn't exist, may attract criminal elements attempting to defraud the scheme. With billions of containers entering circulation, even a small deposit creates a large sum of money to target. The potential scale of fraud will also determine the cost of mitigation measures required; as demonstrated by arrangements in other countries operating Deposit Return Schemes.

The introduction of a new collection system will impact on stakeholders who are required to communicate the change to customers and the public. These stakeholders will need to explain how the new schemes and services operate and how they interact with existing collection infrastructure.

4.2 Results of not intervening

Current trends indicate that household recycling rates in Scotland are stagnating and that further intervention is required to achieve the ambitious targets established by the Scottish Government. Most types of targeted materials used in drinks containers are easily recyclable and that there is scope to improve their capture rates.

Recycling quality will also remain challenging, where financial and operational constraints limit the level of segregation that can be achieved. Scotland's Household Recycling Charter, if adopted across all 32 Local Authorities, will result in an improvement but these high value materials will continue to be degraded due to the limited ability to separate them from other items of household waste collected at the kerbside.

The economic opportunity presented by collecting this material in a way that maximises its value and having it managed by a single actor is likely to be lost. Currently the quality of the material isn't being maximised and it remains spread across many organisations including Local Authorities and private waste management companies, limiting the opportunity to provide strategic leverage for the development of new business opportunities. As an aggregated and high-quality resource, the material contained in used drinks containers can be used to secure a greater proportion of the value in Scotland's economy either as a feedstock to other industries, attracting reprocessing capacity, or attracting a higher price when selling onto the international market.

The introduction of a Deposit Return Scheme will present an opportunity to influence public behaviour and engage people on the principles of a circular economy. It will touch on almost every individual in Scotland and by placing a value on "waste materials" it can help to change perceptions and embed positive habits.

4.3 Proposal and conclusion

The introduction of a Deposit Return Scheme has the potential to provide significant benefits to Scotland. These benefits are will be environmental, economic and social.

Support amongst the public for the introduction of a Deposit Return Scheme is high, with a recent poll for ITV Tonight (2,000 people, UK) indicating that 75% of people

would support an introduction of such a scheme[19]. A separate survey of more than 2,000 British adults commissioned by SUEZ in March 2018[20] also reported that 74% of consumers would be likely to return plastic bottles and aluminium cans under a Deposit Return Scheme.

In terms of circular economy benefits, this approach could help to target "leaks" (where the material is discarded and no longer retained in the circular loop) of valuable resources, maximise its value and ensuring it becomes an important feedstock for high value manufacturing. This will maximise the economic impact for Scotland and create employment opportunities across a range of roles.

As a form of Extended Producer Responsibility, as defined by the OECD, a Deposit Return Scheme is "an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle"[21]. It is important that these are proportionate to the benefits gained and look to mitigate any unintended consequences on any actors through scheme design.

To realise these benefits and minimise the challenges, it is necessary to design a scheme tailored to Scotland's geography, population distribution and economic, environmental and social ambitions.

Following the HM Treasury 5 Case Business Approach[22] , in parallel with the Business Regulatory Impact Assessment, Strategic Environmental Assessment and Equality Impact Assessments, will ensure that all options are developed and evaluated to deliver the optimum solution for Scotland.

5. SCOPE OF INTERVENTION & TIMELINE FOR BENEFITS REALISATION

Many of the benefits identified require a national level intervention to make them possible. This approach enables a comprehensive range of materials to be covered, delivers economies of scale, ensures consistency to encourage participation, minimises the potential for fraud and aggregates resources to a sufficient scale to make a strategic difference.

Section 4.2, explains why these benefits will not occur organically due to the fragmented nature of current delivery, restrictions on existing collection approaches and lack of a financial incentive.

An intervention of this magnitude is therefore required, and delayed action will delay the realisation of the economic, social and environmental benefits that a Deposit Return Scheme can deliver.

5.1 Benefits Realisation Planning

[19] Plastic: Can you live without it? – ITV, February 2018
[20] YouGov, March 2018
[21] Organisation for Economic Co-operation and Development, Extended Producer Responsibility
[22] Public Sector Business Cases, Green Book Supplementary Guidance

Due to the complexity of this project, it is useful to think about the different phases of work that are necessary to realise the benefits.

There are numerous competing demands and taking a phased approach will allow these different needs to be appropriately weighed and built into the process. It is useful to think of these in the short, medium, medium-long and long term.

The period covered by these three categories would be:

Short Term:	6-12 months
Medium Term:	1-2 years
Medium-Long Term:	2-4 years
Long Term:	Over 4 years

Phase 1 (Scheme Design): This would be delivered in the short term, within 6 months, where different design options will be measured against the Strategic Objectives. This will result in a short list of options to be included in an Outline Business Case and accompanied by Business Regulatory Impact Assessment (BRIA), Strategic Environmental Assessment (SEA) and Equality Impact Assessment (EQIA) documents

Phase 2 (Consultation and Regulation): This would still be delivered in the short term, 6-12 months, and will involve a full public consultation. This will be followed by selection of a preferred option, preparation of a Full Business Case and preparation of necessary Regulations.

The selection of a final scheme design will heavily influence the extent to which different benefits can be realised and the timescales for doing so.

Phase 3 (Planning and Preparation): This will be delivered in the medium term and will start to see some of the benefits realised, as organisations and infrastructure are created to facilitate delivery of the preferred option.

These benefits are likely to be under **strategic objective 4**, as people are employed and trained to put in place the necessary systems and processes. This will also involve the establishment of return locations, which will influence accessibility and fairness.

Phase 4 (Implementation): scheme operation commences in the medium-long term and leads to the beginning of benefits realisation against **all objectives**. Upon commencement there is expected to be an immediate impact on economic, social and environmental benefits as behaviour is influenced almost immediately and design principles are delivered.

Phase 5 (Maturity): Based on experience elsewhere it is expected that there will be a 2 year “ramp up” period, where performance measurement against **objectives 1 and 2** will steadily increase.

In the long term there is also going to be a period of normalisation, impacting **objective 4** and particularly criteria such as creating employment opportunities for those furthest from the labour market and investing in reprocessing infrastructure. There will be a time lag between implementation and the impact on the supply chain, impacting on **objective 3** and particularly influencing “circular product design”.

6. OUTCOMES AND OBJECTIVES

This section outlines the specific outcomes within each of the stated strategic objectives, to be delivered by the project. The approach to measurements and potential targets are described.

Overall strategic objective 1 – Increasing recycling quantity?

Outcome	Direct Benefit	Indirect Benefit	Metric	Target
Less target material is going to landfill or Energy from Waste	Savings in disposal costs	Reduce waste contribution to climate change	% target material not being recycled	Reduction in % of target material not being recycled
More target material is sold for recycling	Income from material sales	Reduce waste contribution to climate change	% target material being recycled	Increased % of target material being recycled

Overall strategic objective 2 – Increasing recycling quality?

Outcome	Direct Benefit	Indirect Benefit	Metric	Target
More target material achieving high value recycling	Increased income per tonne of material to Scotland	Improved security of supply for materials	Value per tonne of target material sold	Increase income per tonne of target material

Overall strategic objective 3 – Encouraging wider behaviour change around materials?

Outcome	Direct Benefit	Indirect Benefit	Metric	Target
Reduction in target material becoming litter	Reduced collection costs	Improved visual amenity	% target material not being recycled	Reduction in % of target material not being recycled
More circular product design	Reduced use of virgin materials	Reduce waste contribution to climate change	% of containers recognised by the scheme as	Increase % of containers recognised by the scheme as having a

			having a circular characteristic	circular characteristic
Increased engagement with resource issues	Improved awareness of benefits of circular economy	Change in behaviour in resource use of non-target materials	Increase in public identifying reasons to use resources better	% increase in public identifying reasons to use resources better

Overall strategic objective 4 – Delivering maximum economic benefit for Scotland during the transition to a low carbon world?

Outcome	Direct Benefit	Indirect Benefit	Metric	Target
Additional economic activity in Scotland	Increased financial flows in Scotland	Creation of new jobs	Value of Scheme activity	Increasing value of scheme activity
A fair impact on all demographic groups	Maximise capture rates for target materials	Avoids market distortion or unintended consequences	Capture rate by Scottish Index of Multiple Deprivation (SIMD)	Capture rate across all SIMD areas proportionate to sales
Scheme accessibility is maximised for all demographics	Maximise capture rates for target materials	Avoids penalising socially disadvantaged groups	Distance travelled to return point	Minimise distance travelled to return point
Create employment opportunities for people furthest from the employment market	Opportunity to gain new skills and valuable employment experience	Lead to new long-term employment being realised for individuals	Number of people furthest from the employment market being employed	Maximising the number of people furthest from the employment market being employed
Increased availability to donate to charitable causes	Increased income for charitable sector	Benefit to society of charitable activities in Scotland	Number of return points with option to donate deposits	Increase number of return points with option to donate deposits

Positive impact on SMEs	Financial support to key economic actors	Increased traffic to businesses leads to increase sales	% of scheme financial activity contracted with SMEs	Increased % of scheme financial activity contracted with SMEs

7. OPTION APPRAISALS

Given the need for intervention and the potential benefits identified, there are various scheme design options that will each have different strengths and weaknesses. This section is intended to describe how each option can be assessed against the four strategic objectives.

The options included are referred to as a “long list” and this list is designed to ensure that the widest possible range of options and variants have been considered. As a result, this list includes some scheme design variants that are untested and unproven in other countries (Options 6 a-c) along with scheme designs that operate within Europe Countries, Canada, and American and Australian states/territories,

Considering each of the long-list options against the four strategic objectives, highlights that a number of the long-list options are not capable of delivering the required outcomes for each strategic objective. This process results in a shortlist of (still wide-ranging) options that can be considered in detail in the Outline Business Case and consultation stages. A Net Present Value for each of the shortlisted options will be calculated and they will also be assessed against a series of qualitative metrics, using a weighting and scoring matrix.

The long-list of options are as follows and are described below:

1. Option 1 – **No Scheme is introduced**
2. Option 2 – **Return to Depot (Standard)**
3. Option 3 – **Return to Depot (Hybrid)**
4. Option 4 – **Return to Retail (Standard)**
5. Option 5 – **Return to Retail (Enhanced)**
6. Option 6a – **Return to Depot (Voluntary Approach)**
7. Option 6b – **Return to Retail (Individual Producer Schemes)**
8. Option 6c – **Kerbside Collection**

7.1 Option 1 – No Scheme is introduced

This is the de minimis option which will allow assessment of the impact of a Deposit Return Scheme against a base case. Not introducing a Deposit Return Scheme would:

- Fail to improve recycling quantity
- Fail to improve recycling quality
- Have no impact on wider behavioural change around materials
- Miss opportunities to support Scotland’s transition to a low carbon economy

7.2 Option 2 – Return to Depot (Standard)

A Deposit Return Scheme established by regulation but with no requirement on any type of business to participate as a return location.

This would target materials and products that are “core” to the majority of existing schemes around the world i.e. PET bottles, steel and aluminium cans, and glass bottles. Both the range of materials and the deposit value would be established by regulation.

With no specific requirements relating to return locations or system performance, industry would be responsible for creating a single agency to co-ordinate delivery of the scheme. Return locations or “depots” would be established where sufficient materials were arising to offset operating costs, ensuring efficiency in the return location network.

This is likely to lead to a redemption centre approach (e.g. located at key facilities such as existing Recycling Centres run by local authorities), where there are a limited number of larger scale sites created. This would allow the monitoring of the use of these sites to prevent large-scale fraud, without the need for any Scottish specific labelling.

This approach is however likely to only lead to a marginal improvement in capture rates, as the increased inconvenience of returning containers results in a lower capture rate. This would impact on the scale of impact on all the objectives for the programme.

Return to depot is more prevalent in North America and Australia, with only Iceland operating this approach in Europe. Iceland utilises return to depot in unique circumstances, with its small population centred almost completely around its capital city. Excluding those schemes which operate in rural locations and with small populations, this type of approach typically results in capture rates between 50-70%.

7.3 Option 3 – Return to Depot (Hybrid)

A Deposit Return Scheme established by regulation and where retailers are required to ensure a return location, or depot, within a set proximity of their premises or accept containers for return directly.

This would target a wider range of materials than proposed under Option 2. It would incorporate PET and HDPE bottles, steel and aluminium cans, glass bottles, beverage cartons and single use paper-based cups. Both the range of materials and the deposit value would be established by regulation.

Industry would be responsible for creating a single agency to co-ordinate delivery of the scheme. The minimum number of return points would be established by determining a ratio of either population or container sales to depots required. Their creation would be facilitated by the legal requirement to have a depot within an established proximity i.e. it would encourage actors to participate in providing suitable locations.

Proximity to retail outlets would also ensure a greater degree of accessibility, ensuring that they are close to where the majority of the population visits to purchase the containers. This would also improve fairness, as it would contribute to an equal impact across socio-demographic groups.

Having a greater number of locations would require Scottish specific labelling, to help prevent fraud, as it would not be economically viable to staff each location. It is anticipated that these would be automated facilities, which staff would have to open and close each day.

The impact of this approach is, to a large extent, dependent on the proximity requirement established. This will influence the capture rate, which, in turn will impact on the opportunities realised for the other programme objectives.

Hybrid schemes in California, Maine and British Columbia are all achieving an 80% or higher capture rate of target materials with Massachusetts, Vermont and Oregon achieving a rate less than 75%.

7.4 Option 4 – Return to Retail (Standard)

A Deposit-Return Scheme established by regulation on a “Return to Retail” basis, where individual retailers are required to act as a return location for any type of container.

This would target materials and products that are “core” to the majority of existing schemes around the world i.e. PET bottles, steel and aluminium cans and glass bottles. Both the range of materials and the deposit value would be established by regulation.

Having return locations located at retail locations is a method to ensure maximum public accessibility.

Industry would be responsible for creating a single agency to co-ordinate delivery of the scheme. This agency would be responsible for compensating retailers for the containers that they accept back and organising collections from the return points.

Having a large number of locations would require Scottish specific labelling, to help prevent fraud and facilitate automated returns. No additional staff would be required to open and close facilities, as access and the condition of the location would be managed by the retailer.

This model would be most like the systems in Scandinavia and the Baltic states, which regularly deliver return rates of over 85%. This is a result of a comprehensive coverage of materials and products combined with a network of convenient return locations.

This is probably one of the most predictable Deposit Return Scheme models, as it is well tested elsewhere, and any fraud risks would be dependent on precise system design (e.g. choices around labelling).

7.5 Option 5 – Return to Retail (Enhanced)

A Deposit Return Scheme established by regulation on a “Return to Retail” basis, where individual retailers are required to act as a return location for any type of container.

This would target a wider range of materials than proposed under Option 4. It would incorporate PET and HDPE bottles, steel and aluminium cans, glass bottles, beverage cartons and single use paper-based cups. Both the range of materials and the deposit value would be established by regulation.

Having return locations located at retail locations is a method to ensure maximum public accessibility as if the item can be purchased there then the empty container can also be returned.

A single agency would be created to co-ordinate delivery of the scheme but with a role in governance for both the public sector and industry. This agency would have the same operational functions as under option 4 but public sector involvement would focus on securing the broader range of metrics under strategic objectives 3 and 4.

Such a remit / governance structure could also potentially facilitate development of future Extended Producer Responsibility opportunities for unrelated materials. In all other ways this would operate as described in option 4 and so would require separate Scottish labelling etc.

7.6 Option 6a – Return to Depot (Voluntary Approach)

A Deposit Return Scheme is established by voluntary agreement with industry, with no legislative instrument to set standards or requirements.

No voluntary approach has been proposed by industry in the four years that Scottish Government have been considering this policy measure, so assumptions have been made around the most likely features of this scheme design.

Any voluntary approach is unlikely to have universal coverage, as it is reliant on a variety of stakeholders across many sectors. Unless a significant proportion of businesses are willing to participate, the critical impact of a national Deposit Return Scheme – that the ubiquitous nature of the deposit on a full range of products helps to create behavioural habits amongst the public – is lost.

In a voluntary scheme, specific labelling on products to identify them as bearing a deposit could be achieved through agreement that it could be implemented across the UK, however the financial value of the deposit is likely to be set very low, to discourage fraud, in the absence of an agreed “owner” of the scheme to police it.

There would be no mandate on retailers to participate and so this would most likely operate primarily as a Return to Depot model i.e. the drinks containers collection point for refunds and takeback would be limited to a number of major recycling sites

such as Local Authority recycling centres. While some retailers may opt in and collect containers on their premises, others would choose not to participate.

The impact of this would be a scheme with a low financial incentive, low levels of convenience and poor consumer understanding. The most comparable schemes in other countries are those operated by States within the USA, which operate a Return to Depot model and whose level of deposit was set 30-40 years ago. These schemes are not achieving capture rates for materials any higher than Scotland is currently achieving.[23]

However, by negotiating a higher deposit than is assumed under this model, creating more comprehensive coverage of drinks products and materials, and addressing consumer understanding – this could effectively become the **Return to Depot (Standard) option**. Adding a more comprehensive network of return points and it would become more like the **Return to Depot (Hybrid) option**.

7.7 Option 6b – Return to Retail (Individual Producer Schemes)

A Deposit Return Scheme established by regulation but where individual producers or retailers are only required to accept their own containers.

Writing this into Regulation would allow a comprehensive range of materials and products to be included and the deposit level, i.e. financial motivation, to be established at a suitable level to motivate consumers to want to return containers.

Requiring producers to accept their own materials could increase the potential for reusable containers to be introduced i.e. similar to the discontinued, and voluntary, AG Barr scheme.

This scheme design, if coverage is comprehensive, runs the risk of generating high levels of confusion, as different containers are returnable to different sites and/or by different methods. This would reduce accessibility and convenience, resulting in a lower capture rate for target materials.

Having separate schemes run in isolation from each other would also result in fragmentation of the system for retailers and lost opportunities to deliver economies of scale. This would particularly be an issue for rural and island communities.

This type of distributed ownership is also less transparent, with no one actor having oversight of all activity, and makes setting and monitoring targets more difficult. It would also open the scheme up to types of fraudulent activity, similar to that experienced by decentralised Deposit Return Schemes, where the scheme is deceived into thinking a high number of containers have entered the system, as there is no tracking of materials.

[23] For example, Connecticut 50%, Hawaii 68%. Far north states achieve higher rates but are not considered comparable to Scotland. Source: Reloop.

Finally, this approach would not aggregate the material under one "ownership" and therefore reduce the value of selling the material or maximising the value added in Scotland.

Overcoming the fragmentation of this approach, and the consequent weaknesses, could be addressed by stakeholders co-ordinating via a single agency. This then would become the **Return to Retail (Standard) option**.

7.8 Option 6c – Kerbside Collection

A Deposit Return Scheme established by regulation and delivering a world first by facilitating redemption in kerbside collections. This would involve the use of Radio Frequency Identification (RFID) chips on drinks containers and household bins, which are scanned during collection as part of normal household recycling collections. This would allow the containers to be recorded at the point of collection and money refunded to households automatically.

This would cover a broad range of materials and product types and utilise existing collection systems. It would create a revenue stream for Local Authorities, through a handling fee, and could be potentially scalable to allow a deposit to be introduced on other product types in the future e.g. glass jars, food trays.

However utilising existing collection regimes has several challenges, as it increases the risk of contamination, impacting on objective 2 of the programme, and it increases the opportunities for theft to occur i.e. it would be easy to steal containers from kerbside bins. There are also political challenges for implementation, as this scheme requires identification of individual household bins, linked to bank accounts, and with a level of detail about what is placed in each container. This would require significantly more detail to be collected on individuals' behaviour than is currently collected via chipped wheelie bin systems - which have caused concerns about privacy.

Current best performing Deposit Return Schemes using traditional return points are achieving an over 90% capture rate. So, although the increased convenience of a kerbside collection is likely to result in an increased capture rate, the potential marginal percentage increase is unlikely to be significant enough to offset the uncertainty and risks associated with an unproven technology, privacy concerns and significant investment costs.

This proposed approach has been discussed with experts in RFID at Herriot-Watt University, who agree that although the technology exists it has never been utilised in this manner before. There would therefore be significant development issues to overcome and a long lead-in time to deploy this solution with no certainty it could work. In addition to the need to change kerbside collection containers, and upgrade or replace existing collection vehicle fleets, manufacturers would need to invest in over 2 billion RFID tags (one for each drink container placed onto the Scottish market), each year. It is estimated[24] that RFID chips for each container would cost around £78 million per annum, and in addition there would be costs associated with

[24] Data provided to ZWS by Heriot-Watt university.

modifications to bins and collection vehicles. This would be a disproportionately expensive option for the performance gain achieved.

The vast majority of Local Authorities in Scotland collect drinks containers for recycling through a comingled wheeled bin provided to their householders, and many are moving towards a dedicated wheeled bin for containers, in line with the Scottish Household Recycling Charter. However, there are a few authorities collecting drinks containers through a box and kerbside manual sort system. These Local Authorities would have the potential to use a form of Reverse Vending Machine at the kerbside; reading the barcodes on drinks containers on a dedicated collection vehicle and administering the deposit return without the need for a RFID. However, given the small number of Local Authorities involved this would not negate the need for universal RFIDs.

However, it is possible to use existing kerbside collection systems as a secondary collection method, in which the deposit on any containers collected via this method is refunded to the collection agency (e.g. a Local Authority). This negates the need for the costly infrastructure (such as RFID chips on containers and bins) and is a component that could be added to one of the other options, rather than a stand-alone option.

8. DEVELOPING A SHORT LIST OF OPTIONS

This Strategic Outline Case proposes a shortlist of scheme types that deliver the best outcomes against each of the stated strategic objectives. These options will be evaluated in greater detail on the Outline Business Case which will include calculating a Net Present Value and a weighting and scoring matrix for more qualitative criteria. At this stage we can exclude some options that are not capable of delivering the required outcomes for the strategic objectives

A table assessing the long-list options against the objectives is attached as Appendix B.

Option 1 (No scheme is introduced) will be modelled for the purposes of developing a baseline, to assess the impacts of no intervention.

Options 6a and 6b (Return to Depot - Voluntary Approach) and (Return to Retail - Individual Producer Schemes) would result in a fragmented landscape, with limited and/or confusing options for the public. They would not benefit from economies of scale that a nationally organised scheme would deliver and they are likely to exclude certain demographics and geographies across Scotland. As a result they would not demonstrate meaningful impacts on the four objectives.

Option 6c (Kerbside Collection) would deliver against objectives 1, 2 and 3 however not objective 4. This is due to the indicated substantial costs of adopting this approach, potential privacy concerns, the high degree of risk associated with deploying new technology in a previously untested manner and the limited potential additional gains in overall performance compared to other tested and established high performing schemes across Europe.

The remaining scheme design options of 2 (Return to Depot - Standard), 3 (Return to Depot - Hybrid), 4 (Return to Retail – Standard) and 5 (Return to Retail - Enhanced) have the potential to fulfil all four objectives. It is necessary, however, to evaluate the full costs and benefits of each, before being able to select a preferred option.

For the purposes of developing an Outline Business Case, scheme design options 1, 2, 3,4 and 5 will be taken forward.

9. DETAILED OPTIONS DEVELOPMENT

The approach to assessing each of the scheme design options will be, wherever possible, to calculate a financial value (either cost or benefit) against each of the metrics for the four objectives, as described in Section 4. This will allow a Net Present Value (NPV) to be calculated.

Where it is not possible to convert the impact into a financial value, then a weighting and scoring matrix will be developed. This is expected to apply to a maximum of five of the metrics identified and a weighted score for each criterion will accompany the NPV for each design option.

To identify the characteristics of the scheme design options, Zero Waste Scotland has developed a generic list of 12 components for a Deposit Return Scheme:

- Materials in Scope
- Products in Scope
- System Performance
- Return Locations
- Financing Model
- Consumer Information
- Fraud Prevention
- Deposit Level
- Infrastructure & Logistics
- Additional Benefits
- System Ownership
- System Regulation

The optimum choice for each of the different types of scheme will be informed by a comprehensive stakeholder engagement process, to understand priorities under each of these components. This will include understanding the differential impacts on the range of sectors, businesses and groups who could interact with the scheme.

Combined with these priorities, Zero Waste Scotland will investigate the options available for each component and which will maximise the impact against the stated project objectives. This will determine the component choice for each design option.

A range of sources will then be utilised to help to calculate the benefits and costs of these different component costs. This will include existing databases, current business practice costs, data from other Deposit Return Schemes, costs of comparable operations within the UK and costs from equipment manufacturers.

An advantage of this modular approach is that it will also allow the assessment of hybrids between the four options e.g. expanding the range of materials accepted under either a return to depot (standard) or return to retail (standard) option.

While this will allow the assessment of the impact of different elements of the system design, this is caveated by the fact there are many interdependencies between components, as demonstrated by the following matrix:

Component Dependencies	Materials in Scope	Products in Scope	System Performance	Return Locations	Financing Model	Consumer Information	Fraud Prevention	Deposit Level	Infrastructure & Logistics	Additional Benefits	System Ownership	System Regulation
Materials in Scope		☑	☑		☑	☑			☑	☑		
Products in Scope	☑		☑	☑	☑	☑			☑	☑		
System Performance		☑		☑	☑					☑	☑	☑
Return Locations			☑			☑	☑		☑	☑		☑
Financing Model	☑	☑		☑			☑	☑	☑	☑	☑	☑
Consumer Information		☑					☑	☑	☑	☑		☑
Fraud Prevention					☑	☑		☑				☑
Deposit Level					☑	☑	☑				☑	
Infrastructure & Logistics	☑	☑		☑	☑	☑				☑	☑	
Additional Benefits	☑	☑	☑	☑	☑	☑			☑			
System Ownership			☑		☑			☑	☑			
System Regulation			☑	☑	☑	☑	☑					

It is not therefore possible to alter all the components in isolation, as changing one impacts on another e.g. progressing an automated return solution then requires a unique marking (usually a barcode) which can be read when returning the container.

In parallel to this, the following assessments will be undertaken:

- Equalities Impact Assessment
- Strategic Environmental Assessment
- Business Regulatory Impact Assessment

These will help to ensure that as well as an overall positive impact of design proposals, that there isn't a disproportionate impact on specific demographics, environmental characteristic or business type.

An Excel based model will be developed, to allow this data to be used to calculate the NPV for the five design options and any hybrids identified as further exploration. This model-based approach will allow an assessment of the impact of different assumptions on calculating the NPV e.g. where a range of data is identified rather than a single figure.

Before deciding on a single preferred option, it is intended to that Scottish Government will deliver a full public consultation on the five shortlisted options. A Deposit Return Scheme will impact on almost all individuals in the country and a range of organisations and businesses.

A public consultation will enable a wide range of views to be gathered on the options presented and minimise the potential of any unintended consequences, by exposing proposals to scrutiny by as broad a cross section of society as possible. It will also highlight if there are any data sources that are not available that could potentially impact upon the costs and benefits calculation.

10. THE MANAGEMENT CASE

Risk and issue management

A risk and issue management process for the Deposit Return Scheme programme, as approved by the Programme Board, is summarised below:

- A comprehensive risk register has been developed and will be maintained throughout the life of the project.
- Programme and project managers will regularly review risks and issues, reporting to the Programme Management Group.
- Level 20+ risks will be reviewed by the Programme Board to assess whether the current levels of risk are appropriate for issue management and mitigation activity actions.
- Risk escalations at different levels are as follows:
  - Low level risks (0-10) will be managed by the Programme Management Group
  - Medium level risks (10-19) will be managed by the Chair of the PMG and two Senior Responsible Officers, from Scottish Government and Zero Waste Scotland
  - High level risk (20+) will be managed by the Programme Board

Programme Governance

The following governance structure is already in place to support delivery of Waste Policy activities included in the Programme for Government 17-18.

A Programme Board has been established and is responsible for setting the strategic direction of the Deposit Return Scheme programme, determining the scope of work, and taking decisions on strategic policy as well as monitoring any identified risks. Members of the Board are comprised of representatives from Scottish Government, Zero Waste Scotland, Scottish Environment Protection Agency and Highlands & Islands Enterprise.

A Programme Management Group has been established and includes representatives from Zero Waste Scotland and Scottish Environment Protection Agency. This group is responsible for overseeing operational delivery of the Deposit Return Scheme, providing technical input, resource capacity, and approving submissions to the Board.

A Technical Group also exists to co-ordinate activity within Zero Waste Scotland, joining up activity on modelling, data analysis, equalities impacts, business impacts,

environmental impacts, stakeholder engagement, policy development, evaluation and procurement.

Programme Management

A series of different workstreams are being delivered to successfully complete an analysis of design options for a Deposit Return Scheme for Scotland. These are:

1-1 Interviews: To understand “business as usual” across sectors that could be part of a Deposit Return Scheme value chain and the potential costs and benefits associated with changes to parts of their operations.

Strategic Conversations: High level engagement with organisations who are actively interested in the process in Scotland. This has primarily been representative bodies and large organisations. The purpose is to understand what the key questions are that need addressed by any scheme design.

Sector Reference Workshops: Delivery of 14 sector reference groups, listed in Appendix A, where working with a group of organisations with similar interests, the aim is to understand how different design options could maximise opportunities and minimise challenges for their sector.

Geographical Workshops: Delivery of 6 workshops, listed in Appendix A, across a range of different geographies, to understand how any circumstances unique to that location will influence how businesses in the area would interact with a Deposit Return Scheme.

Data Gathering: Identifying quantifiable information that is required to assess or calculate the impact of different design choices and undertaking the collection of this information.

Modelling: Development and population of an Excel based model, to model the impacts of different design choices. This will include calculating the Net Present Value of different options by incorporating scheme internalised costs, other internalised costs and externalised costs.

All of these activities are supported by the Chair of the Programme Management Group, a member of Zero Waste Scotland’s Executive Leadership Team, and a dedicated Programme Manager who, utilising Prince2 methodologies, co-ordinates activities between the different organisations involved.

11. APPENDIX A: LIST OF WORKSHOPS

Sector Reference Groups

1) Local Authorities
2) 3rd Sector
3) Dairy
4) Spirits and Wine
5) Soft Drinks
6) Beer and Pubs
7) Large Retail (Grocery)
8) Other Large Retail
9) Small Retailers
10) Public
11) Resource Management (Private)
12) Packaging and Reprocessors
13) Large Hospitality
14) Small Hospitality

12. APPENDIX B: EVALUATION OF OPTIONS

Design Options	Strategic objective 1 Are we increasing recycling quantity?	Strategic objective 2 Are we increasing recycling quality	Strategic objective 3 Are we encouraging wider behaviour change around materials?	Strategic objective 4 Are we delivering maximum economic benefit for Scotland during the transition to a low carbon world?
Option 1: No Scheme is introduced	N • No intervention and therefore no improvement in recycling quantity	N • No intervention and therefore no improvement in recycling quality	N • No intervention and therefore no behaviour change around materials	N • No intervention and therefore no economic benefit in transition to a low carbon world
Option 2: Return to Depot (Standard) *People return a range of their used drink containers to a centralised point to have their deposit refunded.*	Y • Mixed level of convenience based on where depots are located • Deposit set by government so has financial motivation • Consistent and so simple for consumer to understand	Y • Increase in capture rate moves material from landfill and litter • Dedicated collection infrastructure improves segregation • Increased tonnage owned by single system improves financial motivation	Y • Higher capture rate reduces containers in litter stream • Focus on influencing product design as separating material for recycling • Dedicated infrastructure allows engagement when consumers utilise it	Y • Mixed convenience impacts on fairness and accessibility • Cost efficient as well as an established model elsewhere • Opportunities for additional benefits such as charity donations and employment • Some opportunities for SMEs to deliver for a centralised system

Option 3: Return to Depot (Hybrid) *People return a wide range of their used drink containers to various centralised or community hub points to have their deposit refunded.*	Y • Increased level of convenience due to the proximity to retail premises • Deposit set by government so has financial motivation • Consistent and so simple for consumer to understand	Y • Increase in capture rate moves material from landfill and litter • Dedicated collection infrastructure improves segregation • Increased tonnage owned by single system improves financial motivation	Y • Higher capture rate reduces containers in litter stream • Focus on influencing product design as separating material for recycling • Dedicated infrastructure allows engagement when consumers utilise it	Y • Depot locations should promote fairness and accessibility • Cost efficient as well as established model elsewhere • Opportunities for additional benefits such as charity donations and employment • Some opportunities for SMEs as more frequent smaller depots
Option 4: Return to Retail (Standard) *People return a range of their used drink containers to one of the retailers they shop at to have their deposit refunded.*	Y • High level of convenience as located at location where known to have access • Deposit set by government so has financial motivation • Consistent and so simple for consumer to understand	Y • Increase in capture rate moves material from landfill and litter • Dedicated collection infrastructure improves segregation • Increased tonnage owned by single system improves financial motivation	Y • Higher capture rate reduces containers in litter stream • Focus on influencing product design as separating material for recycling • Dedicated infrastructure allows engagement when consumers utilise it	Y • Known consumer access to return points ensures fairness and accessibility • Cost efficient as well as an established model elsewhere • Opportunities for additional benefits such as charity donations and employment • More opportunities for SMEs in acting as return points or provide local logistics

Option 5: Return to Retail (Enhanced) *People return a wide range of their used drink containers to one of the retailers they shop at to have their deposit refunded.*	Y • High level of convenience as located at location where known to have access • Deposit set by government so has financial motivation • Consistent and so simple for consumer to understand • Broader range of materials so increased impact	Y • Increase in capture rate moves material from landfill and litter • Dedicated collection infrastructure improves segregation • Increased tonnage owned by single system improves financial motivation	Y • Higher capture rate reduces containers in litter stream • Focus on influencing product design as separating material for recycling • Dedicated infrastructure allows engagement when consumers utilise it	Y • Known consumer access to return points ensures fairness and accessibility • Cost efficient as well as an established model elsewhere • Opportunities for additional benefits such as charity donations and employment • More opportunities for SMEs in acting as return points or provide local logistics • Ownership model increases probability of these benefits being realised
Option 6a: Return to Depot (Voluntary Approach) *People return a range of used drinks containers with a deposit to a centralised point like a Council Recycling Centre for a deposit refund.*	N • Low no of depots means poor convenience • Low level of deposit means poor financial motivation • Limited range of materials and products dilutes impact	N • Low quantity captured limits impact on overall quality • Limited tonnage results in use of existing waste infrastructure • Limited tonnage restricts financial motivation to improve quality	N • Low quantity captured results in insignificant impact on litter • No focus on influencing product design • Limited consumer interaction restricts ability to influence	N • Low no of products and product coverage impacts on accessibility and fairness • Limited investment • Centralised delivery so limited opportunities for SMEs • Minimal approach unlikely to realise additional benefits like charity donations or employment opportunities for socially disadvantaged groups

Option 6b: Return to Retail (Individual Producer Schemes) *Depending on the drinks container and where they bought it people return their deposit drinks containers to various retail or centralised locations for a refund.*	N • Mixed level of convenience as different return location by product • High level of consumer confusion • Comparable AG Barr scheme only achieved similar results to current capture rates	N • Low quantity captured limits influence on quality • Producers owning own materials results in use of existing waste infrastructure • Limited tonnage restricts financial motivation to improve quality	N • Low quantity captured results in insignificant impact on litter • No focus on influencing product design • Limited consumer interaction restricts ability to influence	N • Mixed convenience impacts on fairness and accessibility • Limited investment by all except largest stakeholders • Use of existing infrastructure limits opportunities for SMEs and additional benefits
Option 6c: Kerbside Collection *People utilise their existing kerbside services to return a wide range of their drinks containers and have an online account from their local authority where their deposits are refunded.*	Y • Highest level of convenience • Deposit set by government so has financial motivation • Easy to understand, utilising existing collection systems	Y • Increase in capture rate moves material from landfill and litter • Technology allows separation for higher value recycling • Higher risk of contamination than dedicated collection	Y • Higher capture rate reduces containers in litter stream • Focus on influencing product design as separating material for recycling • Additional finance for collections allows consumer engagement/influencing	N • Existing methods already generate 90+% so significant additional cost and risk generates limited improvement over tested systems • Uses existing collection methods so no opportunities for SMEs/ employment for socially disadvantaged groups • Comprehensive coverage and kerbside collection will maximise accessibility and fairness

13. APPENDIX C: GLOSSARY

Business Regulatory Impact Assessment (BRIA)	An assessment used to analyse the cost and benefits to businesses and the third sector of any proposed legislation or regulation.
Circular Economy, Circular Product Design	A system in which waste is designed out and materials are continuously flowing through the supply chain and are retained by businesses and in the economy. Circular product design refers to designing products that facilitate their use in a circular economy.
Energy from Waste (EfW)	The process of generating energy from the treatment (usually incineration) of waste.
Equality Impact Assessment (EqIA)	A process designed to ensure that a policy, project or scheme does not discriminate against any disadvantaged or vulnerable people.
HDPE	High-density polyethylene
Net Present Value (NPV)	The sum of a set of future cashflows, discounted to their value in the present, minus the investment.
PET	Polyethylene terephthalate
Return to Depot	A DRS where no types of premises are required to act as return locations so the DRS operator establishes a network of centralised points to which containers are returned.
Return to Retail	A DRS where retail and other premises that sell drinks are required to accept containers for return.
Scottish Index of Multiple Deprivation (SIMD)	Scottish Government's official tool for identifying areas in Scotland concentrations of deprivation by incorporating several different aspects of deprivation (multiple-deprivations) and combining them into a single index.
Stock Keeping Unit (SKU)	A product identified by a unique code (eg barcode).
Strategic Environmental Assessment (SEA)	A means to judge the likely impact of a public plan on the environment and to seek ways to minimise that effect, if it is likely to be significant.