

## Deposit Return Scheme Programme The Case for Glass

### Exec summary

1. Following the Deposit Return Scheme (DRS) Programme Board meeting on 4th December 2018, Zero Waste Scotland has been asked to prepare a paper outlining the case for including or excluding glass in a Scottish DRS. The reason for providing a separate paper on the inclusion of glass in the DRS is that it poses unique challenges with regards to the scheme design compared to the other materials such as aluminium cans and PET. These include technical challenges (increased manual handling risks, more complex and costly logistics and material reprocessing) as well as economic risks (increased costs to retailers to include costs, the economic impact of switching from an existing kerbside scheme to a DRS model).

### Recommendations

2. Programme Board members are requested to:
  - a) Note and agree the underpinning assumptions which inform this paper;
  - b) Agree the recommendation that glass should be included in a DRS for Scotland. As a working assumption. This recommendation is based on the benefits to the environment, the NPV savings of including glass to the scheme and individual actors in the supply chain benefits.

### Assumptions

3. The following supporting assumptions have been made:
  - a) Glass will be collected whole from return locations using a soft drop method<sup>1</sup>;
  - b) The sorting centre will be able to easily separate whole bottles by colour;
  - c) A model will be developed to understand the impact of DRS on each Local Authorities existing collection infrastructure and service contracts;
  - d) A model will be developed to understand the impact of DRS on retailers;
  - e) Soft drop requires additional floor space put aside for storage (25% larger space and 10% increased capital costs);
  - f) Flexible and achievable delivery methods
  - g) Glass bottles would be counted and sorted at a counting centre(s).

### Approach

4. To assess the merit for including glass in the DRS, a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis on the inclusion of glass was

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<sup>1</sup> A 'soft drop' system ensures that the glass containers remain whole after being deposited by the consumer. Avoiding crushing the container at the return locations prevents the formation of crushed mixed glass and therefore makes it easier to colour separate glass containers via a barcode scan at the sorting centres. This in turn, increases the overall quality of the recycled glass.

undertaken by Zero Waste Scotland which will be presented to the Programme Board. This paper provides a more detailed discussion on each point raised in the SWOT analysis.

5. The SWOT analysis was conducted in line with the four overarching DRS scheme principles:
  - a) Increase the quantity of target materials collected for recycling;
  - b) Improve the quality of material collected, to allow for higher value recycling;
  - c) Encourage wider behaviour change around materials;
  - d) Deliver maximum economic and societal benefits for Scotland.
6. The feedback from the public consultation exercise is also factored in. Where possible independent research has been used to evidence each position, with international best practice also considered where appropriate

## Results

7. The results of the SWOT analysis highlighted that including glass in the DRS will significantly contribute to achieving the four principles. Based on the success of other schemes, it is estimated that glass bottle capture rates will increase from 64% to between 84-91% over the forecast 2-3 year period thereby contributing to **Principle 1**.
8. Regarding **Principle 2**, a soft drop system will promote colour separated glass streams which will ensure that high quality recycled glass is available on the market. This increases the viability of closed loop recycling in Scotland and hence leads to significant energy savings and CO<sup>2</sup> emissions reduction.
9. In terms of **Principle 3**, glass is estimated to make up 17% of drinks containers in the DRS (or 77.5% by weight). As such, it is believed that it will play an important role in normalising behaviour and increasing capture rates. It should also minimise the risk of market distortion by material switching. Including glass will also help reduce litter rates of glass – which is the most problematic litter material compared to aluminium cans and PET.
10. Finally, including glass offers several economic benefits thereby contributing to **Principle 4**. Firstly, it offers an overall scheme NPV of £832,176,408 compared to £522,839,378 without. Secondly, it will offer an additional high volume, high quality feedstock (1.1Mt by 2043) of recycled glass to the Scottish glass industry. It will also benefit society through increasing the CO<sup>2e</sup> emission reductions by 1.2Mt over 25 years.
11. Although there are several strengths associated with including glass in the DRS, it is important to acknowledge the associated weaknesses and threats which will need to be addressed to ensure efficient functioning of the system. Although they are discussed in detail in this paper, the **key threats and weaknesses** are as follows:
  - a) Most best practice examples that include glass elsewhere differ from the Scottish context – as such it is difficult to accurately predict the extent of

public participation in the scheme – at least in the short term<sup>2</sup>. This risk has been mitigated to some extent by other components of scheme design being selected to incentivise participation.

- b) Approximately 10% of glass containers (by weight), such as jam jars, will not be included in system. This may cause the unintended consequence of increasing glass in the residual waste streams and still requires Local Authorities to collect it. Yet, there is the potential to include a fraction of this 10% in the DRS in future. Furthermore, the negative effect is assumed to be negligible relative to the positive effects associated with the predicted increase in recycled glass volume and quality from including it.
- c) There is a risk, in the short term at least, that additional sorting and recycling infrastructure is required to ensure collected glass is colour separated and recycled to a high enough quality to be used in closed loop processes.

12. There are also a handful of outstanding knowledge gaps which require further assessment prior to the final recommendation being made. These include: (i) quantifying the impact of including glass bottles on Scottish local authorities; (ii) modelling the impact on retailers; and (iii) clarifying the collection and processing infrastructure required.

13. Based on the results of the SWOT analysis, Zero Waste Scotland recommends that glass bottles are included within the DRS using a soft drop system (See Footnote 1) as a working assumption. Although it offers many strengths, this decision has predominantly been driven by the ~£310 million additional NPV offered combined with the likely high capture rates of high quality feedstock. In addition, although Zero Waste Scotland recognises the existence of weaknesses and threats associated with including glass – it is believed they are not insurmountable and that the benefits of including, in this case, outweigh the risks.

### Recommendation

- 2. Programme Board members are requested to:
  - a) Note and agree the underpinning assumptions which inform this paper;
  - b) Agree the recommendation that glass should be included in a DRS for Scotland. As a working assumption. This recommendation is based on the benefits to the environment, the NPV savings of including glass to the scheme and individual actors in the supply chain benefits.

[Redacted]  
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<sup>2</sup> It is assumed there will be a ramp up of participation in the scheme over 4 years to achieve the desired capture rates