

# A Deposit Return Scheme for Scotland – Summary



Scottish Government  
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## **What is a Deposit Return Scheme?**

In a deposit return scheme, the price you pay for a product included in the scheme will include a small extra amount – the deposit – which is given back 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 can get some of the cost back after they have used it, when they return the container to a deposit return point.

We want people to give their views on the different options for a deposit return scheme.

## **Why are we introducing a Deposit Return System in Scotland?**

Our ambition is to create in Scotland a society that values the materials that we use, and throws away 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 is called the Circular Economy and is about the environment, the economy, and people. We think that a deposit return system will:

- Improve the quantity and quality of materials available for recycling
- Help improve the environment
- Help change our behaviours and approaches to materials
- Provide economic opportunities for Scotland

## **Quantity and Quality of Materials**

More than two billion drinks are sold in Scotland in single-use containers every year. The recycling rates for drinks containers are not as high as we would like, estimated at around 50% depending on the container. Other systems in Europe are achieving recycling rates of up to 95%. By providing an incentive for people to return their containers, we will ensure that they are recycled, becoming a high value resource rather than being lost through landfill or littering.

This value of recycling is reduced through ‘contamination’, in other words by materials of lower value being mixed with more valuable ones. Deposit return schemes offer a good opportunity to minimise contamination and maximise the value of the collected material. This is because items will only be accepted into the system if they are the right kind of material.

## **Environment**

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. The Strategic Environmental Assessment accompanying this document suggests that over the next 25 years a deposit return scheme could save between 2.7 and 4.1 million tonnes of carbon dioxide.

## **Changing Behaviours**

Drinks containers are very visible litter. 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 and animals. And, of course, items that are littered reduce the attractiveness of local communities and represent resources lost to the economy. We hope to encourage people who would otherwise be careless with their cans and bottles to return them for recycling.

## **The Economic Opportunity of Deposit Return**

The Scottish Government is committed to reducing the local and global environmental impact of our economy. 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.

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.

Product manufacturers who would like to increase the level of recycled content in their goods can sometimes feel constrained when there is uncertainty over the availability of recycled material for them to use. By introducing a deposit return scheme, Scotland will create a new secure resource of high quality material.

Also, we know that a key challenge to developing the infrastructure to reprocess material in Scotland is the need to obtain a secure supply of material to use. 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 offer 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.

## **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 United Kingdom (UK)-wide supply chains. Also, the current producer responsibility scheme operates across the UK. Producer responsibility is about making sure businesses that manufacture, import and sell certain products are responsible for their environmental impact at the end of their life.

The Scottish Government is working with the other administrations across the UK 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.

## **What are the options for a Scottish deposit return scheme?**

There are 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.

While we have not tried to copy any existing system, learning from other countries has helped the design process. We have 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, provides more detail. 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 without a 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 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 online 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 send 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.

## What materials will be collected? (Questions 1 to 6)

This refers to what kind of drinks containers should be included in the scheme in terms of the material they are made of.

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 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 are broadly:

1. PET plastic only. This is the most basic option, capturing most 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. Pursuing only this option would, however, mean that large amounts of other valuable, and often littered material is not included.
2. PET plastic and metal cans only. There are currently 1.3 billion of these containers on the market. This would capture most soft drinks containers and some alcoholic beverages. Glass is a bulky, heavy container material, therefore excluding it from the scheme would simplify the system and reduce costs, particularly in terms of transport and any RVMs used to repay deposits. However, it would also lose a valuable material stream. 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 glass packaging 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. 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 would 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 a large enough supply of them to process.

Table 1 shows the estimated tonnages of these materials dealt with by local authorities and the amounts they currently capture for recycling.

**Table 1: 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	unknown

Disposal costs for local authorities are variable but significant. In addition to household waste collections, local authorities also pay a cost for managing items disposed of in public bins or irresponsibly as litter. 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. Material diverted into a deposit return scheme eliminates these costs for local authorities. It is possible, however, that there could be an increase to the per tonne cost to local authorities of recycling what is left in the kerbside collections.

The scheme could also be designed to allow deposits to be redeemed 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.

Another issue to be considered is the possibility of a deposit return scheme having unintended effects. 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.

### **What types of products will have a deposit on them? (Questions 7 to 13)**

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 included 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 common 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 advises that any differentiation should in principle be based on the material used for the containers and not on the content of the beverages, because the content in itself is not related to the environmental performance of the packaging. Therefore exempting categories of product should demonstrate an overriding harm from including the product.

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, accept bottles up to that size and most 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.

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, and it is important to consider whether excluding them from a scheme will make them more attractive.



## **Where you will be able to get the deposit back? (Questions 14 to 16)**

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 discussed later.

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. 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 RVM, the cost, location and maintenance of this would need to be considered.
2. Return to designated 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 RVM, 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.

## How the scheme is communicated so everyone understands it? (Question 22)

# HOW DO WE MAKE SURE PEOPLE UNDERSTAND THE SYSTEM?

The infographic is divided into three sections:

- LOGO ON PACKAGING:** Shows a green plastic bottle with a circular logo that says "I'm in Scotland's DEPOSIT RETURN".
- ON SHELF LABELLING:** Shows three bottles on a shelf with a price tag that says "90p" and a breakdown: "Cost breakdown Drink 70p, Deposit 20p".
- NATIONAL ADVERTISING:** Shows a green sign with the text "Return plastic into use" and "Return 20p to your pocket". It includes icons of a bottle, a shirt with a question mark, a "20p" coin, and the "Scotland's DEPOSIT RETURN" logo.

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

The success of a deposit return scheme will depend on customers understanding and using it. 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. 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.

The requirement for a deposit return-related labelling will impact on producers. 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 as each can within the pack may need some form of label as it will carry a deposit.

The Interim Equalities Impact Assessment highlighted 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. The scheme administrator will be expected to fund communications.

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 performance.

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.

## **How much the deposit should be? (Questions 25 and 26)**

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).

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.

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. The deposit level needs to take into account the overall impact on the costs of such 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 burden. These impacts are considered fully through the accompanying interim Equalities Impact Assessment.

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' deposit, with every container having the same deposit, is 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.

## **How to create additional benefits from the scheme? (Questions 30 and 31)**

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 RVM 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.



There is the possibility that some individuals or groups may seek to commit fraud on the system.

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.

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 see if too many containers are being returned. 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.

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. 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.
3. A high security label using specialised inks for containers included in the system.

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.

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

### **(Questions 27 to 29)**

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 RVM or manual, over the counter take back), counting and bulking, and transport and sorting of returned containers.

### *Method of Take back*

Take back is usually done in one of two ways:

1. Reverse Vending Machines (RVMs) – This is sometimes referred to as automated return. Returned containers would be placed in a machine, which then scans the barcode. If a deposit was paid on an item, the machine would accept it and return it to the customer. RVMs can be scaled and can be used in any return setting.
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. The impact on small retailers will vary depending on the scope of the scheme and the size and layout of the store.

There will also be a need to provide some form of take back from online shopping. 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. This centre will be responsible for ensuring that material that has been collected is eligible to have a deposit paid on it, and reimburse retailers for deposits they have paid out manually.

Bulking centres may also be required to reduce logistic costs for transport by grouping material together. 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.

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. There are broadly 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 local contractors moving the material.
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.

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



Effective infrastructure could be supported by some form of compaction at point of return. 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.

### **Who owns the system (Questions 32 and 33)**

System ownership refers to the type of organisation that will be responsible for managing a deposit return 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. 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. There could also be an opportunity here for a third sector organisation or social enterprise to bid for the tender.
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 ongoing public sector involvement in a number of different ways. This could allow a greater level of control over the system.

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.

### **How the system is regulated (Questions 35 to 39)**

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

To ensure the scheme functions, producers will have to provide data in terms of the amount and nature of products they put onto the Scottish market and ensure that they use any labels which are required. 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.

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](#). 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.

## **Examples of Deposit Return Schemes (Questions 40 to 48)**

In this section we set out four 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. More detail is provided on this in the Outline Business Case (OBC).

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

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. This allows us to compare how well the different systems do.

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 would be. An expanded explanation of the NPV modelling is being published alongside this consultation paper in the accompanying OBC. This should be looked at with the score the example gets for the wider policy objectives. All the numbers in this section are compared to the situation where we don't introduce a deposit return scheme called 'the base case'.

### **The Base Case used for the NPV Calculations**

HM Treasury 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 do minimum 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.

## **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 looks 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 containers 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

Net Present Value £494 million (25 years)	Return to Depot (Standard) Plastic, glass and metal			
Objective	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 SCORE</b>				<b>56</b>

\* Full Time Equivalent

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%.

Example 1 has a total net benefit of £494 million over the 25-year NPV compared to not introducing a scheme.

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

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)

Net Present Value £352 million (25 years)	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 SCORE</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.

Example 2 has a total net benefit of £352 million over the 25-year NPV compared to not introducing a scheme.



### **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 RVM 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

Net Present Value £754 million (25 years)	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 SCORE</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.

Example 3 has a total net benefit of £745 million over the 25-year NPV compared to not introducing a scheme.

## **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 4 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)

Net Present Value £990 million (25 years)	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 SCORE</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%.

Example 4 has a total net benefit of £990 million over the 25-year NPV compared to not introducing a scheme. This is the highest NPV but it is also the scheme with the highest risk as it is more ambitious than systems in other countries.

## **Co-operation with the UK Government (Questions 49 to 52)**

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.



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