

# A Deposit Return Scheme for Scotland



Scottish Government  
Riaghaltas na h-Alba  
gov.scot

# Contents

<b>Ministerial Foreword</b>	<b>04</b>
<b>Introduction</b>	<b>05</b>
<b>Designing a deposit return scheme</b>	<b>15</b>
<b>System Components</b>	<b>18</b>
<b>Examples of Deposit Return Schemes</b>	<b>46</b>
<b>Co-operation with the UK Government</b>	<b>70</b>
<b>Equality Impact Questions Cross Referred to the EQIA</b>	<b>71</b>
<b>Next Steps</b>	<b>73</b>
<b>Annex A – Treasury Five Case Model</b>	<b>74</b>
<b>Annex B – Summary of deposit return schemes elsewhere (data from 2016 report)</b>	<b>75</b>

## Ministerial Foreword



In *A Nation with Ambition*, our Programme for Government 2017/18, we committed to developing a deposit return scheme designed to increase recycling rates and reduce littering. This represents a step change in our ambition for recycling and litter prevention, and I am proud of the fact that Scotland was the first country in the UK to commit to this action.

I believe the case has been made for deposit return as an effective way to improve our recycling rates and, at the same time, to help prevent bottles and cans ending up as litter. This conclusion is based on the extensive work undertaken on our behalf by Zero Waste Scotland. This work has carefully considered the opportunities that deposit return could create and any potential problems, and demonstrated that deposit return will support our ambition to create a society that values the resources it uses and wastes as little as possible. This paper therefore, presents an opportunity to comment on and help shape the system that we will introduce rather than seeking views on whether a deposit return scheme should be introduced.

Our position is, of course, backed up by the fact that many other countries in the world – ranging from Palau in the South Pacific to many of our European neighbours – already operate deposit return schemes. Some of these are well established and have helped countries like Sweden, Norway and Germany achieve high recycling rates and clean environments. Other countries, like Estonia and Lithuania, have recently introduced schemes, and Malta has become the latest European country to announce it will follow suit. In May 2018, the European Commission introduced wide ranging proposals on tackling commonly littered plastic that include a requirement for member states to collect at least 90% of all single use plastic bottles by 2025. This proposal references deposit return as a measure that could be taken to achieve this.

In March 2018, the UK Government announced that it will also introduce a deposit return scheme for England. We welcome the fact that England is following our lead in this. We recognise that there could be benefits from co-operation across the nations of the UK on the design of deposit return schemes. I have therefore written to my counterparts in the other administrations to initiate a dialogue to ensure that we approach this in a way that benefits communities everywhere in the UK. The responses to this paper will allow us to take part in these discussions with a more complete understanding of what we want for a deposit return scheme in Scotland.

I look forward to hearing your views.

A handwritten signature in black ink, appearing to read 'R. Currie'. The signature is fluid and cursive, with a large initial 'R'.

## Introduction

### Building a Circular Economy in Scotland

Our ambition is to create in Scotland a society that values the materials that we use and discards as little as possible. This will create a variety of opportunities from making goods that last longer and are ready to be upgraded and repaired, to reducing our need for raw materials and helping us get smarter at recycling. This circular economy is about the environment, the economy, and people.

To help achieve this, as we committed to in *A Nation with Ambition*, our 2017/18 Programme for Government, we will develop a deposit return scheme designed to increase recycling rates and reduce littering and implement it across Scotland. We will ensure the scheme is tailored to meet Scotland's specific needs and we will work closely with the business community during its design and implementation.

Zero Waste Scotland and the Scottish Government have been working to consider the key questions which need to be addressed to ensure that a scheme delivers for Scotland. This work has been guided by four design principles - that a deposit return scheme should:

- o increase the quantity of target materials captured for recycling;
- o improve the quality of material captured, to allow for higher value recycling;
- o encourage wider behaviour change in the use of materials;
- o deliver maximum economic and societal benefit for Scotland.

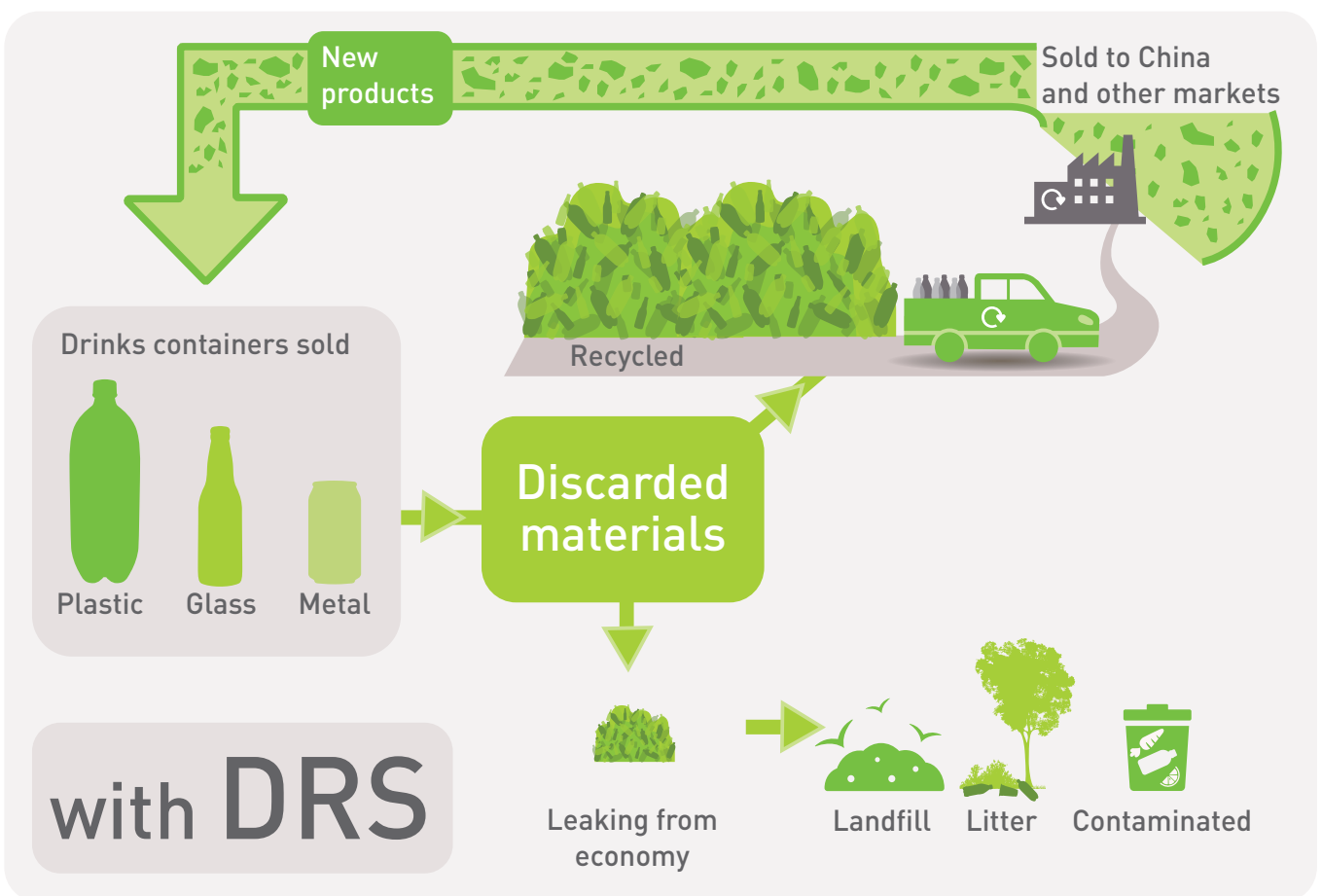
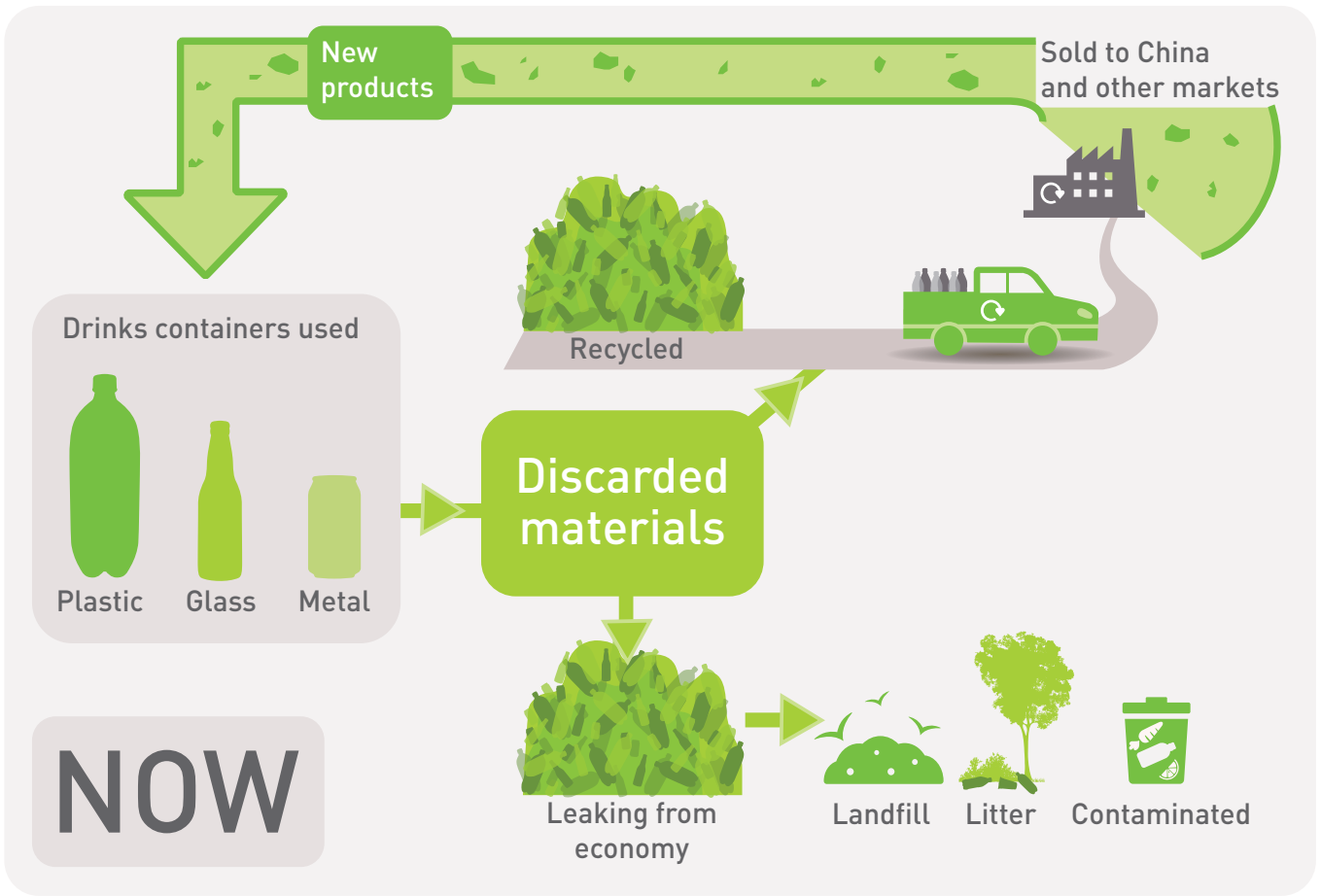
### Quantity and Quality of Materials

More than two billion drinks are sold in Scotland in single-use containers every year, and the recycling rates for drinks containers are not as high as we would like, estimated at around 50% depending on the container. By incentivising their return to a designated collection point, we will ensure that containers are properly recycled, becoming a high value resource rather than being lost through landfill or littering.

Deposit return offers the chance to embed a step change in recycling performance. Other systems in Europe are achieving capture rates of up to 95% for target materials compared with around 50% in Scotland at present.

Furthermore, plastic and metal in particular are very valuable materials. This value is reduced through 'contamination', in other words by being mixed in with other materials of lower value. Deposit return schemes offer a good opportunity to minimise contamination and maximise the value of the collected material. This is because items will be returned to a separate, not co-mingled system and will only be accepted into the system if they are the right kind of material.

This concept is demonstrated in the graphic on the next page.



## Changing Behaviours

As the Scottish Environment Protection Agency (SEPA) notes in its 'One Planet Prosperity' Regulatory Strategy, we would need the resources of three Earths to maintain the current rate of consumption if everyone consumed as much as Scotland. Some societies consume more, others less. However, the need for everyone to change their patterns of consumption is clear. As with the wider climate change agenda, the countries that find solutions and innovate in this area will derive economic benefit from leading the way.

Drinks containers form a highly visible part of the litter stream. As we are becoming increasingly aware, plastic bottles are particularly problematic in our rivers and seas, potentially causing harm around the world. This is not to say that glass and metal items are not a problem when littered. Broken glass and damaged cans can be a danger to people, their domestic and farm animals, and to wildlife. And, of course, items that are littered reduce the attractiveness of local communities and represent resources lost to the economy. Often, if they are recovered, they are too heavily contaminated to be recycled. By attaching a value to these items, in the form of a deposit, we hope to encourage people who would otherwise be careless with their cans and bottles to return them for recycling.

Deposit return is only one component in a wider suite of policies to change behaviours around consumption. Our Programme for Government 2017/18 also committed us to establishing an expert panel to consider how else we can tackle our throwaway culture and reduce our reliance on single use materials. The panel has now been established and the membership, announced on 11 May, draws on a wide range of expertise. The panel will start with a consideration of disposable cups and straws. We will carefully consider the interaction of deposit return with outputs from the expert panel.

We are also working with councils to improve the overall rate of household recycling through the Household Recycling Charter that aims to standardise the kerbside recycling systems across Scotland, making it easier for people to know what they can recycle and making it easier for recyclers to standardise their systems and processes. We will ensure that the Charter and the deposit return scheme will be compatible.

Our *Towards a Litter Free Scotland* and the *Marine Litter Strategy for Scotland* documents, both published in 2014, lay out the actions we are taking to prevent litter and the steps that are being taken to clean up the litter that already exists – particularly in the marine environment. A deposit return scheme will support one of the most effective ways to reduce littering – by ensuring it does not happen in the first place. Both of our litter strategies focus on prevention as the solution for litter, and a deposit return scheme can be a highly effective mechanism for discouraging a high volume and expensive litter stream.



RECYCLED



POLLUTING OCEANS



POLLUTING COUNTRYSIDE



POLLUTING WHERE WE LIVE

### The Economic Opportunity of Deposit Return

The Scottish Government is committed to reducing the local and global environmental impact of our production and consumption. An appreciation of our natural environment and the key role it plays in enabling economic activity is at the heart of this. Our actions to limit greenhouse gas emissions and improve the efficiency of how we use materials in our economy are essential to ensuring that economic growth is sustainable and that our children and their children can enjoy the benefits that economic growth can bring. All countries face these challenges and the successful ones in the 21st century will be those which can develop the solutions to doing more with less.

In our existing economy, we “take, make and dispose”. We take resources from the ground, air and water; we make them into products and structures; then we dispose of them. This is not sustainable. It is estimated that if everyone in the world lived at the same standard as the average Scot we would need the resources of three planets (<https://www.sepa.org.uk/media/219427/one-planet-prosperity-our-regulatory-strategy.pdf>).

In a circular economy, systems are designed to make better use of valuable products and materials - changing the way they are produced and managed to have less impact on finite natural resources, and create greater economic benefit. The following diagram illustrates the concept.

OUTLINE OF A CIRCULAR ECONOMY

PRINCIPLE

1

Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows  
 ReSOLVE levers: regenerate, virtualise, exchange



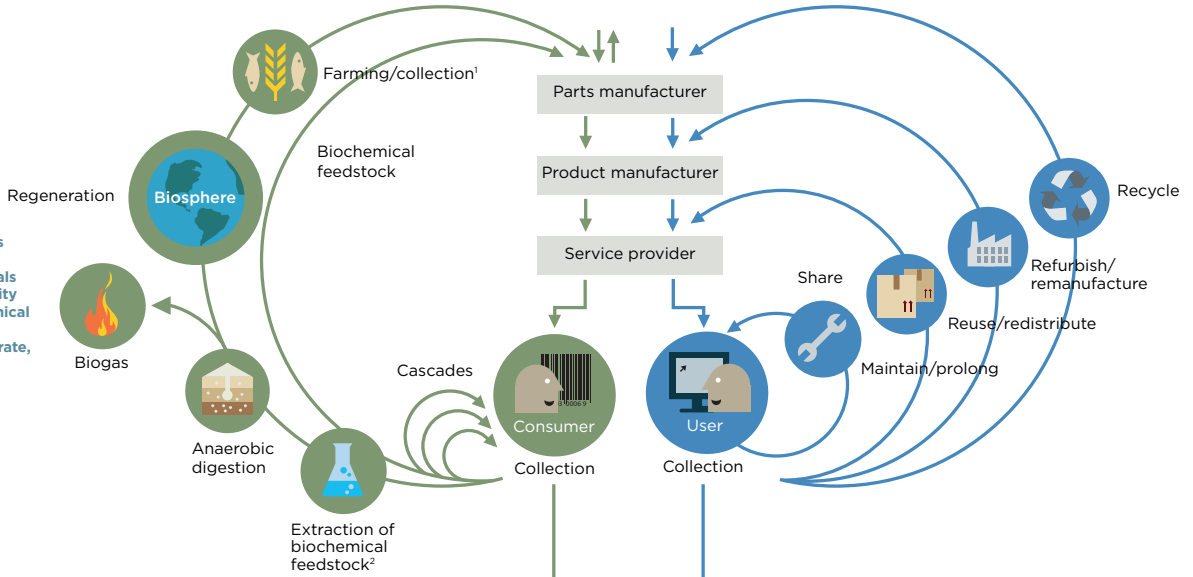
Renewables flow management

Stock management

PRINCIPLE

2

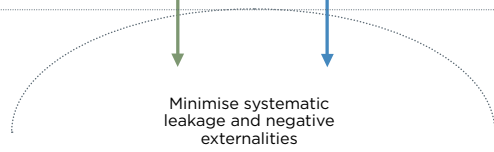
Optimise resource yields by circulating products, components and materials in use at the highest utility at all times in both technical and biological cycles  
 ReSOLVE levers: regenerate, share, optimise, loop



PRINCIPLE

3

Foster system effectiveness by revealing and designing out negative externalities  
 All ReSOLVE levers



- 1. Hunting and fishing
- 2. Can take both post-harvest and post-consumer waste as an input

SOURCE: Ellen MacArthur Foundation, SUN, and McKinsey Center for Business and Environment; Drawing from Braungart & McDonough, Cradle to Cradle (C2C).



The left hand side of the diagram represents the flow of biological materials in a circular economy. The right hand side represents the flow of materials and products such as metals, plastics etc. Similar principles apply to both sides of the diagram, and there are multiple interactions between them.

A deposit return scheme is a key way of ensuring that material which can be productively recycled does not leak from the resource system.

There are significant environmental benefits to a more circular economy: from reducing greenhouse gas emissions, relieving pressure on water resources, virgin materials and habitats, and limiting pollution of air, soils and watercourses. [Zero Waste Scotland has estimated](#) a potential greenhouse gas saving of around 11 million tonnes of carbon dioxide equivalent per annum by 2050 from moving to a circular economy.

There is a growing body of evidence on the scale of the economic opportunity from a more circular economy. [Analysis by the Ellen MacArthur Foundation and McKinsey](#) suggests there could be a trillion dollar opportunity globally.

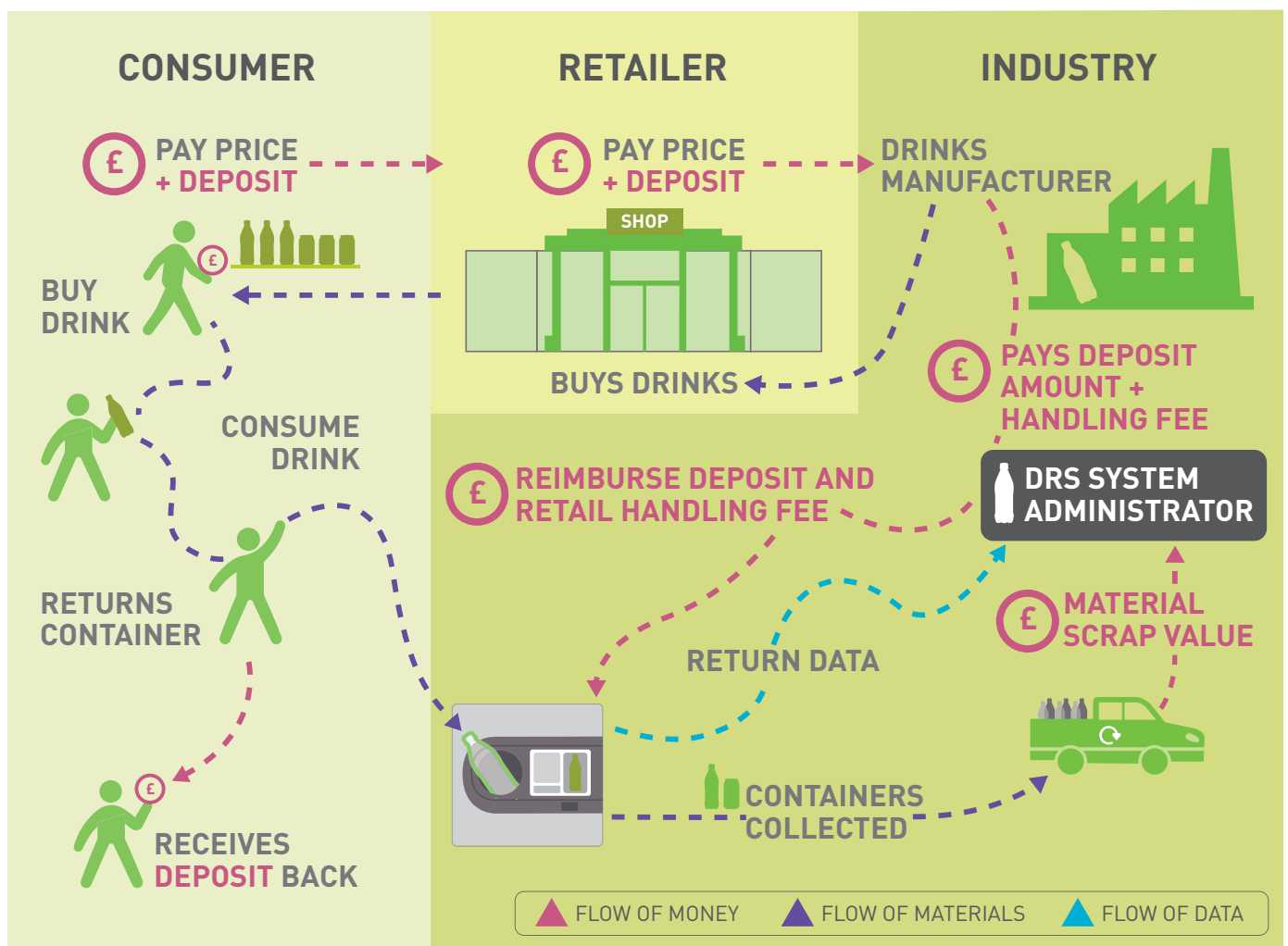


The shift in focus from using resources more efficiently towards re-using resources across the economy not only boosts productivity (by reducing demand for and the cost of raw materials) but also stimulates innovation, in terms of product redesign, reuse and remanufacture. This is a key policy priority in leading economies including Denmark, Sweden, Netherlands, Japan and China. Scotland is in a strong position to move quickly and take advantage of our scale and connectedness.

### Boosting recycling and reprocessing infrastructure in Scotland

We are aware that many manufacturers of products would like to increase the level of recycled content in their goods but also that they sometimes feel constrained by the availability of recycled material. By introducing a deposit return scheme Scotland will create a new secure resource of high quality material.

We have heard from business that a key challenge to developing the infrastructure to reprocess material in Scotland is the need to obtain a secure supply of material. A deposit return scheme administrator in Scotland is likely to have significant amounts of high quality material which it can make available to the reprocessing industry.



Material reprocessing and its subsequent reuse offers the possibility to create a wide range of employment opportunities. There will be a requirement for drivers and plant operatives but also managers, sales people, scientists, engineers and designers. The opportunities will be created at all ends of the skills distribution, from entry level through to post-graduate, in the case of some aspects of research and development.



The Scottish Government will work with investors and recyclers to seek to establish reprocessing plants in Scotland to take advantage of the materials that will be available and to realise the benefits this new industry will generate.

#### **A coherent system**

While Scotland has devolved power over environmental issues, we also recognise that many manufacturers and retailers that operate here are part of UK-wide supply chains. It is also of note that the current producer responsibility scheme operates across the UK.

The Scottish Government is working with the other administrations to explore how deposit return and producer responsibility schemes can form a coherent system that incentivises recycling and ensures producers and retailers take responsibility for the materials and products they put onto the market. As part of that, the Scottish Government is open to exploring whether the schemes should be co-ordinated across the UK or whether certain features of them should operate on a UK-wide basis.

Producer responsibility is an important and well established principle. The EU's Circular Economy Strategy sets out that producer responsibility systems should capture 100% of the net economic cost of dealing with packaging waste. As set out in our *Making Things Last* strategy for a circular economy, we are considering the role producer responsibility can play more widely in improving the design, disposal and recycling of materials including packaging. This is an issue on which the expert panel will be asked to give a view.

The Scottish Government and other administrations across the UK are considering how to reform the producer responsibility system in light of the EU's Circular Economy Strategy.

For drinks containers, we believe this means viewing a well designed deposit return scheme as an efficient and effective way of delivering producer responsibility for those materials covered by the scheme. A number of European countries already use producer responsibility to encourage drinks producers to be part of the deposit return scheme. This can be done through a mechanism that places a levy or fee on material that is not recycled, making being part of a deposit return scheme and using containers subject to the scheme a cheaper alternative for producers.

This is the approach taken, for instance, in Norway, which has established a 95% target for its deposit return system, that works in parallel with an environmental tax system. This is set at NOK 5.70 for cans and NOK 3.44 for recyclable bottles. The environmental tax lessens in line with the return rate, starting with a 25% return rate. At a 95% return rate, the environmental tax ceases completely.

#### **Additional benefits of deposit return**

While the primary purpose of a deposit return scheme would be to increase the rate and quality of recycling, we have identified additional benefits that could be derived from the system.

Primarily, it could be a powerful tool to influence product design. This could be achieved by having strict requirements for what can be included in the system, requiring producers to make containers that meet these criteria. Standardised materials and design for recyclability could both be factored into design requirements. This would support the Scottish Government's circular economy ambitions beyond increasing the rate at which material is captured.

Deposit return could also support charitable donation. This could be done at the point of return – particularly if this involves automated take back via a machine – or through simply donating a used container for someone else to return to reclaim the deposit.

Additional benefits are considered further in the paper, and you will be asked questions on how far the scheme should seek to achieve them and what other benefits can be identified.

#### **The underpinning legislation**

The Scottish Parliament has devolved competence over the environment. In the case of deposit return, Scottish Ministers have powers under the Climate Change (Scotland) Act 2009 [<http://www.legislation.gov.uk/asp/2009/12/section/84>] to introduce a deposit return scheme on any material and its associated packaging. The powers specify that a deposit return scheme should be introduced to increase the recycling rate of targeted material. In this case, we are designing a system to increase the recycling rate of a particular sort of packaging. Where there are issues that interact with areas that are currently reserved, we will work with the UK Government to find a solution.

## Running the scheme – the administrator and financial flows

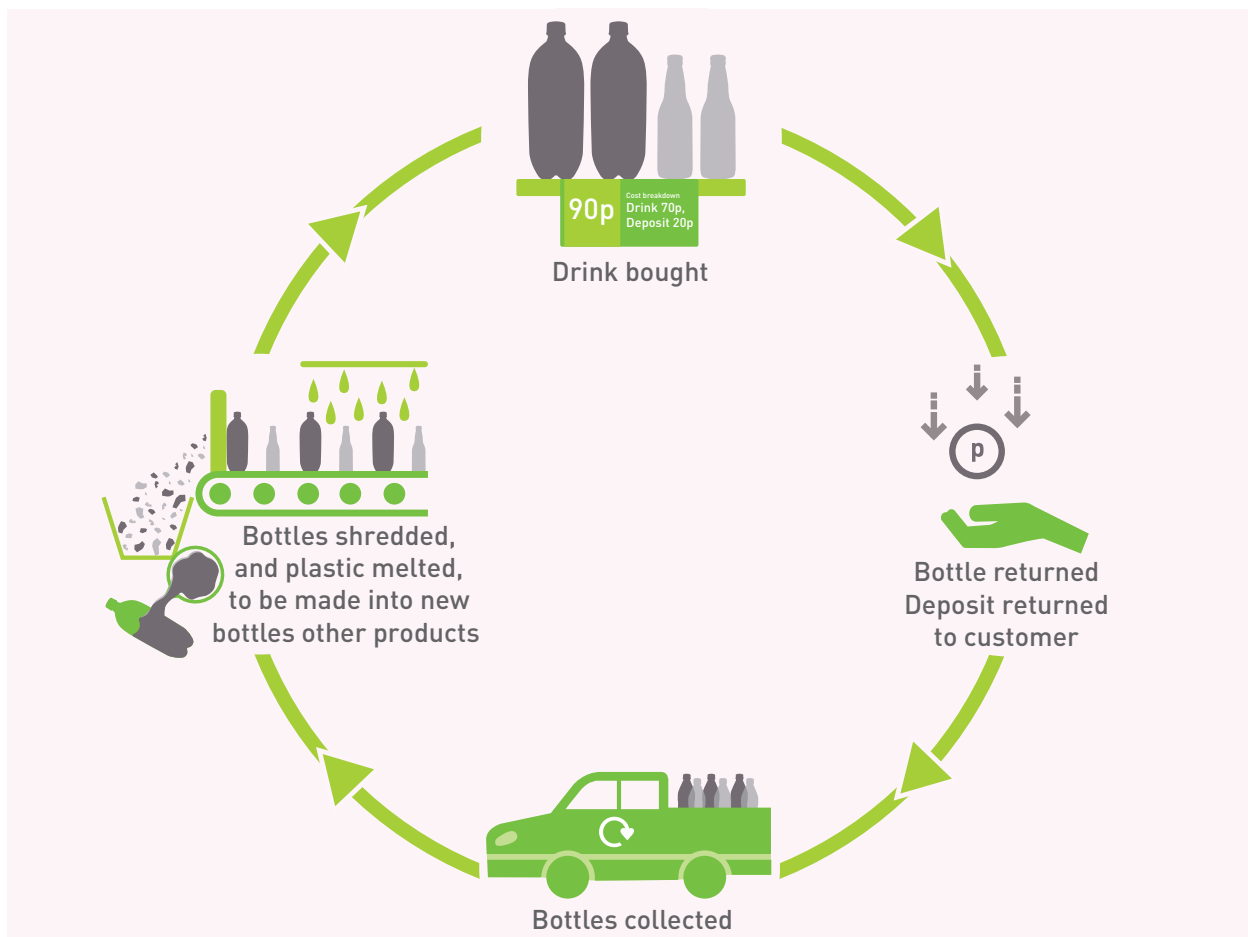
One of the powers provided through the Climate Change (Scotland) Act 2009 is for Scottish Ministers to appoint a scheme administrator to run deposit return in Scotland.

Broadly, the scheme administrator would have responsibility for ensuring that the system operates smoothly from day one of it coming into effect. It is likely that it would be responsible for ensuring the correct flow of money through the system.

This is particularly important for deposits. Deposits would flow through the system in the following fashion:

- o The producer pays the deposit amount for each item they place on the market to the system operator
- o A wholesaler buys goods directly from the producer and pays the unit price plus deposit
- o A retailer buys goods from wholesaler and pays for the unit price plus deposit (or buys directly from the producer)
- o A consumer buys goods and pays retail price plus deposit
- o The consumer then returns the container and receives the deposit.
  - In a scheme that uses dedicated drop-off points run directly by the system operator, this money is paid directly from the administrator to the customer from the money paid by the producer
  - In a scheme which allows consumers to return items to retailers, the retailer reclaims the deposit plus handling fee from the system operator, paid from the amount provided by the producer.

A key role for the scheme administrator, therefore, will be to ensure that this money is fully accounted for and that retailers, if they are the return points, are promptly reimbursed.



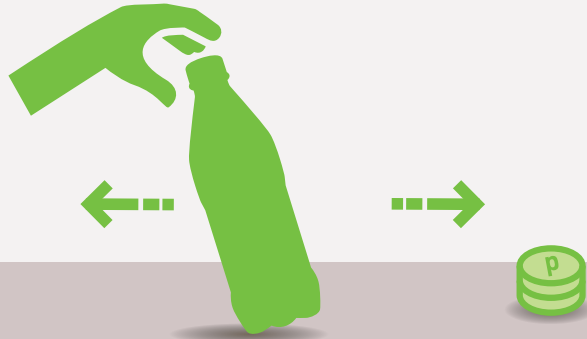
This process means that, when the system is introduced, producers may pay an initial contribution of deposit amount for containers they are putting on the market that will be obligated but will not be refunded to customers for some months.

The administrator will also probably be responsible for ensuring that material that is returned is collected from the drop-off points and processed appropriately. Data on items returned, collected either through automated return points or through counting centres, will enable monitoring of collection rates and help to prevent fraud.

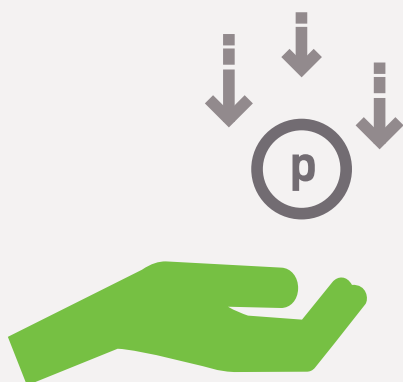
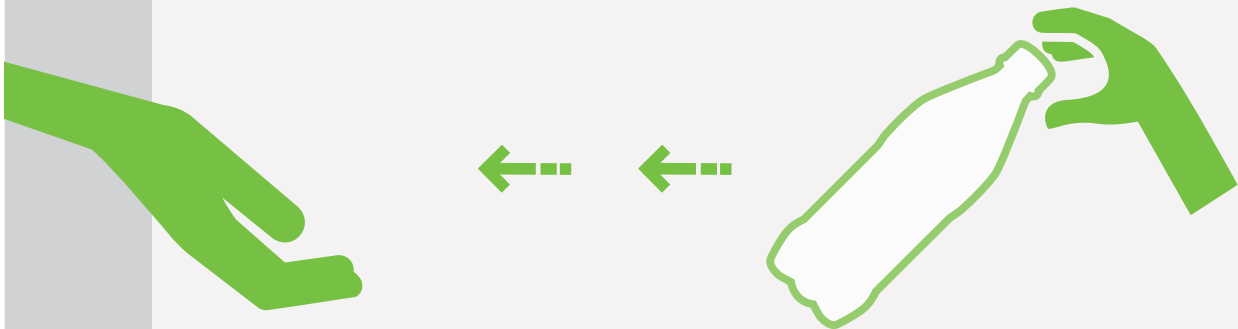
There are a number of options that could be followed on the scheme administrator, and the consultation seeks your views on which would one would be most appropriate.

## Designing a Deposit Return Scheme

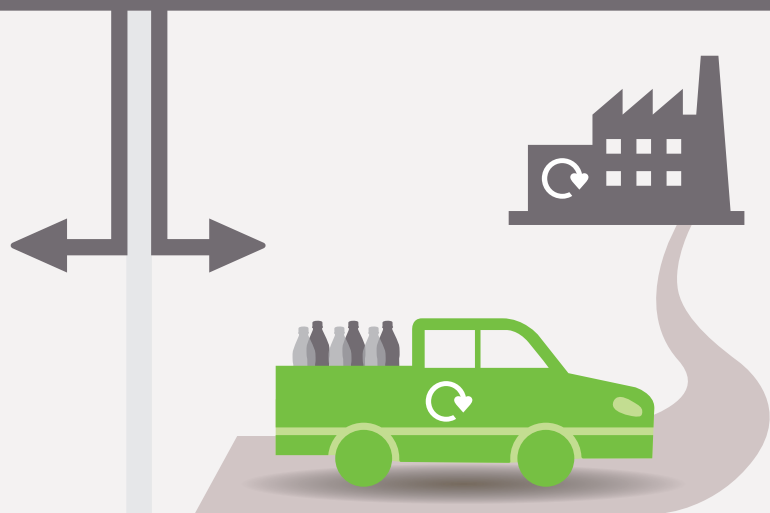
**BUY DRINK. PAY DEPOSIT**



**RETURN THE PACKAGING**



**DEPOSIT RETURNED  
TO YOU**



**CONTAINERS  
RECYCLED**

In principle, a deposit return scheme is very straightforward. The price of any products included in the scheme will include a small extra amount – the deposit – which is then returned when the item is returned to a specific point.

What this means in practice is that when someone buys a drink in a bottle or can, they will get some of the cost back when they return the container to a deposit return point. If they are careful to keep a hold of the used container and return it, consumers will not lose money.

There are, however, a number of different options for how a system could be run, such as where people should be able to return items and get their deposit back and exactly what sort of materials and products should be included in the system. These components interact with each other to give a range of possible systems that could be introduced. We want to pick the system that will deliver the best possible results for Scotland.

The Scottish Government commissioned Zero Waste Scotland to design possible options for the system. This has drawn on the knowledge and expertise of a wide range of stakeholders. You can find out more details about this process in the Outline Business Case that accompanies this document.

This work has been undertaken from a blank sheet of paper, and there is not a preferred system or particular options. Zero Waste Scotland has followed clear processes to design a system designed to meet Scotland's needs. This work has been overseen by a Programme Board that includes senior representation from the Scottish Government, Zero Waste Scotland, Scottish Environment Protection Agency and Highlands & Islands Enterprise, and has followed the well-established Treasury Five Case model in assessing options (you can read more about the process in Annex A/OBC).

There are, of course, many other countries around Europe and globally that operate some form of deposit return scheme. While we have not sought to copy any existing system, learning from other countries has helped the design process.

This work has identified twelve key components that will make up a successful deposit return scheme. These are:

- o What materials will be collected
- o What types of products will have a deposit on them
- o How we measure success and effectiveness
- o Where you will be able to get the deposit back
- o How the scheme will be paid for
- o How the scheme is communicated so everyone understands it
- o How to prevent fraud in the system
- o How much the deposit should be
- o What infrastructure to put in place, and the logistics involved
- o How to create additional benefits from the scheme
- o Who owns the system
- o How the system is regulated

A set of options has been developed for each of the components. The options for each component are expanded on in this paper. A separate document, the Strategic Outline Case, outlines the options that were initially considered, including those that were eliminated on the basis of the Five Case model. This document is published alongside the consultation.

During this process, it has become clear that key components interact with each other in ways that will affect the success of the system. Zero Waste Scotland has, therefore, generated four example systems that allow us to understand and demonstrate the interaction of different components. These are not being presented as the four designs to be chosen from but are there to help you understand and evaluate how the system might work. These will be explained in more detail later in this paper.

### **Designing a fair and accessible scheme**

It is important for this consultation to ensure that equalities issues are fully considered. These are explored in more detail in the accompanying interim Equality Impact Assessment, but some key aspects of the approach are drawn out here.

We have identified a number of key groups which we feel the design of the system and the choice of system components is particularly important:

- o Access for older people to return points and to information about the scheme
- o Access for disabled people to return points
- o Access for people who do not own their own vehicle to return points
- o Access for people living in remote and rural areas and islands to return points
- o Access to information about the scheme for people who do not speak English as a first language
- o Accessibility of the scheme for people with learning disabilities
- o Accessibility of the scheme for people who have impaired vision
- o Cash flow impacts on people living in poverty or on low incomes

### **How to Respond to the Consultation**

We ask a number of questions throughout the paper. The questions are presented for response on our Citizen Space on-line hub. Please use this to respond to the consultation. If you are not able to do so, please complete the accompanying Respondent Information Form and sent it to the address noted on the form.

In order for us to deal with your response appropriately please ensure you complete the Respondent Information Form. This will ensure that if you ask for your response not to be published that we regard it as confidential and will treat it accordingly.



## System Components

As explained in the introduction, Zero Waste Scotland has carefully examined the individual components that will make up a successful system. We welcome feedback on the individual components and have asked a number of questions associated with each component.

### What materials will be collected



This refers to what kind of drinks containers should be included in the scheme in terms of the material they are made of. There are a number of options within this component, reflecting differing levels of ambition and design principles.

It should be noted at the start of this section that ‘plastic’ is a catch all word for a number of related materials with similar properties. For the drinks containers, the two main materials are PET (polyethylene terephthalate, the normal material for soft drinks and bottled water) and HDPE (high-density polyethylene, primarily used for milk and other dairy-based drinks).

The possible options for materials in scope are broadly:

1. PET plastic only. This is the most basic option, capturing the bulk of soft drink and water containers. There are currently around 690 million PET plastic containers on the Scottish market, which a deposit return scheme has the potential to capture. This option recognises that this is not only a valuable material but that there is significant public interest in reducing the number of these bottles ending up as litter – particularly in the marine environment. Pursuing only this option would, however, mean that large amounts of other valuable and often littered material is not in scope.

2. PET plastic and metal cans only. This would capture the bulk of soft drinks containers and some alcoholic beverages. Glass is a bulky, heavy container material, therefore excluding it would simplify the system and reduce costs, particularly in terms of transport and any Reverse Vending Machines (RVMs) used to repay deposits. However, it would also lose a material stream that has value – spirit bottlers in particular demand high quality clear recycled glass that could be delivered effectively. If littered and broken, glass is a danger to people and animals. Excluding glass also risks distorting the market if producers chose to move over to packaging in glass to avoid being included in the deposit scheme.
3. PET plastic containers, glass containers, and aluminium and steel cans. There are currently 1.7 billion PET plastic containers, glass containers, and aluminium and steel cans on the Scottish market, which a deposit return scheme has the potential to capture. This is the most usual mix of material included in deposit return schemes globally and constitutes the bulk of drink containers put on the market in Scotland. Plastic and metal containers in particular can be recycled efficiently if they are collected separately and without contamination. This option also captures a wide range of material that can form an unsightly and sometimes dangerous part of litter.
4. Both PET and HDPE plastic containers, glass bottles, and metal cans. There are currently around 1.9 billion PET and HDPE plastic containers, glass containers, and aluminium and steel cans placed on the Scottish market, which a deposit return scheme has the potential to capture. This is very similar to Option 2 but includes HDPE bottles. HDPE can offer value as a recycled material, and through its inclusion the system will capture all dairy products, including fresh milk, flavoured milk and yogurt drinks.
5. PET and HDPE plastic containers, glass bottles, metal cans, cartons and disposable cups. There are currently around 2.5 billion PET and HDPE plastic containers, glass containers, aluminium and steel cans, drinks cartons and disposable cups on the Scottish market, which a deposit return scheme has the potential to capture. This builds on Option 3 with the addition of some types of material that are not included in any other deposit return scheme globally. The inclusion of these materials (cartons and disposable cups) captures the widest possible range of materials. Cartons in particular can be harder to recycle, however the main issue for their recycling is getting sufficient tonnage. Currently, these materials may be collected with paper and card and can therefore contaminate these loads. We recognise the need to change collection methods. A deposit return scheme that collects these materials separately could therefore offer a better recycling rate for these materials and also prevent them ending up as litter or as contaminants in other waste streams. Encouraging the responsible collection of these items could also have an impact on disposal of materials that often come with these containers, like plastic straws and disposable cup lids.

A summary of the total numbers of containers available under each option is included at Table 1.

**Table 1**

	<b>Estimated number of containers in scope in Scotland (billions of containers) (Source: <a href="#">Kantar World Numbers</a>)</b>
PET plastic containers (Option 1)	0.7
PET plastic containers and metal cans (Option 2)	1.3
PET plastic containers + glass containers + aluminium and steel cans (Option 3)	1.7
PET plastic containers + glass containers + aluminium and steel cans + HDPE plastic containers (Option 4)	1.9
PET plastic containers + glass containers + aluminium and steel cans + cartons + disposable cups (Option 5)	2.5

Table 2 shows the tonnages of these material dealt with by local authorities and the amounts currently captured for recycling by local authorities. These are estimates drawn from various data sources to offer a best estimate.

**Table 2: Local authority household collection and recycling of target containers**

<b>Material</b>	<b>Tonnes collected annually</b>	<b>% recycled</b>
Glass drinks containers	160,064	59%
Steel drinks containers	3,284	46%
Aluminium drinks containers	13,141	49%
Plastic (PET) drinks containers	27,320	53%
Plastic (HDPE) drinks containers	16,376	53%
Cartons	7,239	39%
Disposable cups	unknown	0%

Disposal costs for local authorities are variable but significant. Non-recycled waste, including drinks containers that are not recycled, costs local authorities around £110 per tonne (including landfill tax) to dispose of. A tonne of mixed recyclate is also usually a cost for a local authority, between £14 and £60 depending on the material mix and contracting arrangements. While material collected will have some value, this will usually be more than offset by the costs noted here. Material diverted into a deposit return scheme eliminates these costs for local authorities. It is possible, though, that there will be an increase to the per tonne cost to local authorities of recycling that is left in the dry recyclable kerbside collections.

The scheme could also be designed to allow local authorities, or operators of Material Recovery Facilities (MRFs), to redeem deposits on any containers that are placed in kerbside recycling or collected as litter. It would be important that any material extracted in this way is uncontaminated when it is presented to the system. A deposit return scheme could therefore offer a further income stream for local authorities.

Local authorities also pay a cost for managing items disposed of in public bins, or irresponsibly disposed of as litter. Plastic, glass, and metal drinks containers are around 22% of litter by weight, or an estimated 40% by volume. These figures would be higher with disposable cups included. Litter on the ground also has significant negative effects on our communities, green spaces, countryside, and beaches. Reducing this component of litter is one of the objectives of this work.

Additional material is dealt with by businesses, both hospitality and catering firms which sell such items, and other business premises where staff bring items on to site. Recycling rates at many venues may be much higher than for local authority kerbside services. However, where customer participation is needed to capture materials, or items are taken off site to be consumed, even the best sites may be failing to capture as much material as they would like. Disposal costs for these businesses can also be significant operational costs.

Another issue to be considered is the possibility of a deposit return scheme having unintended effects in changing producer behaviour. For instance, excluding certain types of material could encourage producers to switch to that material to avoid having their products caught by the deposit return scheme. These risks can be addressed in two ways – through coherent design of the deposit return scheme alongside producer responsibility obligations to ensure that producers and retailers of all types of packaging carry the cost of materials and products they put onto the market; or alternatively by including the widest range of materials within the deposit return scheme itself.

We understand from industry stakeholders that reprocessing capability for cartons and disposable cups already exists in the UK, so if these are included in the scheme they could be dealt with. However, there are risks associated with including materials like this as there is no precedent in other schemes worldwide, meaning we have no practical experience to learn from. One option could be to consider adding these materials once a more limited scheme has been established and is already functioning well.

The most ambitious option includes materials that are not part of any other deposit return scheme internationally, and for which recycling infrastructure is less mature. As such, the deliverability risks of this option are considerably higher. One option would be to introduce a deposit return scheme with a core set of materials but which could be expanded to cover a wider range of materials once it is up and running.

### *Refillable containers*

Many people in Scotland will be familiar with previous deposit return schemes on glass containers for certain soft drinks. These systems were designed to return bottles intact, to be washed out and refilled. Our current work has focused on return for recycling. This is due to a number of factors:

- o There are potential environmental downsides from return for refill. Return for refill often requires heavier gauge material, often glass, in order to ensure the containers are returned intact. The environmental impact of return for refill is determined by how often a bottle is actually refilled and how far it has to travel to be refilled.

- o There would be significant logistical challenges in ensuring that containers are returned to the right producer. This could be dealt with by ensuring standardised packaging, although this presents significant challenges in itself.
- o EU Guidance indicates that a deposit return scheme should not discriminate against imported products (which would be hard to deal with through a return for refill scheme) and should not otherwise distort competition. A deposit return system focused on refillables has the potential to distort competition in this way, particularly for imported products where return for refill would be logistically impossible.

We are aware that a number of return for refill schemes still exist or there is potential interest in reintroducing such schemes. We will therefore work to ensure that our scheme does not interfere with these schemes. It should be noted that exempting refillable bottles from a scheme, though, could incentivise a greater use of refillable containers.

*Questions on Materials in Scope*

Q1. Which of the options do you prefer? Please choose one or more options from below and explain your reasoning.

- PET plastic containers
- PET plastic containers and metal cans
- PET plastic containers + glass containers + metal cans
- PET plastic containers + glass containers + metal cans + HDPE plastic containers
- PET plastic containers + glass containers + metal cans + cartons + disposable cups

Q2. Do you think the scheme should start with a core set of materials and then be expanded as appropriate? Please pick one.

- Yes
- No
- Don't know

Q2a. If yes, which materials should it start with?

- PET plastic
- Metal (aluminium and steel)
- Glass
- HDPE plastic
- Cartons
- Disposable cups

Q2b. If yes, which materials do you think should be added later?

- PET plastic
- Metal (aluminium and steel)
- Glass
- HDPE plastic
- Cartons
- Disposable cups

Q3. Are there any materials that you think should not be included? Please explain your reasons.

- PET plastic
- Metal (aluminium and steel)
- Glass
- HDPE plastic
- Cartons
- Disposable cups

Q4. Are there any other materials not already listed that should be included?

Q5. Are you aware of any materials currently in development that should be included? For instance, there is currently a great deal of interest in making 'bioplastics' either from starch derived from plants or food byproduct streams. Whilst these can look and behave like plastic, it is often important to ensure they are kept separate from plastic in the waste stream as they are recycled differently.

Q6. Do you have any views on the cost implications for local authorities?

## What types of products will have a deposit on them

### WHAT TYPES OF DRINKS SHOULD BE INCLUDED?



#### SOFT DRINKS

(EXAMPLE: FIZZY DRINKS, BOTTLED WATER ETC.)

#### MIXERS

(EXAMPLE: TONIC WATER OR DILUTING JUICE ETC.)

#### FRUIT AND VEGETABLE JUICE

#### DAIRY

(EXAMPLE: MILK, MILK ALTERNATIVES, MILKSHAKES, YOGHURT DRINKS ETC.)

#### SPIRITS

#### BEER, CIDER AND WINE

#### OTHER

(EXAMPLE: TEA, COFFEE, DRINKS BOUGHT ON-THE-GO)

This refers to the nature of the drink in the containers. While the most important issue for consideration when determining what types of container should be in scope is the material it is made from, there may be some product categories that will influence this decision. It should be noted that some product categories are so predominant that excluding them would have a serious impact on the effectiveness of the system.

It should also be noted that the Commission of the European Union, in its Commission Communication 2009/C107/01, advises that any differentiation should in principle be based on the material used for the containers and not on the content of the beverages, for reasons that the content in itself is not related to the environmental performance of the packaging. Therefore any consideration of exempting categories of product should be clearly evidenced on the basis of an overriding harm from including the product.

It is also important to make clear that the purpose of a deposit return scheme is not to influence behaviour in other ways. For instance, a scheme could be used to change buying habits and public health but we are not pursuing that as a goal. We also recognise that it is important not to create incentives for potentially negative behaviour in other areas, perhaps by making a less healthy choice more attractive by exempting it from the system.

An issue often raised in relation to which products should be in scope is whether a deposit return scheme should specifically target some 'on the go' drinks. By this we mean drinks bought and immediately consumed away from the home (for instance small bottles of water and soft drinks). The containers from these can more often end up going into unsegregated street bins or being littered. It should also be noted, though, that some products that are not specifically intended to be consumed away from the home often are and are then improperly disposed of (for instance,

alcoholic drinks packaging). It would therefore be difficult to draw a clear distinction between 'on the go' and general consumption.

It is likely that the scheme will capture products in containers up to three litres in size. This is because most RVMs currently available, which are discussed in more detail later in this paper accept bottles up to that size and the vast majority of bottles do not exceed three litres.

The products being considered in particular are:

1. Ready to drink (soft) - All non-alcoholic drinks (still and carbonated) that are ready for the consumer to drink. Includes sports drinks, energy drinks and health drinks.
2. Soft Mixer Products - All products that are mixed with a soft drink (still or carbonated) to make a drink. Includes diluting, cordial, concentrate and syrup products.
3. Bottled water - All still and carbonated water and flavoured waters that are sold in a drink container.
4. Fruit and vegetable juice – All ready to drink fruit and vegetable juice and juice drinks. Also includes fruit and vegetable based smoothies.
5. Dairy - All ready to drink milk and other dairy (fresh and long life), including all dairy alternatives. Includes milkshakes, flavoured milks, milk based smoothies and ready to drink coffee drinks. Also includes ready to drink yogurt and probiotic yogurt drinks.
6. All distilled spirits with an alcohol by volume (ABV) of higher than 30%.
7. All fermented alcohol products including beer, cider and wine. Also includes non-alcoholic versions of the above.
8. All other alcohol not covered in the "distilled spirits" and "fermented alcohol" categories with a ABV less than 30%. Includes fortified wines, liqueurs and mixer products where spirits, wine or other fermented products have been mixed with a soft drink.
9. All other drinks, not listed above, that can be purchased to drink on the go. Includes all hot drinks such as tea, coffee and hot chocolate, and all other drinks sold 'on the go', for example at fast food outlets – this could include some of the products mentioned above but sold, for instance, in a disposable cup.

### *Dairy Products*

Dairy, as indicated above, is a broad ranging product category with a range of issues associated with it. Evidence suggests that fresh milk is primarily consumed within the home and the packaging targeted by kerbside recycling. This packaging is predominantly HDPE plastic, which is a readily recycled and valuable material. The recycling rate for HDPE containers is estimated to be 53%. Long life milk is consumed within the home, but as this is often in cartons the packaging is harder to tackle.

There has also recently been a rise in doorstep delivery of milk in returnable and refillable glass bottles, and we will seek to design a system that allows this type of return for refill to continue rather than diverting the bottles to recycling.

Dairy is often seen as presenting a hygiene risk if it is included in a deposit return scheme, if containers are returned without being cleaned. Discussion with the Royal Environmental Health Institute of Scotland has suggested that the return and storage of such containers should not be an issue and that any such issues could be easily mitigated. Experience from other systems, such as Norway, suggests that as long as any transport containers are sealed and the material is collected and processed quickly, any hygiene impacts are negligible.

Dairy also covers a range of other products, often consumed directly from the container and on the go, and there is less evidence that these containers are captured for recycling. Furthermore, a number of these products are high in sugar, therefore it is important to consider whether excluding them from a scheme will make them more attractive, as their immediate cost will be lower, leading to undesirable health outcomes.



*Questions on Products in Scope*

Q7. Do you think the material the container is made from or the product it contains should be the key consideration for deciding the scope of the scheme?

- Yes
- No
- Don't Know

Q7a. Please explain your reasons text box

Q8. Are there any product categories that should be excluded from the scheme? Please explain your reasons.

- Ready to drink (soft)
- Soft Mixer Products
- Bottled water
- Fruit and vegetable juice
- Dairy
- All distilled spirits with an alcohol by volume (ABV) of higher than 30%
- All fermented alcohol products including beer, cider and wine. Also includes non-alcoholic versions of the above
- All other alcohol not covered in the "distilled spirits" and "fermented alcohol" categories with a ABV less than 30%
- All other drinks, not listed above, that can be purchased to drink on the go

Q9. Are there any product categories listed above that you broadly agree with but think that certain products within them should be excluded? Please give us specific reasons for exempting anything.

Q10. Are there any other products that broadly fall into the category of 'drinks' that we have not included that you think should be?

Q11. Do you think that the deposit return scheme should be limited to "on the go" only? Please explain why.

- Yes
- No
- Don't know

Q11a. Do you agree with how we have defined on the go?

*Questions Related to Dairy Issues*

Q12. Specifically on dairy products, do you think including dairy carries hygiene or related risks above those posed by other products? Please provide evidence.

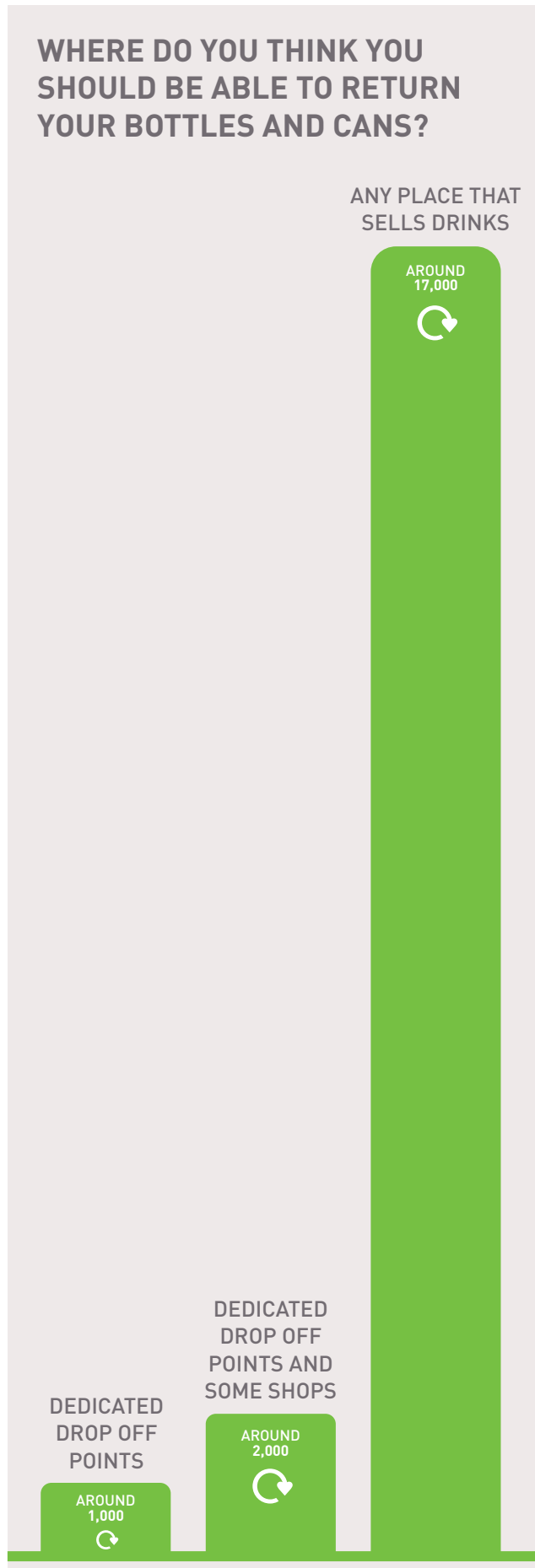
- Yes
- No
- Don't know

Q13. Should any dairy products be excluded from the system? Please explain your reasons.

- All ready to drink milk and other dairy (fresh and long life)
- All dairy alternatives.
- Milkshakes
- Flavoured milks
- Milk based smoothies
- Ready to drink coffee and tea drinks.

Ready to drink yogurt and probiotic yogurt drinks.

## Where you will be able to get the deposit back



The return location, where people can return their containers and reclaim their deposit, is key to the success of a system. The two basic models (take back to a place of purchase and take back to a dedicated point) are at the heart of the four examples in Part 1.

There are broadly three options for return location:

1. Take back to a place that sells drinks. This is where you would be able to take your drinks containers back to any shop that sells drinks in disposable containers. You would be able to return any container to any shop that sells drinks – you would not have to return specific items to the shops where you bought them. This return option could be in the form of what is called a reverse vending machine, that is an automated system that scans your containers as you return them and issues the refund. Alternatively, retailers may choose to adopt a manual system, accepting containers by hand. In return for providing this service, retailers would receive a handling fee, a sum of money paid for each container they take back.

This option offers the widest coverage of return sites, making the system as accessible as possible for everyone and ensuring that as many items as possible are returned. The main consideration in relation to this option is the requirement it places on retailers in terms of storage and staff time for handling of containers. For sites that would require a reverse vending machine, the cost, location and maintenance of this would need to be considered.

2. Return to designed drop-off points. This is where items are returned to a central collection point, rather than there being lots of smaller ones in shops and public places. This would most often be a reverse vending machine, or a bank of them, in a centralised location. It could be located at a local waste disposal site. This option would minimise the impact on retailers, as their role in it would be to ensure the deposit is charged but they would not be required to take back items. As there would be fewer return points, it would likely mean the system would be less accessible, particularly in sparsely populated areas or for those who cannot take returnable containers any great distance.
3. A mixture of take back to a place of purchase and take back to a dedicated point. In this option, larger retailers in particular would be required to accept returns, probably through hosting automated RVMs. There would also be other return sites, perhaps in shopping centres or other civic amenities, operated by the system administrator. Smaller retailers would be expected to accept returns if there were no other return sites within a reasonable distance.

### *Online shopping*

Online grocery shopping is a popular option for some consumers. Including online delivery vehicles as a return location would increase accessibility, particularly for those who are unable to access shops or other return points.

We will work with retailers and the system administrator to ensure those who shop online are not unfairly disadvantaged by the system. We are aware that a number of European systems already accommodate online shopping or are adapting their systems to do so and will therefore be able to learn from their experience and include measures from the outset of the scheme. One approach could be to require shops that provide delivery to take back items at the same time as delivering goods, with the refunds either being provided electronically or being taken off the next shopping bill.

### *Questions on Return Location*

Q14. Which option for return location do you prefer? Please choose one and explain your reasons.

- Take back to a place that sells drinks
- Take back to a designated drop-off point
- Mixture of take back to a place that sells drinks and designated drop-off points

Q15. In any model involving return to retail, are there any types of retailer that should be excluded? Please explain your reasons.

- Yes
- No
- Don't know

Q16. Do you agree that online retailers should be included in the scheme?

- Yes
- No
- Don't know

Q16a. What provisions do you think should be made to ensure online shopping is included successfully?

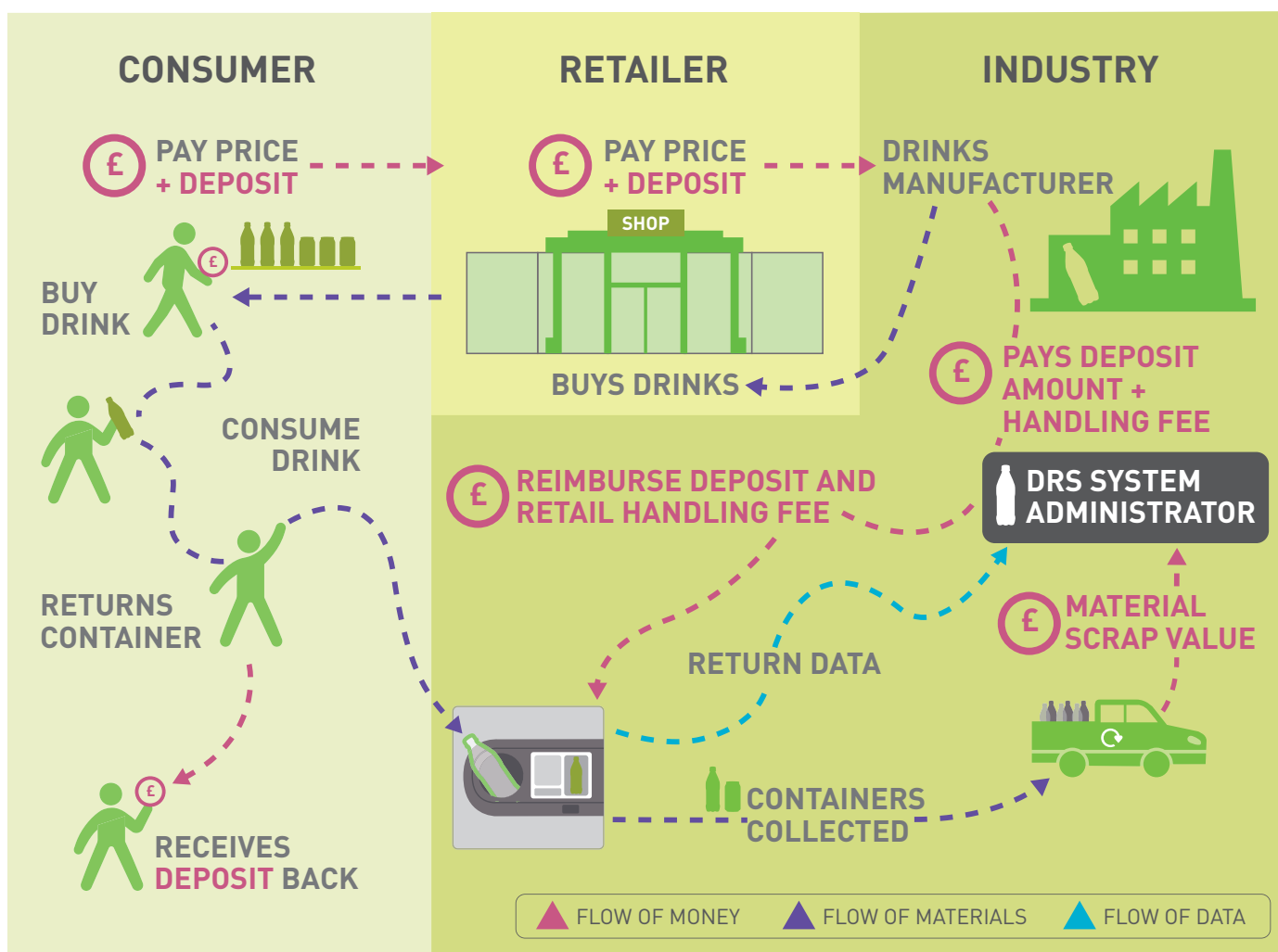
## How the scheme will be paid for

Operating a deposit return scheme will involve a number of costs and income streams. Costs would be:

- o refunding deposits
- o providing the return points, including associated handling fees
- o logistics, such as moving and sorting the returned material
- o infrastructure and staff associated with the system operator

Income streams would be:

- o sale of collected material, if the scheme owns it
- o producer fees
- o unredeemed deposits



In most schemes a core part of the income of the scheme administrator comes from unredeemed deposits. It is likely that some containers, for one reason or the other, will not make it back to the system and the deposit on them will therefore not be returned. Since the scheme is intended to capture as much material as possible – the retention of deposits as an income stream is not a desirable outcome. Depending on the final design, the return rate could be as high as 95%, and therefore unredeemed deposits on their own are unlikely to fund all the costs of the scheme. This would be particularly true if local authorities and MRF operators were able to extract clean containers from the kerbside or litter streams and redeem deposits on them.

The material collected through the system will also have a value – indeed, a primary purpose of the deposit return scheme for Scotland will be to increase the value achieved from recycling these materials. In most models in Europe, the scheme administrator retains ownership of the material and is able to derive income from selling it. In other examples, such as Germany, the retailers retain ownership of the materials returned to their stores.

Deposit return is often treated in Europe as a form of producer responsibility, defined as a means of transferring costs to those who benefit most from placing products onto the market. In most European systems, this transfer of costs is achieved through producers being required to pay a fee to the scheme administrator to be able to place drinks on the market. As noted previously, we will need to ensure that such producer fees from the deposit return scheme work coherently with wider producer responsibility obligations so that they do not place an unfair burden on producers. European Commission Communication 2009/C107/01 advises that “Member States should avoid arrangements that lead to the unjustified doubling of participation charges at different levels for the same service provided which would risk hampering specifically small businesses”.

The scheme administrator will therefore have a combination of three finance streams available. The usual model adopted in Europe is to calculate the income derived from unredeemed deposits and material sales, and adjust producer fees to make up any shortfall to its budget. Zero Waste Scotland’s modelling work has demonstrated that revenue from collected material will depend on the model chosen but generally increases over time as the system matures.

Another possible use for unredeemed deposits, or any net profit from the operation of the system, would be to divert it to other environmental or similar purposes. This could be considered within the limitations of powers that are available to Scottish Ministers, though this would also have a knock-on impact on the effectiveness of the system.

#### *Questions on Financing Models*

Q17. Do you agree that deposit return should be seen as a form of producer responsibility?

- Yes
- No
- Don't Know

Q17a. If yes, do you think deposit return would impact on other producer responsibility obligations? Please explain your reasoning.

Q18. Do you think it is appropriate for the scheme administrator to maintain ownership and income from sales of the material? Please explain your reasons.

- Yes
- No
- Don't Know

Q19. If the scheme administrator maintains ownership of the material, should it prioritise maximising profit from sales or should it seek to achieve additional benefits?

- Maximise profit from sales
- Achieve additional benefits

Q19a. If you selected achieve additional benefits which benefit should the administrator pursue?

Q20. Should any excess funding or unredeemed deposits be ringfenced for the continued maintenance or improvement of the system, or do you think it would be appropriate to divert funding to other purposes?

- Funding should be ringfenced
- Use for other purposes

Q21. How would you define a producer?



## How the scheme is communicated so everyone understands it

# HOW DO WE MAKE SURE PEOPLE UNDERSTAND THE SYSTEM?



LOGO ON PACKAGING



ON SHELF LABELLING



NATIONAL ADVERTISING

\*Please note that 20p is a deposit level used in example scheme options 1 & 2, but actual deposit level may be different.

Consumer participation is another area that will be key to the success of a deposit return scheme. While the incentive of the deposit is intended to encourage customers to return the containers, this will only be effective if the customer knows the item carries a deposit. This is particularly important for situations where someone has some containers that have a deposit paid on them and others that do not.

The approach taken by most European schemes is an on-pack label that includes a distinctive logo or mark that identifies the container as carrying a deposit. This will make it clear to the customer that they will be expected to pay a deposit and be able to reclaim it. An on-pack label will also be helpful in those circumstances where manual return is being done without the possibility of scanning a deposit return barcode. In these instances, the shop assistant will be able to make an assessment of a returned container to ensure it should have a deposit returned on it.

There are a number of considerations in relation to on-pack consumer information. The requirement for a deposit return-related labelling will impact on producers, though this cost will vary greatly. It should be noted that if Scotland was part of a UK-wide approach this disruption would be minimised. There could be a case for producers who are only putting a small number of containers onto the Scottish market to be exempt from the system. This could also be resolved by the scheme providing labels that can be applied to goods that are being imported in small quantities.

There is also the issue of multi-buy packages, such as cans of soft drinks packaged together. Usually the pack will have information on price on the outside. However, each can within the pack could also need some form of label as each one will carry a deposit.

Informing the customer of the amount of the deposit varies between schemes we have studied elsewhere. Some European schemes have on-shelf labels that have the basic price of the item and the deposit amount indicated separately and clearly. Other schemes include the deposit in the price of the product without clearly indicating that there is a deposit. There are some

schemes, furthermore, that include information about the deposit level on the label or elsewhere on the packaging. Expert stakeholders generally agree that deposit return information should be clearly presented on containers. The Interim Equalities Impact Assessment also highlights the importance of clear branding and a recognisable logo to act as a visual prompt.

Beyond consumer information directly linked with the packaging, there will also be a need for marketing and branding at a national level to ensure that people are fully informed about the scheme. This could involve a range of media channels as well as in-store information and branding at return sites to make sure there is full awareness of the value of returning containers. The scheme administrator will be expected to fund communications, although the Scottish Government may have a role in the lead up to implementation. After the scheme has settled in, the administrator will be able to determine whether there are particular groups of people who are not participating fully or whether certain materials are not being returned at a high enough rate. This will allow the administrator to use targeted marketing to address any issues.

A consideration here is whether the scheme administrator should be required to dedicate a certain amount of its budget each year to marketing, or whether there should be a requirement to conduct marketing campaigns in response to a drop in returns across the system or for specific materials.

It is important that any communications are as accessible as possible. Marketing should therefore have a heavy visual element and, for instance, symbols should be used on RVMs to explain how they operate.

#### *Questions on Consumer Information*

Q22. Do you agree that producers should be required to put deposit return scheme-related information on each container?

- Yes
- No
- Don't Know

Q22a. If yes, should those putting small amounts of material onto the market in Scotland be exempt from this labelling requirement?

- Yes
- No
- Don't Know

Q22b. If so what do you think the limit for this should be?

Q22c. Rather than be exempt, should small importers be required to put a label with deposit return-related information onto the existing packaging?

- Yes
- No
- Don't Know

Q22d. If no, what are your reasons?

### How to prevent fraud in the system

## HOW SHOULD WE STOP FRAUD?



**SPECIAL  
BARCODES**



**SETTING THE RIGHT  
LEVEL OF DEPOSIT**



**SECURITY LABEL  
WITH SPECIAL INKS**

There is the possibility that some individuals or groups may seek to commit fraud on the system. This could be done in a number of ways, primarily through trying to 'reclaim' a deposit on a container from outside the system – usually used containers being brought in from outside Scotland or shipments of unused bottles specifically intended to be used for this purpose. It is also possible that theft from return sites may be attempted in order to claim a deposit multiple times.

There is also the possibility that someone may attempt to return containers from outside Scotland accidentally. It may be possible for an automated take back system to accept these containers but not pay out a deposit.

Deliberately attempting to commit fraud could be a criminal activity that could be subject to action by Police Scotland or the system regulator.

Experience from other countries suggests that while fraud may occur, it can be managed and minimised through a number of different measures. The model chosen for system ownership and the level of deposit can both have an impact.

A scheme administered centrally, which requires retailers to report the number of containers they place on the market and monitors the number of deposits reclaimed, will be able to determine where deposit returns are higher than the number of items sold – this will be a good indicator that fraud is occurring and will allow action to be taken. This approach is taken in most European systems to manage fraud effectively. A centrally administered system will also be well placed to identify and deal, in conjunction with regulators, with fraudulent activity on the part of producers and retailers.

The amount of the deposit, combined with the cost of getting around any security measures, will influence how attractive any attempt to defraud the system will be – particularly in terms of any organised attempt at fraud. Zero Waste Scotland modelling has assumed a fraud rate of 1.5% across the examples.

An important decision will be what approach to on-pack labelling to adopt so that both customers and the system know what carries a deposit. There are three options for labelling:

1. No changes to current labelling. This would minimise cost and disruption to industry, as they would not have to have a separate production and distribution system for Scotland. This approach would accept that some containers will be transported from outwith Scotland to be placed into the scheme, which may include deliberate and non-deliberate circumventing of the system. As such, there may be a need for any producer fee (which will be discussed in more detail elsewhere) to be set at a level to compensate for any financial losses through fraud.
2. A specific barcode in the form of a Stock Keeping Unit (SKU) for containers placed on to the Scottish market that have a deposit attached to them. Such labels would also carry a visual identifier that the product has a deposit attached to it. This would serve as a strong deterrent to fraud, as the system would recognise any items that do not carry the barcode and forging the barcode would involve a cost element. This would potentially involve a certain level of cost for industry to ensure that products going onto the market in Scotland carry the specific bar code and labelling. There could be other costs associated with creating Scotland-specific distribution networks for large retailers and producers.
3. A high security label using specialised inks for containers included in the system. This would be the most secure option. Labelling of this nature could also help customers know whether or not an item carries a deposit. It would place a financial burden on industry to produce containers with this type of labelling.

One of the main routes for both fraud and accidental leakage of material into the system is the borders between Scotland, England and Northern Ireland. Similarly, if the decision is taken to remove DRS obligated containers from the current producer responsibility system, reprocessors could accidentally or deliberately issue evidence on items that should not be counted against producer responsibility obligations i.e. material that has been collected in Scotland through a deposit return scheme could be transported to England for reprocessing.

We recognise that the decision by the UK Government to introduce a deposit return scheme in England will have an impact on the potential for fraud, particularly if a system is introduced in all parts of the UK. We think that systems across the UK that are compatible in terms of deposit level and labelling could help limit the opportunities for fraud.

#### *Questions on Fraud Prevention*

Q23. Which option for labelling do you believe offers the best balance between reducing potential for fraud and managing costs to producers and retailers?

- No changes to current system
- Specific barcode
- High security label

Please elaborate

Q24. Are there other security measures we should be considering, for instance heightened security measures at key return locations?

Yes

No

Don't know

### **How much the deposit should be**

The level at which the deposit is set will be key to creating an effective deposit return scheme. The deposit that customers are required to pay for a drink is the incentive for them to return the container to the system. In other parts of Europe, the deposit ranges from EUR 0.10 to EUR 0.40 (between 8p and 35p). There are a number of other considerations linked to the deposit level.

The impact of the deposit level on the return rate cannot be directly modelled as there are a number of variables that affect return rate, including availability of return points and how clear and comprehensive the system is. It is, however, reasonable to assume that a higher deposit level will lead to an increased return rate.

As discussed in the section Fraud Prevention, the level of the deposit affects how attractive the system is to attempted fraud. The higher the deposit level, the more worthwhile attempts to defraud the system will appear. This will lead to significant financial losses to the system, either through money being paid out on containers that have not carried a deposit, or the system administrator having to take other measures to discourage fraud.

The deposit level could also have an impact on those products sold in individual containers but as part of a multi-item package – for instance, soft drinks cans packaged together or crates of beer. The deposit level needs to take into account the overall impact on the costs of such multi-item products.

The level of the deposit also has an important equalities impact. Ideally, nobody should lose money when they buy a container that carries a deposit, as they will have the deposit returned. However, even in the highest performing systems in the world the return rate is not 100%. Furthermore, while the money paid as a deposit should be returned we must keep in mind that for those living on low incomes, cash flow is a significant issue and having to pay the deposit up front – even if it is then returned at a later date—could create an additional one-off burden. These impacts are considered fully through the accompanying interim Equalities Impact Assessment.

The deposit level, therefore, must be set at a high enough level to encourage as much return as possible. At the same time, it should not be so high as to encourage criminal behaviour or to have an unfair impact on people who are unable to return their containers for one reason or another.

As well as the level of the deposit, we must also consider whether different container types should carry different levels of deposit. A 'flat rate' of deposit, that is every container having the same level, would be the most straightforward approach to take for industry, retail and the customer. There are a number of potential issues that a variable deposit could lead to, including an implication of trying to influence consumer choice and leading customers to assume that items

that have a lower deposit are worth less, leading them to be less likely to return them. System operators in other parts of Europe have indicated that a variable deposit causes more problems than it solves.

One solution is to have a common deposit level for all containers but to vary the producer responsibility fee to reflect the different level of value recovered from different types of containers.

#### *Questions Related to Deposit Level*

Q25. Do you have a preference for what level the deposit should be set at? Please indicate what level you think it should be and explain your reasoning for choosing this level.

- Yes
- No
- Don't know

Q26. Do you think that certain types of drinks containers should carry a different deposit level?

Please explain which ones and why you think the deposit should be varied.

- Yes
- No
- Don't Know

#### **What infrastructure to put in place, and the logistics involved**

This refers to the vital physical components required for a deposit return scheme to function. There are three areas within infrastructure and logistics – the method by which people can return their bottles and other containers (i.e. a reverse vending machine or manual, over the counter take back), counting and bulking, and transport and sorting of returned containers.

#### *Method of Take back*

Central to deposit return is the idea that people will bring back items that carry a deposit and have their deposit returned. This paper has already touched on the different options for the return location. Another factor in the return process is how this is done, usually in one of two ways:

1. RVMs – This is sometimes referred to as automated return. Returned containers would be placed in a machine, which then scans the barcode or other identifier. If a deposit was paid on an item, the machine would accept it and return the amount of the deposit to the customer. RVMs could be used in any return setting. In the case of return to retail, machines can be scaled to suit the size of the shop and the number of containers likely to be returned. Retailers would be required to work with the scheme administrator to determine the requirements of their stores. The RVMs could be paid for through a number of models, including direct ownership by the retailer or the scheme administrator or some form of leasing model.

2. Manual/over the counter take back – It is likely that this would primarily be done in smaller retailers and involve customers handing over returned items to a shop attendant to have the deposit returned. This has the benefit for small retailers of a RVM not taking up selling space in the shop and removing any cost implication of acquiring it. It would have an impact on staff time at the counter, which could cause issues at busy times, and would require the storage of used containers in bags behind the counter or in the shop's storage space. The impact on small retailers will vary depending on the scope of the scheme and the size and layout of the store. In a system that allows return to all purchase points, due to the high total number of return points, a very low average take back per day to individual retailers can be assumed. The scheme administrator or an appropriate operator would then be responsible for collecting the bagged containers and transporting them to a counting and sorting site. The contents of the bags will then be checked and the retailer reimbursed for the deposits they have paid out.
3. There will also be a need to provide some form of take back from online shopping. While many people who shop online may choose to return containers to a convenient nearby return point, others may not have the ability to do so. This will likely require some form of take back at the same time as deliveries are made.

It is intended that the retailer will receive a handling fee per container to support the costs they incur in participating in the scheme. This could be a flat rate calculated on the likely average cost for retailers or could be more flexible to take into account the different retail environments.

#### *Counting, Sorting and Bulking Centres*

At least one large scale counting centre will be required by the system, particularly for a system that includes manual take back. This centre will be responsible for ensuring that material that has been collected is eligible to have a deposit paid on it, and where appropriate, reimburse retailers for deposits they have paid out manually. This information will be key in detecting and responding to large scale fraud.

Bulking centres may also be required to reduce logistic costs for transport. Material returned through RVMs, which has already been validated by the system, can go straight to a bulking site if it does not need to be counted. Bulking sites will also combine material that has been taken back manually and been through a counting centre with material from RVMs for forward shipment.

These sites may also require some form of sorting equipment. Scotland's Household Recycling Charter notes that plastic and cans can be collected together as they are easy to separate mechanically. A key consideration here is to determine whether it is more efficient to keep the material streams separate during transport, or bulk them together for transport and then separate before sale. The latter would require the installation of separation equipment at key sites in all systems modelled.

As well as being important to the functioning of the system, counting, sorting and bulking centres will provide entry level employment in the areas where they are established, estimated at 12 to 116 jobs depending on the scope of the system.

#### *Logistics*

This refers to the process of collecting material from return locations and moving it to the counting or bulking centres. The logistics will depend to some extent on the ownership model selected, and broadly fall into three options:

1. In-house – If the material collected belongs to the system administrator, it could be responsible for directly collecting the material from return locations.
2. Contracted – The system administrator could instead chose to contract the collection of material from return points. This could involve a single contract or a number of small, local contractors collecting in their area and moving the goods to a bulking or counting centre.
3. Backhauling – This could work in conjunction with the above options. This would use the existing retail delivery infrastructure – lorries delivering goods to shops would take away returned material, or in the case of online shopping vehicles making deliveries could be expected to bring back containers. This would then be transported to the delivery depots, where it would be bulked and picked up by the system administrator. This has the advantage of using existing infrastructure and would mean lorries are spending less time driving with no load

As with the counting and bulking centres, the logistics element could generate new employment opportunities, particularly under Options 1 and 2.

Effective infrastructure, particularly in terms of storing and moving returned containers, could be supported by some form of compaction at point of return. This is most often done through a RVM with a compactor built into it. Evidence from other countries indicated that compacted material takes half the space of uncompacted material, which has an environmental and cost benefit for transport and would reduce storage space required by retailers. We will consider how this can be incentivised. There are safety concerns around compacting glass so this would be collected as a separate stream and could be left uncompacted.

#### *Questions on Infrastructure and Logistics*

Q27. Which sorts of take back do you think the system should include?

- Reverse Vending Machines
- Manual take back
- Combination of the two

Q28. How should the handling fee paid to retailers be calculated?

Q29. Do you agree with the assessment of the potential job creation of between 12 and 116 jobs? Please explain your reasoning.



## How to create additional benefits from the scheme

As identified under other system components, there are potential added benefits that could be derived from a deposit return scheme for Scotland. These include:

1. Donation – Customers may prefer to have the option of donating their deposits to charity rather than have them returned. This could be done through:
  - o An option on RVMs to donate to a selection of registered charities, as for instance Ikea did during its pilot of a Reverse Vending Machine in its Edinburgh store. The majority of those surveyed at IKEA and Heriot-Watt University in relation to trials carried out at these locations liked the idea of being able to donate to charity rather than redeeming a voucher. In practice, at Heriot-Watt's campus 4.9% of rewards were donated.
  - o A specific receptacle for people who choose not to return containers to deposit return points – for instance if they are on the go and want to dispose of something quickly – but would like the deposit to go to a good cause. For instance, schools could support extracurricular activities by allowing pupils to 'donate' drinks containers.
  - o Receptacles on litter bins to enable other people to reclaim deposits without raking through bins to find deposit carrying items.
2. Encourage better product design – As well as recovering and recycling packaging, a key consideration for wider Scottish Government policy is to improve the design of products to limit their environmental impact. In the case of a deposit return scheme on drinks containers, variable producer fees or deposit rates could be used to encourage manufacturers to design for better recyclability or use more recycled content in their products.

### Questions on Additional Benefits

Q30. Do you think a deposit return scheme for Scotland should pursue any additional benefits?

Yes

No

Don't Know

Q31. Are there additional benefits we have not covered that you think should be considered?

### Who owns the system

System ownership refers to the type of organisation that will be responsible for managing a deposit return scheme. This could include tasks such as organising collection of material and, in a take back to a designated drop-off point system, maintaining the central return points. The exact roles and responsibilities will depend on the system design, and can have an impact on other system components such as fraud prevention.

There is also the task of reconciling the deposits levied and then returned to the customers – that is, making sure that when someone brings an item back they get their deposit returned. In many European systems, this is done through a central clearing system but could be a role for the system owner. In some systems, the owner is also responsible for setting the producer responsibility element of the scheme costs in order to balance the overall finances of the scheme.

Most deposit return schemes in Europe have a single national administrator that takes the form of a not for profit company overseen by a board made up of industry representatives. The options considered for system ownership in Scotland are:

1. Industry operated not-for-profit – Businesses who are participants in the scheme would establish a system operator to run and administer the system. Under this model industry would own and operate the deposit return scheme, with shareholders likely being a combination of producers and retailers. In other European countries the board of the system operator is comprised of retailers and drinks producers, or the associations of these sectors.
2. Privately owned and operated commercial operation – In this model the Scottish Government would issue a tender for the delivery of the scheme. This could potentially lead to an existing company operating the scheme or a new entity forming to fulfil this option. There could also be an opportunity here for a third sector organisation or social enterprise to bid for the tender. There are some cases, such as some of the deposit return schemes in Australia where manufacturers of the RVMs play a role in system ownership.
3. Public ownership – The Scottish Government could chose to operate the system itself, through an existing public body or a new public body. This approach would involve on-going public sector involvement in a number of different ways. This could allow a greater level of control over use of the material to stimulate domestic reprocessing and provide the most assurance that fair work principles are used.

As with other components, there could be some form of hybrid between these options, for instance a combination of public and private ownership or Scottish Government oversight of a privately owned administrator.

#### *Questions on System Ownership*

Q32. Which option do you think offers the best system ownership model to ensure the primary goals of a deposit return system are met?

- Industry operated not-for-profit
- Privately owned and operated commercial operation
- Public ownership
- A combination of the above. Please provide more details of the combination in the box below.

Q33. How much emphasis should be placed on the system administrator achieving secondary benefits like ensuring Fair Work practices are followed and that the material collected is reprocessed in Scotland?

Q34. What do you see as the main roles for a scheme administrator?

### **How the system is regulated**

A deposit return scheme will require some form of regulation to ensure obligations are being fulfilled.

To ensure the scheme functions, producers will have an important role to play in providing data in terms of the amount and nature of products they are putting onto the market in Scotland. Furthermore, if specific labelling is mandatory to prevent fraud and inform the customer, enforcement of this labelling will be required. If producers voluntarily apply a Scotland specific label a certain amount of regulation will be required to ensure that the label meets required standards. Options for regulating producers are:

1. Regulation by an existing body, most likely Trading Standards or The Scottish Environment Protection Agency (SEPA)
2. The establishment of a new body to oversee regulation
3. Regulation by the scheme administrator

In some systems, the scheme administrator will have a role in determining whether products that go on the market can be part of the scheme, which can have a role in encouraging better product design. They will often charge a fee for each product that they approve.

Return points for the system, no matter which model is adopted, will also need to be regulated to ensure that empty containers are being accepted and deposits are being returned correctly. Under a scheme that involves some level of take back to a place of purchase this would involve working with a broad range of retailers to ensure they are complying. A take back to a designed drop-off point scheme may be easier to oversee depending on the density of return points. Both options are the same with regard to the regulation of producers.

The infrastructure of a system will require careful regulation. The handling and transport of waste in Scotland are subject to a number of [regulatory requirements](#). Sites under any of the return location models, i.e. those places that will accept the return of containers and store them for pick up, under the new integrated authorisation framework return locations would most likely be regulated via General Binding Rules. This means they do not need a specific environmental license provided they comply with some common rules and standards. This will depend on the timeframe for implementing a deposit return scheme. Similarly, the organisation responsible for moving returned containers from the return point to a bulking or counting centre would need to be registered as waste carriers, and the bulking and counting sites may need to be registered as waste management sites. Where waste management regulations apply, it is likely that SEPA will be responsible for enforcement.

Finally, the system administrator itself will be subject to some form of regulation. This would be particularly important if the administrator was expected to meet statutory recycling targets. In most European systems with a central administrator, the role of regulation is undertaken by the government department responsible for the environment. The key option for regulating the administrator, therefore, is that it should be undertaken by a department of the Scottish Government directly or SEPA.

*Questions on Regulation*

Q35. Which option for regulating producers do you think is most appropriate? Please explain your reasons.

- Regulation by an existing body, most likely Trading Standards or SEPA
- The establishment of a new body to oversee regulation
- Regulation by the scheme administrator

Q36. Which option for regulating return sites, including retailers, is most appropriate? Please explain your reasons.

- Regulation by an existing body, most likely Trading Standards or SEPA
- The establishment of a new body to oversee regulation
- Regulation by the scheme administrator

Q37. What level of regulatory power do you think is appropriate for the system administrator?

Q38. In particular, do you think the administrator should have a role in approving products that go on sale to make sure they are compatible with the scheme?

- Yes
- No
- Don't Know

Q39. Do you agree that the Scottish Government should be responsible for regulating the system administrator?

- Yes
- No
- Don't Know

Q39a. If yes, should this be done via SEPA?

Yes

No

Don't know

Q39b. If no, what other organisation should undertake this role?

## Examples of Deposit Return Schemes

In this section we set out a number of example models for how a deposit return scheme could operate, showing how the system components outlined in the previous section could be combined to create a functioning scheme.

These are only four of a large number of potential models that could be created by combining the system components in different ways. These four models have been chosen to illustrate common features of models used in other countries and to present different options for return locations and materials; two of the components likely to be of most interest to stakeholders and the public.

### Evaluating Examples

We have made a qualitative assessment of each of the models against the wider social and economic objective we have set for establishing a deposit return scheme. This allows us to test the extent to which each of the models meets the policy objectives that we have established. This was done through a 'weighting and scoring approach' which considered four measures:

- Ensuring fairness for all demographic groups
- Maximising accessibility for all demographic groups
- Creating employment opportunities for socially disadvantaged groups
- Creating opportunities to raise funds for charitable causes

These four measures are not the overall principles against which the system is being developed, but are a way of measuring qualitative issues that will contribute to the whether these principles are met. For instance, ensuring fairness and accessibility will contribute directly to increasing the quantity and quality of recycling.

A representative stakeholder group was asked to score which of the criteria should have the most weight, i.e. which would make the most overall difference to the success of the scheme. System accessibility and fairness were considered the most important factors. Each of the measures was then scored out of ten and the results measured against the weighting. This allows an analysis of how well each example performs against each criteria and, combined, provides a qualitative score for each example system.

We have also calculated a 'net present value' or NPV for each example. The NPV is a measure of what we think the economic impact of a measure on the Scottish economy would be. An expanded explanation of the NPV modelling is being published alongside this consultation paper in the accompanying Outline Business Case (OBC).

While the NPV model gives an assessment of the economic impact of a measure, it is often not a complete description of that impact. It is easier to place an economic value on some factors than on others, and there are some benefits of introducing a deposit return scheme that are not fully captured within the existing model. For this reason the NPV and weighting and scoring exercise should be considered together with the qualitative exercise above.

Beyond the economic and qualitative factors, there are also other elements that need to be taken into account in making a final selection. A key factor in this regard is deliverability and associated risk. In essence, more novel and ambitious models may be more difficult to deliver or take longer to implement than models that are based on well-established schemes from other countries.

### **The Base case Used for the NPV Calculations**

Her Majesty's Treasury (HMT) guidance is clear that a base case should reflect the world as it would be without the intervention under consideration, not just the world as it is now. Therefore, the base case against which the NPVs has been calculated takes into account the adoption, in June 2018, of the EU Circular Economy Package. This introduces more ambitious recycling targets for packaging materials and a requirement for 100% cost recovery of recycling costs from producers. Where the tables show savings for industry they are reflecting the relative efficiency of a deposit return system as a mechanism for satisfying these requirements.

This avoided cost (compared with a position where a deposit return system is not available to satisfy these requirements) is noted as a benefit for producers in the NPV calculations.

### **Example 0 - No scheme is introduced**

This is the de-minimis (do minimum base case) example which will enable the assessment of the impact of a deposit return scheme. It is assumed that there are no changes beyond those introduced by the circular economy package and existing public and private collection methods of drinks containers from households, commercial businesses and on the go locations continue in their current form. 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

## **Example 1 – Take back to Designated Drop-off Points**

Example 1 involves containers being taken back to a number of large, dedicated locations, rather than there being lots of smaller return points in shops and public places.

### **What this example would look like**

This system would see deposit return points being placed in towns of a certain size where you can return some types of plastic bottles, aluminium cans, steel cans and glass bottles to get back the deposit you were charged for the container when you bought it. The type of plastic bottles would be ones made of a plastic called PET, which is the most common kind for fizzy drinks and bottled water.

The place where you return things would be similar to a recycling point, where the deposit machines are placed in a range of public locations such as recycling centres or public car parks.

Under this example, shops selling drinks in containers wouldn't have to take the containers back. There would simply be a few drop-off points in most towns where you could choose to return your drinks containers.

### **Who would run it**

In this example, the drinks industry would need to work together to create a non-profit organisation that would run the deposit return system. This organisation would make sure the system runs properly, and some of the money made by the deposit system would pay for staff needed to run the system and the costs involved in running it.

The new organisation would need to run the network of designated drop-off points, collect in the money, ensure retailers are paid to cover the deposits being paid back to people and make sure all the items were collected for recycling.

### **The effectiveness of these types of systems elsewhere in the world**

Systems like this in North America and Australia tend to see around 60% of drinks containers being recycled.

### **The benefits and drawbacks of the example**

While this offers the lowest return rate of the four examples, it minimises impact on retailers and other businesses.

There are drawbacks to this approach. If the designated return points are not located in major shopping areas or are otherwise central, people could find themselves making a special trip to return their containers rather than doing it as part of their normal shopping pattern. This reduces the accessibility of the system, particularly for disabled or elderly people. If the return point is away from a town or city centre, it would also be inaccessible for people without cars and could also lead to increased emissions if people have to drive to it.

This is particularly true for rural areas, as people could find their nearest return point is in a town that is hard for them to get to, particularly if they are transporting a large number of returnable containers. Not being able to access a return point for long periods, if it is hard to reach, will also mean they will have to store a large number of containers at home.

This example has been modelled with a 20p deposit level which reflects the need for a higher deposit rate to compensate for the lower accessibility of the system. However, this may have an impact on the fairness of the system as lower income households may be less able to afford the upfront cost of paying the deposit on a number of containers especially if the return points made take back less accessible to them.

Limited access to the return points might also mean that if someone buys a drink from a retailer and consumes it 'on the go', the container would be more likely to be improperly disposed of – i.e. thrown in a bin or littered.

The estimated likely return rate for container in this example is around 60%, which is only a marginal improvement on current assumed recycling for these materials. It is therefore questionable whether introducing a deposit return scheme on this basis would be justified.

### Qualitative Scoring of Example 1: Take Back to Dedicated Drop-Off Points

Objective	Return to Depot (Standard) Plastic, glass and metal			
	20p 60% capture rate			
	Relevant Parameters	Score (out of 10)	% Weight	Weighted Score
Ensure a fairness for all demographic groups e.g. considering the impacts of the deposit level on households on lower incomes	20p, minimal impacts identified	8	32	25.6
Maximise accessibility to all demographic groups e.g. ensure there is no need to access a private vehicle to redeem deposits	1,058 return points, all towns over 1,000 people, 8am-8pm, 3 depots per FTE	4	38	15.2
Create employment opportunities for socially disadvantaged groups such as the long term unemployed or those with disabilities	526 jobs, 435 internal across all return points, industry owned	5	13	6.5
Create opportunities to raise funds for charitable causes, where use of the money can have wider societal benefits	RVM allows donation	5	17	8.5
<b>TOTAL SCORES</b>				<b>56</b>

The weighted score for Example 1 was 56, which was the lowest of all the examples. A particular concern reflected in the scoring was that return to dedicated points would limit access to return points, which would have a significant impact on both system performance and fairness for people who would be a long way from dedicated return points. It was felt that, aside from this issue, the example system does offer a measure of fairness in how it would impact, for instance, on low income households as long as they have easy access to return points.

### The Net Present Value of Example 1: Take Back to dedicated drop-off points

This example assumes that glass bottles, metal cans and PET plastic bottles are the materials in scope, with materials returned to dedicated drop-off points. Example 1 has a deposit level of 20p and 1,058 return locations established across the country, achieving a capture rate of 60%.

The 60% capture rate is assumed to apply equally to both existing residual and recycle streams, across all sectors. In calculating overall recycling and carbon benefits, remaining recycle is then also factored in. This may significantly overstate the additionality of this scenario against these criteria, if in fact a greater proportion of DRS capture is diverted from existing recycle streams, and less from residual.

Based on the assumptions presented in the previous section, the costs and benefits have been calculated for this example DRS. In order to present the costs for this example in a comparable format with the other examples, a 25-year NPV has been calculated. Applying a discount rate of 3.5% in line with HMT Green Book methodology this example generates the following benefits and costs:



Actor name	NPV (£)		
	Costs	Benefits	Net benefit
System Operator	-£1,114 million	£2,354 million	£1,240 million
Return Points	£0	£0	£0
Unredeemed Deposits	-£2,150 million	£0	-£2,150 million
Producers	-£132 million	£800 million	£668 million
Local Authorities	£0	£110 million	£110 million
Commercial Premises	£0	£23 million	£23 million
Other Sectors	-£85 million	£85 million	£0.4 million
Value of Public Contribution	-£165 million		-£165 million
Society Benefits		£768 million	£768 million
<b>TOTAL</b>	<b>-£3,646 million</b>	<b>£4,140 million</b>	<b>£494 million</b>

Example 1 has a total net benefit of £494 million over the 25-year NPV.

The System Operator is the National Scheme Administrator of the DRS established by industry on a not for profit basis. The costs (£1,114 million) to the System Operator arise from operating return locations, a central bulking facility, logistics, the cost of fraud, communications and staff employed directly by the scheme. Benefits to the System Operator (£2,354 million) arise from unredeemed deposits and material sales. As income is greater than costs incurred, the System Operator has a net benefit of £1,240 million over the NPV 25-year period under Example 1. The NPV has made no assumptions on how this surplus would be spent.

The unredeemed deposits of £2,150 million over a 25-year period are a result of the consumer choosing not to return their deposit bearing container for exchange of their refundable deposit.

Return points refers to those facilities that are operated by a separate organisation. The cost of return points under Example 1 is therefore £0 million over the 25-year period as the dedicated drop-off points are all operated by the System Operator and as such all costs associated in operation and upkeep of such locations are internalised by the System Operator.

Under a DRS, producers are those companies that put deposit bearing products onto the market. DRS is a form of product stewardship, where producers who benefit from placing material onto the market incur the costs of ensuring appropriate treatment at end of life. As such producers are responsibly for contributing to the scheme. In this example the cost of producer's contribution to this scheme would be £0 million. This is a result of the revenue from unredeemed deposits and sales of material exceeding the running cost for the system.

Under Example 1 producers are expected to incur costs (£132 million) from upfront capital costs and costs associated with changes to labelling. Producers will benefit (£800 million) by avoiding future compliance costs associated with the implementation of the European Commission's Circular Economy package and through reimbursement of these upfront costs. The net benefit to producers under Example 1 is expected to be £668 million.

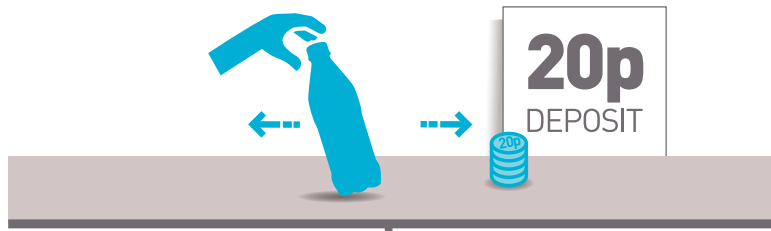
**EXAMPLE**

**1**

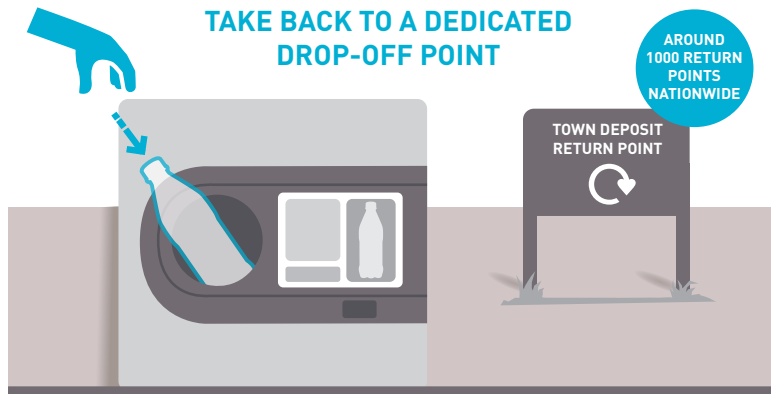
**SCOTLAND'S DEPOSIT RETURN SCHEME**

TAKE BACK TO DEDICATED DROP-OFF POINTS

**BUY DRINK. PAY DEPOSIT**



**TAKE BACK TO A DEDICATED DROP-OFF POINT**



**DEPOSIT RETURNED TO YOU**

**BOTTLES & CANS RECYCLED**

**CONTAINERS RECYCLED**

- PET PLASTIC BOTTLES
- GLASS BOTTLES
- STEEL/ALUMINIUM CANS



**SCHEMES SIMILAR TO THIS ALREADY EXIST IN:**

AMERICA  
AUSTRALIA

**ANTICIPATED RECYCLING RATE:**

**60%**

**WHERE**

DEDICATED DROP-OFF POINTS WOULD BE LOCATED IN CONVENIENT LOCATIONS IN TOWNS.



This example is one of four deposit return scheme design examples being presented as part of the public consultation on Scotland's deposit return scheme. Following feedback, scheme design components across all four examples may be combined to provide the final scheme design. This will be decided upon by the Scottish Government.



Scottish Government  
gov.scot



There are also benefits in sectors not directly involved in the operation of a DRS. These benefits are accrued by Local Authorities and commercial premises who are currently paying for disposal of material that would be collected by the DRS. This is £110 million and £23 million respectively. Under the NPV other sectors are private Waste Management companies and RVM servicing. The net benefit is a result of a small profit, not turnover, within these sectors.

The value of the of public contribution to participate in the scheme has been estimated as £165 million over the NPV 25-year period.

This estimate is identical across for all four examples as there is insufficient data to model this contribution in a more example specific manner. Previous exploration of value for take back to any place of purchase examples suggests this contribution could be valued higher for higher return rates, as more people participate; however, this relationship is unlikely to hold for dedicated drop-off point examples where increased inconvenience for participants is likely to more than offset this effect. Indeed, it could be considered that this may not fully capture the costs for Example 1 given the lower level of return points and therefore greater journey times for consumers to return their containers in comparison to the other examples.

Benefit to society from the introduction of a DRS is valued at £768 million over the 25-year period. The majority of this is the reduced to local neighbourhoods from targeting a highly visible component of the litter stream and the value of avoided carbon emissions.

## **Example 2 - Take back to dedicated drop-off points and some shops (with cartons and cups included)**

Example 2 is a similar system to Example 1 but it would have more return points, as some shops may also have to have deposit return points where there isn't a recycling point style dedicated drop-off point nearby. It would also collect HDPE, which is the kind of plastic that milk bottles are made of and cartons and cups.

### **What this example looks like**

This system would see deposit return machines being placed within a set distance of any shop selling drinks in containers, so that there would be somewhere nearby that people could return the containers to get back the deposit they paid when they bought it.

It would cover more types of plastic bottles than Example 1, as well as aluminium and steel cans, drinks cartons, glass bottles and some single use cups like coffee cups. This example would cover PET plastic, which is the kind that fizzy drinks and bottled water are usually made of, and also a type of plastic called HDPE which is the kind that milk bottles are usually made of.

In this example, shops that sell a high amount of drinks in disposable containers would need to make sure there was a place to get the deposit back within a set distance. If there wasn't a public recycling point within that distance, then the shop would have to have a way to return your deposit to you in the store.

### **Who would run it**

In this example, drinks companies and retailers would need to work together to create an organisation that would run the deposit return system. This organisation would make sure the system runs properly, and some of the money collected by the deposit system would pay for staff needed to run the system and the costs involved in running it. The difference in Example 2 is that some shops would also have a part to play in making sure there is somewhere to get your deposit back nearby.

The new organisation would need to run the network of designated drop-off points, collect in the money, ensure retailers are paid to cover the deposits being paid back to people and make sure all the items were collected for recycling.

### **The effectiveness of these types of systems elsewhere in the world**

Systems like this in California, Maine and British Columbia can see over 80% of drinks containers being recycled. Given Scotland's geography we assumed a slightly lower rate of return than the optimal rates achieved elsewhere in the world.

### **The benefits and drawbacks of the example**

This example offers a higher return rate for drinks containers than Example 1. It also limits the impact on retailers but not to the same extent as Example 1 as some retailers may be required to provide return points or take back in store if there are no return designated drop-off points nearby.

It also goes some way towards solving the problem of accessibility as there would be a larger number of return points, potentially in more convenient locations. This could still limit access to the system for people in rural areas, if their local shops do not sell a high enough volume of drinks to warrant having take back on their premises or close by.

As with Example 1, this example has been modelled with a 20p deposit level which reflects the need for a higher deposit rate to compensate for the lower accessibility of the system.

### Qualitative Scoring of Example 2: Take back to dedicated drop off points and some shops (with cartons and cups)

	Return to Depot (Hybrid) All materials			
Objective	20p 70% capture rate			
	Relevant Parameters	Score (out of 10)	% Weight	Weighted Score
Ensure a fairness for all demographic groups e.g. considering the impacts of the deposit level on households on lower incomes	20p, minimal impacts identified	8	32	25.6
Maximise accessibility to all demographic groups e.g. ensure there is no need to access a private vehicle to redeem deposits	2,009 return points, proximity to retailers, 8am-8pm, 3 depots per staff	6	38	22.8
Create employment opportunities for socially disadvantaged groups such as the long term unemployed or those with disabilities	989 jobs, 816 internal across all return points, industry owned	6	13	7.8
Create opportunities to raise funds for charitable causes, where use of the money can have wider societal benefits	RVM allows donation	5	17	8.5
<b>TOTAL SCORES</b>				<b>65</b>

Example 2 scored 65 overall, the second lowest scoring. Key considerations, again, were fairness and accessibility. While the example scored better on accessibility than Example 1, as there would be more return points, it was felt that it still did not offer a good level of accessibility.

### The Net Present Value of Example 2: Take back to dedicated drop-off points and some shops (with cartons and cups)

This example assumes a broad range of materials are in scope; glass bottles, metal cans, plastic bottles, beverage cartons and paper based take-away cups, with materials returned to dedicated drop-off points and some shops. With a deposit level of 20p and 2,009 dedicated drop-off points established, within a proximity of points where drinks containers are purchased, a capture rate of 70% is modelled.

The 70% capture rate is assumed to apply equally to both existing residual and recycle streams, across all sectors. In calculating overall recycling and carbon benefits, remaining recycle is then also factored in. This may significantly overstate the additionality of this scenario against these criteria, if in fact a greater proportion of DRS capture is diverted from existing recycle streams.

Based on the assumptions presented in the previous section, the costs and benefits have been calculated for this example DRS. In order to present the costs for this example in a comparable format with the other examples, a 25-year NPV has been calculated. Applying a discount rate of 3.5% in line with HMT Green Book methodology this example generates the following benefits and costs:

Actor name	NPV (£)		
	Costs	Benefits	Net benefit
System Operator	-£2,086 million	£3,013 million	£927 million
Return Points	£0	£0	£0
Unredeemed Deposits	-£2,558 million	£0	-£2,558 million
Producers	-£370 million	£1,214 million	£844 million
Local Authorities	£0	£146 million	£146 million
Commercial Premises	£0	£37 million	£37 million
Other Sectors	-£153 million	£155 million	£2 million
Value of Public Contribution	-£165 million		-£165 million
Society Benefits		£1,119 million	£1,119 million
<b>TOTAL</b>	<b>-£5,332 million</b>	<b>£5,684 million</b>	<b>£352 million</b>

Example 2 has a total net benefit of £352 million over the 25-year NPV.

The System Operator is the National Scheme Administrator of the DRS established by Industry on a Not for Profit basis. The costs (£2,086 million) to the system operator arise from operating return locations, a central bulking facility, logistics, the cost of fraud, communications and staff employed directly by the scheme, while benefits to the system operator (£3,013 million) arise from unredeemed deposits and material sales. As income is greater than costs incurred, the System Operator has a net benefit of £927 million over the NPV 25-year period under Example 2. The NPV has made no assumptions on how this surplus would be spent.

The unredeemed deposits of £2,558 million over a 25-year period are a result of the consumer choosing not to return their deposit bearing container for exchange of their refundable deposit.

Drop-off points refers to those facilities that are operated by a separate organisation. The cost of return points under Example 2 is therefore £0 million over the 25-year period as the dedicated take back points are all operated by the System Operator and as such all costs associated in operation and upkeep of such locations are internalised by the System Operator.

Under a DRS, producers are those companies that put deposit bearing products onto the market. DRS is a form of product stewardship, where producers who benefit from placing material onto the market incur the costs of ensuring appropriate treatment at end of life. As such producers are responsibly for contributing to the scheme. In this example the cost of producer's contribution to this scheme would be £0 million. This is a result of the revenue from unredeemed deposits and sales of material exceeding the running cost for the system.

Under Example 2 producers are expected to incur costs (£370 million) from upfront capital costs and costs associated with changes to labelling. Producers will benefit (£1,214 million) by avoiding future compliance costs associated with the implementation of the European Commission's Circular Economy package and through reimbursement of these upfront costs. The net benefit to producers under Example 2 is expected to be £844 million.

There are also benefits in sectors not directly involved in the operation of a DRS. These benefits are accrued by Local Authorities and commercial premises who are currently paying for disposal of material that would be collected by the DRS. This is £146 million and £37 million respectively. Under the NPV other sectors are private Waste Management companies and RVM servicing. The net benefit is a result of a small profit, not turnover, within the RVM servicing sector.

The value of the public contribution to participate in the scheme and this has been estimated as £165 million over the NPV 25-year period.

This estimate is identical across for all four examples as there is insufficient data to model this contribution in a more example specific manner. Previous exploration of value for return to any place examples suggests this contribution could be valued higher for higher return rates, as more people participate; however, this relationship is unlikely to hold for return to dedicated drop-off point examples where increased inconvenience for participants is likely to more than offset this effect. Indeed, it could be considered that this may not fully capture the costs for Example 2 given the lower level of return points, in comparison to Examples 3 and 4, and therefore increased overall journey times for consumers to return their containers. The increased return rate versus Example 1 offsets the additional distance required in Example 1 to return containers.

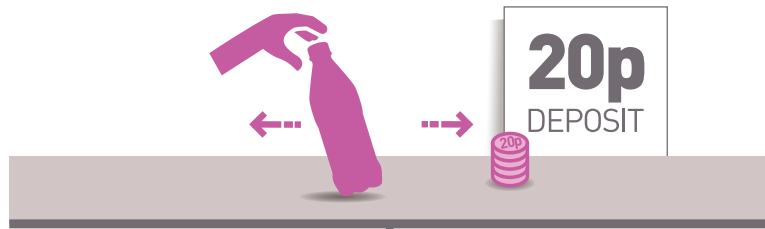
Benefit to society from the introduction of a DRS is valued at £1,119 million over the 25-year period. The majority of this is the reduced disamenity to local neighbourhoods from targeting a highly visible component of the litter stream and the value of avoided carbon emissions.

**EXAMPLE  
2**

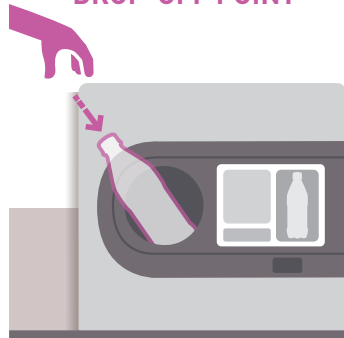
**SCOTLAND'S DEPOSIT RETURN SCHEME**

TAKE BACK TO DEDICATED DROP-OFF POINTS AND SOME BIGGER SHOPS

**BUY DRINK. PAY DEPOSIT**

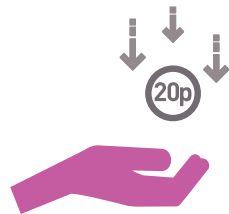


**TAKE BACK TO DEDICATED DROP-OFF POINT**

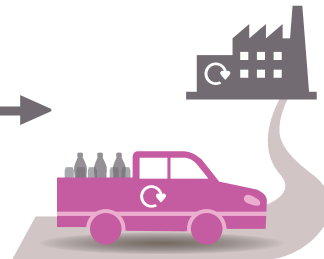


**OR**

**TAKE BACK TO SOME BIGGER SHOPS**  
(IF THERE'S NO DROP-OFF POINT WITHIN A SET DISTANCE)



**DEPOSIT RETURNED TO YOU**



**BOTTLES, CANS, CARTONS & CUPS RECYCLED**

**CONTAINERS RECYCLED**

- PET PLASTIC BOTTLES
- HDPE PLASTIC BOTTLES
- GLASS BOTTLES
- CARTONS
- SOME CUPS
- STEEL/ALUMINIUM CANS



**SCHEMES SIMILAR TO THIS ALREADY EXIST IN:**

- CALIFORNIA, USA
- MAINE, USA
- BRITISH COLUMBIA, CANADA

**ANTICIPATED RECYCLING RATE:**

**70%**

**WHERE**

DEDICATED DROP-OFF POINTS IN TOWNS. IF THERE IS NOT ONE WITHIN A SET DISTANCE, CERTAIN PLACES THAT SELL DRINKS WOULD ALSO RETURN DEPOSITS



This example is one of four deposit return scheme design examples being presented as part of the public consultation on Scotland's deposit return scheme. Following feedback, scheme design components across all four examples may be combined to provide the final scheme design. This will be decided upon by the Scottish Government.



Scottish Government  
gov.scot





### **Example 3 – Take back to any place of purchase**

Example 3 is an example where you would be able to take your drinks containers back to any retailer that sells drinks in disposable containers.

#### **What this example looks like**

This example would mean that any retailer that sells drinks in disposable containers would have to provide a deposit return service so you can get back the deposit you paid on the container when you bought the drink. You would be able to take your container back to any of these retailers – it wouldn't have to be the same one you bought the drink from. It would mean there would be a lot more places where you could claim your deposit back in your local area, compared to Examples 1 and 2.

Bigger retailers may have machines to collect the bottles and cans, and return people's deposits. Smaller retailers with less space could return deposits manually over the counter.

This Example would cover some types of plastic bottles, aluminium cans, steel cans and glass bottles. The type of plastic bottles would be ones made of a plastic called PET, which is the most common kind for fizzy drinks and bottled water.

#### **Who would run it**

Similar to Examples 1 and 2, the drinks industry and retailers would need to work together to create an organisation that would run the deposit return system. This organisation would make sure the system runs properly, and some of the money made by the deposit system would pay for staff needed to run the system and the costs involved in running it.

It would need to make sure the retailers paid in the deposits they had taken on drinks they had sold, and also that they received money for all the deposits they returned to customers. It would also arrange for handling fees to be paid to return points and the containers to be regularly collected and recycled.

Retailers that sell drinks in disposable containers would have to provide a system in store to give people back the deposits on any drinks containers covered by the system (PET plastic, cans and glass bottles).

#### **The effectiveness of these types of systems elsewhere in the world**

Systems like this in Scandinavia and the Baltic states are seeing over 85% of drinks containers being recycled.

#### **The benefits and drawbacks of the example**

This example offers the highest return rate for containers in scope. As it has the highest return rate, it most closely matches the environmental ambitions of the policy of increasing the recycling rate and reducing littering.

It would have the highest impact on retailers, through either loss of selling space if they install a reverse vending machine or staff time if they take back manually, plus the requirement to store containers until they are collected. The system would offer a "handling fee" paid per container returned to compensate for this disruption, and support the costs to retailers of operating the scheme.

A return to retail system would also be the most accessible. If every retailer either has a reverse vending machine or takes back over the counter, people will be able to return their containers as part of their normal purchasing routine. Even if customers chose to make a special trip to return their containers, the density of return points means it is likely they will not have to travel far to find one.

### Qualitative Scoring of Example 3: Take back to any place of purchase

	Return to Retail (Standard) Plastic, glass and metal			
Objective	10p 80% capture rate			
	Relevant Parameters	Score (out of 10)	% Weight	Weighted Score
Ensure a fairness for all demographic groups e.g. considering the impacts of the deposit level on households on lower incomes	10p, minimal impacts identified	9	32	28.8
Maximise accessibility to all demographic groups e.g. ensure there is no need to access a private vehicle to redeem deposits	17,407 return points, align with retail opening, staff on site, certain public have access to location	10	38	38
Create employment opportunities for socially disadvantaged groups such as the long term unemployed or those with disabilities	107 jobs, 99 in a single location, industry owned	6	13	7.8
Create opportunities to raise funds for charitable causes, where use of the money can have wider societal benefits	RVM allows donation	5	17	8.5
<b>TOTAL SCORES</b>				<b>83</b>

Example 3 scored 83 overall, the second highest scoring. This is primarily due to the importance placed on the system being as accessible as possible, which is achieved in this system through return points being in all retailers. The system also scored well on fairness.

### The Net Present Value of Example 3: Take back to any place of purchase

This example assumes a broad range of materials are in scope; glass bottles, metal cans and PET plastic bottles, with materials returned to any place of purchase. With a deposit level of 10p and 17,407 return locations located at any premise that sells these containers, a capture rate of 80% is achieved.

The 80% capture rate is assumed to apply equally to both existing residual and recycle streams, across all sectors. In calculating overall recycling and carbon benefits, remaining recycle is then also factored in. This may slightly overstate the additionality of this scenario against these criteria, if in fact a greater proportion of DRS capture is diverted from existing recycle streams, and less from residual.

Based on the assumptions presented in the previous section, the costs and benefits have been calculated for this example DRS. In order to present the costs for this example in a comparable format with the other examples, a 25-year NPV has been calculated. Applying a discount rate of 3.5% in line with HMT Green Book methodology this example generates the following benefits and costs:

Actor name	NPV (£)		
	Costs	Benefits	Net benefit
System Operator	-£1,304 million	£1,304 million	£0
Return Points	-£859	£859	£0
Unredeemed Deposits	-£545 million	£0	-£545 million
Producers	-£654 million	£890 million	£236 million
Local Authorities	£0	£149 million	£149 million
Commercial Premises	£0	£317 million	£31 million
Other Sectors	-£137 million	£138 million	£1 million
Value of Public Contribution	-£165 million	£0	-£165 million
Society Benefits		£1,038 million	£1,038 million
<b>TOTAL</b>	<b>-£3,664 million</b>	<b>£4,409 million</b>	<b>£745 million</b>

Example 3 has a total net benefit of £745 over the 25-year NPV.

The System Operator is the National Scheme Administrator of the DRS established by Industry on a Not for Profit basis. The costs (£1,304 million) to the system operator arise from operating return locations, a central bulking facility, logistics, the cost of fraud, communications and staff employed directly by the scheme, while benefits to the system operator (£1,304 million) arise from unredeemed deposits and material sales. As income and costs incurred are equal, the System Operator has no net benefit over the NPV 25-year period under Example 3.

The unredeemed deposits of £545 million over a 25-year period are a result of the consumer choosing not to return their deposit bearing container for exchange of their refundable deposit.

Drop-off points refers to those facilities that are operated by a separate organisation. The cost of all 17,407 return points under Example 3 is £859 million over the 25-year period. This cost is incurred from staff time, the value of any lost retail space, miscellaneous supplies, and where an automated solution is used, the cost of maintaining and operating the RVM. The NPV calculates a benefit of £859 million for return points as return locations will be fully reimbursed, leading to no overall net benefit or loss over the 25-year NPV period.

Under a DRS, producers are those companies that put deposit bearing products onto the market. DRS is a form of product stewardship, where producers who benefit from placing material onto the market incur the costs of ensuring appropriate treatment at end of life. As such producers are responsible for contributing to the scheme. This is a result of the operating costs of the scheme exceeding the from revenue from unredeemed deposits and sales of material exceeding. Producers would be required to contribute to cover this shortfall in revenue required to cover system operating costs and return point operating costs.

Under Example 3 producers are anticipated to incur costs (£654 million) from contributing to operating costs, upfront capital costs and costs associated with changes to labelling. Producers will however benefit (£890 million) by avoiding future compliance costs associated with the implementation of the European Commission's Circular Economy package and through reimbursement of these upfront costs. The net benefit to producers under Example 3 is therefore £236 million.

There are also benefits in sectors not directly involved in the operation of a DRS. These benefits are accrued by Local Authorities and commercial premises who are currently paying for disposal of material that would be collected by the DRS. This is £149 million and £31 million respectively. Under the NPV other sectors are private Waste Management companies and RVM servicing. The net benefit is a result of a small profit, not turnover, within the RVM servicing sector.

The value of the public contribution to participate in the scheme and this has been estimated as £165 million over the NPV 25-year period.

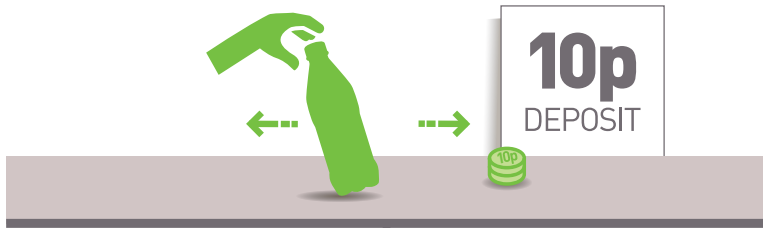
This estimate is identical across for all four examples as there is insufficient data to model this contribution in a more example specific manner. There is an increased number of containers being returned in this example, versus Examples 1 and 2, however the increased convenience of those locations and therefore reduced overall distance travelled will at least offset this difference.

Benefit to society from the introduction of a DRS is valued at almost £1,038 million over the 25-year period. The majority of this is the reduced disamenity to local neighbourhoods from targeting a highly visible component of the litter stream and the value of avoided carbon emissions.

**EXAMPLE  
3**

**SCOTLAND'S DEPOSIT RETURN SCHEME**  
TAKE BACK TO ANY PLACE OF PURCHASE

**BUY DRINK. PAY DEPOSIT**

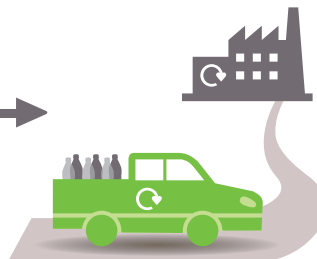


**TAKE BACK TO ANY PLACE THAT SELLS DRINKS\***

\*TAKE BACK CAN BE BY MACHINE OR AT COUNTER



**DEPOSIT RETURNED TO YOU**



**BOTTLES & CANS RECYCLED**

**CONTAINERS RECYCLED**

- PET PLASTIC BOTTLES
- GLASS BOTTLES
- STEEL/ALUMINIUM CANS



**SCHEMES SIMILAR TO THIS ALREADY EXIST IN:**

SCANDINAVIA  
BALTIC STATES

**ANTICIPATED RECYCLING RATE:**

**80%**

**WHERE**

ANY PLACE THAT SELLS DRINKS



This example is one of four deposit return scheme design examples being presented as part of the public consultation on Scotland's deposit return scheme. Following feedback, scheme design components across all four examples may be combined to provide the final scheme design. This will be decided upon by the Scottish Government.



Scottish Government  
gov.scot



#### **Example 4 - Take back to any place of purchase (with cartons and cups)**

Example 4 is similar to Example 3, where you would be able to take your drinks containers back to any shop that sells drinks in disposable containers. The difference is that Example 4 would collect a wider range of drinks containers and would be jointly run by a public body and the drinks/retail industry.

##### **What this example looks like**

This system is similar to Example 3, and would mean that any shop that sells drinks in disposable containers would have to provide a deposit return service so you can get back the deposit you paid on the container when you bought the drink. You would be able to take your container back to any of these shops – it wouldn't have to be the same one you bought the drink from.

The difference with Example 3 is that it would collect a wider range of drinks containers. It would collect PET plastic, which is the kind that fizzy drinks and bottled water are usually made of, and also a type of plastic called HDPE which is the kind that milk bottles are usually made of. It would also collect aluminium and steel cans, drinks cartons, glass bottles and some single use cups like coffee cups.

##### **Who would run it**

This example would see an organisation made up of a public body and leaders from the drinks and retail industries being set up to run the system. This organisation would make sure the system runs properly, and some of the money made by the deposit system would pay for its staff and running costs. It would need to make sure the shops paid in the deposits they had taken on drinks they had sold, and also that they received money for all the deposits they returned to customers. It would also arrange for the containers to be regularly collected and recycled.

Shops that sell drinks in disposable containers would have to provide a system in store to give people back the deposits on any drinks containers covered by the system (PET and HDPE plastic, cans, drinks cartons, glass bottles and cups).

##### **The effectiveness of these types of systems elsewhere in the world**

This would be a uniquely ambitious system for Scotland as nowhere else in the world collects this range of material via a deposit return scheme. This means the system would be collecting a much wider variety of materials at a high rate, offering the highest possible capture rates and litter reduction.

##### **The benefits and drawbacks of the example**

As noted above, this would not only achieve a high capture rate for the materials included in Example 3, it is likely it would also help tackle a range of other materials, increasing the rate of recycling and preventing them from becoming litter.

Some of these items are harder to recycle, however one of the main obstacles to these materials being recycled is that they are not available separate to other materials in sufficient amounts to make recycling them cost effective. This would be addressed in a deposit return system. However, greater attention would need to be devoted to ensuring sufficient recycling infrastructure was in place for items that are not currently widely recycled.

As with Example 3, this would also offer the best accessibility due to the high level of return points in both rural and urban locations and the fact that these return points will be where people will be going to shop.

## Qualitative Scoring of Example 4: Take back to any place of purchase (with cartons and cups)

	Return to Depot (Enhanced) Plastic, glass and metal			
Objective	20p 80% capture rate			
	Relevant Parameters	Score (out of 10)	% Weight	Weighted Score
Ensure a fairness for all demographic groups e.g. considering the impacts of the deposit level on households on lower incomes	10p, minimal impacts identified	9	32	28.8
Maximise accessibility to all demographic groups e.g. ensure there is no need to access a private vehicle to redeem deposits	17,407 return points, align with retail opening, staff on site, certain public have access to location	10	38	38
Create employment opportunities for socially disadvantaged groups such as the long term unemployed or those with disabilities	116 jobs, 108 in a single location, public owned	7	13	9.1
Create opportunities to raise funds for charitable causes, where use of the money can have wider societal benefits	RVM allows donation	5	17	8.5
<b>TOTAL SCORES</b>				<b>84</b>

Example 4 scored the highest at 84, but only 1 point more than Example 3. The two Examples scored the same on accessibility, fairness and opportunities to raise funds for charities. It was scored slightly higher for employment opportunities, as the wider range of materials would mean more jobs to handle and reprocess the material.

### The Net Present Value of Example 4: Take back to any place of purchase (with cartons and cups)

This example assumes a broad range of materials are in scope; glass bottles, metal cans, plastic bottles, beverage cartons and paper based take-away cups, with materials returned to any place of purchase. With a deposit level of 10p and return locations located at any premise that sells these containers, achieving a capture rate of 80%.

The 80% capture rate is assumed to apply equally to both existing residual and recycle streams, across all sectors. In calculating overall recycling and carbon benefits, remaining recycle is then also factored in. This may slightly overstate the additionality of this scenario against these criteria, if in fact a greater proportion of DRS capture is diverted from existing recycle streams, and less from residual.

Based on the assumptions presented in the previous section, the costs and benefits have been calculated for this example DRS. In order to present the costs for this example in a comparable

format with the other examples, a 25-year NPV has been calculated. Applying a discount rate of 3.5% in line with HMT Green Book methodology this example generates the following benefits and costs:

Actor name	NPV (£)		
	Costs	Benefits	Net benefit
System Operator	-£1,409 million	£1,409 million	£0
Return Points	-£874 million	£874 million	£0
Unredeemed Deposits	-£860 million	£0	-£860 million
Producers	-£446 million	£965 million	£519 million
Local Authorities	£0	£168 million	£168 million
Commercial Premises	£0	£42 million	£42 million
Other Sectors	-£148 million	£149 million	£1 million
Value of Public Contribution	-£165 million	£0	-£165 million
Society Benefits		£1,285 million	£1,285 million
<b>TOTAL</b>	<b>-£3,902 million</b>	<b>£4,892 million</b>	<b>£990 million</b>

Example 4 has a total net benefit of £990m over the 25-year NPV.

The System Operator is the National Scheme Administrator of the DRS established by Industry on a Not for Profit basis. The costs (£1,409 million) to the system operator arise from operating return locations, a central bulking facility, logistics, the cost of fraud, communications and staff employed directly by the scheme, while benefits to the system operator (£1,409 million) arise from unredeemed deposits and material sales. As income and costs incurred are equal, the System Operator has no net benefit over the NPV 25-year period under Example 4.

The unredeemed deposits of £860 million over a 25-year period are a result of the consumer choosing not to return their deposit bearing container for exchange of their refundable deposit.

Return points refers to those facilities that are operated by a separate organisation. The cost of all 17,407 return points under Example 4 is £874 million over the 25-year period. This cost is incurred from staff time, the value of any lost retail space, miscellaneous supplies, and where an automated solution is used, the cost of maintaining and operating the RVM. The NPV calculates a benefit of £874 million for return points as return locations will be fully reimbursed, leading to no overall net benefit or loss over the 25-year NPV period.

Under a DRS, producers are those companies that put deposit bearing products onto the market. DRS is a form of product stewardship, where producers who benefit from placing material onto the market incur the costs of ensuring appropriate treatment at end of life. As such producers are responsibly for contributing to the scheme. This is a result of the operating costs of the scheme exceeding that from revenue from unredeemed deposits and sales of material exceeding. Producers will be required to contribute to cover this shortfall in revenue required to cover system operating costs and return point operating costs.



Under Example 4 producers are expected to incur costs (£446 million) from contributing to operating costs, upfront capital costs and costs associated with changes to labelling. Producers will however benefit (£965 million) by avoiding future compliance costs associated with the implementation of the European Commission's Circular Economy package and through reimbursement of these upfront costs. The net benefit to producers under Example 4 is therefore £519 million.

There are also benefits in sectors not directly involved in the operation of a DRS. These benefits are accrued by Local Authorities and commercial premises who are currently paying for disposal of material that would be collected by the DRS. This is £168 million and £42 million respectively. Under the NPV other sectors are private Waste Management companies and RVM servicing. The small net benefit is a result of profit, not turnover, within the RVM servicing sector.

The value of the public contribution to participate in the scheme and this has been estimated as £165 million over the NPV 25-year period.

This estimate is identical across for all four examples as there is insufficient data to model this contribution in a more example specific manner. Previous exploration of value for return to any place examples suggests this contribution could be valued higher for higher return rates, as more people participate; however, this relationship is unlikely to hold for return to dedicated drop-off point examples where increased inconvenience for participants is likely to more than offset this effect. There is an increased number of containers being returned in this example, versus Examples 1 and 2, however the increased convenience of those locations and therefore reduced overall distance travelled will at least offset this difference.

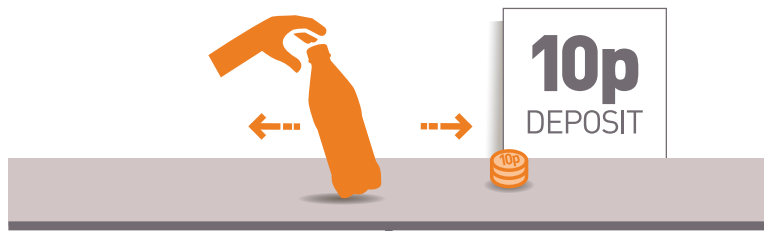
Benefit to society from the introduction of a DRS is valued at almost £1,285 million over the 25-year period. The majority of this is the reduced disamenity to local neighbourhoods from targeting a highly visible component of the litter stream and the value of avoided carbon emissions.

**EXAMPLE  
4**

**SCOTLAND'S DEPOSIT RETURN SCHEME**

TAKE BACK TO ANY PLACE OF PURCHASE  
(WITH CARTONS AND CUPS)

**BUY DRINK. PAY DEPOSIT**

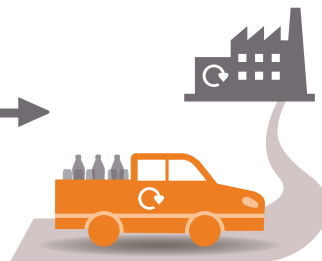


**TAKE BACK TO ANY PLACE THAT SELLS DRINKS\***

\*TAKE BACK CAN BE BY MACHINE OR AT COUNTER



**DEPOSIT RETURNED TO YOU**



**BOTTLES, CANS, CARTONS & CUPS RECYCLED**

**CONTAINERS RECYCLED**

- PET PLASTIC BOTTLES
- HDPE PLASTIC BOTTLES
- GLASS BOTTLES
- CARTONS
- SOME CUPS
- STEEL/ALUMINIUM CANS



**SCHEMES SIMILAR TO THIS ALREADY EXIST IN:**

THE CLOSEST SCHEMES TO THIS EXIST IN SCANDINAVIA AND THE BALTIC STATES, BUT DON'T COLLECT CARTONS OR CUPS. THIS WOULD BE UNIQUE TO SCOTLAND

**ANTICIPATED RECYCLING RATE:**

**80%**

**WHERE**

ANY PLACE THAT SELLS DRINKS



This example is one of four deposit return scheme design examples being presented as part of the public consultation on Scotland's deposit return scheme. Following feedback, scheme design components across all four examples may be combined to provide the final scheme design. This will be decided upon by the Scottish Government.



Scottish Government  
gov.scot



*Questions on Example Systems*

Q40. Which example do you think best matches the ambition of a deposit return system to increase the rate and quality of recycling and reduce littering?

- Example 1 Take back to designated drop-off points
- Example 2 Take back to dedicated drop-off points and some shops (with cartons and cups)
- Example 3 Take back to any place of purchase
- Example 4 Take back to any place of purchase (with cartons and cups)

Q41. Do you agree with the assessment of Example 1?

- Yes
- No
- Don't Know

Q42. Do you agree with the assessment of Example 2?

- Yes
- No
- Don't Know

Q43. Do you agree with the assessment of Example 3?

- Yes
- No
- Don't Know

Q44. Do you agree with the assessment of Example 4?

Yes

No

Don't Know

Q45. How do you think the NPV model could be further developed? What other factors should be included in the models?

Q46. What economic risks or opportunities do you see in introducing a deposit return scheme in Scotland?

Q47. Do you see particular risks with any of the examples?

Q48. What action do you think we could take to maximise the opportunities and minimise the risks of any of the approaches?

## Co-operation with the UK Government

As noted in the introduction, the UK Government announced on 28 March 2018 that it will introduce a deposit return scheme and will consult on options later this year. As noted in the components section, there are a number of ways in which being part of a UK wide system or at least co-ordinating separate systems would be beneficial. These include:

- o Reducing or eliminating the possibility of cross-border fraud or leakage
- o Ensuring systems are consistent for consumers who may cross the border frequently
- o Simplifying supply lines for retail and industry
- o Eliminating issues around product labelling and similar areas that are currently reserved to the UK Government

These need to be balanced against ensuring that the benefits for Scotland of any scheme are maximised. Key considerations in this regard are:

- o Ambition of the scheme – other administrations may not want to include the same materials that the Scottish Government deems appropriate to include in the scheme following this consultation.
- o Control of material – one of the key economic benefits of a deposit return system would come from having large quantities of very high quality material available for recycling. This availability could be used to attract plastic and other reprocessing companies to Scotland, which is a key goal of our resource management policy. There is therefore a case that a Scottish system administrator should keep control of the material collected in Scotland rather than having it aggregated with the rest of the UK's material.

As was noted in the introduction, deposit return can be seen as being part of wider producer responsibility. The UK Government has committed to reviewing the current producer responsibility system, in order to support a more circular economy and to meet the cost recovery requirements of the EU Circular Economy Package. Producer responsibility is a devolved issue but operated by agreement as a consistent system across the UK. It will therefore be important for us to continue to engage with the UK Government to understand the impact of these policy reforms on a Scottish deposit return scheme.

### *Questions on co-operation with the other UK administrations*

Q49. Do you think being part of a UK-wide system would be beneficial for deposit return in Scotland? Please explain your reasons.

- Yes
- No
- Don't Know

Q50. Do you think having compatible but separate systems would achieve the same effect as a single system? Please explain your reasons.

Yes

No

Don't Know

Q51. Can you identify any risks with being part of a UK system?

Q52. Can you identify any risks with not being part of a UK system?

### **Equality Impact Questions Cross Referred to the EQIA**

As noted in the introduction, ensuring that there are no equalities impacts from this work is a key part of system design. Presented alongside this paper is a partial Equality Impact Assessment (EQIA) based on a generic model for a deposit return scheme. This document examines where possible equalities impacts could be and will help us ensure that any negative impacts will be avoided. A final EQIA will be prepared and presented alongside any further consultation for comment.

We would welcome your feedback on the partial EQIA.

Q53. Have we correctly assessed potential impacts?

Yes

No

Don't Know

Q54. Do you think the proposed mitigation is comprehensive?

Yes

No

Don't Know

## Next Steps

- Responses to the consultation will be published in due course. It is important that you fill out the Respondent Information Form so we know how you want your information to be treated.
- We will engage an analyst or consultant who is independent of the policy team to analyse the responses and write a report on it. This report will help us decide how to proceed with system design and will be published on the Scottish Government's website.
- Informed by this consultation and other engagement work, the Scottish Government and Zero Waste Scotland will work together to design a final system. There will be a subsequent opportunity to comment on the design that we will bring forward. Once Scottish Ministers are satisfied with the proposed design, it will be taken forward to super affirmative regulations, which will include an additional forty day pre-laying period for comment.
- In parallel we will work with the UK Government and other administrations to determine what scope there is for co-operation and will offer experience and insight from this process to assist with the work.



## Annex A – Treasury Five Case Model

The deposit return scheme is being developed using HMT's Five Case Model. This is a well-established approach which allows clear auditable decision making on which options are taken forward for policy development. The Business Case keeps together and summarises the results of all the necessary research and analysis needed to support decision making in a transparent way. In its final form it becomes the key document of record for the proposal, also summarising objectives, the key features of implementation management and arrangements for post implementation evaluation.

### Business Case Structure

Business cases can be broken down into 5 different aspects which are interconnected but distinct (namely, the strategic, economic, financial, commercial and management aspects of the case). The business case allows us to demonstrate that proposals:

- the **Strategic Case** – are supported by a robust Case for Change
- the **Economic Case** – optimise Value for Money
- the **Commercial Case** – are commercially viable
- the **Financial Case** – are financially affordable
- the **Management Case** – can be delivered successfully.

The business case develops over time as set out below. For the purpose of consulting we have developed this to the **outline business case** stage. After considering the consultation responses we will move to develop the full business case.

Stage 1 – **Strategic Outline Case (SOC)** - the scoping stage. This document has been published alongside the consultation.

The purpose of the SOC is to confirm the strategic context of the proposal; to make a robust case for change; and to provide stakeholders and customers with an early indication of the proposed way forward (but not yet the preferred option), having identified and undertaken SWOT analysis (Strengths Weaknesses Opportunities Threats) on a wide range of available options, together with indicative costs. This phase maps onto OGC Gateway 1 (Business Justification).

Stage 2 - **Outline Business Case (OBC)** - the detailed planning phase. This document is published alongside the consultation.

The purpose of the OBC is to revisit the SOC in more detail and to identify the lead options which demonstrate best public value. This phase maps onto OGC Gateway 2 (Procurement Strategy). Following the consultation we will revisit this work and identify a preferred option.

Stage 3 - **Full Business Case (FBC)** - detailed final phase.

This takes place within the procurement phase of the project, following detailed negotiations with potential service providers/suppliers prior to the formal signing of contracts and the procurement of goods and services.

The purpose of the FBC is to revisit the OBC and record the findings of the subsequent procurement activities; together with the recommendation for an affordable solution which continues to optimise value for money, and detailed arrangements for the successful delivery of required goods and implementation of services from the recommended supplier/s. This phase maps on OGC Gateway 3 (Investment Decision).

## **Annex B – Summary of deposit return schemes elsewhere (data from 2016 report)**

### *Europe*

- Croatia – Since 2005, on plastic, metal and glass. 95% target, achieving 90% in 2015. Take back to place of purchase.
- Denmark – Since 2002, on plastic, metal and glass. 95% target, achieving around 89% in 2014. Take back to place of purchase.
- Estonia – Since 2005, on plastic, metal and glass. 85% target for plastic and glass, 50% for cans, achieving 82.3% overall in 2015. Take back to place of purchase.
- Finland – Since 1996, on plastic, metal and glass. 80% target, achieving overall 92.6% in 2014. Take back to place of purchase.
- Germany – Since 2003, on plastic, glass and metal. Achieving overall return rate of 97% in 2014. Take back to place of purchase.
- Iceland – Since 1989, on plastic, metal and glass. Achieving overall return rate of 90% in 2013. Take to designated drop-off points.
- Lithuania – Since 2016, on plastic, metal and some glass. 90% all packaging recycling by 2025, achieving return rate of 7% in 2016. Take back to place of purchase above a certain size.
- Netherlands – Since 2005, plastic. 95% target, achieving 95% in 2014. Take back to place of purchase.
- Norway – Since 1999, plastic and metal. 95% target, achieving overall rate of 96% in 2014. Take back to a place of purchase.
- Sweden – Since 1984, plastic and metal. 95% target, achieving overall rate of 88.25% in 2014. Take back to place of purchase.

### *USA*

Ten US States have deposit return systems, covering 88.6m people. These tend to be older systems with small deposit levels, and a mix of take back to a place of purchase and take back to a designated drop-off point, typically achieving lower return rates than more modern European systems.

### *Canada*

Twelve provinces and territories covering 33.3 million people have some form of deposit return. As with the USA, these tend to be older systems with small deposits involving a mix of materials and return locations, achieving return rates between 60% and 80%.

### *Australia*

Two states covering 1.9m people have deposit return systems first introduced in 1975, achieving around an 80% return rate of obligated materials.

### *Rest of World*

Deposit return schemes also exist in Israel, Kosrae, Kiribati and Palau.



© Crown copyright 2018

**OGIL**

This publication is licensed under the terms of the Open Government Licence v3.0 except where otherwise stated. To view this licence, visit [nationalarchives.gov.uk/doc/open-government-licence/version/3](https://nationalarchives.gov.uk/doc/open-government-licence/version/3) or write to the Information Policy Team, The National Archives, Kew, London TW9 4DU, or email: [psi@nationalarchives.gsi.gov.uk](mailto:psi@nationalarchives.gsi.gov.uk).

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

This publication is available at [www.gov.scot](http://www.gov.scot)

Any enquiries regarding this publication should be sent to us at  
The Scottish Government  
St Andrew's House  
Edinburgh  
EH1 3DG

ISBN: 978-1-78851-996-0

Published by The Scottish Government, June 2018

Produced for The Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA  
PPDAS426686 (06/18)

W W W . g o v . s c o t