Ministry for the Environment
Manatū Mō Te Taiao

PROACTIVE RELEASE COVERSHEET

Minister	Hon. David Parker Hon. Rachel Brooking	**Portfolio**	Environment
Name of package	Initial container return scheme (CRS) policy briefings	**Date to be published**	16/10/2023

List of documents that have been proactively released

This release package includes briefings and slide packs, outlining the container return scheme (CRS) co-design process and policy next steps from 2019 to 2021.

Please note the release of these documents relates to OIA request(s) received on the topic of the CRS.

Date	***Title***	***Author***
9 December 2020	Briefing: Container Return Scheme – Overview and next steps	Ministry for the Environment
16 February 2021	Aide memoire: Slide pack for the Container Return Scheme (CRS)	Ministry for the Environment
16 February 2021	Attachment: Slide pack outlining the CRS co-design process, key considerations and next steps	Ministry for the Environment
1 April 2021	Aide memoire: Slide pack for the Container Return Scheme - Scope of containers	Ministry for the Environment
1 April 2021	Attachment: Slide pack Container Return Scheme: Scope of containers	Ministry for the Environment
22 April 2021	Aide memoire: Slide pack for the Container Return Scheme – Driving recovery	Ministry for the Environment
22 April 2021	Attachment: Slide pack for the Container Return Scheme – Driving recovery	Ministry for the Environment
6 May 2021	Aide memoire: Slide pack for the Container Return Scheme – Options to increase recovery and reduce litter	Ministry for the Environment
6 May 2021	Attachment: Slide pack for the Container Return Scheme – Options to increase recovery and reduce litter	Ministry for the Environment

Information redacted **YES**

Any information redacted in this document is redacted in accordance with the Ministry for the Environment's policy on proactive release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Summary of reasons for redaction

Some information has been withheld for the reasons under: Section 9(2)(b)(ii) protecting information where the making available of the information would be likely unreasonably to prejudice commercial position commercial information; Section 9(2)(ba)(i) protecting information which is subject to an obligation of confidence; Section 6(b)(i) confidential information entrusted to Government; and Section 9(2)(g)(i) maintaining the effective conduct of public affairs.

Container Return Scheme – Overview and next steps

Date Submitted:	9/12/2020	Tracking #: 2020-B-07314	
Security Level	IN CONFIDENCE	MfE Priority:	Non-Urgent

	Action sought:	Response by:
Hon David Parker, Minister for the Environment	Meet with Ministry officials for further discussion	26/01/2021

Actions for Minister's Office Staff	**Return** the signed report to the Ministry.
Number of appendices: 5	Titles of appendices: Appendix A: International CRS schemes – deposit rates and return rates Appendix B: Additional information on kerbside recovery rates and litter Appendix C: Scheme Design Working Group Evaluation Form of the Project Team's Design Appendix D: Summary of the Project Team's Design recommendations (Confidential) Appendix E: Scheme Design Working Group individual representative evaluations of the Project Team's Design (Confidential)

Ministry for the Environment contacts

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Deputy Secretary	Sam Buckle	022 034 0311	✓

Container Return Scheme – Overview and next steps

Key Messages

1. Last year, a multi-stakeholder working group (called the Scheme Design Working Group) was set up and led by an external Project Team to investigate and co-design a potential New Zealand beverage container return scheme (noting that it was always clear and intended that a decision to implement a scheme would still need to be a decision taken by Cabinet).
2. Container return schemes have become increasingly common internationally as a means of increasing container recovery rates, reducing litter, shifting public mindset and as a form of product stewardship – placing greater onus on the supply chain (manufacturers, retailers, consumers) to take responsibility for container litter. Notably, they are now present or being set up in every Australian state.
3. The Project Team's report and design recommendations for a national container return scheme were completed last month (referred to by the Ministry as the Project Team's Design). In addition to the extensive research, modelling and cost-benefit analysis, the report provides recommendations on the shape and design of a scheme bespoke for New Zealand. For instance, it recommends a scheme that includes a wide range of container types (including glass), a starting deposit level of 10c, and recommendations relating to the collection network and management of the scheme.
4. The project did, however, reveal strong positions and concerns on the part of some stakeholders, particularly (but not exclusively) the beverage sector. These views ranged in nature and strength, but broadly related to cost implications on the part of the beverage industry and network impacts on the part of the recycling operators. Consequently, the recommendations in the Project Team's Design were strongly challenged by some members of the working group and there a significant minority report.
5. Several of these industry groups have been working on and developing alternative scheme proposals (notably the Glass Packaging Forum and the NZ Beverage Council) and others have been engaging the Ministry to explain their concerns and position (including the industry recycling stakeholders).
6. The Project Team's Design is extensive (a summary document is still being finalised) and the Ministry is still waiting on the final advice of the Technical Advisory Group (which meets for the last time in December). Over the next three months, the Ministry intends to work through the Project Team's Design and the Technical Advisory Group's advice, as well as engage directly with key stakeholders, and undertake further analysis/modelling to test critical scheme design issues. This timeframe will also allow for progression of work on kerbside standardisation, allowing for improved alignment of key decisions on the interrelated projects.
7. Once we have completed this work and are confident we have fully tested the potential issues, we will provide you with comprehensive advice on the overall costs and benefits of introducing a container return scheme, as well as the most critical scheme design options and next steps.
8. It is our expectation that, if Cabinet decides to proceed in implementing a container return scheme, public consultation will need to be undertaken and that legislation may also be required (potentially as part of the review of the Waste Minimisation Act). It is unlikely a scheme would be operational before 2023.

Recommendations

9. We recommend that you:

   a. **Note** that the Project Team's Design has been completed, but that the Ministry is still waiting on final advice from the Technical Advisory Group.

   b. **Note** that the Ministry intends to analyse the Project Team's Design, the TAG's advice, and undertake additional analysis and engagement over the next two to three months, before providing you with comprehensive advice on the options for introducing a New Zealand container return scheme.

   c. **Note** that the Ministry is being approached by various industry groups with alternative design considerations for a New Zealand scheme, and that these will be factored into our advice to you.

   d. **Note** that the Ministry intends to update the Scheme Design Working Group with the project's progress and next steps, as well as provide a project update on the Ministry's website.

   e. **Meet** with Ministry officials to discuss the project and the potential next steps.

      Yes/No

   f. **Meet** with TAG Chair, Dave Brash

      Yes/No

Signature

Sam Buckle
Deputy Secretary
Waste, Resource Efficiency, Water and Land Use Policy **Date: 09/12/2020**

Hon David Parker
Minister for the Environment **Date**

Container Return Scheme – Overview and next steps

Supporting material

Purpose

1. This briefing provides you with an overview of the project for co-designing a New Zealand beverage container return scheme (CRS), the progress to date, and next steps. You may like to meet with Ministry officials and/or the Technical Advisory Group Chair, Dave Brash, to discuss the project and the next steps.

What is a container return scheme?

2. A container return scheme is a recycling scheme and form of product stewardship that incentivises consumers and businesses to return beverage containers for recycling or refilling in exchange for a refundable deposit. International scheme deposits range from NZD 7 cents to NZD 49 cents per container.
3. The intent of the year-long CRS co-design project was to develop recommendations for a bespoke container return scheme design for New Zealand, which we refer to as the 'Project Team's Design'.

Why consider a container return scheme for New Zealand?

4. Several factors sat behind the decision to investigate a potential CRS for New Zealand.

   International container return schemes and the national impetus

5. Container return schemes have become increasingly common[1] as a means of increasing beverage container recovery rates, supplementing kerbside recycling, reducing litter, changing the public's recycling mindset, and strengthening the supply chain responsibility for resource recovery and waste minimisation.
6. Schemes vary in terms of container scope, financial models, establishment and governance arrangements, return network design, and container return rates. For instance, most European countries with schemes achieve container recovery rates of over 90 per cent. Most European schemes have high deposit rates and a mandatory return to retail[2] requirements for beverage containers. All Australian states, with the exception of South Australia (established in 1977), have introduced or committed to introducing container return schemes within the last eight years (see Appendix A for more schemes).
7. In New Zealand, some stakeholders have been calling for a CRS for several years including Auckland Council, Local Government NZ, the NZ Product Stewardship Council, and the Office of the Prime Minister's Chief Science Advisor in the *Rethinking Plastics* (2019) report. During 2018/19 the impetus for a CRS grew with 96 per cent of local

[1] Over 40 container return schemes are now operating globally.

[2] Return to retail is usually where containers are returned to a retail outlet where beverages are sold. The potential benefits of mandatory return to retail are increasing customer convenience of the scheme, reducing vehicle trips and the scheme's overall carbon footprint, and establishing new recycling norms within the retail experience (ie, product stewardship).

government mayors[3] and 83 per cent of the public [4] in favour of a scheme.

Recovery rates

8. Our container recovery rates remain low compared to many other countries. In 2018/19 it is estimated that 2.36 billion glass, plastic, aluminium, and liquid paper board single use beverage containers were sold in the New Zealand market. The total recovery rate of beverage containers has previously been estimated to be between 45 and 58 per cent. The Ministry's Phase 2 modelling outputs associated with the CRS project estimate a 47 per cent recovery across the different container material types. This leaves an estimated 1.11 billion containers unaccounted for, the majority of which are stockpiled (glass), disposed of, or pollute our environment as litter (Appendix B).

9. Depending on design choices (eg, the deposit amount, the network convenience, and targets and incentives to achieve return rates), a NZ CRS could see an increase in beverage container recovery rates to 80-85 per cent (or more), resulting in the recovery and recycling of an estimated 1.9 – 2 billion beverage containers annually.

Litter

10. Beverage containers are a major source of litter in New Zealand. While not the most common item (cigarette butts), beverage containers made up 66 per cent of recognisable branded litter in 2019[5].

11. Container return schemes were originally developed to combat the litter issue stemming from 'away from home' beverage consumption. A 2019 national kerbside audit[6] highlighted that 18 per cent of the total beverage containers consumed by households are placed in the waste bin/bag at kerbside. Even if this number were placed in the correct recycling bin/bag and if households recycled 100 per cent of 'at home containers', approximately one billion containers would still be a potential litter source in the 'away from home' consumption category.

12. Container return schemes are complementary to kerbside recycling schemes by incentivising increased 'away from home' container recovery and recycling for businesses and consumers.

13. The literature review to support the cost benefit analysis (CBA) of the CRS project suggests that litter reduction due to scheme implementation produces on average 61 per cent less container litter, ranging from 35 per cent to 84 per cent.

Product Stewardship Principles

14. Container return schemes are a form of product stewardship scheme that effectively shifts the cost burden of recycling from councils and general rates funding to the supply chain (beverage producers, retailers and consumers). New Zealand's onshore recovery systems are largely reliant on council contracts and rates funding sources. Kerbside glass alone is estimated to cost rate payers $55 million per annum[7] at NZD10.29 cents per container. For this reason, councils have tended to be in support of container return

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[3] https://www.lgnz.co.nz/news-and-media/2018-media-releases/local-government-debates-key-issues-at-annual-conference/

[4] https://www.nzpsc.nz/wp-content/uploads/2017/12/Container-Deposit-Scheme-Summary-Report-Final.pdf

[5] Keep New Zealand Beautiful National Litter Audit, September 2019

[6] http://www.wasteminz.org.nz/wp-content/uploads/2020/05/Rethinking-Rubbish-and-Recycling-bin-audit-research-2019.pdf

[7] The cost to provide a glass only collection from kerbside collections across New Zealand is approximately NZD $382 per tonne or an annual cost of approximately NZD $55 million (144,348 tonnes multiplied by NZD $382 per tonne).

schemes for the more equitable supply chain responsibility for the recycling of beverage containers.

15. Other benefits of a CRS beyond the recovery of beverage containers might include improved public awareness and engagement in recycling, job creation, savings to councils in kerbside collection and litter clean-up costs, reduced landfill disposal costs, industry growth and innovation, and greenhouse gas emission reductions.

Costs and Impacts

16. While there are many potential benefits of a CRS, there will be costs for producers and consumers, and a CRS has the potential to disrupt existing business and impact on kerbside recycling. The extent of these costs and impacts will depend significantly on design choices.

17. Retailers, beverage industry, and consumers will bear the costs of a scheme as a CRS is a form of product stewardship. The outcomes of the Ministry's Phase 2 Modelling work with PWC will give us the ability to discuss with you in further detail the costs and benefits of a scheme and to test scenarios based on your preference of scope and key design considerations.

Alignment with the Ministry's Strategic Framework

18. There is strong alignment between a container return scheme with the Ministry's new Strategic Framework for 'a flourishing environment for every generation', statement of intent to transition New Zealand to a climate resilient, low emissions, circular economy, and alignment with Te Ao Māori.

Progress to date

Context

19. In November 2018, the Associate Minister for the Environment, Hon Eugenie Sage approved the initial recommendations of the National Resource Recovery (NRR) Taskforce and the NRR work programme (Briefing note 2018-B-04894 refers). Minister Sage later approved the revised NRR work programme, including investigating and designing a New Zealand Container Deposit Scheme (later renamed Container Return Scheme) and undertaking a cost benefit analysis on the proposal in May 2019 (Briefing note 2019-B-05412 refers).

20. On 4 November 2019, Minister Sage approved the Marlborough District Council led project for co-designing a New Zealand container return scheme from the Waste Minimisation Fund. The funded project allowed Marlborough District Council and Auckland Council to coordinate the formation of the Scheme Design Working Group (SDWG) to co-design a container return scheme for New Zealand, up to a maximum contribution of $1,142,574. The final invoice is to be received and we expect the project to come in under budget.

21. The CRS project is a part of the Government's resource recovery and circular economy[8] work programme. This programme was developed to improve the waste management system, significantly reduce waste to landfill and greenhouse gas emissions, and transition New Zealand to a circular economy (Cabinet minute CBC-18-MIN-0078 refers).

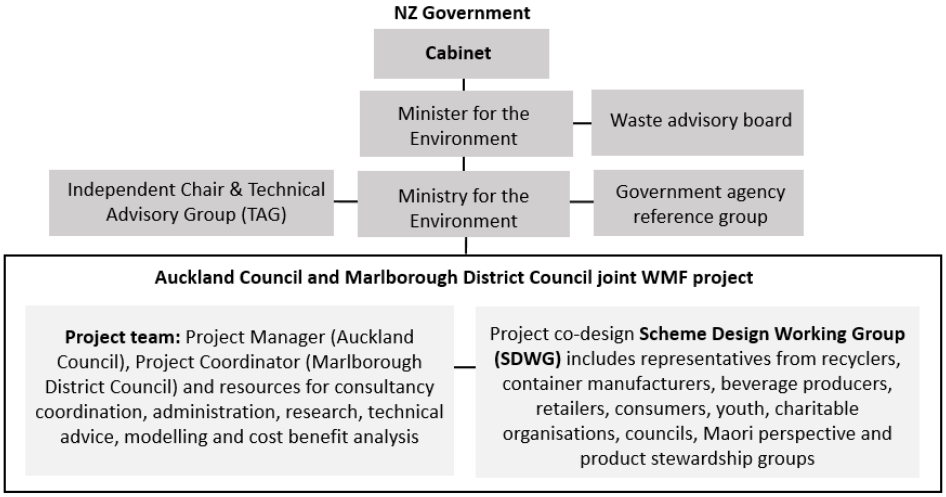
[8]The Ellen MacArthur Foundation notes that a circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

22. The intent of the CRS co-design project was to develop a bespoke national scheme design recommendation for New Zealand to deliver on a range of social, cultural, economic, and environmental outcomes (Appendix C).

23. The key output from the CRS project is the report and recommendations for a NZ CRS[9], presented in the CRS Draft Design report which we refer to as the 'Project Team's Design' and/or the 'Design' (see Appendix D for a summary). Other key outputs which support the Project Team's Design include a comprehensive international literature review, PWC financial modelling, a SAPERE cost benefit analysis, a New Zealand consumer preferences survey and an evaluation report of the SDWG outcomes. We are now undertaking further analysis and modelling with PWC and working on a summary of the Project Team's Design for decision makers.

24. The Project Team's Design was created through a collaborative and iterative co-design process (Figure 1). This involved review and input from a wide range of key stakeholders including the Scheme Design Working Group (SDWG)[10] and a Technical Advisory Group (TAG), as well as extensive research and international best practice.

Figure 1: Organisational structure of the CRS co-design project



Stakeholder positions, outcomes and engagement

25. The SDWG consisted of broad stakeholder representation to ensure inclusion of diverse perspectives. This enabled the CRS research and recommendations to be thoroughly tested for alignment with the key project outcomes, principles, and opportunities (Appendix C).

26. All SDWG members individually scored and provided feedback on the alignment of the Project Team's Design with the key project outcomes, guiding principles and opportunities. The SDWG did not achieve consensus on whether these eleven objectives were sufficiently met[11] (the SDWG's confidential summary evaluation scores can be found in

[9] The Project Team's report and recommendations for a New Zealand container return scheme is titled the 'NZ CRS Draft Design'. The Ministry now refers to this report as the 'Project Team's Design' (referred to in the previous briefing as the 'draft design')

[10] Also referred to as the 'Working Group' in the Project Team's reports and documents. The SDWG includes the Ministry.

[11] Because overall consensus among the SDWG was not reached, a 'Final Evaluation Process Summary' report is being developed, previously called the 'Minority Report'. The name was changed to more accurately reflect the fact that the report captures the views of both minority and majority groups. The Ministry can provide this report to you.

Appendix E).

27. The initial funded co-design process has drawn to a close with the Project Team's Design report released in confidence to the TAG and the SDWG, which includes the Ministry. Stakeholder representatives who support the overall Project Team's Design were interested to see the design strengthened.

28. Stakeholder representatives who were opposed to the Project Team's Design recommendations s 9(2)(ba)(i) Representatives s 9(2)(ba)(i) in particular were opposed and concerned with certain scheme characteristics and have approached the Ministry with alternative scheme design proposals or recommendations.

29. While a group of stakeholders were opposed to the specific scheme design landing of the Project Team, the same working group representatives including s 9(2)(ba)(i) have acknowledged change is needed and are supportive of working with Government on next steps (including on their various proposals and alternative designs/recommendations). The Ministry will consider the proposals from industry in our future advice to you, factoring in the extent to which these proposals would go toward meeting your and the Government's objectives for a NZ scheme.

Technical Advisory Group process

30. A Technical Advisory Group (TAG) with an independent chair was appointed to provide independent expert advice on the design throughout the process. Feedback from the TAG has been incorporated throughout the co-design process and is reflected in the final Project Team's Design.

31. The TAG is currently working through a process of developing their final advice on the Project Team's Design, including consideration of the SDWG process and outcomes. We anticipate the TAG's advice will be finalised after their final meeting in mid-December. The results will be presented to you in the next briefing.

32. The co-design role of the SDWG and the TAG included providing guidance, feedback, and advice to the Project Team on key design decisions through a series of iterative reports.

Key considerations

33. The Project Team's Design did not achieve consensus, but there was support for a scheme amongst the majority of stakeholders, even some of those who did not support this particular Design.

34. The Project Team's Design has provided a thorough research process and evidential basis for a NZ CRS that we are able to build on. Further, we consider it has helped to identify the critical design considerations for a New Zealand scheme and to surface alternative CRS proposals from industry. We are now coordinating a process to gather and analyse all outputs of the project.

35. The key decisions that you and Cabinet might like to consider are about whether to move forward with a scheme and, if so, what kind of scheme is the best fit for New Zealand. In addition, you may like to consider the overall merits and benefits of a scheme for New Zealand alongside the alternative design recommendations from industry stakeholders.

36. The experience of other countries, including Australia, is that successful design of a CRS requires careful consideration of the desired scheme objectives, network establishment pathway (options in regulation and procurement), and key scheme design elements.

37. We consider that the success of a scheme (ie, high participation and container return rates) hinges upon several interconnected key design considerations, including:

- the proposed deposit level and financial model (eg, deposit model or refund model)
- the proposed convenience and accessibility of the network (including, for instance, any mandatory take back requirements and how the network will be established)
- the proposed nature / strength of incentives to achieve scheme targets
- the proposed model for governing, managing, and implementing the scheme (including the extent to which the operations of the scheme are prescribed versus left to the Managing Agency[12] to determine. For example, the proposed advanced materials recycling fee mechanism which could be used to incentivise producers within the scheme to move towards more recyclable packaging)
- including and/or incentivising an expanded refillables market through a scheme, particularly given the carbon emission reduction potential of refillable glass containers.

38. We note that the waste hierarchy considers reduce and reuse to be better outcomes for resources over recycling and disposal. Consequently, you may like to consider options for refillables and the associated infrastructure needs in our future advice to you, noting that further funding would be required to undertake a detailed refillables feasibility investigation.

Risks and mitigations

39. The following risks largely relate to stakeholder expectations and the high level of interest for a potential scheme, given the project has almost concluded and the recommendations and options are due to be presented to you.

Table 1: Risks and mitigations/options for the Container Return Scheme project

Risks	Mitigations/options
The co-design process has generated substantial report outputs (more than 1,000 pages) and the documentation is currently in-confidence to the SDWG and TAG. Some of these stakeholders have requested the reports be released publicly with a succinct summary.	The Project Team and Ministry are currently preparing an accessible summary of the co-design process outcome and key design recommendations for decision makers. The summary and full CRS Design could be made publicly available pending your consideration of the options and recommendations in 2021.

[12] The Managing Agency is sometimes referred to as the 'Producer Responsibility Organisation'. Its purpose and function in a CRS typically include the financial and operational aspects of a scheme and responsibility for scheme performance and targets.

As the CRS Design did not achieve consensus within the SDWG, there may be uncertainty from a range of different stakeholders about the project outcome. This may drive interested stakeholders who are either for or against the CRS Design to engage with the media on a perceived delay in publicly releasing the project documentation.	The Ministry's website has a project page[13] which notes the outcome of the process and next steps, including your consideration. The Ministry will contact the SDWG and update the stakeholders on the process following your consideration of the project.
The Kiwi Bottle Drive has submitted a petition to the previous Government's Environment Select Committee requesting the House of Representatives urgently establish a mandatory nationwide Container Return Scheme. Given the timing of the process, an oral submission by the Ministry may generate increased levels of media interest on this topic.	As the new Environment Select Committee agenda is to be confirmed, it is currently unclear when further consideration of the petition will occur. The Ministry submitted its written evidence 29 May 2020, and the oral submission date may occur in the first quarter of 2021.
While there are many potential benefits of a CRS, there will be costs for manufacturers and consumers, and a CRS has the potential to disrupt existing business and impact on kerbside recycling.	The CRS co-design project has addressed these factors in their research and report. This includes lessons from Australia which reinforce sufficient lead in time for industry to respond and adapt should a decision to implement be made. The Ministry is undertaking further modelling work to better understand the potential impacts to inform our advice to you in 2021.

Next steps

40. The final TAG meeting will include finalising the TAG's advice on the design of a NZ CRS. We anticipate that we will present this to you in the next briefing.
41. We are undertaking further analysis to ensure comprehensive advice on the merits of a scheme, the design options and the associated choices for you. We anticipate we will prepare our advice for you on whether to proceed with a CRS and options for a CRS over the next three months. This timeframe will also allow for progression of work on kerbside standardisation, allowing for improved alignment of key decisions on the interrelated projects.
42. If a decision to implement a CRS scheme is to be made, we anticipate implementation in 2023/2024 at the earliest, given the potential for public consultation in 2021, a process to establish legislation, regulation, and an implementation budget (noting the scheme itself would be expected to be cost neutral for Government in its operation). We will seek to align any future timelines for a CRS with the timelines for kerbside standardisation and plastic work programmes.
43. Any CRS scheme for New Zealand may require legislative change. We envision that this could be linked into the Waste Minimisation Act 2008 review process, anticipated to go out

[13] https://www.mfe.govt.nz/waste/container-return-scheme-option

for consultation mid-2021.

44. We expect to present our advice to you on the Project Team's Design and options for a NZ CRS in the second quarter of 2021. This advice will build upon the international evidence, recommendations and research developed through the co-design process, the TAG's final advice, consideration of alternative proposals from industry, and further modelling by PWC (due for completion in December).

Appendix A – International CRS schemes – deposit rates and return rates

	Country/State	Deposit (NZ cents)	Return rate (%)
Mandated retail take back networks	Germany	35	98
	Netherlands	35	95
	Vermont (USA)	21	95
	Finland	30	93
	Denmark	31	92
	Lithuania	16	92
	Estonia	16	90
	Norway	40	90
	Switzerland	49	90
	Michigan (USA)	15	89
	Saskatchewan (Canada)	30	88
	Croatia	12	88
	Oregon (USA	15	86
	Sweden	30	85
	Maine (USA)	21	84
	British Columbia (Canada)	21	81
	Manitoba (Canada)	21	79
	Iowa (USA)	7	71
	Quebec (Canada)	21	69
	California (USA)	13	67
	Massachusetts (USA)	7	50
Procured/voluntary networks	Iceland	18	87
	Alberta (Canada)	26	85
	Northwest Territories (Canada)	26	84
	Prince Edward Island (Canada)	21	83
	Yukon (Canada)	25	82
	Nova Scotia (Canada)	21	81
	South Australia	11	78
	New Brunswick (Canada)	11	76
	New South Wales (Australia)	11	70
	Newfoundland and Labrador (Canada)	21	68
	New Foundland (USA)	8	64
	Hawaii	7	63
	Queensland (Australia)	11	58
	Northern Territory (Australia)	11	48

Source: ReLoop (2019/2020) and the Project Team's Draft Design Report (Confidential)

Appendix B – Additional information on kerbside recovery rates and litter

1. Kerbside recovery rates for the beverage material types are provided in Table 1 below.

Table 1: Number and weight of beverage containers sold in the New Zealand market (2018/19) and kerbside (only) recovery rates (figures are from the Ministry's Phase 2 modelling work for the CRS project)

Estimates for:	Plastic (PET & HDPE)	LPB	Aluminium	Glass	Total
Number of containers sold (in millions)	795	127	515	928	2,364
Total weight of containers sold (in tonnes)	32,788	12,628	8,474	250,113	304,003
Kerbside Recovery estimates (in tonnes)	9,988	328	3,045	129,582	142,943
Kerbside recovery rate (per cent)	30%	3%	36%	52%	47%

2. It is important to note that kerbside recovery figures submitted by councils are inconsistently reported due to the wide variation in how kerbside schemes operate. These tonnages are also augmented by the level of commercial recovery services/tonnages. Commercial volumes increase the total volume of containers recovered nationally, however data on commercial volumes is not currently available, thus an estimated range of 45-58 per cent recovery nationally. The main sources of commercial recycling are glass and aluminium and further information is provided on these below.
3. A recent paper by the Association of Metal Recyclers suggests the recovery of aluminium cans by the scrap metal industry may add up to another 768 tonnes of aluminium cans (20 per cent) to kerbside volumes. If accurate, this additional volume does not significantly change the overall recycling rate for beverage containers, estimated at 47 per cent.
4. Based on the Glass Packaging Forum's voluntary reporting for 2018/19, the 'total glass' capture rate is substantially higher at 168,384 tonnes per annum (i.e. total capture of both beverage and non-beverage containers and from council and commercial recovery). This total glass figure divided by the Project Team's estimated total glass to market figure for beverage and non-beverage containers of 278,613 tonnes results in a 60 per cent capture rate of the "total glass" volume. However, we do not have separate reporting for beverage and non-beverage glass. Given the weight of glass, if commercial sources of beverage container glass were able to be accurately accounted for and included, it could lift the national recovery rate for beverage containers towards the upper end of the 45-58 per cent range.
5. Given the relatively low recovery rates from kerbside, a CRS has been advocated for by some container manufacturers as being necessary to unlocking large volumes of clean recovered materials for recycling. Flight Plastics, Pact Group (Astron), Coca-Cola Amatil, Fonterra and Tetra Pak have all noted the need for higher recovery rates and greater

supply of recovered material in order to generate the necessary scale needed to efficiently operate large onshore processing and manufacturing facilities.

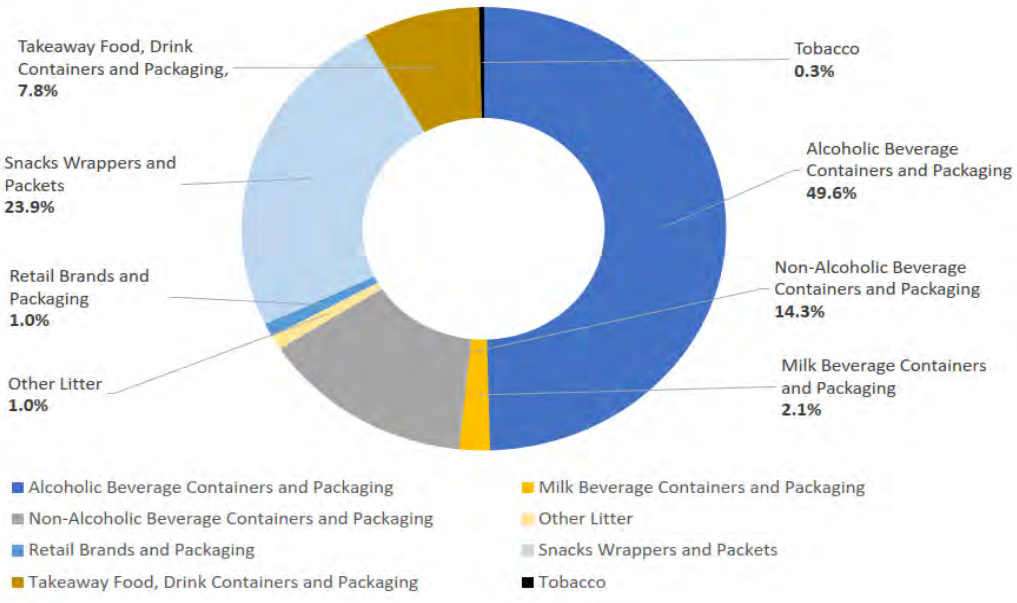
6. Glass has the opposite issue, whereby recovered glass is in oversupply to the current furnace capacity in New Zealand. Significant volumes of finished glass product is imported and sold into the New Zealand market in addition to what is recovered and made into new bottles onshore. This results in stockpiles and disposal of glass, especially in the lower South Island. There are a number of potential solutions to the oversupply of glass including investment in increased onshore processing/manufacturing capacity, mandatory recycled content requirements, wider use of glass aggregates, and the option to include and/or incentivise an expanded refillables market (either through or independently of a CRS).

Litter survey results

7. A recent Ministry funded survey[14] assessed the type and quantity of waste material within the litter stream finding plastic, metal and glass the predominant material groups (Figure 2). Of the main material types reported, cigarette butts was reported as the most prevalent litter item nationally (39 butts per 1,000 m2), and plastic items (eg, drink pouches, milk containers, soft drink bottles, plastic bags) contributed 29 items per 1,000 m2 followed by paper/cardboard (15 items), metal (14 items) and glass (12 items).

8. Noting that many litter objects increasingly become unrecognisable as they break down in the environment, the survey also included recognisable branded litter. Figure 2 shows that beverage containers made up 66 per cent of recognisable branded litter and in particular, the predominant brands were from alcoholic beverage containers and packaging (49.6 per cent).

Figure 2: Branded Litter by Industry Category



[14] Keep New Zealand Beautiful National Litter Audit, September 2019 (p.23)

Appendix C – Scheme Design Working Group Evaluation Form of the Project Team's Design

MARLBOROUGH DISTRICT COUNCIL

Auckland Council
Te Kaunihera o Tāmaki Makaurau

The New Zealand Container Return Scheme Design – Design Decision Making Process

The following form is to be used by the Scheme Design Working Group (SDWG) for members to individually 'score' and provide feedback on the alignment of the Container Return Scheme (CRS) design with the key project outcomes and guiding principles as set-out in the Terms of Reference document. The score and feed-back results will be used by the Project Team to reach a final landing on the CRS design, a key deliverable to the Ministry for the Environment. Please email your completed form on or before 5.00 pm 2 September 2020 to Bec Waldron at CRS.Project@marlborough.govt.nz and copy to Polly Brownlee from the Ministry for the Environment Polly.Brownlee@mfe.govt.nz

Please score the design components currently being considered using the following.

Design Component(s):	***Sections 1 to 17 (summarised in the attached document 'Section 18 The New Zealand Container Return Scheme Design')***			
Key project outcomes	**Have the design components met the key project outcomes?**			
	Not Met (O Points)	**Partially Met (1 point)**	**Fully Met (2 points)**	**Provide reasons or comments to support your score**
Change the way New Zealand values beverage containers that will see increased recycling and new opportunities for refilling.				
Reduce the volume of plastics and other container litter currently ending up in our streams, marine environment, public spaces and landfills.				
Give effect to any priority product guidelines and the circular economy outcomes.				
Key project guiding principles	**Have the design components met the key project guiding principles?**			
	Not Met (O Points)	**Partially Met (1 point)**	**Fully Met (2 points)**	**Provide reasons or comments to support your score**
Make it easier and convenient to return containers across New Zealand.				
Design a solution that is cost effective and efficient.				
Improve quality and marketability of recyclables and assess impact of design on current kerbside systems.				
Create new opportunities for employment, community participation and fund-raising for charities.				
Does the CRS design component consider opportunities to:	**Have the design components considered these opportunities?**			
	Not Met (O Points)	**Partially Met (1 point)**	**Fully Met (2 points)**	**Provide reasons or comments to support your score**
Use technology and innovations to optimise performance of the CRS.				
Support greater investment in remanufacturing and regional development.				
Align objectives with the Treaty of Waitangi and Te Ao Māori.				
Mitigate climate change				
Totals				
Overall Score				

The maximum score for the design components evaluated is 22 (11 scores x 2). For the components to be included in the final design by the SDWG an overall average score of 16 (73%) must be achieved. If this score cannot be achieved, then, depending on the feedback and comments received from the SDWG, the design components are deemed to not have reached consensus by the SDWG. Should this occur then the Project Team will elect to either:

A. Provide the SDWG with further information and then repeat the evaluation and scoring exercise; or
B. Summarise SDWG scores together with the feedback received on this form. The summary will then be used by the Project Team to determine what the CRS design should be for the components being considered. The outcome of this will then be provided to the Technical Advisory Group for their input and feedback and be used to land on the sections considered for inclusion in the final CRS design. Alternative views from SDWG members will be captured in the Minority Report.

Please email your completed form on or before 5.00 pm 2 September 2020 to Bec Waldron at CRS.Project@marlborough.govt.nz and copy to Polly Brownlee from the Ministry for the Environment at Polly.Brownlee@mfe.govt.nz

Appendix D – Summary of the Project Team's Design recommendations (confidential)

The Ministry's summary below is drawn from the Project Team's report and recommendations for a New Zealand container return scheme (the Project Team's Design). While there are areas of greater consensus for the various stakeholder groups, this summary does not necessarily reflect the position of the individual Scheme Design Working group representatives the Technical Advisory Group or the Ministry.

Scope of containers: all single-use beverage container materials are in scope (glass, aluminium, plastic, and liquid paper board). Refillables are ineligible.	**Volume:** includes containers up to 4L (no lower limit).
Deposit: a flat rate 10c deposit in place for the first 3 years. If the year 3 target is not met (70% return rate), this will increase to 20c in year 5 allowing for a 2-year transition. Note: there are interim annual targets of 60% in year 1 (12 months), 65% in year 2 (24 months), 70% in year 3 (36 months), 80% in year 4 (48 months), 85% in year 5 (60 months) for the first five years of scheme operation. Thereafter, a return rate target of 85% will apply with an aspirational target of 95%.	**Container return facilities:** A range of manual and automated container return facility types (eg, reverse vending machines (RVMs), manual collection depots, voluntary return-to-retail, community recycling networks and/or other means of collection such as via a charity, marae, school or sports club). The financial modelling assumed the network would be 85% RVMs.
Return rate target: an overall return rate of 85% within 5 years with an aspirational target of 95%.	**Scheme financial model:** a refund-based financial model (ie, like Australian schemes), as opposed to a deposit-based model.
Return points: an estimated 415 registered return points (a ratio of approximately 1 collection point to every 12,500 people), with additional informal return points.	**Refunds to consumers:** a range of options including cash, supermarket voucher (including a 2-year expiration date), donation, electronic funds transfer, other (eg, scheme credit system, loyalty card, gift card).
Scheme fees: the scheme fee is to include the handling fee, transport, processing and managing agency costs. It is important to note this fee and its component parts will have to be confirmed should the design progress to phase two (implementation phase) when a more granular operational budget is prepared. It is also important to note that lower performing schemes also have a lower cost to producers as the return rate is low, which determines the overall deposit fee and scheme fee paid by producers.	**Advanced Materials Recycling Fee (AMRF):** an AMRF is to be applied to all materials including those that are difficult to recycle and may incur additional costs to be successfully recycled, such as liquid paper board. Other more recyclable, higher value materials, such as aluminium, are likely to receive a net income. Where aluminium generates and income, this income would be required to be passed back to the producers using aluminium, thereby reducing their scheme costs and encouraging movement towards more recyclable packaging.
Managing Agency (MA): a single, independent, not-for-profit body to manage the operations and performance of the NZ CRS and to be held accountable along with the Governance Board for meeting the scheme's targets.	Through **16 regional coordinators**, the MA will be responsible for the network procurement and incorporation of social and indigenous opportunities (eg, establishment of employment number targets for manual

	collection depots) through the relevant scheme-related contractual arrangements.
Governance Board: comprises nine government-appointed members, including an Independent Board Chair, representing the interests of Iwi, recyclers, financial, regulatory, customer, retail, community, waste sector, local government, beverage industry, and experienced strategists. The Board is to be appointed following a similar process to the Waste Advisory Board and is to be supported by a Board-appointed Technical Advisory Group.	**Legislative framework**: notwithstanding the existing mechanisms of the Waste Minimisation Act 2008, the project team considered the draft CRS design will require bespoke legislative instruments to enable the function and objectives of the NZ CRS to be fully met, including, but not limited to fraud mitigation measures and regulatory powers to ensure the delivery and enforcement of the CRS.
Product stewardship: in addition to being a mandatory scheme incentivising improved design and packaging material choice through the AMRF, the scheme's legislation is proposed to establish regulations and performance standards to encourage greater recovery and pull-through demand of products and packaging (eg, requirements on the use of minimum recycled content to encourage greater take-back of products and packaging).	**Refillables:** refillable beverage containers are not included as an eligible scheme container. The MA is however tasked with promoting and supporting the development of the refillables market. The uptake of reusable beverage containers is to be integrated in the strategic directives embedded within the scheme performance indicators.
Consequences: if the MA and Governance Board do not meet the key scheme targets, the consequences proposed in the draft design include, but are not limited to: a. the Government replacing one or more of the scheme Governance Board members; and b. increasing the level of container deposit (eg an increase from 10 to 20 cents).	**Material Recovery Facility (MRF) operators and councils:** can receive the deposit (but not a handling fee) if containers are placed in kerbside and revenue sharing agreements will need to be established. The project team also proposed further consideration of the option that instead of the deposit (under higher deposit scenarios) the MRF operator be paid a handling fee instead.

Appendix E – Scheme Design Working Group individual representative evaluations of the Project Team's Design (confidential)[15]

Sector	Represented by	Score (out of 22)
s 9(2)(ba)(i)		22 (100%)
		22 (100%)
		20 (91%)
		19 (86%)
		19 (86%)
		19 (86%)
		18 (82%)
		17 (77%)
		16 (73%)
		6 (27%)
		6 (27%)
		5 (23%)
		4 (18%)
		4 (18%)
		4 (18%)
TOTAL		**200/330 (61%)**

[15] *Of the six representative stakeholders who do not support the Project Team's Design, five have subsequently engaged with the Ministry to provide their recommendations for changes to the design s 9(2) , key considerations within the design s 9(2)(ba)(i)), or an alternative scheme model (s 9(2)(ba)(i) .

Aide Memoire – Slide pack for the Container Return Scheme (CRS)

Date Submitted:	16 February 2021	Tracking #: 2021-B-07615	
Security Level	In confidence	MfE Priority:	Non-Urgent

	Action sought:	Response by:
To Hon David Parker, Minister for the Environment	**Note** the accompanying slide pack on the Container Return Scheme	18 February 2021

Number of appendices and attachments 1	Titles of appendices and attachments: Slide pack: Outlining the CRS co-design process, key design considerations and next steps

Ministry for the Environment contacts

Position	Name	Cell phone	1st contact
Principal Author	Polly Brownlee	N/A	
Responsible Manager	Annabelle Ellis	022 009 7624	
Deputy Secretary Waste and Resource Efficiency, Water and Land Use Policy	Sam Buckle	022 034 0311	✓

Aide Memoire – Slide pack for the Container Return Scheme (CRS)

1. The purpose of this aide memoire is to provide you with the attached Container Return Scheme (CRS) slide pack for your meeting with Ministry officials on 18 February.
2. This slide pack builds on the briefing note submitted on 9 December 2020 [2020-B-07314], and provides you with further details of the CRS co-design process to date, key design considerations, and possible next steps.

Background

3. A container return scheme is a recycling scheme and form of product stewardship that incentivises consumers and businesses to return beverage containers for recycling or refilling in exchange for a refundable deposit.
4. The CRS project is part of the Government's resource recovery and circular economy work programme. This programme was developed to improve the waste management system, significantly reduce waste to landfill and greenhouse gas emissions, and transition New Zealand to a circular economy[1] [CBC-18-MIN-0078 refers].
5. The intent of the year-long CRS co-design project was to develop recommendations for a bespoke container return scheme design for New Zealand, which we refer to as the 'Project Team's Design'.
6. Key design considerations within a scheme include the scope of containers, deposit level, recovery/recycling targets, scheme return network, governance model, scheme structural arrangements, and scheme financial model.
7. The slide pack attached includes an introduction to the following:

The first principle decision as to whether or not to go ahead with a scheme (Slides 1-8):

- background on schemes
- the CRS co-design process to date
- scheme objectives
- weighing up the option of a CRS for New Zealand
- costs and benefits and impacts on kerbside.

Key design considerations, stakeholder perspectives, and next steps (**Slides 9-22):**

- key design considerations for a scheme and the associated project team and TAG recommendation
- an introduction to various stakeholder group perspectives on the design considerations
- the alternative proposals and scheme design options
- possible implementation pathway options – subject to your feedback and legal opinion
- alignment and overlap with our key aspects of the wider waste work programme
- next steps and key decisions required.

[1] The Ellen MacArthur Foundation notes that a circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems.

Next steps

8. The slide pack attached in Appendix 1 will be discussed at your meeting with Ministry officials at the 11.30am Environment Policy Session, on Thursday 18 February.
9. We anticipate the next steps over the coming months will likely include a series of briefings and meetings between you and Ministry staff and key interested stakeholders, subject to your consideration and preferred approach. This approach would help to inform you of the evidence base for a scheme, the options and choices you have including whether or not to progress with a scheme and if so, what kind of scheme, the key design considerations, and the implementation pathway options.

Recommendations

1. We recommend that you:

    a. **Note** the accompanying slide pack on the Container Return Scheme to inform your discussion with officials at the 11.30am Environment Policy Session on Thursday 18 February.

Signature

Sam Buckle
Deputy Secretary Waste and Resource Efficiency **Date 16/02/2021**

Hon David Parker
Minister for the Environment **Date**

Appendix 1 - Slide pack: Outlining the CRS co-design process, key design considerations and next steps

Container Return Scheme (CRS)

Outlining the CRS co-design process, key design considerations and next steps

Container Return Schemes

A container return scheme is a recycling scheme and form of product stewardship that incentivises consumers and businesses to return beverage containers for recycling or refilling in exchange for a refundable deposit.

- **Over 40 operational schemes worldwide**
- **All Australian states have or are in the process of implementing a container return scheme (CRS)**
- Schemes generate **higher volume and better quality commodities** in order to feed into onshore or offshore reprocessing
- **High performing schemes (mostly in Europe) typically achieve over 90% recovery rates**

  eg, Germany's CRS achieves ~98% recovery rate

- **No two schemes are exactly alike** – success hinges upon critical scheme design considerations, eg;

- *scheme convenience (number, location and accessibility of return points)*
- *deposit level (10, 20, 30c incentive to recycle)*

- **Key decisions for Ministers and Cabinet:**

1. *whether to progress with a NZ CRS*
2. *if yes, preferred option(s) of what kind of scheme best suits NZ*

CRS process to date

Project Team led a **co-design process** for a bespoke CRS for New Zealand.

The WMF funded project ran for 12 months, culminating in the final Project Team's 'Design' proposal for a scheme and an evaluation of the Design (consensus not achieved). See BN 2020-B-07314 *Container Return Scheme – Overview and Next Steps, Appendix E* for individual stakeholder evaluation scores.

The co-design **Scheme Design Working Group (SDWG)** had a majority group in favour of the Project Team's Design, and many were interested to see the design strengthened (eg, consideration of a higher deposit). The SDWG also had a minority group that did not support the co-design recommendations.

Nearly all stakeholders including the minority group agreed change is needed and were broadly supportive of 'a regulated scheme' of some sort.

An independent **Technical Advisory Group (TAG)** ran a parallel process and is **supportive of a regulated scheme for New Zealand,** with suggested changes to the Design.

The Ministry has received a number of alternative proposals and recommendations from interested stakeholders. There is heightened interest in the outcome of the co-design process.

CRS co-design project objectives

Co-design project outcomes were to: Change the way Aotearoa New Zealand values beverage containers**, increase recycling** and provide **new opportunities for refilling**; **reduce** beverage container **litter and landfill**; give effect to **circular economy outcomes** and any future priority product guidelines.

Project guiding principles were to: make it **easy and convenient** to return containers across Aotearoa New Zealand; provide a solution that is **cost effective and efficient**; **improve the quality** and marketability **of recyclables** and **assess the impact** of the NZ CRS design **on current kerbside and other collection and processing systems**; and create **new opportunities for employment**, **community participation** and **fund-raising for charities** and social enterprises.

The co-design process also considered opportunities to: use **technology and innovation** to optimise performance of the NZ CRS; support **greater investment in remanufacturing** and **regional development**; **align objectives** with **Te Tiriti o Waitangi** - the Treaty of Waitangi **and Te Ao Māori**; and **mitigate climate change**.

Weighing up the option of a CRS for New Zealand

What is the problem we are trying to fix? Increase beverage container recycling rates and reduce litter; 45-58% of beverage containers are currently recovered for recycling, leaving ~1 billion containers disposed of to landfill or litter (conservative estimate).

Is a CRS the best solution? While recovery rates for schemes vary, all schemes are based on the incentive to recycle created by the application of a refundable deposit to the container. The deposit incentive captures 'away from home' beverage consumption and container litter which is key to achieving higher recovery rates and litter reduction. Establishment of a scheme is likely to cause disruption to some business models (e.g. beverage and recycling). Design options can mitigate these impacts.

Alternatives to a CRS include:

- the existing voluntary scheme based on kerbside services (noting this is largely Council/rates funded), or
- a mandatory scheme that uses an advance disposal fee mechanism (or similar), that beverage producers pay to provide for materials recovery, transport, etc. This option helps to shift costs from rate payers to producers/consumers but does not provide a direct incentive for businesses and consumers to recycle.

Both of these options are reliant on public place recycling to reduce litter and capture 'away from home' consumption/beverage containers.

Costs and benefits of implementing a CRS in Aotearoa NZ

The table below is based on a 20 cent deposit scenario and a 30 year time horizon.

	Glass-in scenario	Glass-out scenario
Total benefits ($m, PV)	$3,316 ($2,300 to $4,332)	$1,258 ($1,130 to $1,386)
Total costs ($m, PV)	$2,227	$1,190
Net benefits ($m, PV)	$1,089 ($73 to $2,105)	$68 (-$60 to $198)
Benefit-cost ratio	1.49 (1.03 to 1.94)	1.06 (0.95 to 1.16)

CBA undertaken by Sapere Research Ltd, peer reviewed by Sense Partners and independently by the Glass Packaging Forum/NZIER. This feedback has been incorporated into a final CBA.

Costs and benefits modelled include:

- household participation
- disposal cost savings
- scheme emissions
- welfare gain from additional recycling and litter reduction
- changes to kerbside collection costs
- cost to exports (exempt from scheme)
- value of recovered materials
- scheme labelling requirements
- reduced recycling contamination
- scheme capex and opex

Impacts on kerbside

A CRS would be disruptive to kerbside services. Pending the deposit level (incentive), large numbers of beverage containers would be diverted from kerbside to a new recycling scheme.

This disruption would require the kerbside system to adapt, which is why a CRS is interconnected with kerbside standardisation considerations. This could include less frequent kerbside collections for separated glass or mixed recyclables, or changes to bin types and sizes. These changes would generate savings for Councils and overall, international comparative studies show that schemes generate increased employment opportunities.

One key issue that has been raised by the recycling sector is the need for scheme design to address the loss of their access to higher value materials in kerbside (beverage PET, HDPE and Aluminium). In Australia, revenue sharing agreements between Councils and MRF operators for the “unclaimed deposits” left in kerbside bins has been used to mitigate this revenue loss.

Depending on the level of the deposit, the eligible scheme containers left in the kerbside bin (estimated at 10%-20%) is very likely to have equal or greater deposit redemption value than the commodity value of the materials that have been removed.

Should NZ move forward with a scheme?

The process to date has surfaced the key judgments and trade-offs involved in determining whether to proceed with a container return scheme for New Zealand. It has also revealed the underlying positions, views and concerns of key stakeholders (e.g. the beverage industry and recycling sector).

At a fundamental level, the judgment involves weighing up the benefits a CRS would deliver in terms of increased recovery rates, reduced litter, a stronger polluter pays framework, cleaner streams of materials for reprocessing and new business opportunities against potential costs and impacts on current business models and collection systems. It has been around these issues that most of the advocacy and stakeholder positioning has revolved.

Importantly, however, there are myriad design options for a CRS, and these provide opportunities to accentuate opportunities and / or mitigate costs, impacts and stakeholder concerns. Consequently, these design choices and options are important in informing an overall decision on whether to proceed.

The following slides focus on setting out those most important design considerations and options.

Key design considerations within a scheme

Scope of Containers: glass, plastic, aluminium, liquid paperboard

Deposit level: the incentive to recycle and reduce litter (eg, 10c, 20c, 30c, 40c)

Recovery/recycling targets: 2.36 billion single use beverage containers in total

Scheme return network: a focus on retail (including the regulated return-to-retail option), depot sites or a mix of the two impacts on the overall convenience, accessibility, efficiency, functionality and emissions embedded in the network

Governance model: pending legislative pathway, options include beverage and/or recycling industry led, more broadly representative, and/or Government led.

Scheme structural arrangements: pending implementation pathway, structural separation of scheme functions can be used to balance competing incentives and interests within a scheme i.e. the driver for cost efficiency and the competing driver for increased recovery (which increases scheme costs).

Scheme financial model: deposit or refund, also in part used to balance competing interests, has a bigger impact at lower scheme return rates. The choice also has important considerations for Government.

Key design consideration:

Scope of Containers

Project Team, **SDWG** (majority view) and **TAG**: all beverage container materials should be in scope eg, glass, aluminum, plastic, and liquid paper board.

Rationale: a broad scope of containers is critical to overall success and cost efficiency of a scheme. Exemptions can create confusion for consumers and create inequalities in the beverage industry.

Opposing view: The Glass Packaging Forum, Brewers Association, NZ Wine, and Spirits NZ all strongly oppose the inclusion of glass within an NZ CRS and have jointly tabled an alternative scheme design proposal. Cost efficiency is the glass industry associations' most often citied objection to a CRS (the average kerbside collection cost is estimated at 10.29c per glass container).

MfE: Council/rates funded kerbside glass collections generally see higher recovery for glass than the other beverage container material types, due to higher consumption of glass beverages in-home. However, a significant volume of glass containers are still consumed 'away from home', contributing to both landfill volume and glass litter problems. Given the carbon impact of glass and the high proportion of glass in New Zealand's total beverage container count and weight, excluding glass would make a scheme less efficient and effective. However, should more glass containers be recovered via a CRS, NZ would also need to increase on-shore processing capacity for recycled glass and/or further develop alternatives (eg, an expanded refillables market is an important opportunity for reducing emissions; use of glass aggregates in construction and roading applications; etc.)

Key design consideration:

Deposit level and targets

Project Team recommendation: a flat rate 10c deposit. If the year 3 target is not met (70% return rate), this will increase to 20c in year 5 allowing for a 2 year transition. By year 5 an 85% target applies with an aspirational target of 95%.

SDWG: Majority view: 10c too low. Support 20c at outset. Minority view: supports 10c.

TAG: 5 of 6 TAG members support a 20c deposit at outset. One TAG member supported 10c. The full TAG support the proposed 85% container return target, noting that further incentives and/or targets are needed to create a clear pathway to achieving this target.

MfE: The deposit level is key to driving scheme recovery rates. PwC modelling suggests the deposit level has a stronger correlation to higher return rates, above a certain return point ratio (e.g. above 1 return point to 12,500 people, which is around 415 sites for NZ). The same modelling also shows a NZD 30c deposit level is required to reach 85% recovery rate based on international schemes. NB: Some schemes achieve ≥85% return rates with < NZD 20c deposit levels, however most of these schemes have mandatory return to retail regulations and very high network convenience (such as 1 return point to 300-500 people).

Key design consideration:

Network accessibility and convenience

Project Team recommendation: a voluntary participation/procurement led approach to establishing approximately 415 container return facilities (CRFs) nationally, with no mandatory return-to-retail regulations.

This assumes that the scheme manager would run a procurement process to establish the network. Potential CRF operators (including retailers) would be incentivized to engage with the process by the potential revenues from a 'per container' handling fee paid out by the scheme manager to return point operators. Handling fees were modelled at 6.3c per container in NZ.

SDWG: Majority view: prefer a more regulated (mandatory) approach, noting the need for a mixed network model (depot sites and retail locations)
Minority view: 415 CRFs too many. Generally supportive of scheme manager procuring the network, noting related feedback on preferred roles and responsibilities.

Key design consideration:

Network accessibility and convenience, continued

TAG: The full TAG agrees retail participation in the network is important for creating a convenient network, but disagree on whether retail participation should be voluntary or mandatory. The TAG noted that schemes typically do not achieve over 85% recovery without regulated take back requirements (even at 20c deposit level). Further, that a network with inconvenient locations would increase the overall carbon footprint of the scheme.

The TAG supports 415 formal CRFs, with 5 of 6 members considering 415 as the 'minimum number' to begin with. The TAG recommends the Government consider the carbon implications of different network options.

MfE: The network for a scheme is only established once. While the number and location of CRFs can and will alter to improve the network, the core system effectiveness, efficiency and carbon footprint are locked in at the initial implementation stage. If regulated take back (to some degree) is not employed to establish levels of convenience, then the scheme structural arrangements become much more important for balancing the incentives and interests within a scheme.

A conceptual **balance point** is described overleaf. In the case of establishing network convenience - the scheme structural arrangements can be used to balance a lighter regulatory approach if preferred.

Conceptual balance of design considerations

Scheme type and architecture

Governance arrangements

(beverage industry led, and/or led by wider representation including iwi, financial and regulatory, recycling industry, retailers, consumers, local govt., and/or central govt. led)

Scheme structural arrangements

(form and function, roles and responsibilities, procurement options, etc.)

Regulatory levers

Recovery/Recycling Targets

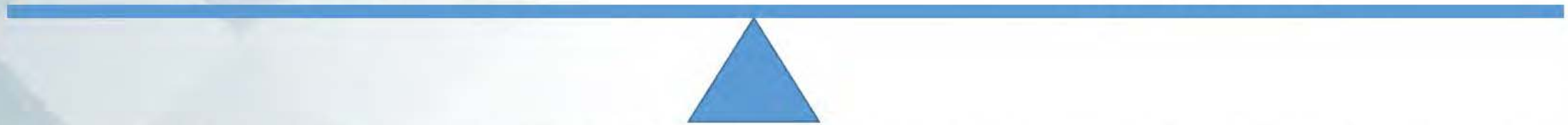
Deposit Level (High, medium, low)

Network Convenience

(regulated take back requirement or procurement led establishment; return to retail and/or depot model)

Scheme Financial Model

(Deposit or Refund)



Effective schemes balance the incentives and interests through a mix of interconnected design considerations. European schemes tend to use stronger regulatory levers, Australian schemes take a lighter regulatory approach and instead prefer a mix of structural arrangements and targets.

Key design consideration:

Scheme governance

Project Team recommendation: nine government-appointed members, including an Independent Board Chair, representing the interests of Iwi, recyclers, financial, regulatory, customer, retail, community, waste sector, local government, beverage industry, and experienced strategists. Board to be appointed following a similar process to the Waste Advisory Board, and is to be supported by a Board-appointed Technical Advisory Group.

SDWG: majority view - in favour of a broadly representative governance model, *appointed* by government. Minority view - supportive of an industry-led model that allows for wider representation, where government *approves* recommended appointments.

TAG: differing views on the proposed governance arrangements and offered a number of alternative options for further consideration. TAG agrees that strong industry representation is required, but industry should not be dominant. TAG recognise that Governance is linked to other CRS design elements and it is therefore difficult to consider in isolation. Further engagement with Māori is needed prior to implementation.

MfE: agrees with the TAG. While there are many high performing industry-led schemes internationally, stronger regulatory drivers and/or scheme structural controls are typically in place where this is the case.

Key design consideration:

Scheme structural arrangements

A design consideration particular to Australian schemes where the regulatory drivers (deposit level/regulated take-back) are lower/unutilised as compared with most European schemes.

Examples include a single scheme manager structure (ie, in Northern Territory, Queensland and Western Australia), or the split model structure with a separate scheme coordinator and network operator/s (ie, NSW and recently announced for the Victoria and Tasmanian schemes). The split model can be used to create a better balance between the incentives and interests from stakeholders involved in scheme operations, in particular, the driver for cost efficiency and the driver for increased recovery (which increases scheme costs). Beverage industry stakeholders refute that this tension is an issue as schemes are governed independently and many advocate for 'the Queensland model' and accountability to targets.

Project Team recommendation: a single scheme manager is entirely responsible and accountable for all aspects of the scheme (assumes recommended governance model is also adopted, thereby managing incentives and interests another way).

MfE: Consideration of scheme structural requirements is secondary to the consideration of the level of ambition for a scheme (recovery target) and the preferred regulatory approach to establishing levels of convenience within a scheme.

Key design consideration:

Scheme financial model – deposit vs. refund

The **deposit model** requires beverage producers to pay deposits to the scheme manager for all beverage containers imported or produced in New Zealand, irrespective of how many are redeemed by consumers/businesses.

The **refund model** requires beverage producers to pay deposits to the scheme manager only for beverage containers returned/redeemed (aka "the redemption model").

Project Team recommendation: a refund-based financial model (ie, like Australian schemes)

SDWG: majority group - generally prefer deposit model (ie, like many European schemes); minority group - prefer the refund model.

TAG: agrees the financial model is not the most important design consideration relative to the network convenience, the deposit level, and scheme governance. If the scheme achieves a high recovery rate, the two financial models effectively merge (are less different).

MfE: further consideration should be given to the refund/deposit model options in the context of other design considerations.

Scope for refillable glass and plastic containers

Globally, refillable beverage containers have decreased in popularity since the 1980's and the rise of one-way / single-use container packaging.

Benefits of refillables: New Zealand's ABC Swappa crates are filled on average 40 times, each bottle lasting around ten years before being recycled. The **energy needed to transport and wash** 1 bottle 40 times over ten years is **a small fraction of the heat energy needed to manufacture** the equivalent 40 new bottles of capacity (even when they are made from recycled glass).

Growth in refillables would help **mitigate the need for increasing** New Zealand's onshore capacity **for glass bottle manufacturing**.

Project Team recommendation: refillables excluded as an eligible scheme container, but would be promoted and supported by the Managing Agency. Also recommended a detailed investigation into a complementary and/or integrated refillable market.

TAG: split on whether refillable containers should be included as an eligible scheme container within the scheme, all support a detailed investigation.

MfE: Further investigation into the option of refillables and other options for increasing the supply chain capacity for recovered glass is needed.

Alternative proposals and scheme design options

A number of alternative proposals/recommendations have been tabled separately by:

The Glass Packaging Forum – supportive of an Extended Producer Responsibility (EPR) scheme for all materials, loosely based on Norway (note: Norway has a CRS for plastic and aluminum containers with a relatively high deposit, NZD 30-50c, and regulated retail take back requirements)

Coca-Cola Amatil and Lion – supportive of a CRS for NZ and a 10c deposit, and prepared to work with Government to establish a scheme quickly, broadly based on Queensland/Western Australia design.

TOMRA with support from **LGNZ** and the **Zero Waste Network** – supportive of stronger regulated approach based the European models eg, 20c deposit, some level of regulated retail take back requirements or the split structure model preferred by NSW, Victoria and Tasmania.

The **Association of Metal Recyclers** are interested to ensure their members sites are able to participate in the network, seeking to augment their current role in aluminum beverage can recovery and export.

The **Commercial Recyclers Group**, led by Nick Baker (Visy) is supportive of a scheme, but is concerned about how and where the unclaimed deposit from kerbside collections is to be allocated (industry and/or local government) and the ownership of scheme material.

Implementation pathway options

There are a number of implementation pathway options we are currently considering. A scheme could potentially be established by:

- Declaration of priority product – the late 2019 consultation on the proposed declaration of beverage containers as priority product was overwhelmingly in support.
- Establishing a scheme through a mix of regulation and Government led procurement (priority product declaration may or may not be required).
- Developing bespoke legislation and regulation through the Waste Minimisation Act review process. Consultation could be separate or embedded within the wider Act review process.

All options are subject to further investigation and legal opinion.

Overlap with key waste work programmes

A CRS for New Zealand would have significant impact on **kerbside services**. Glass in particular is often collected separately at kerbside. Along with other recommendations and in order to improve the quality of materials recovered, the WasteMINZ kerbside standardisation report has recommended separated glass collections where this is not already in place.

Many Councils consider moving forward with changes to kerbside is difficult to plan for while they do not have clarity on the Government's intentions towards the design and implementation of a CRS.

A CRS may also overlap with the **Waste Minimisation Act review**, should the Government prefer or need to establish a scheme under bespoke legislation.

The CRS also intersects with current and future **onshore infrastructure investments** (WMF and CRRF). A NZ CRS has been advocated for by Pact Group, Flight Plastics, Coca-Cola Amatil and Fonterra in particular, as these companies have infrastructure investments and/or recycling targets that require the level of recovered feedstock a CRS would deliver.

Next steps and key decisions required

The Ministry is now analysing all outputs from the co-design project and the subsequent alternative proposals/recommendations received from industry associations and interested stakeholders.

In order to provide you with robust advice, further modelling from PwC has been undertaken and additional feedback from the GPF/NZIER has been incorporated into the cost benefit analysis, both are in the process of being finalised.

Subject to your consideration and preferred approach, next steps over the coming months are likely to include a series of briefings and meetings with Ministry staff and key interested stakeholders. This approach will inform you of the evidence base for a scheme, the options and choices you have including whether or not to progress with a scheme for New Zealand (and if so, what kind of scheme) key design considerations and implementation pathway options.

Should a decision to implement a scheme be made, we anticipate implementation in 2023/24 at the earliest (pending process to establish new legislation/regulation, public consultation and an implementation budget).

Aide Memoire – Slide pack for the Container Return Scheme: scope of containers

Date Submitted:	1 April 2021	Tracking #: 2021-B-07767	
Security Level	In confidence	MfE Priority:	Non-Urgent

	Action sought:	Response by:
To Hon David Parker, Minister for the Environment	**Note** the accompanying slide pack on the *Container Return Scheme: scope of containers* to inform your discussion with officials at the 9.45am Environment Policy Session on Thursday 8 April	08/04/2021

Actions for Minister's Office Staff	**Return** the signed report to MfE.
Number of appendices and attachments 2	Appendix 1: Slide pack: Container Return Scheme: Scope of containers Appendix 2: Additional information on kerbside recovery rates and litter

Ministry for the Environment contacts

Position	Name	Cell phone	1st contact
Principal Authors	Roderick Boys and Polly Brownlee		
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Director	Shaun Lewis	022 034 0311	✓

Aide Memoire – Slide pack for the Container Return Scheme: scope of containers

1. The purpose of this aide memoire is to provide you with the attached Container Return Scheme (CRS) slide pack on the scope of containers for your meeting with Ministry officials on 8 April (Appendix 1).
2. This slide pack is the second in a series of advice (see table below) on a Container Return Scheme for New Zealand and builds on a previous slide pack [2021-B-07615] which provided you with an overview of the CRS project work to date.
3. The package of advice outlined below will help to inform your decision on whether to proceed with a New Zealand CRS or an alternative option, and if so, the key scheme characteristics for Cabinet consideration and public consultation (subject to Cabinet approval).

Table 1. Timeframe for advice

Advice to Minister Parker	Due Date
CRS 1 – Container Return Scheme [2021-B-07615]	February 2021
CRS 2 – Container Return Scheme: Scope of containers	April 2021
CRS 3 – Driving recovery of eligible materials in a New Zealand Container Return Scheme	April 2021
CRS 4 – Overall assessment and recommendations for a New Zealand Container Return Scheme	May 2021
CRS 5 – Agreement to consult on a New Zealand container return scheme or alternative option (Briefing note, Cabinet paper, draft consultation document)	July 2021

4. The container return scheme (CRS) project is a key part of the Ministry's wider resource recovery and circular economy work programme, developed to improve the waste management system, significantly reduce waste to landfill and greenhouse gas emissions, and transition New Zealand to a circular economy (Cabinet minute CBC-18-MIN-0078 refers).
5. The scope of containers is one of several interconnected, critical elements of a container return scheme design. This slide pack covers:
    - the different container and material types that could be included in a CRS
    - the nature of supply and markets for recycled materials and onshore processing and manufacturing capacity
    - options, including non-CRS, for addressing recovery rates and system issues by material type

Next Steps

1. The slide pack attached in Appendix 1 will be discussed at your meeting with officials at the 9.45am Environment Policy Session on Thursday 8 April.
2. In addition, you have upcoming meetings, including the following key CRS stakeholders:

- the Recycling Group (representatives from the commercial recycling industry) on 8 April (2020-B-07821)
- the New Zealand Beverage Council (NZBC) on 12 April
- the Glass Packaging Forum (GPF) on 14 April.

3. We will provide you with the relevant meeting notes as needed.
4. If a decision to implement a CRS scheme is to be made, we anticipate implementation in 2023/2024 at the earliest given the potential for public consultation later in 2021 and a process to establish legislation and regulation.
5. The Ministry will consider existing kerbside standardisation work and plastic work programmes as we progress the CRS work programme.

Recommendations

We recommend that you:

a. **Note** the accompanying slide pack on the *Container Return Scheme: scope of containers* to inform your discussion with officials at the 9.45am Environment Policy Session on Thursday 8 April.

Signature

Shaun Lewis
Director – Waste and Resource Efficiency Division
Ministry for the Environment **Date:** 01/04/2021

Hon David Parker
Minister for the Environment **Date:**

Appendix 1: Slide pack for the Container Return Scheme: scope of containers

Appendix 2 – Additional information on kerbside recovery rates and litter

1. Kerbside recovery rates for beverage material types are provided in Table 1 below (refer BN 2020-B-07314).

Table 1: Number and weight of beverage containers sold in the New Zealand market (2018/19) and kerbside (only) recovery rates (figures are from the Ministry's Phase 2 modelling work for the CRS project)

Estimates for:	Plastic (PET & HDPE)	LPB	Aluminium	Glass	Total
Number of containers sold (in millions)	795	127	515	928	2,364
Total weight of containers sold (in tonnes)	32,788	12,628	8,474	250,113	304,003
Kerbside Recovery estimates (in tonnes)	9,988	328	3,045	129,582	142,943
Kerbside recovery rate (per cent)	30%	3%	36%	52%	47%

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Appendix 1: Aide Memoire 2021-B-07767

Container Return Scheme Scope of containers

Potential container types in scope of a New Zealand beverage Container Return Scheme (CRS), considerations and provisional options.

Contents

The scope of beverage containers is one of several interconnected, critical elements of a container return scheme (CRS) design. This slide pack covers:

- the different container and material types that could be included in a CRS
- the nature of supply and markets for recycled materials and onshore processing and manufacturing capacity
- provisional options, including non-CRS, for addressing recovery rates and key issues by material type.

Key Messages

At this stage, there is no clear reason to exclude any container material type from a proposed NZ CRS, although the landscape is complex and many factors need to be considered.

All material recovery rates are lower than previously understood. Kerbside recycling is already operating at relatively high levels of recovery for plastic, glass and aluminium beverage containers consumed at home.

Recovered beverage plastic is needed in much greater volumes to supply our growing onshore reprocessing and manufacturing capacity. The levels of recovery needed are unlikely in the absence of sufficient incentive to recycle, which is possible through the application of a deposit refund mechanism (i.e. the proposed CRS).

Based on current recovery rates, glass is already is an oversupply situation in New Zealand. Further investigation is needed and initial conversations with Visy have commenced. A CRS would significantly increase glass recovery rates. However a CRS could also be a solution to address the oversupply situation for glass, if implemented with an Advanced Material Recycling Fee (AMRF) mechanism in the design. This design option was recommended by the Project Team and is outlined on page 19.

The market for single-use beverage containers sold in New Zealand (2019)

Based on GS1 sales data:

2.36 billion beverage containers sold in total in 2019, comprised of:

- 127 million liquid paperboard containers (e.g. Tetra Pak® plant milks)
- 515 million metal cans, almost entirely aluminium
- 795 million plastic bottles, PET (1) and HDPE (2)
- 928 million glass bottles

Overall, beer was the most commonly sold product type (616 million beers sold or 26% of all beverage containers). Followed by fresh milk (520 million and 23% of all containers sold) and carbonated beverages (380 million and 16% of all containers sold).

Please note unit notation from this slide onwards: all currency NZD$; billions is 'b'; millions is 'm'; and tonnes 'T'.





The beverage industry at a glance

The New Zealand beverage industry generated revenue of $5.2b in 2017, with 39% of revenue coming from exports.

New Zealand has a large and robust beverage products industry with a range of participants of varying sizes with wine, beer/cider and non-alcoholic beverages all showing growth.

The largest firms in New Zealand's beverage industry are predominantly beer and soft drink focused, the top five companies are all in foreign ownership, they include (+ turnover in $NZD for 2019):

1. Coca-Cola Amatil ($669m); 2. Lion NZ ($618m); 3. DB Breweries ($537m);

4. Asahi Beverages ($447m); 5. Frucor Suntory NZ ($447m)

New Zealand exports beverages across all six major product categories, although **wine is the clear export leader**. **Our main export markets are dominated by Anglo-European countries** including Australia ($405m) , North America ($479m) and Europe ($421 m) which collectively make up 90% of NZ's beverage export market.

These three key export market regions include 38 of the world's 46 operational container return schemes. Schemes in these regions are on the rise, with 53 schemes expected to be in operation globally by 2022/23. It is noteworthy that the big brands under foreign ownership have significant expertise and a deep understanding of what they do and do not like about schemes aboard.

Industry source data: NZ Food and Beverage investors guide 2020 https://www.mbie.govt.nz/assets/coriolis-investors-guide-2020.pdf

Beverage container litter at a glance

- **Beverage containers made up 66% of recognisable branded litter in 2019** (Keep New Zealand Beautiful Audit)
- **The predominant recognisable brands were alcoholic beverage containers and packaging** (49.6 per cent). The largest proportion of brands within the alcoholic beverage containers and packaging litter belonged to Lion (42.8% of the most frequently identified brands).
- **Litter objects increasingly become unrecognisable as they break down.**

Litter is measured by count, volume and weight (the CBA considers an average of all three). 2019 audit total count data is presented below from 413 sites surveyed:

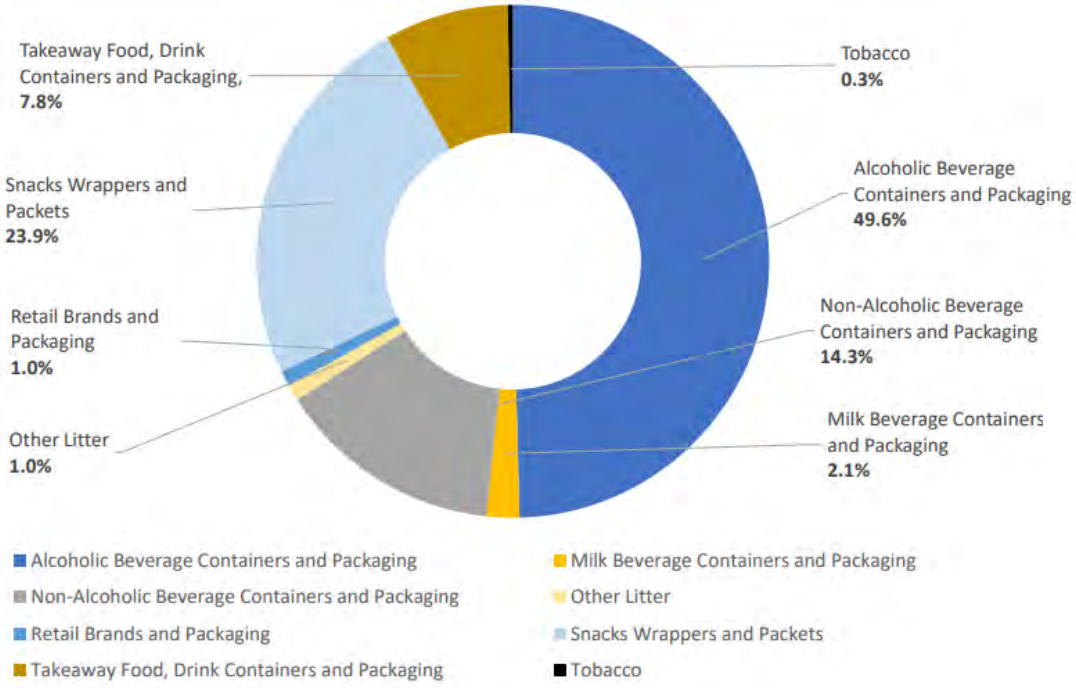
Glass: 5,863 littered glass items (i.e. all items attributable to beverage containers)

Plastic: 13,908 littered plastic items, of which 1,483 recognisable items attributable to beverage containers (e.g. soft drinks, pouches, bottle tops).

Liquid paperboard (LPB): 700 littered paper and cardboard drink container items (only one council currently collects LPB and it is not being fully recycled).

Metal: 6,590 littered metal items, over half could be captured and recycled through a CRS, (i.e. bottle caps, lids and pull tabs ~2534 items and beverage containers ~863 items)

Lids: 3,263 littered bottle caps, lids and pull tabs (2,534 metal bottle caps, lids and pull tabs, 729 plastic bottle tops).



Branded Litter by Industry Category (Keep New Zealand Beautiful National Litter Audit, 2019)

Plastic bottles

Plastic bottle product types and their market share:

- Total of 795m plastic bottles sold in 2019 (32,788T of plastic) .
- The vast majority of containers (99%) were sold as non-alcoholic beverages.
- Fresh Milk (HDPE or plastic resin code 2) makes up a staggering 65% of plastic beverage containers sold, but only 9,684T (30%) of the total plastic material weight sold to market.
- Water bottles (PET or plastic resin code 1) has a much lower item count at 69m (or 9%) of containers sold domestically, yet the average weight of containers was much higher (larger size) resulting in 10,421T (or 32%) of the beverage plastic being used for this product type.
- Remaining products sold include ambient (shelf stable) drinks (5%), carbonated beverages (6%), chilled drinks (3%), lifestyle drinks (5%), flavoured milk (2%), UHT milk (4%) and alcoholic beverages (1%).

Plastic bottles

Material recovery

- There is significantly more plastic beverage containers being sold into the New Zealand market than previously understood. We now understand kerbside recovered 9,988T (or 30%) from 32,788T of beverage PET and HDPE to market in 2019.
- Kerbside audits from 2019 show that households are already recycling 81% of their PET and 86% of their HDPE beverage containers. This means that even a perfect kerbside system with 100% recovery has limited maximum potential for recovering plastic beverage containers.

Onshore reprocessing and manufacturing:

- The Ministry's infrastructure stocktake has revealed that the total tonnages of plastic managed and reprocessed into products onshore (for domestic and export markets) are a fraction of the total economy wide virgin plastic input volume of 575,000 T/yr.
- For PET and HDPE, this amounts to ~5,600T/yr of PET and ~6,320T/yr of HDPE managed through our onshore reprocessing and manufacturing infrastructure. This includes all PET and HDPE from all sources (i.e. beverage and non-beverage, residential and commercial tonnages).
- Our onshore reprocessing and recycling industry has some great businesses. We are however in our infancy relative to the size of virgin imports and the sector needs investment, a range of recovery systems and clean separated materials in order to grow.

The Ever Given gross weight (ship + max load) is 219,079T.
In 2018, NZ imported 575,000T of virgin plastic resin. This does not include finished products, which is an unknown quantity.
This is the equivalent mass of x2.6 (fully loaded) Ever Givens as a giant block of virgin plastic, every year. We currently manage 32,584T (~6%) of this material on shore.

Data sources: Chief Science Advisor's Rethinking Plastics in Aotearoa Report (2019) and (Draft) Eunomia National Resource Recovery - Infrastructure and Services Stocktake report (2021)

NZ Plastics processing infrastructure stocktake

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	Collector	Washing plant	Processor – recycled resin	Manufacturer/ End-User	Processing for export	Storage prior to export	Total
Northland							0
Auckland	2	1	2	3	5	1	14
Waikato							0
Bay of Plenty							0
Taranaki				1			1
Horizons			2	2			4
Gisborne							0
Hawkes Bay						1	1
Wellington	1	1	1	1	1		5
Nelson							0
Marlborough							0
Tasman							0
West Coast							0
Canterbury			1		1		2
Otago							0
Southland							0

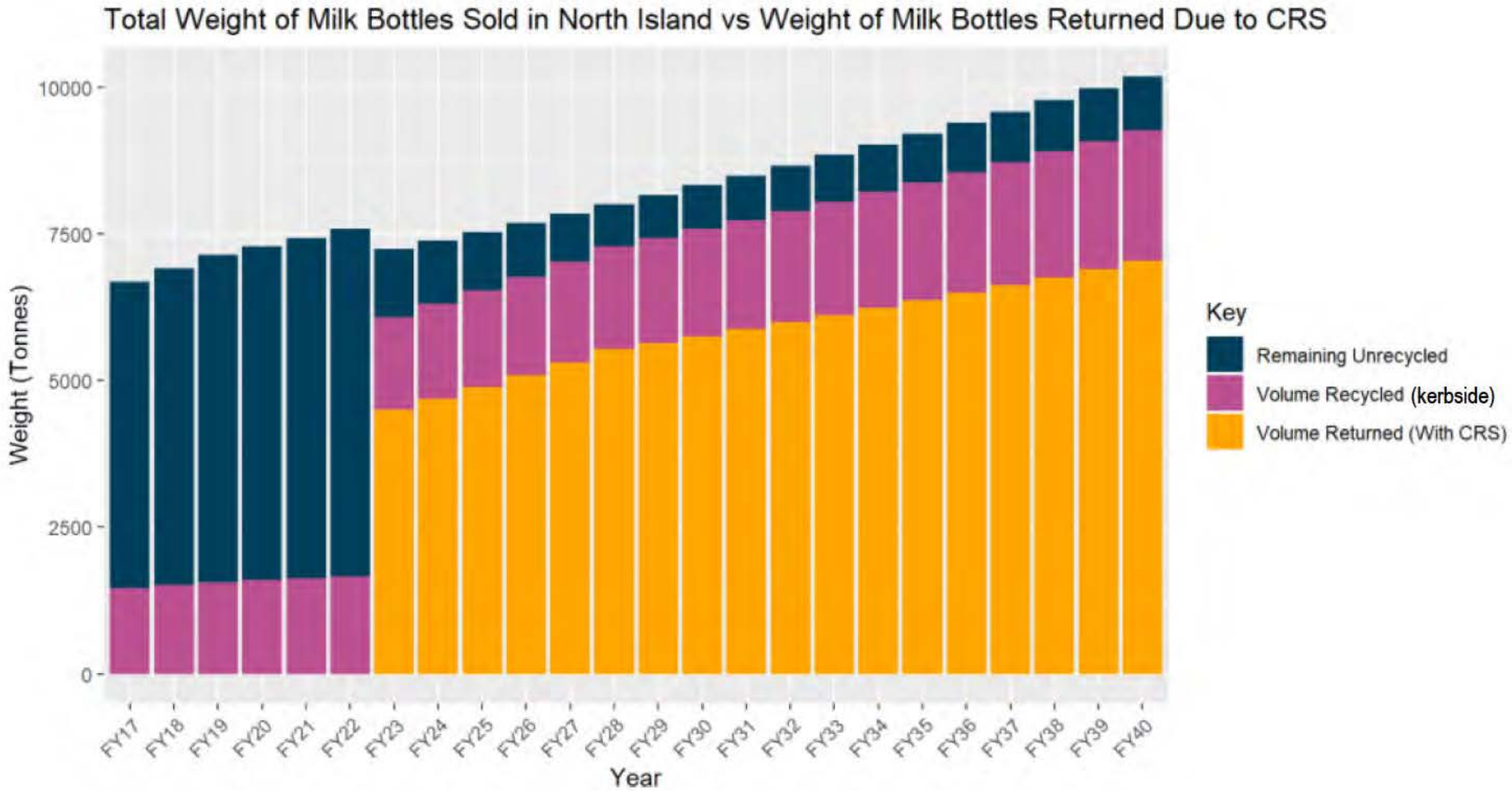
NZ rPET bottle to bottle capacity

New Zealand does not currently have a recovered PET (rPET) bottle to bottle recycling plant.

Coca-Cola Amatil (CCA) and other domestic producers selling recycled content PET bottles import the rPET flake (or preforms) in order to make recycled content product for the NZ market.

s 9(2)(ba)(i), s 9(2)(b)(ii)

Milk bottles – a CRS is a key enabler for recovery and circular economy solutions



Plastic bottles – international markets

- International reports suggest that worldwide recycling markets for plastics will grow and may focus on grades such as PET, HDPE, PP and LDPE, with the forecasted international recycled market potentially reaching US$50.5b (2018 international recycled market was valued at US$35.4b).
- The demand for rPET both onshore and offshore is expected to exceed the supply subject to commodity pricing. The current value can range from $100-$300/T ($200/T has been used in the PwC modelling). rHDPE is expected to be beneficially used both onshore and offshore, and the average value (of natural and coloured material) is $500/T.

Plastic bottles - Advocacy

- The Ministry has not to date received any alternative options to a NZ CRS that seek to exclude plastic or propose to manage the material stream toward significantly improved recovery another way
- On the contrary, Fonterra and CCA (via the NZ Beverage Council) both participated in the CRS co-design process and are supportive of a scheme for New Zealand that includes a wide scope of containers e.g. glass in
- Plastic recyclers (Flight, Alto and Astron – all now Pact Group brands) have advocated for a CRS in order to support on shore recycled content manufacturing

s 9(2)(ba)(i)

Plastic bottles – alternative options

Non-CRS options for beverage container recovery

Kerbside standardisation improvements for beverage PET and HDPE will have limited impact, noting that over 80% of beverage HPDE and PET is already being recovered from households. Therefore, initiatives need to target commercial and away from home consumption in order to drive increased recovery above a <50% threshold to >85% and reduce litter.

These initiatives could include:

- **phase out plastic beverage containers** – this option would be difficult to rationalise over a CRS in terms of costs and harm mitigation s 9(2)(g)(i)
- **advanced disposal fee** (alternative product stewardship option) - helps pay for the management of the materials which reduces materials management costs for Councils (note: this does not incentivise consumers or businesses to participate in recycling or address the litter issue)
- **enhanced public place recycling** – often these materials are highly contaminated (landfill) and costs will exceed benefits
- **requiring separation of materials on commercial premises** through bylaw provisions - requires enforcement
- **minimum recycled content requirements** for plastic beverage containers – this would help to increase the demand for recovery of plastic bottles, and the demand for onshore manufactured products (assuming these are competitively priced).
- **enhanced labelling** – to help consumers and businesses alike more clearly identify what is recycled

Metal (Al)

Product types and their market share

- 515m metal beverage containers (8,474T) were sold in 2019, almost entirely aluminium. Over half (59.1%) were sold as alcoholic beverages.
- **Beer** accounted for the most amount of metal beverage containers (40.3%) at 208m containers sold, followed by 183m non-alcoholic carbonated beverages (35.5%), and 91m spirit-based drinks (17.7%) and 18m cans of water (4%).

Materials recovered

- Of the 515m metal beverage containers (8,474T) sold in 2019, kerbside recycling recovered 36% (or 3,045T).
- The NZ Association of Metal Recyclers (AMR) suggest the recovery of aluminum cans by the scrap metal industry may add up to another 768T to kerbside volumes.

Metals

New Zealand's beverage aluminium is exported to offshore markets. The total scrap value of recovered aluminum in 2019 was ~$4.8m (assuming $1250/T).

If 85% (7203T) of aluminium were captured via a CRS, the commodity revenue would be ~$9m.

Existing infrastructure

- Kerbside audits from 2019 show that households are recycling 75% of aluminium containers consumed at home.
- The AMR has an existing network of 84 metal recyclers that supports kerbside recovery activities in New Zealand (through aggregation and export). The AMR report they are readily able to process the increased volume of materials through a CRS for recycling (58 sites in the North Island and 26 sites in the South Island, and 22 in Auckland alone). Not all metal recyclers are a part of the AMR membership.
- The ability of an AMR recycler to participate in a CRS network would be through either acting as a formal depot drop off point for all scheme materials and subject to managing agency approval, or as an informal drop off point.

Alternative options include:

- Cash for cans drives and public awareness campaigns – reliant on public good will
- Standardised labelling – to ensure consumers are aware of recyclability

Map depicting number of AMR member metal recycling facilities by region.

Glass

Glass bottle product types and their market share:

- Total of 928m glass beverage containers represent 39% of all beverage containers sold in 2019.
- Glass bottles are relatively heavy and as a material type category, comprises 82% (250,113 tonnes) of the total 2.36b/304,003T container weight sold in to the NZ market.
- The majority of glass containers (75.6%) were sold as alcoholic beverages.
- Beer sales included 403m glass containers at 43.5% of the total glass beverage containers sold, noting that beer overall is the most numerous product category with one third of all beer now sold in aluminium cans (another 207m beers).
- Wine (122m bottles, 13.2%), spirit based drinks (118m bottles, 12.8%) and carbonated non-alcoholic beverages (147m bottles; 15.9%) make up 41.9% of all glass beverage container sales. Together with beer these product category types represent 85.3% of glass containers sold to the NZ market.
- Lifestyle drinks (4.7%), Cider (3.8%), Water (2.6%) and Spirits (2.4%) are the remaining product types with notable glass volume to market.
- All others combined are 1.2%.

Glass

Material recovery

- The Glass Packaging Forum's annual mass balance report has to date been the main source of information about the glass market in NZ. This reporting methodology is reliant on survey results which are completed by GPF members and stakeholders in the sector. This includes the large beverage producers (Lion, DB, etc.) voluntarily reporting on their total glass to market sales.
- GS1 sales data supported by information from Statistics NZ , IRI Worldwide, and peer review by glass industry association members was used in the CRS co-design process. The outcome of this research has shown there to be significantly more glass sold into the market than previously reported.

2018/19 NZ glass mass balance as reported by industry (voluntary reporting) and co-design (sales data):

GPF: 73% capture rate from 230,262T total glass (beverage and non-beverage) to market; 71% bottle to bottle rate

CRS co-design: 60% recovery (upper figure) from 278,613T total glass (beverage and non-beverage) to market; 48% bottle to bottle rate

- Beverage glass to market is 250,000T
- The current maximum bottle to bottle furnace capacity appears to be 120,000T/yr. This means an estimated 482m glass containers are currently being crushed, stockpiled, landfilled or littered.
- Meanwhile a significant number of beer and wine bottles are being imported into New Zealand alongside other glass containers. We estimate the import volume to be at least 50,000 – 100,000T/yr.
- The glass mass balance for NZ has numerous flows and pathways to account for, however given the above, it is clear there is an imbalance with total beverage glass to market (including imports), well exceeding onshore processing capacity.

Glass processing capacity issue and options

If the furnace is limited to ~120,000T/yr for bottle to bottle recycling in NZ (as per the last two GPF reporting periods), then the over supply of glass is an issue that requires attention. The Ministry has engaged with Visy directly on this matter. High level solutions potentially include (but are not limited to):

1. **System optimisation** – the Ministry is working with Visy to determine what more can be delivered from the existing plant
2. **Demand side measures** such as **recycled content regulations** under the new/revised Waste Minimisation Act
3. **Development of alternative markets** – roading and other applications can utilise crushed glass, noting that these opportunities are down-cycling and to some degree are already being leveraged in NZ e.g. Christchurch crushes all of its glass currently. Glass fibre insulation is another popular solution abroad.
4. **Infrastructure investment** to increase our **onshore beneficiation and furnace capacity** - Visy have already communicated that they believe a new beneficiation plant is necessary should a CRS be implemented (this has previously been estimated at ~$10 million).
5. **Economic incentive** such as the proposed **CRS Advance Material Recycling Fee** (or AMRF) that recognises that different packaging formats are easier or harder to recycle and prices them accordingly so that they are recycled (or at minimum beneficially reused) – this could include a carbon price as well. We understand many of the imported containers come from the Middle East and China.
6. **Refillables** – a significant switch to refillable bottles i.e. incentivised and/or regulated for mainstream products such as beer, could significantly reduce the demand on the NZ furnace. ABC's refillable swappa crate bottles typically last ten years and are refilled on average 40 times.

AMRF – an economic incentive option

The application of an Advanced Material Recycling Fee (AMRF) within a NZ CRS is an option that recognises that not all container packaging materials are equal, with some more recyclable and valuable than others. In practice this means that materials that are difficult to recycle or problematic such as LPB and glass may need to incur additional cost to see them successfully recycled or otherwise beneficially reused. An AMRF gives confidence and assurance that all materials will be managed beneficially. It also provides a more responsive means to changes in markets and incentivises a shift towards better packaging formats. Example AMRF scenario below:

	Material type			
	Plastic	LPB	Aluminimum	Glass (surplus)
Average weight/container (kg)	0.0413	0.0998	0.0165	0.2695
Number of containers per tonne	24,230	10,024	60,770	3,711
Net value per tonne (this could include carbon)	$200	-$180	$1,250	-$90
AMRF value per container	$0.01	-$0.018	$0.02	-$0.024
AMRF total incentive	$7.9m	-$2.3m	$10.3m	-$11.6m

LPB is currently a cost to recycle in NZ as it must be shipped abroad (discussed further in the next section). For glass, if at its lowest form, beneficial reuse required crushing at $90/T, it would see a $11.6m cost applied to the 482m glass beverage containers unable to be recycled back into bottles currently. Whereas the producers using aluminium cans would receive a 2c per container benefit from the sale of what is a much more valuable commodity.

The AMRF would incentivise those below the line to work towards AMRF fees being zero or a positive, so as to remain competitive for their choice of packaging for the beverages that they sell. Whilst some of the materials appear to struggle to find beneficial end-uses, just because something is not recyclable, is not a reason to exclude it from the scheme as that would commercially advantage these types of materials and products over products that can be more effectively recycled.

Glass recovery options

- **Kerbside audits from 2019 show that households are already recycling 87.9% of their glass beverage containers.** Even a perfect kerbside system with 100% recovery has limited maximum potential for recovering more glass.
- **Glass still has a key role to play within a standardised kerbside system** as separated glass significantly improves the quality and value of other key commodities in kerbside (especially fibre).
- If glass is collected in a separate bin/crate and a CRS with glass-in were to be implemented, then the frequency of kerbside collection for glass would likely reduce, potentially to monthly collections, saving councils and rate payers without impacting on other services.
- **The Glass Packaging Forum (GPF) has proposed an alternative advanced disposal fee model** as an alternative to a CRS for glass packaging. Such a scheme would likely see producers pay a per tonne levy to the GPF or managing agency, like they do with the existing voluntary scheme, except the levy would be used to incentivise recovery through payment for recovered glass. However, **the future potential GPF scheme manager faces the same problem as potential CRS scheme manager, supply and demand are well out of balance.** Further, paying for a tonne of glass collected does not necessarily incentivise more glass to be recycled nor incentivise producers to switch formats if glass cannot be recycled. A scheme where all materials are managed collectively ensures that economic incentives can be better managed across different material types.

We will provide you with detailed advice on the GPF's proposal in your upcoming meeting note.

Costs and Benefits of a narrower container scope in a CRS

Scale is key in order to achieve high levels of efficiency in a scheme. Removing any of the main packaging format types (plastics, glass, or metal) will impact on the costs and benefits of a scheme. While the impact is apparent in any scenario, the overall benefit cost ratio (BCR) can also be considered along with other design considerations. For example, for a 20c deposit scenario the BCR drops from 1.49 with glass in, to 1.06 with glass out (30 year model, 6% discount rate, 2% growth) – see table below.

However, under a 30c scenario, the glass out BCR at 1.5 is higher than 20c glass in scenario (glass in at 30c has a BCR of 1.75).

The Sapere Cost Benefit Analysis specifically looked at the glass out scenario as it has always been clear the GPF is opposed to glass being included in a CRS. The NZIER CBA critique has been considered and incorporated into the CRS CBA and the BCR for the all materials in scope (20c scenario) has not significantly changed (1.49).

The Ministry has both the PWC financial model and the Sapere CBA model. We can test most scenario options that you or Cabinet may wish to consider e.g. container scope, different deposit levels (and by product type), levels of convenience, scheme financial model, etc.

	Glass-in scenario	**Glass-out scenario**
Total benefits ($m, PV)	$3,316 ($2,300 to $4,332)	$1,258 ($1,130 to $1,386)
Total costs ($m, PV)	$2,227	$1,190
Net benefits ($m, PV)	$1,089 ($73 to $2,105)	$68 (-$60 to $198)
Benefit-cost ratio	**1.49** (1.03 to 1.94)*	**1.06** (0.95 to 1.16)

*Ranges are included in order to highlight the impact of using different data sources such as willingness to pay for litter reduction. Notably the Australian research supports the upper end of the BCR range, meaning the NZ CBA approach (an average) is more conservative.

Liquid paperboard (LPB)

Product types and their market share

- LPB is made from 75% cardboard and 20% plastic (PE,5) and 5% aluminium.
- LPB only makes up a small fraction (5%) of the 2.36b total containers sold in 2019 with 126.5m sold and weighing the least out of all container types at 12,628T.
- The majority of these were dairy and non-dairy UHT milk (25%), lifestyle drinks (22%), and fresh milk (20%).

Recovery

- 126.5m LPB beverages sold to market
- Of the 12,628T sold to market in 2019, kerbside recovered 3% (328T).
- This leaves 12,300T of LPB unaccounted for per annum.
- LPB is composed of fibre and has a similar emissions profile to paper in landfill (unlike the other packaging formats which container embodied energy, but are inert in landfill)

Provisional options

- The Ministry has not received any proposals or alternative options that seek to exclude LPB from a CRS to date. Tetra Pak® have noted the need for higher recovery rates and greater supply of recovered material in order to generate the necessary scale needed to operate large onshore processing and manufacturing facilities.
- Within a CRS, an **Advanced Material Recycling Fee (AMRF**) could be considered as a solution to ensure LPB containers are beneficially recycled.

Liquid paperboard

Reasons for considering inclusion of LPB in a scheme

- LPB has been recommended to be removed from kerbside recycling as only one council currently collects this product and it is not being fully recycled. The estimated 126.5m LPB beverage containers would ideally be more suited to capture for recycling through a CRS.
- Capturing more LPB through a CRS for recycling is also essential for reducing emissions, which would in turn contribute to NZ's emissions reductions targets.

Onshore processing capacity development – recent announcement

- Freightways, Tetra Pak® and Closed Loop have recently entered a joint partnership to deliver a new waste-to-building material technology, known as a saveBOARD plant, in Te Rapa, near Hamilton.
- The companies state the plant will save 4000T of product from entering landfill, including liquid paperboard, drink cartons, soft plastics and coffee cups into construction material. Tetra Pak® in particular are very supportive of a CRS in order to secure feedstock for this new plant (noting commercial offcuts from NZ's dairy export sector are likely to be a key material input stream as well).
- This is the sort of initiative that would reduce the cost of the Advance Material Recycling Fee in a CRS.

Sachets and pouches (option to include later)

Context:

- Sachets and pouches (i.e. all material types including plastic sachets and foil pouches) are most often excluded from international schemes. However, there are some examples in India and Canada where they have been included.
- This packaging material is usually a composite (multi material) and hard to recycle, normally leading to landfill disposal post consumer. Research to date has not focussed on the sachet and pouch market.

Provisional option:

- Pending further research and potentially public consultation on a proposed CRS, consider pouches for inclusion within two years of a CRS commencing.
- Reporting on pouches could be required from scheme initiation in order to collect actual sales data and monitor potential free rider market behaviour.
- Pouches could be included in a scheme and subject to an AMRF to incentivise recyclability or a shift away from the format if not easily recyclable.

Non-beverage containers to be excluded at this stage

Context:

- Non-beverage containers are commonly excluded from container return schemes.
- Natural HDPE (milk bottles) is the highest value plastic, fetching up to $770/T. Non-beverage, non- food grade HDPE largely stems from the janitorial product range and is often brightly coloured. This packaging type has a lower commodity value ($250/T) given the range of colours and non-food grade use, making them harder to recycle.
- If beverage HDPE is mixed with janitorial HDPE, milk beverage producers are unlikely to accept the risk of cross contamination for rHDPE use in recycled content beverage containers.

Provisional option:

- Given janitorial products are largely consumed at home and do not appear as litter (as opposed to beverage containers), they would ideally remain in the kerbside collection system and recovery enhanced through a standardisation approach.

Lids

Reasons for considering lids within a scheme

- Most bottle tops and lids placed loose into kerbside recycling are too small to be recycled and end up in landfill (2,498T/yr). Lids can also end up contaminating fibre bales, as they can be caught up in fibre during processing.
- A CRS would provide a recycling system to capture and recycle lids, which are otherwise often littered and/or disposed of in domestic kerbside rubbish.
- Separate lid collection through a CRS would also help to ensure clean and uncontaminated streams of material are received for processing and recycling.

Provisional options

- Options and decisions for lids would be subject to public consultation and would need to be in alignment with the Ministry's kerbside standardisation work programme. This would include whether to include lids within the NZ CRS, tethered caps, lids-on or lids-off, separate collection of lids, and options to incentivise collection and recycling of lids.
- It is envisioned that within a CRS lids would be removed by the consumer at the point of return and collected by the container return facility, and the Managing Agency would support the recycling of lids via identified pathways.

Refillables

Context

- Refillable bottles have a deposit refunded through either a reduced price or refunded deposit when the empty bottles are returned.
- A refillables scheme can be integrated or complimentary to a CRS, sharing collection infrastructure e.g. integrated schemes include Germany, Denmark, Ontario, Quebec; refillables-only schemes include Austria and South Korea.
- Refillables have an important role to play in facilitating the transition to a circular economy including reduced energy consumption, emissions reductions and a waste hierarchy approach.
- However, market share for refillables has declined globally over the past two decades i.e. through changes in consumer behaviour, cost of system infrastructure and transportation, changes in legislation, growth of supermarkets and improvements in single-use packaging.
- Additional refillable re-processing technology within a CRS may include bottle sorting, de-labelling, wash plants, filling plants and bottle quality assurance systems.

Refillables in a CRS

- Refillables are not recommended to be included as an eligible beverage container type within the Project Team's scheme design.
- They are recommended as a complimentary or partially integrated solution option, supported by the CRS Managing Agency and with the benefit of a refillables feasibility study to guide decision making.
- The scope of containers could be expanded in the future and the CRS infrastructure and network could be set up in a way in which allows for future integration.
- Significantly more work (including a feasibility study) and public consultation is needed in order to understand how refillables could be integrated in (or operate alongside) a NZ CRS.

Specific conditions of container eligibility in a CRS

Specific conditions of acceptance are implemented across international schemes via legislation to manage the container eligibility. **Conditions of acceptance for all eligible containers within a NZ CRS could include:**

- a unique scheme label (which may include the deposit amount and barcode)
- legible labelling
- containers to be empty, uncontaminated, whole, and intact
- lids to be removed at the point of return
- container sizes less than or equal to 4L in volume

Scheme fraud mitigation could also include a unique identifier component within the mandated scheme labelling. Where this is done elsewhere it has been reported to increase costs.

Final advice on conditions of acceptance would be subject to public consultation.

CRS Technical Advisory Group (TAG) feedback

Both the CRS Technical Advisory Group and the SDWG Majority Group supported the inclusion of all material types within a NZ CRS (i.e, plastic, glass, liquid paperboard, and metal).

- The TAG considered the broad scope of containers to be critical to the success of the scheme (consumer participation and effectiveness) and to the overall cost efficiency of the scheme.
- The TAG disagreed on whether refillables should be in or out of scope
- **The entire TAG agreed that further work and research is needed to provide options for incentivising and/or incorporating refillables within a scheme as soon as possible**





Appendix A: Estimated containers sold in 2019*

Total containers (000's)		Material Type				
		Plastic	Liquid Paperboard	Metal	Glass	**Total**
Beverage Type	Ambient drinks	22,344	15,288	392	392	**38,416**
	Ambient juices	14,567	12,596	428	3,256	**30,848**
	Carbonated beverages	50,374	-	182,797	147,417	**380,588**
	Chilled juice and drinks	21,564	874	2,331	4,080	**28,849**
	Flavoured milk	15,659	-	-	-	**15,659**
	Lifestyle drinks	41,827	27,885	5,781	43,187	**118,680**
	Liquid breakfast	-	11,158	-	-	**11,158**
	UHT milk (dairy and non-dairy)	34,304	31,113	798	3,390	**69,605**
	Water	68,938	1,106	18,064	24,331	**112,439**
	Fresh milk	513,956	26,222	-	-	**540,178**
	Total (non-alcohol)	**783,533**	**126,242**	**210,591**	**226,053**	**1,346,419**
	Wine (includes sparkling and champagne)	181	317	795	122,578	**123,872**
	Cider	3,324	-	4,917	34,901	**43,141**
	Beer	5,106	-	207,514	403,513	**616,133**
	Spirits	413	18	-	22,473	**22,904**
	Spirit-based drinks	1,899	-	91,133	118,663	**211,695**
	Total (alcohol)	**10,922**	**335**	**304,359**	**702,129**	**1,017,745**
	Total	**794,455**	**126,577**	**514,951**	**928,182**	**2,364,164**

*Key inputs for CRS financial model supplied by GS1, IRI Worldwide and Stats NZ.

Appendix B: Estimated weight of containers sold in 2019*

Total weight (tonnes)		Material Type				
		Plastic	Liquid Paperboard	Metal	Glass	**Total**
Beverage Type	Ambient Drinks	1,591	995	48	96	2,729
	Ambient Juices	1,161	1,131	11	472	2,775
	Carbonated Beverages	2,707	-	5,211	39,485	47,404
	Chilled Juice & Drinks	1,086	32	140	765	2,023
	Flavoured Milk	766	-	-	-	766
	Lifestyle Drinks	2,709	2,004	132	9,956	14,801
	Liquid Breakfast	-	1,781	-	-	1,781
	UHT Milk	1,755	4,965	7	526	7,252
	Water	10,421	144	402	9,856	20,823
	Fresh Milk	9,684	1,542	-	-	11,226
	Total (Non-alcohol)	**31,881**	**12,592**	**5,951**	**61,155**	**111,579**
	Wine (includes sparkling and champagne)	7	34	18	67,440	67,499
	Cider	198	-	70	10,860	11,129
	Beer	537	-	1,476	78,287	80,300
	Spirits	61	2	-	12,894	12,958
	Spirit Based Drinks	104	-	958	19,476	20,538
	Total (Alcohol)	**907**	**36**	**2,523**	**188,958**	**192,424**
	Total	**32,788**	**12,628**	**8,474**	**250,113**	**304,003**

*Key inputs for CRS financial model supplied by GS1, IRI Worldwide and Stats NZ.

Making Aotearoa New Zealand the most liveable place in the world

Aide Memoire – Slide pack for the Container Return Scheme: Driving recovery

Date Submitted:	22 April	Tracking #: 2021-B-07754	
Security Level	In confidence	MfE Priority:	Non-Urgent

	Action sought:	Response by:
To Hon David Parker, Minister for the Environment	**Note** the accompanying slide pack *Container Return Scheme: Driving recovery* to inform further discussions with officials on options for a Container Return Scheme.	7 May

Actions for Minister's Office Staff	**Return** the signed report to MfE.
Number of appendices and attachments #1	1. Slide pack - Container Return Scheme: Driving recovery

Ministry for the Environment contacts

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Aide Memoire – Slide pack for the Container Return Scheme: Driving recovery

1. The purpose of this aide memoire is to provide you with the attached Container Return Scheme (CRS) slide pack on driving recovery of eligible materials through a CRS (Appendix 1), to support further discussions with officials on options for a Container Return Scheme.
2. This slide pack is the third in a series of advice (see updated Table 1 below) on a proposed Container Return Scheme for New Zealand. It builds on previous slide packs [2021-B-07615 and 2021-B-07767] which provided you with an overview of the CRS project work to date, and the scope of containers in a CRS.
3. As noted, fraud risk is an important consideration for a scheme, especially in a scenario where deposit levels differ. This is a key design consideration in the overall matrix of choices within a scheme design especially as it relates to the network and role of technology in a scheme, which is included in this briefing.
4. As a result of recent conversations you have had with officials and stakeholders, the next briefing will be on alternative options to a CRS for addressing the primary objectives of increasing away-from-home recovery and reducing litter. The briefing will provide advice on a range of options (including the option of a CRS) that could address these issues.
5. The package of advice outlined below, which includes the aforementioned alternative options briefing, will help to inform your decision on whether to proceed with a New Zealand CRS (NZ CRS), and if so, the key scheme characteristics for Cabinet consideration and public consultation (subject to Cabinet approval).

Table 1. Timeframe for advice

Advice to Minister Parker	Date Submitted/Due Date
CRS 1 – Container Return Scheme [2021-B-07615]	15 February 2021
CRS 2 – Container Return Scheme: Scope of containers [2021-B-07767]	1 April 2021
CRS 3 – Container Return Scheme: Driving recovery	22 April 2021
CRS 4 – CRS vs alternative options for addressing primary recovery and litter reduction objectives	May 2021
CRS 5 – Overall assessment and recommendations for a New Zealand Container Return Scheme NB: This briefing is subject to decisions made in CRS 4.	June 2021

CRS 6 – Agreement to consult on a New Zealand Container Return Scheme or alternative option (Briefing note, Cabinet paper, draft consultation document) NB: This briefing is subject to decisions made in CRS 5.	July 2021

Objectives of a NZ CRS

6. The slide pack includes an overview of the primary and wider objectives for a proposed NZ CRS. Subject to your consideration, the primary objectives are to:
    - increase recovery and recycling of single-use beverage containers to 80-90 per cent
    - reduce litter from beverage containers by 60 per cent
    - reduce emissions and support a circular economy by reducing the use of virgin materials in container manufacture.
7. Wider objectives are to:
    - provide opportunities for growth of refillables
    - improve the quality of recovered materials, enabling onshore manufacturing
    - provide benefit flows to community and/or environmental initiatives.
8. Note that the previous Associate Minister for the Environment (Hon Eugenie Sage) established a different set of objectives, principles, and considerations for the NZ CRS co-design process. This influenced the design process and the Projects Team's recommendations. You may wish to discuss this aspect and reaffirm your priorities for a scheme with officials at your next meeting.

Design considerations to drive recovery

9. The CRS characteristics or policy 'settings' that encourage the return of eligible materials are a key consideration for the success of a scheme. Effective schemes balance incentives and interests through interconnected design settings such as the:
    - deposit level and recovery targets
    - governance model and structural arrangements
    - network design
    - scheme financial model.
10. While individual policy setting options can be more or less influential, it is the combination of scheme design considerations outlined above that will determine the recovery rate and the overall success of a scheme.
11. The Ministry notes that some design elements are subject to decisions on other elements ie, a cascade. For example, if a low deposit level is preferred, ensuring a high level of network convenience would offset this lower incentive and encourage the return of material.

Next Steps

12. You have asked to meet with officials to talk through any outstanding matters in relation to CRS design considerations (date TBC, likely May).
13. The slide pack attached at Appendix 1 will inform further discussions with officials on options for a NZ CRS.

Recommendations

14. We recommend that you:

    a. **Note** the accompanying slide pack *Container Return Scheme: Driving recovery* to inform further discussions with officials.

Signature

Shaun Lewis
Director
Waste and Resource Efficiency

Hon David Parker
Minister for the Environment **Date**

Appendix 1: Slide pack - Container Return Scheme: Driving recovery

Ministry for the Environment
Manatū Mō Te Taiao

Appendix 1: Aide Memoire 2021-B-07754

Container Return Scheme Driving recovery

Key considerations in a Container Return Scheme (including deposit level, network design, financial model and governance) to increase the return rate of eligible materials.

Purpose

- This slide pack is **third in a series of briefings that cover key aspects of Container Return Scheme** (CRS) design, to inform your consideration should you wish to proceed with the option for New Zealand.
- This briefing builds on briefings 2021-B-07615 and 2021-B-07767 which provided you with an overview of the CRS project work to date, and the options for the scope of containers in a CRS.
- This **slide pack covers further key design aspects including deposit levels, network configuration and the potential role of technology within a scheme as it relates to convenience and fraud.**
- **You have asked to meet with officials (date TBC, likely May) to talk through any outstanding matters in relation to CRS design considerations.**
- This session will also include discussion on alternative options to a CRS. **The Ministry will provide you with a briefing on alternatives to a CRS in early May to support your discussion.**

Contents

The scheme characteristics, or policy 'settings' that encourage the return of eligible materials are a key consideration for the success of a CRS.

This slide pack covers:

- **primary objectives of a scheme** (litter reduction, resource recovery and recycling, emission reductions)
- **deposit level, recovery rates and fraud risk management** under a CRS
- **governance model** and **structural arrangements**
- **network design**
- scheme **financial model**.

Key Messages

Beverage containers are a significant and visible source of litter in New Zealand, and **our overall container recovery rates are low** compared to many other countries with schemes.

The primary aim of a CRS is to increase the recovery and recycling of eligible containers, and to reduce litter. This will help reduce harm to the environment from the extraction, use and disposal of materials used in beverage containers.

There are other intervention options (aside from a CRS) that could address these issues to some degree, **these will be explored in your next briefing.**

The core principle underpinning a CRS is the use of incentives to change behaviour. **The refundable deposit financial incentive combined with accessibility of the network are key considerations in CRS performance.**

The option for and degree of, return-to-retail requirements within a scheme as a first principle sets in train a cascade of other key design considerations including: the deposit level, scheme structure, governance, network procurement options, financial model, likely technology pathway, fraud mitigation, etc.

Schemes with high deposit rates, almost always have high return rates. However, a number of exemplary schemes with lower deposit levels achieve high (>85%) recovery rates, typically through mandatory return-to-retail requirements.

In the absence of mandatory return to retail, a high degree of retail buy-in and voluntary / incentivized scheme participation is important. This can be achieved through options for scheme structural arrangements and/or procurement pathways.

Objectives of a Container Return Scheme

New Zealand's current beverage container recovery rates are estimated to be between 45-58 per cent.
The best data we have to date suggests 47 per cent recovery (1.11 billion of 2.36 billion) averaged across container types. Assuming the most optimistic scenario of 58 per cent recovered, **this leaves an estimated 992 million containers that are unaccounted for annually**. The majority of which are stockpiled (glass), landfill, or litter.
Key objectives of a CRS are outlined below:

Primary objectives

- Increase recovery and recycling of single-use beverage containers to 80-90 per cent.
- Reduce away-from-home litter from beverage containers by 60 per cent (which demonstrably reduces other forms of litter through changing social norms).
- Reduce emissions and support a circular economy by reducing the use of virgin materials in container manufacture.

Wider objectives

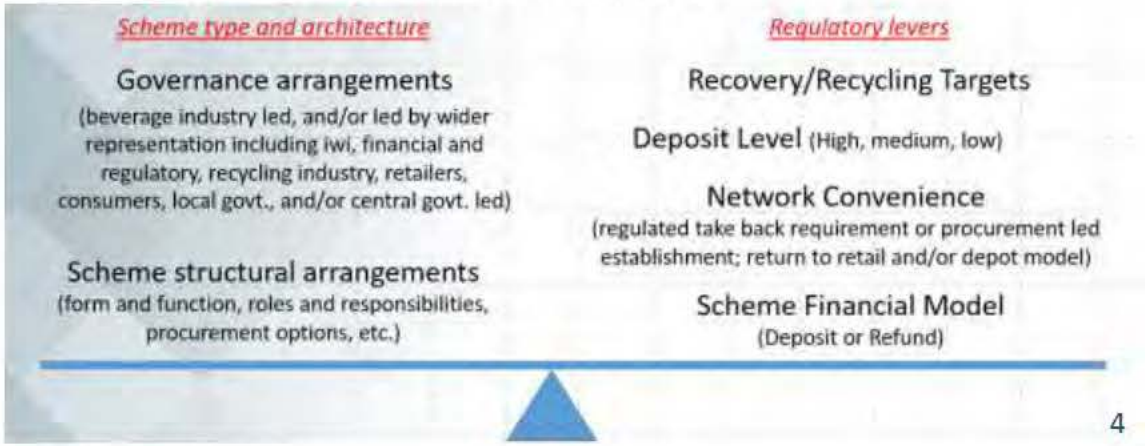
- Provide opportunities for growth of refillables.
- Improve the quality of recovered materials, enabling onshore manufacturing.
- Benefits flow to community and/or environmental initiatives eg, social enterprise, charities, sports clubs etc.

Achieving success through a CRS

Effective schemes balance incentives and interests through interconnected design settings (such as the deposit level and network design).

While individual policy setting options can be more or less influential, it is the overall combination of scheme design considerations that will determine the recovery rate and overall success of a scheme. The deposit level and network design are key.

Figure 1: Conceptual balance of design considerations



Deposit level and recovery rates

Deposit level

- Eligible beverage containers in a CRS would be required to carry a scheme label and include a refundable deposit in the purchase price (examples pictured below from Germany and Australia).
- If consumers return their empty beverage container(s) to a designated scheme drop-off point for recycling, the deposit is refunded.
- Deposit refunds can include cash, supermarket vouchers (for cash or credit), donation to charity (schemes enable a range of charities to benefit), and electronic funds transfer (usually through participation via an account/app on your mobile).
- The deposit level creates an incentive to recycle eligible containers and can be a flat rate (eg, one deposit level for all containers), or be varied depending on the size and type of containers.

The OECD notes that a deposit level should be high enough to incentivise consumers to put in the additional effort to return their bottles and encourage people to collect litter and return containers.

International Schemes

Deposit level and return rates

International comparisons

European Schemes

- Broadly, **many of the well performing schemes** (ie, those with return rates >85%) **have deposit levels equivalent to NZD 30 cents**, noting there are exceptions (see note below).
- Scotland's recently commissioned scheme has set a deposit level of approx. NZD 40 cents.

Australian Schemes

- Have a consistent **deposit level of AUD 10 cents.**
- s 9(2)(ba)(i), s 6(b)
- s 9(2)(ba)(i), s 6(b)

Note – Seven schemes globally with lower deposit levels (NZD 12c- 21c) achieve >85% return rates. Six of these schemes have mandatory return-to-retail regulations and very high network convenience (such as 1 return point to 300-500 people).

Outliers have explanations, such as Iceland (357,000 people), mostly concentrated in and around the capital city, Reykjavík.

Table 1: Global deposit levels and return rates

	Country/State	Deposit (NZ cents)	Return rate (%)
Mandated retail take back networks	Germany	35	98
	Netherlands	35	95
	Vermont (USA)	21	95
	Finland	30	93
	Denmark	31	92
	Lithuania	16	92
	Estonia	16	90
	Norway	40	90
	Switzerland	49	90
	Michigan (USA)	15	89
	Saskatchewan (Canada)	30	88
	Croatia	12	88
	Oregon (USA)	15	86
	Sweden	30	85
	Maine (USA)	21	84
	British Columbia (Canada)	21	81
	Manitoba (Canada)	21	79
	Iowa (USA)	7	71
	Quebec (Canada)	21	69
	California (USA)	13	67
	Massachusetts (USA)	7	50
Market led participation networks	Iceland	18	87
	Alberta (Canada)	26	85
	Northwest Territories (Canada)	26	84
	Prince Edward Island (Canada)	21	83
	Yukon (Canada)	25	82
	Nova Scotia (Canada)	21	81
	South Australia	11	78
	New Brunswick (Canada)	11	76
	New South Wales (Australia)	11	70
	Newfoundland and Labrador (Canada)	21	68
	New Foundland (USA)	8	64
	Hawaii	7	63
	Queensland (Australia)	11	58
	Northern Territory (Australia)	11	48

Scheme fraud management

With the establishment of a CRS, the eligible scheme material is allocated a financial value greater than the commodity value. Higher deposit levels lead to a greater risk of fraud (especially across borders where there is no scheme adjacent).

Key options for managing the risk of fraud where deposit levels differ include:

- only intact (mostly uncrushed) containers are allowed for redemption (once redeemed they are crushed – this prevents the risk of "container imported as crushed material/cans" scenario)
- embedding technology-based counting and verification eg, RVMs and automated counting depots.

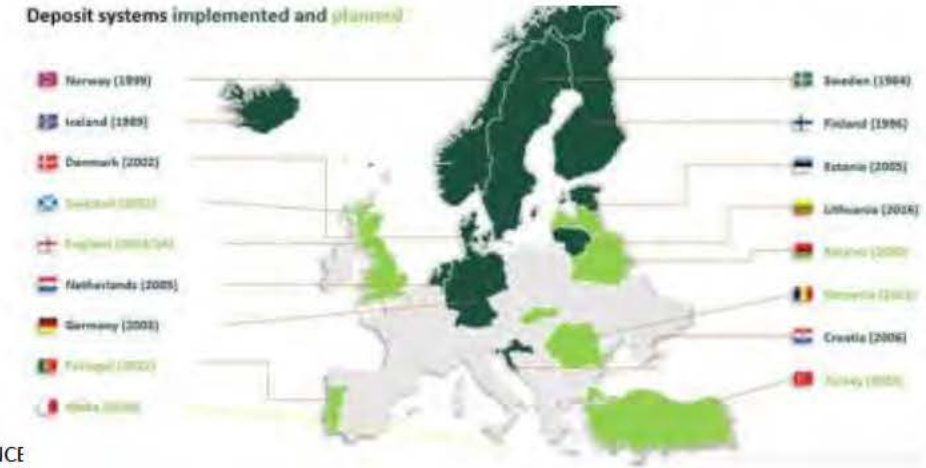
A technology-based network provides live count and verification data to the network operator and/or PRO. Anomalies are flagged and can be investigated realtime if necessary, RVMs can even be remotely shut down if needed. In Germany, which has one of the highest deposits (and recovery rates) in the world and has some neighbouring countries with no scheme (currently), an infrared security marking has also been deployed. In the case of NZ, were a higher deposit than Australia implemented, a technology-based scheme would be preferable to manage this risk.

Fraud is also managed through the scheme paper trail and cross-border fraud can also be mitigated through relationships with Customs agencies by monitoring potential importation of ineligible containers (eg, through import documentation).

In the manual counting of containers scenario (page 16), weight-based verification relies on subsequent auditing of baled containers. This method works however it is vulnerable to fraud and a technology solution offers other benefits including the ability to make more informed decisions on aspects of scheme operations.

Fraudulent activities in a CRS can include:

- photocopying or production of fake barcodes, labels and deposit vouchers
- manufacture of fake containers for a deposit refund.
- retailers and/or producers trying to claim extra handling fees
- consumer or shop staff feeding containers through twice
- container collectors feeding containers through RVMs twice.



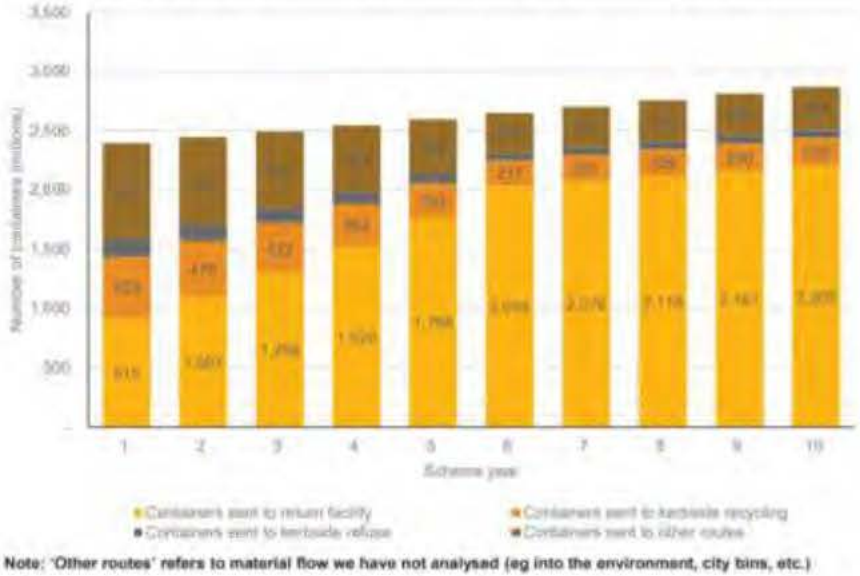
Deposit level impacts scheme financials (and CBA)

NZD 10 cent, 20 cent, 30 cent, and 40 cent deposit levels

Current recovery is ~47% (1.11 billion containers). Modelling based on all international schemes (that we have data for) suggests a relationship between the deposit and recovery rates. On this basis, a NZD 30 cent deposit is more likely to reach and exceed an 85 per cent recovery rate than NZD 10 cents. However, **six schemes internationally achieve 86-95 per cent recovery through mandated take back and on deposit rates of NZD 12 cents – 21 cents. This emphasises the importance of the sliding scale concept for the design considerations within a scheme ie, network efficiency versus deposit level. Both variables impact scheme costs and benefits.**

The below graph and table assumes 415 return sites established across New Zealand (1 site per 12,500 people). Higher levels of convenience and a lower deposit level is an alternative scenario. In any scenario, should targets not be met with a lower deposit, the deposit could increase over time as recommended by the co-design project team. Pending preferred options, the Ministry can re-run the financial and CBA models and provide further output information.

Figure 2: Container volumes – NZD 20 cent deposit level



Note: 'Other routes' refers to material flow we have not analysed (eg into the environment, city bins, etc.)

Table 2: Scheme fees and recovery – recovery estimate based on 415 sites and 'average performance' against 'average deposit level' of all international schemes

CRS scheme fees (deposit model)			Containers recovered/disposed		
Refundable Deposit level (NZD)	Scheme fee per container	Total fee per container	Recovery estimate	Containers recovered	Containers landfilled/littered
10 cents	2-3 cents	12-13 cents	69%	1.6 billion	733 million
20 cents	1-3 cents	21-23 cents	77%	1.8 billion	544 million
30 cents	1-4 cents	31-34 cents	85%	2 billion	355 million
40 cents	3-7 cents	43-47 cents	93%	2.2 billion	165 million

Deposit level - costs and benefits

Sapere Research Ltd were contracted to undertake a CBA, which was peer reviewed by Sense Partners, and independently by the Glass Packaging Forum/NZIER. The final version incorporates feedback from both.

Table 3: Deposit level costs and benefits

	CBA (30 years, all materials, rounded)			
Deposit level (NZD)	Total costs	Total benefits	Net benefits	Benefit-cost ratio
10 cents	$2 billion	$2.3 billion	$279 million	1.14
20 cents	$2.2 billion	$3.3 billion	$1 billion	1.49
30 cents	$2.4 billion	$4.2 billion	$1.8 billion	1.75
40 cents	Scenario not in CBA at this time			

Table 4: Deposit level costs and benefits for participating households

	Per household (average/year)				
Deposit level (NZD)	Gross costs (CRS fee + GST)	Deposit refund	Net cost	GST component of net cost	GST proportion of net cost to household
10 cents	$179.00	$130.00	$49.00	$23.00	47%
20 cents	$310.00	$259.00	$51.00	$40.00	78%
30 cents	$465.00	$389.00	$76.00	$61.00	80%
40 cents	$643.00	$519.00	$124.00	$84.00	68%

Benefit-cost ratio (BCR)

Sapere's CBA of a proposed NZ CRS showed that, looking at a 30 year time horizon and a NZD 20 cent deposit level, a NZ CRS would have net benefits of NZD $1 billion and a BCR of 1.49 (glass-in scenario).

In comparison, a NZD 30 cent deposit level would have net benefits of NZD $1.8 billion and a BCR of 1.75 (glass-in scenario).

Cost to households

In a NZD 20 cent deposit level scenario, the estimated net cost of the scheme to households is NZD $51/yr, including GST of NZD $40.

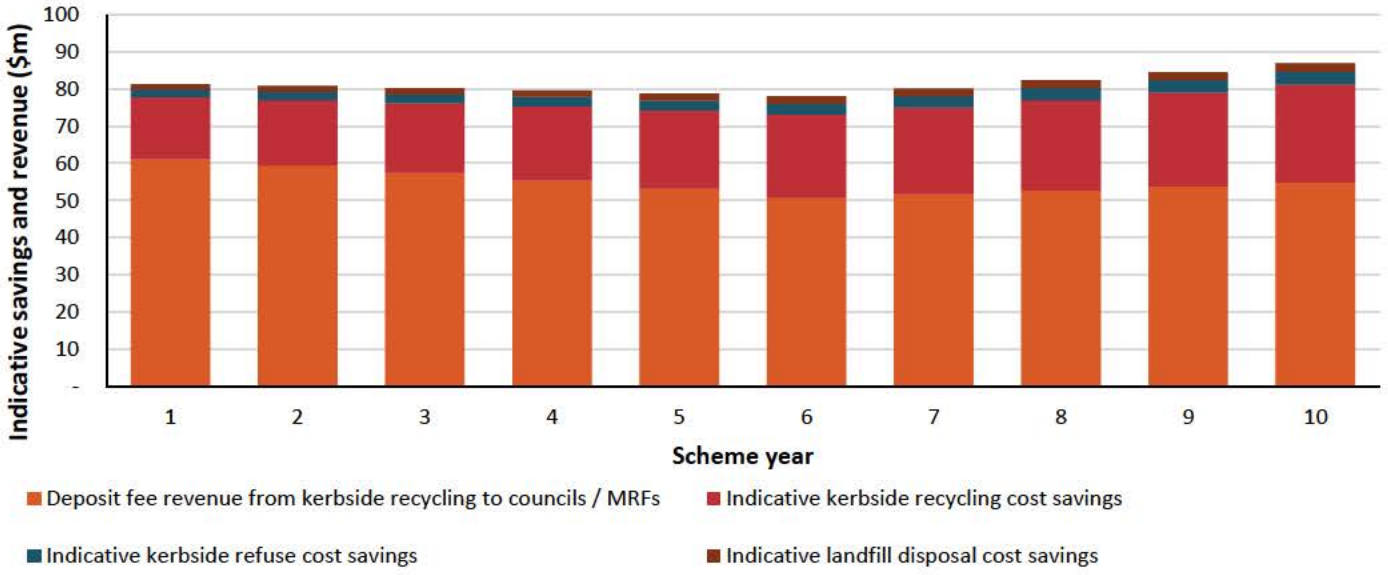
Costs and benefits continued...

Local councils and material recovery facilities

PwC modelling shows that the benefits to local councils and material recovery facilities (MRFs) would be in the order of NZD $80 million a year (based on a NZD 20 cent deposit level, and a deposit model scenario). This equates to benefits to local councils and MRFs alone of approx. NZD $47.06 per household.

This aspect is critical as MRF operators are concerned their business model would be negatively impacted, in turn increasing costs for councils. While this is a possible scenario (pending who receives the unclaimed deposit revenues), in any case, the CRS cost savings accrue to one or both parties (recyclers and/or Councils). This means the cost imbalance is neutralised in a situation where both parties are required to renegotiate the terms and conditions of new service levels under a CRS. What is very clear is that, often, recyclers are in a position of greater information than councils in these negotiations which is an advantage *(National Resource Recovery taskforce stakeholder feedback).*

Figure 3: Indicative local government / MRF impacts from CRS scheme



Co-design deposit level recommendation

Feedback from stakeholders on the deposit level (including through the Project Team's co-design process) highlighted various positions on deposit levels.

Project Team recommendations

- NZD 10 cent deposit level for the first three years.
- Increase to NZD 20 cents if recovery targets not met after three years of scheme implementation.
- Recovery targets:
  - 60% - Year 1 (interim)
  - 65% - Year 2 (interim)
  - 70% - Year 3 (interim)
  - 80% - Year 4 (interim)
  - 85% - Year 5 (final).

Note, as part of their research the Project Team undertook two consumer surveys to understand attitudes to NZ CRS. Of consumers surveyed in Feb/March 2020 (Survey 1, 2114 responses):

- 31% supported a NZD 5-10 cent deposit level
- 27% supported a NZD 15-20 cent deposit level
- 58% supported a deposit level up to NZD 20 cents
- 23% supported a deposit level greater than NZD 20 cents.

Co-design process stakeholder feedback on recommendations

Scheme Design Working Group (SDWG)

- Majority Group – considered a NZD 10 cent deposit level too low, preferred to see NZD 20 cent deposit level from outset.
- Minority Group – supported NZD 10 cent deposit level (noting the minority group opposed the overall design and the glass stakeholders have proposed an alternative scheme with no deposit).

Technical Advisory Group (TAG)

- Five of six members considered a NZD 10 cent deposit level too low, and that it would not achieve desired 85 per cent return rate.
- Supported a NZD 20 cent deposit level from the outset as more likely to achieve 85% return.

Coca-Cola Amatil and Lion NZ - alternative design

- Supported NZD 10 cent deposit level [2021-B-07758 refers].

TOMRA with support from LGNZ and Zero Waste Network*

- Support NZD 20 cent deposit level along with some level of regulated take-back complemented with a depot network.

*TOMRA is one of several technology companies globally that supplies CRS network, RVM, IT and verification solutions (further details in Appendix 2). Note that TOMRA is involved in Australian schemes.

Scheme governance and structural arrangements

The role of industry and government in a CRS

Broadly, the governance leadership for a CRS can be any singular type or combination of the below:

- beverage producers
- retailer
- recycler
- Government
- other.

While there may be a dominant group in the governance and leadership of a scheme, governance can also be more broadly representative (ie, in addition to industry, financial and legal prerequisites, also including representatives from iwi, community, consumers, sustainability, etc.).

Often schemes are beverage industry led, with different degrees of regulatory or structural controls in place to balance the incentives and interests in a scheme.

Overall, a CRS would ideally strike a balance between a well regulated scheme that is industry-led, or a less regulated scheme that is more influenced by Government and other interested parties at an operational level.

Structural arrangements

Structural separation

- Structural separation of scheme functions can be used to balance competing incentives and interests within a scheme. For example, the drivers for cost efficiency and the competing driver for increased recovery (which increases scheme costs).
- The option of structural arrangements of this nature are a design consideration particular to Australian schemes where the policy settings and regulatory drivers (deposit level and regulated take-back) are set lower in comparison to most European schemes.

Case Study: Australian structural arrangements (see additional info, page 23 for accompanying diagrams)

Examples of structural arrangements include:

- A single scheme manager (or Producer Responsibility Organisation (PRO)) structure that manages all aspects of the scheme eg, Queensland and Western Australia
- A split structure model with a separate scheme coordinator (financials) and network operator/s (recovery) eg, NSW and recently announced for Victoria and Tasmania. The roles are typically split between the beverage and recycling industries respectively.

The split model can be used to create a better balance between the incentives and interests from stakeholders involved in scheme operations. The beverage industry is interested to ensure the scheme is cost efficient, and the recycling industry is incentivised to collect containers.

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Analysis of governance and structural arrangements

The governance model options for a CRS are best considered in light of other landed design considerations, such as the deposit level and network design, in order to ensure balance within the design. While there are many high-performing industry-led schemes internationally, stronger regulatory drivers and/or scheme structural controls are typically in place where this is the case.

Consideration of scheme structural requirements are also secondary to the consideration of the level of ambition for a scheme (recovery target) and the preferred regulatory approach to establishing levels of convenience within a scheme ie, the option of mandated take back.

Stakeholder positions on governance models

The Project Team recommended:

- Government-appointed Governance Board (including an independent Chair) with representation from a broad range of interests eg, iwi, recyclers, financial, regulatory, customer, retail, community, waste sector, local government, beverage industry, strategists
- that the Board be supported by a Board-appointed Technical Advisory Group
- a single scheme manager would be entirely responsible and accountable for all aspects of the scheme.

SDWG and TAG positions

SDWG Majority – In favour of broadly representative governance model, appointed by the Government.

SDWG Minority – Supported an industry-led model that allows for wider representation, where the government approves industry recommended appointments (noting some opposed the proposed CRS).

TAG – Agreed that strong industry representation is preferable but that industry should not be dominant. Also agreed that Governance is best considered in light of other landed scheme design aspects.

The Scheme Network

Container return facilities (CRF)

The network for a CRS is only established once. While the number and location of CRFs can change over time, the core system effectiveness, efficiency, and carbon footprint are locked in at the initial implementation stage. An efficient, convenient, low-carbon network is one where the majority of people can return containers to places they frequent regularly for other purposes.

A CRF is a facility (characterised as a store, depot or RVM in the simplified diagram below) where consumers and businesses can return eligible beverage containers to redeem their container for the refund. Each CRF type is developed to suit certain situations and customers.

The main CRF types are:

- Reverse Vending Machine (RVM)
- depots (manual or automated)
- over the counter
- bag drops
- pop-ups.

The CRF's accessibility (hours of operation) and customer convenience (location and travel distance) is a critical success factor in the overall effectiveness and efficiency of a scheme. The location, number and type of CRF locations per head of population impact operational scheme costs, customer convenience, public engagement in the scheme and the network's embedded carbon footprint.

Return and counting methodologies

Automated Collection (eg, NSW model)

- **Reverse Vending Machines (RVMs; scheme archetype)** – An automated vending machine that accepts empty containers (up to 100/min) using technology to accurately verify and count containers, then provide a refund or donation option. Typically outside (or inside) retail locations.
- **Automatic counting depots** (for >500 containers), a depot has one or more 'singulators' (see page 18) which process 180 containers per minute. Containers are poured into the singulator, a cone shaped low-speed centrifuge which puts containers into a single file for electronic verification, counting and sorting. Verification includes infrared, the Universal Product Code (UPC/barcode), and AI shape recognition. The counting and verification technology precise and efficient, especially when dealing with bulk containers from commercial/away from home collections.
- **Over the counter** containers received by small businesses e.g. news agencies or corner stores (on-shipped to a depot).
- **Donation stations** RVM style machines that allow consumers to donate their refund to a charity or community group.

Benefits: convenience, efficiency, real time data, increased fraud protection, more long-term skilled jobs, increased accessibility (open longer), social licence – RVMs are popular

Drawbacks: An RVM based network may provide fewer manual handling job opportunities.

Manual Collection (eg, Queensland model)

- **Manual count depot's (scheme archetype)** - empty eligible containers are brought to a depot (walk in or drive through) and counted onsite, typically by staff who then provide refunds. Depots can be operated by a range of potential stakeholders eg, scrap metal, charities, clubs, etc.

Alternative options to a depot include:

- **container bag drop** – unmanned scheme bag drop site, collection, counting and refunds occur later (less popular)
- **RVMs** less common in QLD, where they exist, very popular
- **pop-up sites** for remote locations (bag drop or temp. depot)

Containers are weighed and periodically audited to help manage the risk of fraud.

Benefits: Manual depots provide opportunities for anyone (including charities) to be involved in the network. Operators receive a per container handling fee (~NZD 6c per container). As long as the site has volume and low overheads it can be a very profitable business.

Drawbacks: Manual depots are often located in less convenient areas. A site's volume directly affects the operators profitability so a depot operator in an industrial area would not want more convenient retail/RVM alternatives nearby. Manual counting of beverage containers takes time, is low-skill and has fraud risks.

Queensland Scheme: Drop offs

Case Study:

- The Queensland scheme producer responsibility organisation (PRO) 'COEX' procures the network and considers a site's potential, prior to approval.
- The scheme does not include mandatory return-to-retail and largely relies on manual return depots, over the counter, bag drops and relatively few RVM sites.
- Where RVMs do operate they offer vouchers and electronic transfers.
- While not an RVM per se, some manual depots have installed counting machines to improve efficiency, data and customer experience.
- Depots are often located in commercial or industrial zoned areas.

Scrap metal yard converted to CRS depot with customers queuing.

Manual counting of containers (video examples available).

Queensland CRS materials recovery facility (MRF)

Auto-counter drive through (front end)

Auto-counter drive through (back end)

Auto-counter display

New South Wales – Network design

Case Study:

- In New South Wales (NSW), a range of container return locations are provided to customers. This includes the use of RVMs (80 per cent of the network volume is returned via RVMs) which can be located in supermarket carparks.
- Depots process high volume returns from the commercial sector (via a singulator).
- RVMs take whole containers, processing up to 100/minute, and then use the same technology as automated depots to verify, count and sort containers.
- A recent "multi-feed" RVM innovation includes pairing an RVM frontage with a back-end depot singulator. This allows consumers to pour their containers into an RVM and obtain refunds more quickly (pictured).
- Often RVMs crush or break the containers in order to save space and avoid fraud. The NSW scheme RVMs do not do this and therefore are often based in carparks as larger 'containerised' RVMs.

Singulator (NSW depot)

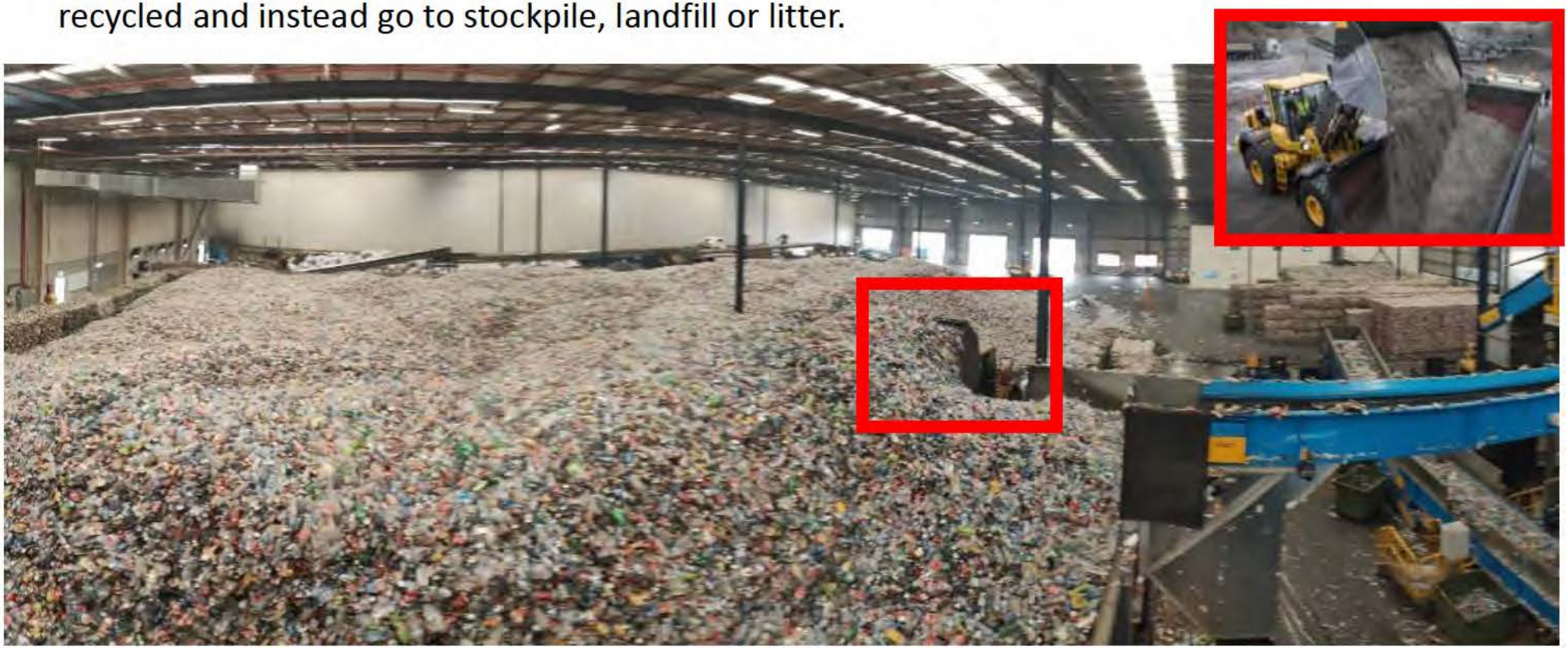
Carpark RVM (typically retail)

Multi-feed RVM (new innovation)

RVM depot

Sydney CRS super MRF

- The NSW scheme super MRF, Dec 2019. Red box is a 20 tonne loader with bucket at full overhead extension, buried in a mountain of plastic and aluminium beverage containers.
- The pile is 10 million containers, just 2 days worth from the scheme (peak period). The MRF can process 5 million containers a day.
- Every two days in New Zealand, at least 5.4 million containers (over half of this pile) are not recycled and instead go to stockpile, landfill or litter.



Mandatory or voluntary return-to-retail

CRS markets use different methods to address perverse incentives within a scheme. The **majority of CRS markets use return-to-retail legislation** as the predominant method to ensure consumers are able to easily return eligible containers (table 1, page 6). **Return-to-retail guarantees convenient infrastructure and therefore high return rates,** it is common in European CRS, and is also used in the United States and Canada.

Alternatives for managing perverse incentives include:

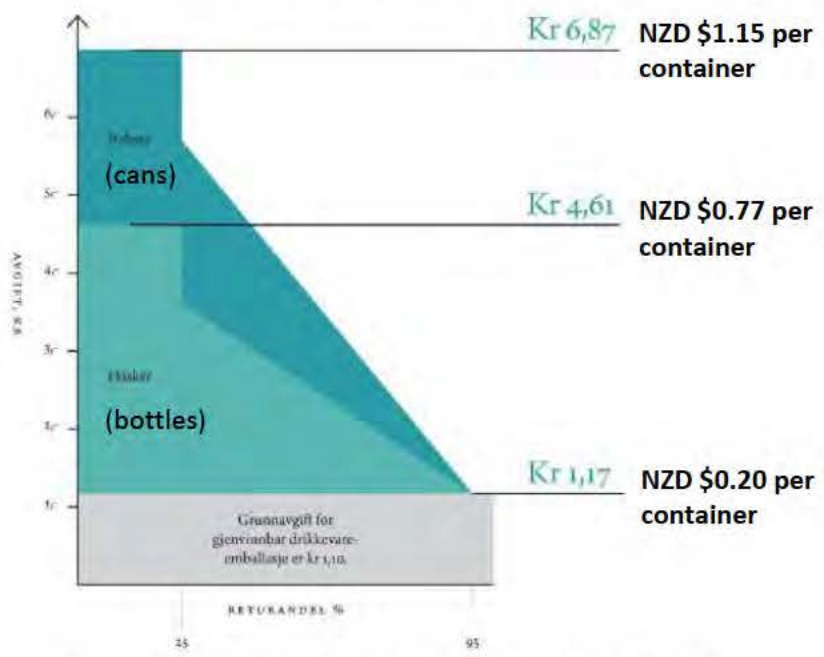
Norway: Environmental (Pigovian) tax on beverages that reduces as return rates increase.

NSW: Scheme administration split between Scheme Coordinator (beverage industry) and Network Operator (recycling service providers).

Oregon, US: Doubling of deposit if return rates drop below specified level.

Markets without such safeguards that rely on targets only, are more likely to have only modest return rates in the long run.

Figure 4: Norwegian environmental tax



Norwegian environmental tax on beverages (y-axis) reduces as return rates (x-axis) rise.

Mandatory or voluntary return-to-retail

Mandatory return-to-retail schemes are implemented through legislation and regulation, which sets out requirements for retailers to take-back all eligible containers from consumers. Importantly this often includes specified conditions of acceptance and/or exemptions for small businesses. Take-back powers exist under the current WMA.

Depending on the design of a CRS, mandatory return-to-retail may:

- only apply to larger supermarkets (ie, those exceeding a specific floor area)
- include smaller stores as well (ie, smaller convenience stores)
- provide conditions and/or exceptions (eg, stores only take back what they sell by product or material).

A return to retail model has a cascade of negotiable options too: Retailers may prefer to take the full handling fee (modelled at NZD 6.3 cents per container for New Zealand) and provide the take back services themselves. More likely for large retailers is a procurement process that outsources the service partially or entirely (this could be retailer and/or PRO led process and include alternatives to RVM technology). In an RVM scenario, the retailer would usually keep some of the handling fee in order to pay its staff to perform basic servicing the RVMs (removal of containers and cleaning). Retailers may also offer in store services, the smallest machines take 1m^2 of floor space, or high capacity containerised carpark RVMs (2-6 car parks). In either case, benefits include increased foot traffic for retailers.

Voluntary return-to-retail is where schemes rely on incentivising potential facility operators (including retailers) to engage in the network procurement process being run by the scheme manager/PRO (eg, the beverage industry). In the split model this procurement is undertaken by the network operator (recyclers).

Case Study: Lithuania

Country population: 2.88 million

Container deposit: €0.10 (NZD 16 cents)

Scheme launch: Feb, 2016

Eligible containers: Glass and non-refillable plastic and metal beverage containers, 0.1-3 litres in size.

Container return rates: 34 per cent (PET) prior to container deposit scheme (analogous to New Zealand), 74.3 per cent at end of the first year, 91.9 per cent at end of the second year (end of 2017).

Industry led (EPR) scheme: scheme coordinator USAD was established by the Lithuanian Association of Brewers, Association of Lithuanian Trade Enterprises and Lithuanian Natural Mineral Water Manufacturers' Association. USAD partnered with TOMRA to roll out RVMs in order to meet a 100-day delivery deadline imposed by Government.

A return-to-retail model was applied to stores larger than 300m^2 and all stores in rural areas, with optional participation from other stores. Retailers were provided RVMs, either inside the store or as outdoor kiosk installations, depending on the retailers' size. Consumers are refunded their deposit as vouchers that can be redeemed in store as cash or credit toward their shopping bill, bringing additional foot traffic into stores.

Scheme structural arrangements in Queensland and NSW

Structural arrangements in CRS with voluntary return-to-retail

If regulated take-back (to some degree) is not used to establish levels of convenience in a scheme, the scheme structural arrangements become a more important consideration for balancing incentives and interests. The NSW scheme is an example of where structural arrangements have been used to this effect.

Comparative structural arrangements

The Queensland model has a single scheme manager, the PRO, with target driven accountability. The NSW split model effectively separates the industry PRO from the network procurement and operations. Notably, the NSW Government contracts the Scheme Operator and Network Operator separately, which also offers complementary contract performance management tools to support the scheme's regulatory framework and objectives.

Figure 5: Queensland CRS

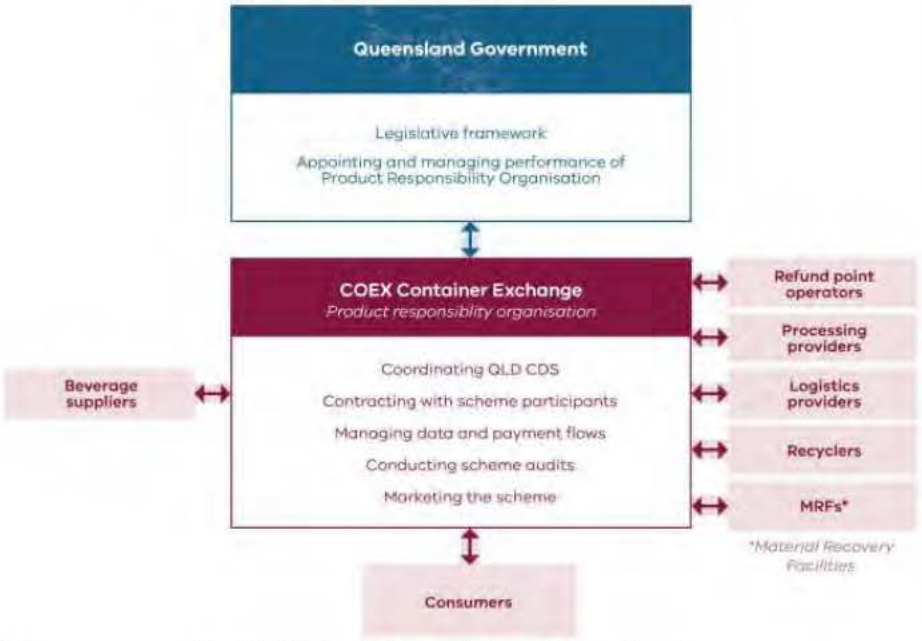
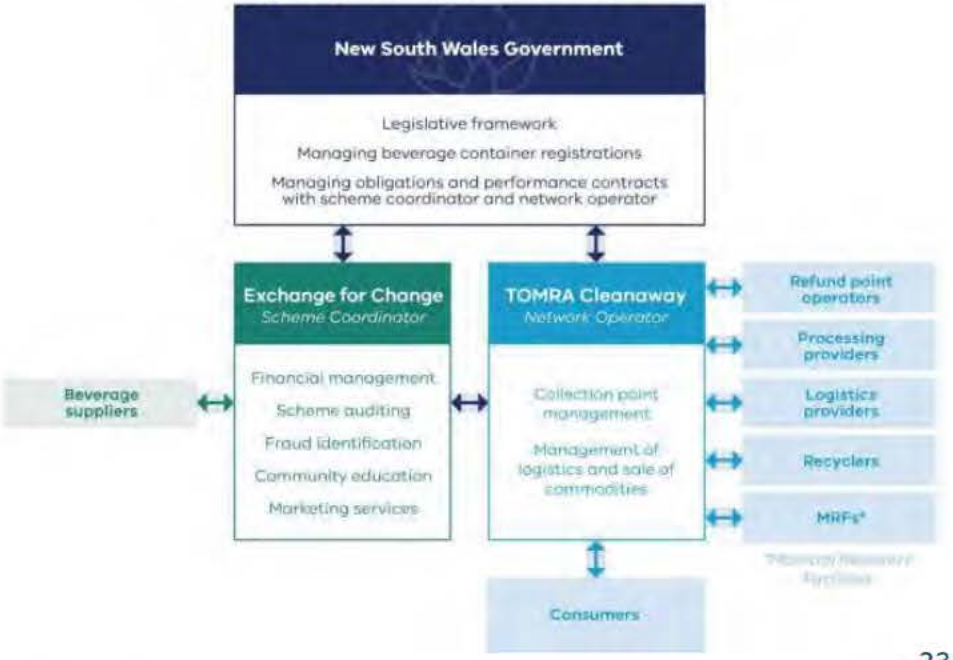


Figure 6: New South Wales CRS



*Diagrams provided in Victoria's container deposit scheme consultation paper.

Number and type of return locations

Financial modelling of a NZ CRS assumed the network of 415 CRFs which is about 1 return point to 12,500 people, and that the network would be 85% RVM sites. In this scenario, Wellington City (~200,000 people, includes suburbs) would have approximately 16 CRFs made up of 13-14 RVM sites and 2-3 depots, managing the bulk of containers for the city.

Return-to-retail for the large supermarkets in Wellington (measure TBC) would pick up the larger city sites and the suburb shopping centre supermarkets. The depots could be run by any number of potential stakeholders, including iwi, scrap metal operators and/or charities.

In a 415 CRF scenario, it is estimated that there would be between 1,900 and 2,200 jobs created nationally. PwC modelling suggests that above 415 sites for New Zealand, there are diminishing benefits to having more sites, relative to the impact of an increased deposit. While this makes sense in principle (if all large supermarkets were involved in the scheme, this would provide a high level of convenience to most of New Zealand's population), every scheme is unique. Lithuania and Norway achieve similarly, however Norway has 1 CRF for every 355 people (nearly 15,000 sites all up), whereas Lithuania which has about half Norway's population, has a lower deposit, and 1 CRF for every 1,117 people (~2,500 sites all up).

Table 5: Return points per person

System	Norway	Lithuania	Germany	Michigan	California
Return rate (2019)	89%	92%	98%*	89%	60%**[62]
Redemption locations	15,000	2,500	130,000	13,500	1,219[63]
Population (2019)	5.33m	2.79m	83.02m	9.99m	39.51m
Redemption point to consumer ratio	1 : 355	1 : 1,117	1 : 638	1 : 739	1 : 32,411

* Displays 2018 return rate as 2019 data is not available as of publication.

** 2020

Stakeholders

Project Team's co-design process

The Project Team recommended that a NZ CRS should:

- include a range of manual and automated collection systems
- be established through voluntary participation/procurement to establish approx. 415 CRFs nationally.

SDWG Majority – preferred a more regulated approach (eg, mandatory return-to-retail) with a mixed network model that would use depot sites and retail locations.

SDWG Minority – supportive of voluntary/procurement approach, although considered that 415 sites was too many.

TAG – All agree that retail participation is important in creating a convenient scheme. Disagreed on whether retail participation should be mandatory or voluntary. Noted that schemes typically do not achieve over 85% recovery without regulated take-back requirements. All supported 415 formal CRFs with five of six members considering 415 as the minimum number to begin with.

Wider feedback/alternative proposals

TOMRA – Outlined the need for stronger regulated approach based on the EU models, a NZD 20 cent deposit level and some level of regulated retail take-back requirements (or the split structure model used in NSW, Victoria, and Tasmania.

Association of Metal Recyclers – Interested in ensuring their member sites would be able to participate in the network and are looking to support their current role in the recovery and export of aluminium beverage cans.

Public – 79 per cent of survey respondents (Feb/March 2020) identified the need for drop-off points to be convenient and indicated the following return point preferences:

- supermarkets (70%)
- collection depots (63%)
- other retail outlets (50%).

Scheme financial models

Deposit and refund models

Deposit or Refund Model

The financial arrangement of a CRS is dependent on whether the beverage producer pays a deposit:

- on all eligible containers sold to the market regardless of whether these containers are returned or not (*Deposit Model*)
- at an amount determined by the proportion of eligible containers that are returned (*Refund or Redemption Model*).

Research indicates that the financial design of a CRS can influence the efficiency and operations of a scheme, including return rates, network convenience, capacity to invest into the community and/or environmental initiatives, and consumer engagement.

The financial model chosen is also used in part to balance competing interests, pending other key design considerations i.e. it may be less important in a more highly regulated scheme.

Model comparison

Deposit Model

- Scheme manager retains any unredeemed/unclaimed deposits, interest accrued on the deposits, and revenue from the sale of scheme materials.
- Revenues from the deposit model become available for rebate (offsetting scheme costs to producers and consumers), or scheme enhancement.
- Regulations can be required to ensure deposit revenues are managed appropriately.
- More strongly applies 'polluter pays' principle.

Refund Model

- Beverage producer only pays in proportion to the actual number of containers returned.
- This means that if only 50 per cent of containers are returned, the beverage producer will only need to pay 50 per cent of the deposit amount and associated scheme fees for each container placed onto the market.
- Scheme cost to beverage producers is lower if the return rate for eligible containers is also low.

Case Study: Norway (deposit model)
In 2019 unredeemed deposits and material revenue were enough to cover more than 90 per cent of Norway's CRS scheme costs. Only 8 per cent of scheme costs needed to be covered through an extended producer responsibility fee from producers.

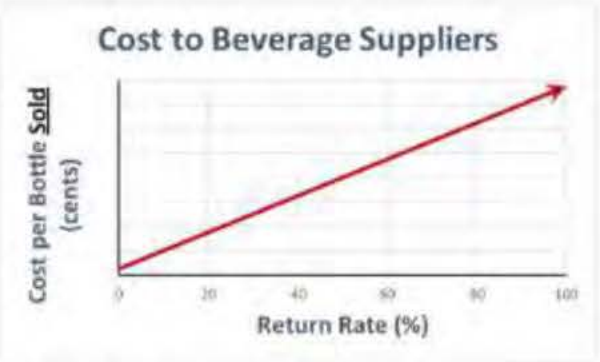
Analysis

The Project Team recommended that a refund model would provide the consumer and beverage producer with a scheme that is more cost effective and efficient than the deposit model at the outset as the producer would only pay the deposits on the actual number of containers returned.

However, as previously outlined, this cost benefit only exists if a scheme has low return rates (the scheme cost to beverage producers is lower if the return rate for eligible containers is also low).

Table 6: Net savings from scheme underperformance (refund model)

Deposit level	Scheme underperformance (%)	Approx. saving to scheme (net cost)
NZD 10 cent	1%	NZD $4.7 million
NZD 20 cent	1%	NZD $7.0 million



The refund model may create a perverse incentive for beverage producers to limit the recovery of containers and the success of the scheme, as with lower return rates there are lower costs to producers.
For very high-performing schemes, costs to consumer and producers are more equivalent under either a deposit or refund model when the deposit level is low.

Balancing the scheme financial model with other design considerations

If a NZ CRS was to adopt a refund model, it was recommended that the scheme would need to be accompanied by strong regulatory drivers and/or stronger scheme governance and central government oversight in order to ensure the scheme would achieve the recovery targets. This would help to balance incentives and interests within a scheme. Alternatively, if a deposit model was chosen there would be a lesser financial incentive (or ability) for an industry led scheme to limit return rates of eligible containers.

Ministry for the Environment
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Aotearoa – he whenua mana kura mō te tangata

Aide Memoire – Slide pack for the Container Return Scheme: Options to increase away-from-home recovery of beverage containers and reduce litter

Date Submitted:	6 May 2021	Tracking #: 2021-B-07928	
Security Level	In confidence	MfE Priority:	Non-Urgent

	Action sought:	Response by:
To Hon David Parker, Minister for the Environment	**Note** the accompanying slide pack *Options to increase away-from-home recovery of beverage containers and reduce litter* to inform further discussions with officials on options for a Container Return Scheme	20 May

Actions for Minister's Office Staff	**Return** the signed report to MfE.
Number of appendices and attachments # 2	1. Slide pack – Container Return Scheme: Options to increase away-from-home recovery of beverage containers and reduce litter 2. Cost-benefit Analysis: A Container Return Scheme for New Zealand (Sapere Research Group, updated February 2021)

Ministry for the Environment contacts

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Aide Memoire – Slide pack for the Container Return Scheme: Options to increase away-from-home recovery of beverage containers and reduce litter

1. The purpose of this aide memoire is to provide you with the attached slide pack (Appendix 1) on options to increase away-from-home recovery of beverage containers and reduce litter, to support further discussions with officials on options for a Container Return Scheme (CRS).
2. This slide pack is the fourth in a series of advice on a proposed CRS for Aotearoa New Zealand (NZ CRS). Previous advice outlined the CRS project to date [2021-B-07615], and key design considerations within a CRS, such as the scope of containers [2021-B-07767], and options to drive recovery of materials [2021-B-07754].
3. As a result of recent conversations you have had with officials and stakeholders, this slide pack provides an overview of a range of regulatory and non-regulatory options, including a CRS, for addressing the primary objectives of increasing away-from-home recovery of beverage containers and reducing litter. For the purpose of the slide pack these options have been considered in isolation, however best results would be achieved through a combination of policy interventions.
4. This slide pack will support your upcoming meeting with Ministry officials on 12 May to discuss any outstanding matters in relation to the option of a CRS.

Problem Definition

5. Of the 2.36 billion beverage containers sold in 2019, it is estimated that, at most, 58 per cent are recovered - leaving approximately 992 million containers that are stockpiled, littered or landfilled annually in Aotearoa New Zealand [2021-B-07767 and 2021-B-07754 refer].
6. Beverage containers are a significant and visible source of litter in Aotearoa New Zealand, constituting 66% of recognisable branded litter.[1]
7. Overall container **r**ecovery rates (particularly away-from-home) are low compared to many other countries with container return schemes. There is an opportunity to increase away-from-home resource recovery and recycling of beverage containers, while reducing the amount of litter in the environment.

Options to increase away-from-home resource recovery and recycling of beverage containers and reduce litter

8. There are a number of regulatory and non-regulatory options available to address the issues outlined above, in lieu of or alongside a CRS. These options include:
    - new legislation for litter
    - public place recycling
    - regulating commercial recycling
    - product stewardship fee (such as the Glass Packaging Forum's alternative proposal

[1] Keep New Zealand Beautiful 2019 audit.

[2021-B-07757 refers]).

9. The slide pack also considers the general costs and benefits of a CRS for New Zealand.

10. For the purpose of analysis in this briefing, these options are considered in isolation. Officials note that most optimal results will be achieved through a combination of policy interventions. For example, compliance and enforcement options aim to target the non-compliant few 'rule breakers' within a regulated community. When a step-change for many is required (in this case away-from-home recycling and littering behaviours) a more comprehensive approach is likely needed.

11. A comprehensive policy approach could include a mix of components such as law change, targeted monitoring and enforcement, establishment of new systems, and enabling infrastructure and public education to encourage new waste behaviours.

12. The analysis of a CRS in the slide pack (against the objectives of increasing away-from-home resource recovery and recycling and reducing litter) is based on the Sapere Research Group (Sapere) cost-benefit analysis (CBA), undertaken as part of the Project Team's design process.

13. This CBA models benefits and costs accounted through a 30 year period, and models two scenarios (CRS including and excluding glass containers). The CBA was independently reviewed by New Zealand Institute of Economic Research (NZIER), and formally reviewed by Sense Partners.

14. Sapere's updated CBA (as of February 2021) is attached in full at Appendix 2.

15. Officials note that the resource recovery and litter issues that a CRS seeks to address correlate to wider waste issues that are, in part, being addressed by existing work programmes at the Ministry. The slide pack provides additional high-level information on:

- kerbside standardisation
- education
- mandatory recycled content in materials
- beverage container tax
- refillables.

16. These options have been included within this options analysis to demonstrate the supporting tools and differing but mutually beneficial objectives of additional policy interventions available, some of which are already underway.

Next steps

17. You are meeting with officials on 12 May to discuss the contents of the attached slide pack (Appendix 1), previous briefings such as objectives of a scheme [2021-B-07754 refers], and any outstanding matters relating to the option of a NZ CRS.

Recommendations

18. We recommend that you:

    a. **Note** the accompanying slide pack *Container Return Scheme: Options to increase away-from-home resource recovery and reduce litter* and updated CBA *A Container Return Scheme for New Zealand* to inform further discussions with officials on 12 May.

Signature

Shaun Lewis
Director
Waste and Resource Efficiency **Date**

Hon David Parker
Minister for the Environment **Date**

Appendix 1: Slide pack – Container Return Scheme: Options to increase away-from-home recovery of beverage containers and reduce litter

Appendix 2: Cost-benefit Analysis: A Container Return Scheme for New Zealand (Sapere Research Group, updated February 2021)

Ministry for the Environment
Manatū Mō Te Taiao

Appendix 1: Aide Memoire 2021-B-07928

Container Return Scheme

Options to increase away-from-home recovery of beverage containers and reduce litter

Key messages

Putting aside who pays for the management of beverage containers (councils, or those consuming beverages) there are a number of regulatory and **non-regulatory policy options that could be considered as alternatives or complementary to a CRS to address away-from-home recovery of beverage containers, and reduce litter**. These include:

- **new legislation for litter**
- **public place recycling**
- **improved commercial recycling**
- **application of a product stewardship fee** (eg, Glass Packaging Forum's alternative proposal).

For the purposes of this analysis, options are considered in isolation, however **in any scenario, a mix of interventions is desirable.**

For example, compliance and enforcement led approaches would ideally be targeted towards the few in a regulated community who are not compliant. **When a step change for many is required** (in this case, away-from-home recycling and littering), then **a more comprehensive approach is likely needed**.

A comprehensive approach could include a mix of components such as law change, regulations, bylaws, establishment of new systems, enabling infrastructure, public education and information to encourage new behaviours, monitoring and enforcement.

While there are examples of best practice to draw on, in the absence of sufficient incentive they are likely to have lesser impact, which in addition to who is paying, is one of the reasons Councils have been advocating for a CRS.

Purpose

This slide pack is **fourth in a series of briefings that cover key aspects of Container Return Scheme** (CRS) design, to inform your consideration should you wish to proceed with the option for New Zealand.

This slide pack:

- **covers alternative options to a CRS to address litter and increase resource recovery for beverage containers and in particular, away-from-home consumption.** This includes regulatory and non-regulatory options
- builds on 2021-B-07615, 2021-B-07767 and 2021-B-07754 which provided you with an overview of the CRS project work to date, options for the scope of containers in a CRS, and key considerations for driving recovery of eligible materials under a New Zealand CRS (NZ CRS) scenario
- will support your discussion with officials on 12 May to talk through any outstanding matters in relation to CRS design considerations.

Contents

- Problem definition
- Options to increase away-from-home recovery and recycling of beverage containers and reduce litter
  - Legislation for litter
  - Public place recycling
  - Regulating commercial recycling
  - Product stewardship fee (eg, Glass Packaging Forum's alternative proposal).
  - Container Return Scheme
- Supporting options

Problem Definition

Of the 2.36 billion beverage containers sold in 2019, **it is estimated that, at most, 58 per cent are recovered - leaving approximately 992 million containers that are stockpiled, littered or landfilled annually in Aotearoa New Zealand** [2021-B-07767 and 2021-B-07754 refer].

Beverage containers are a significant and visible **source of litter** in Aotearoa NZ, **constituting 66 per cent of recognisable branded litter***

Overall container **recovery rates (particularly away-from-home) are low** compared to many other countries with container return schemes. There is an opportunity to increase away-from-home resource recovery and recycling of beverage containers, while reducing the amount of litter in the environment.

Objectives of a scheme or alternative option:

- increase the away-from-home recovery and recycling of beverage containers
- reduce litter.

Wider goal(s):

- reduce harm to the environment from the extraction, use and disposal of materials used for beverage containers
- reduce beverage container-related GHG emissions
- support New Zealand's transition toward a circular economy.

*KNZB 2019 audit data. Most recognisable brands were alcoholic beverage containers (49.6%) NB: litter becomes increasingly unrecognisable as it breaks down.

Pathways to address key behaviours (litter and recycling)

Littering can be categorised as:

1) **Intentional - illegal disposal to avoid a disposal fee and/or**, because there is **no convenient place/bin** to put an item **and/or indifference to the harm** littering causes.
2) **Accidental - throwing a cigarette butt into the gutter out of habit** and not realising this is littering.
3) **Attempt to help - confusion around how to dispose of different material types** at home and in public eg, thinking grass clippings are compostable so its ok to dispose of anywhere and inadvertently fly tipping.

Away-from-home resource recovery and recycling is in part an accountability issue, but mostly it **is about the cost of providing the necessary infrastructure and often, the physical space,** to support resource recovery and litter reduction.

The options outlined in this slide pack are not mutually exclusive and **could be used together to provide:**

- **the information people need to manage waste appropriately**
- **incentives to encourage people to do the right thing**
- **penalties to discourage people from doing the wrong thing**
- **infrastructure to support best practice waste management.**

Some options are being considered by other work programmes underway at the Ministry such as the review of the Litter Act 1979 (Litter Act) [2021-B-07701 BN refers] and kerbside standardisation.

Note that the overview of options in this slide pack is high-level only and does not include full economic comparison/analysis.

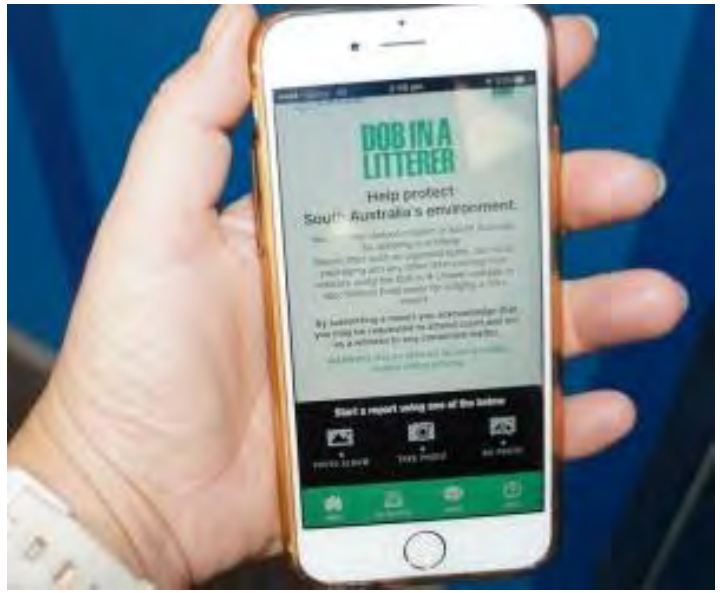
Case study on litter –Australia

The 2018/19 Keep Australia Beautiful Litter Audit (KAB Audit) demonstrated a long-term trend of reducing litter levels in Australia. Notably there was an 11.1 per cent decrease in Container Deposit Legislation (CDL) beverage container items since the previous 2017/18 report. The report highlighted that there was an average of **39 litter items (all types) per 1000m^2** across sites nationally.

In comparison, the 2019 Keep New Zealand Beautiful National Litter Audit (NZ Audit) found two thirds (66 per cent) **more litter than Australia** (an average of **118 items (all types) per 1000m^2**).

Australian approach to litter

Australia's comparatively low litter rates are likely due in part to the widespread adoption of CRS throughout Australia. **All Australian states and territories have introduced (or are planning to introduce) schemes.** The KAB Audit in 2017/18 **showed that in New South Wales, after the introduction of its CRS** in December 2017 CDL **beverage container litter fell by 28 per cent**, followed by **a further 13 per cent decrease in 2018/19**. Similarly, in Australian Capital Territory (ACT) where a CRS was introduced in June 2018, the KAB Audit found a **fall of 61 per cent CDL litter** during its 2018/19 audit.



Various states are also looking at additional tools to discourage littering behaviour, particularly cigarette butts and rubbish from vehicles**. In 2017, South Australia (SA) amended its *Local Nuisance and Litter Control Act 2016* to introduce instant fines for littering from vehicles.** This was accompanied by a 'Dob in a Litterer' campaign and app which encourages and enables witnesses to report acts of littering as they happen.

Legislation on litter

The NZ Litter Act 1979 (Litter Act) prohibits littering and dumping in public places. It contains provisions for, among other things, granting enforcement officers and litter wardens powers to issue fines and abatement notices. The enforcement and administration of the Litter Act sits with public authorities, which includes territorial authorities, the New Zealand Transport Authority, airport authorities and several other classes of bodies. **Territorial authorities have the primary enforcement role.**

The Litter Act has not been substantively amended or rewritten since its enactment in 1979. The **Ministry for the Environment (MfE) is currently reviewing the Litter Act** as part of its broader waste legislation review (which includes the review of the Waste Minimisation Act 2008 (WMA) [2021-B-07701 refers]. As part of the review, the Ministry **will be looking at opportunities to have a diverse and best practice array of regulatory tools to manage litter and waste more broadly.**

A new Litter Act could see a range of improvements, such as (but not limited to) **more explicit duties** on people to dispose of waste appropriately and minimise the risk of inadvertent litter, **stronger offences**, a wider range of **enforcement options**, **clearer responsibilities** for monitoring and enforcement, provision for **research and data** collection to understand sources, causes, monitor changes – with **regular reporting.**

To be effective this would need be supported with a major long-term behaviour change campaign, leveraging off the new legislation, to raise awareness; and targeted local initiatives (Council or NGO led) to improve infrastructure (noting this comes at a high servicing cost), and more clean ups and monitoring of problem areas.

Litter Act 1979

Public Act 1979 No 41
Date of assent 2 November 1979
Commencement 2 November 1979

Review of the legislation on litter

Illegal disposal of waste happens at a range of scales. Litter is one end of a spectrum of 'illegal disposal' of waste, fly tipping of household and commercial waste is toward the other. It is important to have a regulatory backstop in order to incentivise compliance across the whole range of the spectrum. **New legislation is necessary to help manage the whole spectrum of low-level and more frequent illegal disposal (eg, cigarette butts and beverage containers), and lower frequency, higher magnitude illegal disposal (fly-tipping to avoid disposal costs).**

By their very nature, **low level, more frequent and distributed illegal disposal activities are more intensive to monitor and enforce**, and therefore **the ideal response is necessarily going to be more reliant on a broader system state that promotes, enables and incentivises good behaviour.**

Costs of litter management (commercial-in-confidence)

Auckland Council (AC) provided the Ministry with an overview of its waste management costs. **The annual cost of AC's litter management contracts in 2019 was $10.2 million.** This included operation costs associated with collections, disposal, and bin repair, but not the cost of managing litter on major roads which is covered by New Zealand Transport Agency (NZTA), or the costs of litter collection undertaken by organisations such as Sustainable Coastlines who use volunteers to clean up beaches and waterways.

Litter offences can be difficult to enforce and prosecute. There is typically a high cost for prosecution compared to the low-value of fines. Offenders must be caught in the act by a witness. Under the Act, Litter Control Officers need to observe littering as it is happening or 'just' as it has occurred to be able to issue an infringement notice.

In 2017/2018 **Auckland Council had 1,644 investigations of potential littering under the Act, with 67 infringement fees issued (4 per cent).** While seemingly low, it is important to note that other regulatory interventions may have been used instead of a fine. Infringement fees totalled $8500, however the Council spent more than $1 million alone on litter/illegal dumping s 9(2)(g)(i)

Stronger enforcement systems and behaviour change campaigns focus on the person who litters, not the producer of the packaging that ends up as litter. **Attempting to put the costs of collection of specific types of litter on to individual packaging producers would be administratively and legally complex. If we were to explore putting a cost consequence on producers of littered material, it may be better to do so through an aggregated system such as a litter levy on packaging (through new legislation).** This could be tied to litter audit data to enable a measure of risk-rating for those being levied (like ACC). This is not an option we have explored to date but could do so through the legislation review.

Public place recycling

Public place recycling (PPR) refers to recycling infrastructure provided in public places such as street locations, transport hubs, and tourism and hospitality venues. PPR aims to increase the recovery and recycling of materials such as plastic, aluminium, paper and glass packaging from food and beverages consumed in public places. **New Zealand PPR schemes are generally carried out by territorial authorities**, often in conjunction with one-off grants, such as those from the Packaging Forum.

In March 2021 Horizon Research undertook a survey (1,076 respondents) for the Packaging Forum on public place recycling and litter. The survey found that 64 per cent of respondents said they had public place recycling bins in their area. 21 per cent of respondents said they would not walk more than 10 metres to find a rubbish or recycling bin (down from 30 per cent in a similar survey in 2017), however 37 per cent said they would walk more than 40 metres.

Case Study: Wellington City Council (WCC) has been running a trial of PPR since May 2018. Its recycling stations have bins for glass, plastic, tins, cans and paper/cardboard items, and a bin for rubbish. **WCC established nine recycling stations, with bins supplied through funding support from the Litter Less, Recycle More project developed by the Packaging Forum ($75,000).** Each bin houses a 140L wheelie bin. The bins use smart technology to minimise overflow, reduce collection costs and monitor usage. The technology notifies the collection team when it requires emptying. Recyclable materials are then taken to Oji Fibre Solutions' sorting and baling plant in Seaview, Lower Hutt.

A communication programme accompanied the rollout of the bins including a poster campaign, webpage, social media posts, a launch event, and the use of 'Recycling Ambassadors' who staffed bins during peak pedestrian hours after instalment. To date, the nine bin stations have collectively diverted an estimated 19,727 kilograms of comingled recycling, and 60,188 kilograms of glass bottles. It is estimated that if all nine bin sites were running constantly for 12 months, they would be diverting approximately 10 tonnes of co-mingled recycling and 24 tonnes of mixed glass from landfill per year.

Feedback from councils on public place recycling

Wellington City Council (WCC)

WCC have **reviewed the PPR trial and concluded that the bins have not diverted significant amounts of recycling**, and that from a waste diversion perspective it does not represent good value for money. Although it noted that there is likely public good benefit from keeping a waste minimisation profile.

WCC calculated contamination rates from PPR based on the weights of non-recyclable materials found in co-mingled bins during the audits, and combined across the nine stations. **Across three audits contamination in co-mingled bins ranged between 6 - 48 per cent, while glass contamination was between 0 – 7 per cent.** Contamination is a significant barrier to effective recycling of material.

Overall, WCC is currently considering whether to end the trial and remove bin stations from their current locations (including those adjacent to parliament). For Wellington, this was also the conclusion following the mass roll out of public place recycling bins for the Rugby World Cup in 2011. Feedback from Marlborough District Council and Auckland Council broadly align with issue for WCC, although there are no moves to remove Auckland's PPR bins that we are aware.

Marlborough District Council (MDC)

MDC had 12 sets of red and yellow PPR units, containing 240 litre bins for rubbish and recycling. **MDC discontinued its use of all 12 sets of PPR bins at the end of January 2020 due to costs**.

Auckland Council

Auckland Council currently has 191 PPR bins around Auckland.

Auckland Council undertook an analysis of its waste management costs in 2011, when at the time they had 121 PPR bins around the region, located mostly in CBDs and at beaches. At the time it was noted that *"the most contentious aspect of public place recycling is the balance between the cost to the council for providing the service, and the waste diversion benefits that are derived from the service."* It was additionally noted that **from a waste minimisation perspective, PPR is an expensive method for diverting material from landfill.**

Costs and analysis of public place recycling

Costs (commercial-in-confidence)

Current bespoke servicing on WCC PPR bins is $246,000 per year. **The yearly cost of servicing compared to tonnes of recycling diverted amounts to approximately $10,250/tonne of materials diverted from landfill** (glass and co-mingled combined). In comparison, WCC notes that the cost to divert recycling through its kerbside collection is around $600/tonne (WCC has one of the most expensive kerbside systems).

MDC noted that in 2019/20 the cost per tonne of material managed through PPR was $2,790.

In its 2011 review, Auckland Council found that the **diversion cost of material in PPR bins at the time was $2,300/tonne (compared to $145/tonne at the time for kerbside recycling).**

Other considerations (achievability and likely impact, unintended consequences)

WCC's review of the PPR trial found that bin stations were likely being used for household recycling, eg, rinsed tin cans, milk bottles, cereal boxes, empty wine and beer bottles were found in some PPR bins.

In a waste audit in May 2016, Auckland Council found that approx. 25 per cent of material by weight in litter bins, and 50 per cent of materials by weight in PPR bins, was acceptable for kerbside recycling. **It was also found that approx. 11 per cent by weight of materials in litter bins, and 33 per cent by weight in PPR bins was suitable for inclusion in a CRS** and that based on an assumed weight per item:

- **each tonne of material from litter bins contains 2,303 beverage containers suitable for a CRS**
- **each tonne of material in PPR bins contains 7,268 beverage containers suitable for a CRS.**

The use (or increase) in PPR bin sites does not guarantee significantly greater away-from-home resource recovery and recycling, or reduction of litter. It would work best in tandem with other options that encourage/incentivise behaviour change such as education campaigns or a CRS.

Regulated enforcement for commercial recycling

Away-from-home recycling includes: recycling associated with the use of public place recycling bins, small businesses and larger commercial activities, multi-unit developments and apartment complexes.

Collections from business activities can be undertaken via a direct contract between private parties; and where permitted/available, via council contracted kerbside collections. Councils with developed central business districts such as Auckland and Wellington can have a bespoke 'CBD kerbside' service.

Where council kerbside services are used the materials are generally presented at kerbside and on public land. Commercial collections from within a commercial building or other private property are contracted privately and managed outside of council collections.

Bylaw controls can be used by councils to better manage recycling (wherever it is occurring) and use of public bins. For example a bylaw can include:

- **a licencing regime** and approvals process for any individual or company involved in collecting, transporting and managing/disposing of waste that also enables councils to inspect and obtain information from licenced operations
- **a requirement for separation of recyclable and compostable materials** from other waste deposited/placed on public places (eg, limits on the per cent of recyclable or organic material in waste collections – whether they be public place, CBD collections, kerbside or private contract collection)
- **a requirement for a Waste Minimisation and Management plan** for new developments where Councils have the opportunity to ensure adequate provision is made for materials separation and management proportional to the occupancy and use of the building/site.

Analysis of commercial recycling

The purpose of **Auckland Council's Waste Management and Minimisation Bylaw 2019** is to manage and minimise waste, protect the public from health and safety risks and nuisance, and to manage the use of council-controlled public places. There is a comprehensive suite of controls and tools in order to manage the wide variety of situations arising in a large city. **Two key aspects include:**

- **any individual or company who manages >20 tonnes of waste per annum must be licenced (approved) to do so**
- **those who deposit, collect, transport or manage/depose of materials are subject to contamination limits** as set out in the bylaw eg, waste collection conducted on public land **(kerbside and public place bins) must not contain more than 5 per cent recyclable material**

In practice, enforcing recycling separation standards is difficult and costly if used in isolation. Auckland Council was a notable 'early adopter' of the new bylaw making powers within the WMA and has one of the most comprehensive approaches to waste management in New Zealand. As such, it currently employs seven enforcement officers to monitor illegal dumping and kerbside collection activities at ~$600,000 s 9(2)(b)(ii) **Notwithstanding a comprehensive approach, Auckland has a relatively low recovery rate for clear PET beverage containers per capita in New Zealand.**

Meeting the objectives of increased resource recovery and recycling and reducing litter

Depending on how it is enacted, regulated enforcement of away-from-home recycling activities could help to increase the recovery of beverage containers (and other recyclables). However, the level of impact is likely limited when this option is considered in isolation, as compliance and enforcement is costly and therefore is ideally only targeted to a minority proportion of a regulated community. This is evidenced by Auckland's adoption and use of the available bylaw powers since 2012, with limited additional effect on beverage container recovery, relative to the scale of the away-from-home beverage container recovery issue.

Product Stewardship Fees

A Product Stewardship Fee (PSF, also referred to as an Advanced Disposal Fee – ADF) **could be used to fund the full costs of different beverage packaging formats being successfully recycled or at a minimum beneficially reused**. Problematic materials such as liquid paperboard and glass may incur additional cost to see them successfully recycled or otherwise beneficially reused [refer page 19 of Appendix 1: 2021-B-07767]. **A PSF under the existing legislation is limited, but could enable a number of different options, including:**

1. **declaration of a priority product** and **an industry-led scheme** such as (and to some extent, see overleaf) the Glass Packaging Forum's proposal, or
2. **do not declare priority product**, **apply a recycling fee to packaging**, recoverable from a particular class of persons (for example, perhaps producers) to recover costs of particular functions in relation to those products

While these options would help shift costs and could be complementary to or embedded within a CRS as a part of a wider fee structure, **they would not necessarily incentivise new recycling behaviour or reduce littering on their own. Limitations to what the fees can be used for and how they are set may also be misunderstood by industry ie, the difference between a levy and a fee. For example under existing legislation:**

- **Government (and only Government) sets the fee quantum** (not the accredited Product Stewardship Organisation) and this would likely be **no more frequent than an annual basis**
- **to change the fees would require a process to amend secondary legislation**
- **a fee must be directly calculated from the cost of providing a service** (ie, **not be a tax/levy**).
- **flexibility for fees to be market driven in real time** (such as monthly or quarterly adjustments) **is outside of the scope of the current WMA.**

Product Stewardship Fee: Industry-led PSO example - Glass Packaging Forum's Proposal (priority product declaration)

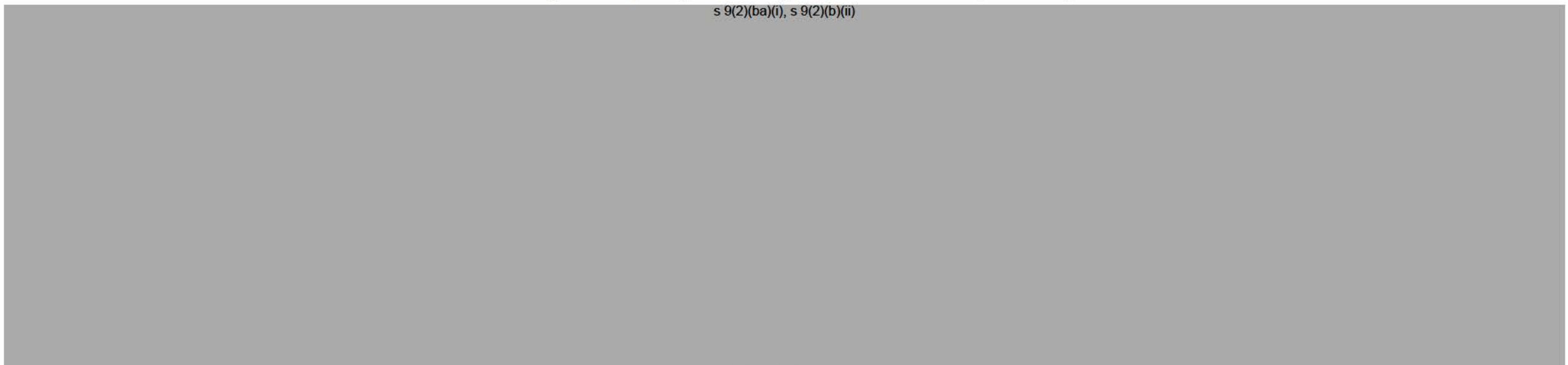
If glass were to be declared a priority product, associated regulations, an accredited product stewardship scheme and a Product Stewardship Organisation (PSO) under s 9 WMA would need to be developed

The Glass Packaging Forum (GPF) have submitted their alternative scheme proposal to you as an alternative to a 'glass-in' CRS. The GPF proposes all glass containers (beverage and non-beverage) be declared a priority product and its existing voluntary product stewardship scheme become a regulated scheme. Three councils (Whangarei, Gore and Tauranga) and Hospitality NZ have written letters in support of the GPF's proposal.

The GPF proposes it's regulated scheme could pay for a greater proportion of glass collection costs on a per tonne basis, through a significant increase in the voluntary scheme's producer fee.

The GPF's provisional cost of 8.1 cents per container at an 85 per cent recovery rate, (assumed to be passed on to consumers) **equates to a $75 million levy for 928 million glass beverage containers** alone ie, not including non-beverage glass. According to the the GPF's voluntary reporting, at 8.1 cents **this would see an increase in recovery of only 10 per cent** (75 per cent to 85 per cent).

s 9(2)(ba)(i), s 9(2)(b)(ii)



Product Stewardship Fee: Industry-led PSO example - Glass Packaging Forum's Proposal (priority product declaration)

Ministry comment

- A number of **the GPF's proposed scheme fees may not fall within the definition of a 'fee'** as currently proposed
- **The GFP scheme is likely to increase collection to some extent**, through the additional value to those who collect glass (pending whether its is actually a fee or a levy), **but less effective than a CRS due to lack of incentive for consumers and businesses to recycle.**
- **The main difference between the proposals in terms of cost structure stems from the presence or absence of a refundable deposit.**
- **The GPF proposes that their scheme would deliver largely the same outcomes as a CRS without the extra cost of a refundable deposit incentive (noting the refundable deposit is often included as gross cost "to industry" by those who oppose a CRS, when in fact as a net cost in a successful scheme, it is largely circular and passed on to consumers).**
- **The GPF also states that *"no scheme alone can fully solve some of the issues New Zealand faces, such as the upper limit of furnace capacity, market demand for recycled glass or other imbalances in the market."*** However, this is more a limitation of the GPF proposal. **A comprehensive scheme established under new legislation could incentivise a shift in format** (ie, proposed advance material recycling fee mechanism) **and/or through adequately incentivising uptake of refillables.**

Container Return Scheme (CRS)

A CRS is a recycling scheme and form of product stewardship that **incentivises consumers and businesses to return beverage containers for recycling or refilling in exchange for a refundable deposit** [2020-B-07314 refers]. CRS have become increasingly common as a means of:

- increasing beverage recovery rates
- supplementing kerbside recycling
- reducing litter
- changing the public's recycling mindset
- strengthening supply chain responsibility for resource recovery and waste minimisation.

While recovery rates for schemes vary, all schemes are based on the incentive to recycle, created by the application of a refundable deposit to eligible containers. **The deposit incentive captures away-from-home beverage consumption and container litter which is key to achieving higher recovery rates and litter reduction. A CRS places greater onus on the supply chain (manufacturers, retailers, consumers) to take responsibility for container litter.**

The Project Team (Auckland Council and Marlborough District Council) led a co-design process for a bespoke CRS for New Zealand. Our analysis of a CRS against the objectives of increasing away-from-home recovery and recycling and reducing litter is based on the Sapere Limited Cost Benefit Analysis (CBA), undertaken as part of the Project Team's design process. This CBA models benefits and costs accounted through a 30 year period, and models two scenarios (CRS including and excluding glass containers). The CBA was independently reviewed by New Zealand Institute of Economic Research (NZIER), and formally reviewed by Sense Partners.

The full CBA is attached at Appendix 2 of the aide memoire.

Container Return Scheme

Meeting the objectives of increased resource recovery and recycling and reducing litter

The literature review to support the CBA for the CRS project suggests that litter reduction due to scheme implementation produces on average 61 per cent less container litter. When taken into context, this would equate to a 14.4 per cent reduction in all litter. **Notably, beverage containers are a highly visible form of litter and while stadium effect was not factored into the CBA, an overall decrease in litter of 47 per cent is likely.**

Depending on design choices (eg, the deposit level, network convenience, and targets and incentives to achieve return rates), a New Zealand CRS (NZ CRS) could see an increase in beverage container recovery rates to 80-85 per cent (or more) resulting in the recovery and recycling of an estimated 1.9-2 billion beverage containers annually.

Costs

The CBA breaks down a number of costs and benefits from a NZ CRS including:

- reduced litter clean-up costs of $63.5 million with glass and $20 million without glass
- reduced contamination of kerbside recycling $25.5 million with glass and $4.3 million without glass
- additional value from material recycled of $97 million (with or without glass).

Table 1: Litter reduction due to a CRS

Litter reduction	Current beverage container litter	Average (61%)	High (84%)	Low (35%)
Percentage litter from beverage containers	24%	14.4%	19.8%	8.2%
Percentage litter from beverage containers (no glass)	13%	7.8%	10.7%	4.4%
Total litter reduction (stadium effect)		47%	64%	30%

Source: KNZB litter audit 2019, Sapere analysis

Table 2: NPV and BCR of Glass-in, Glass-out CRS scenarios (Final CBA)

	Glass-in scenario	Glass-out scenario
Total benefits (million, PV)	3,316 (2,300 to 4,332)	1,258 (1,130 to 1,386)
Total costs (million, PV)	2,227	1,190
Net benefits (million, PV)	1,089 (73 to 2,105)	68 (-60 to 198)
BCR	1.49 (1.03 to 1.94)	1.06 (0.95 to 1.16)

Wider work on resource recovery and litter

Enhanced kerbside recycling (kerbside standardisation)

Kerbside standardisation is a system-level change intervention seeking to harmonise national kerbside collection system to reduce consumer/household confusion and improve waste diversion and resource recovery rates, both in terms of quality and quantity.

Currently, kerbside collection systems vary by council to council, both in terms of what is accepted for recycling and how it is collected (eg, crates, bins or bags and comingled versus separated material streams). Differences in recycling messages creates confusion for households about what can and can't be recycled, resulting in contamination of recycling and otherwise recyclable materials being sent to landfill.

Standardising kerbside collections is one of the Labour Party's 2020 manifesto commitments.
Work is already underway; Ministry officials are engaging with you on this matter separately.

A 2019 national kerbside audit highlighted that 18 per cent of the total beverage containers consumed by households are put in the waste bin/bag at kerbside. **Even if this 18 per cent were placed in the correct recycling bin/bag (ie, if households recycled 100 per cent of 'at home' containers), approximately one billion containers would still be a potential litter source in the away-from-home consumption category. This does not negate the need for kerbside standardisation work, rather it reinforces that kerbside standardisation is but one piece of the puzzle in increasing recovery rates for materials beyond beverage containers.**

Analysis of kerbside recycling

Meeting the objectives of increased resource recovery and recycling and reducing litter

This intervention **does not address away-from-home beverage container litter.**

Standardised kerbside collection will increase the quality and quantity of resource recovery at home, to an extent. Even a 100% efficient kerbside system only forms a piece of the resource recovery puzzle – the remainder is commercial and away-from-home recovery.

s 9(2)(b)(ii)

Other considerations (achievability and likely impact, unintended consequences)

Kerbside standardisation work is not designed to specifically address the problem of beverage containers; kerbside addresses a wider range of materials that are consumed (and disposed of) at home. This intervention seeks to increase resource recovery and reduce confusion, it would be best used in tandem with other policy interventions (eg, CRS, education campaign). For more information about the crossover of kerbside work and a potential CRS please refer to 2021-B-07821.

Standardisation work would seek to improve the quality and increase the volume of glass collected through kerbside (likely through standardised glass-out collections), but this **does not address the issue of limited processing capacity and high virgin imports of glass**. Potential solutions include mandating minimum recycled content and upscaling refillable bottle systems.

Supporting options

Education: Education is a primary tool for improving outcomes on issues such as best practice recycling, addressing food waste and reducing litter. It is important that New Zealanders have the opportunity to understand the importance of environmental quality, and the benefits of resource recovery. **Education is always an option, and must be used under any initiative to improve waste outcomes**. New Zealand has limited examples of sustained and well-funded behaviour change campaigns, although work has been done by organisations such as WasteMINZ (in partnership with councils and community groups) on reducing food waste, and Keep New Zealand Beautiful (including through their 'Mama Nature' and 'Every Litter Bit Counts' campaigns).

Mandatory recycled content: International recycled content regulations are used to create a market for recycled material. They encourage greater take-back of products and packaging in order to design beverage containers that have a greater quantity of recycled content. **Recycled content regulations do not directly change consumer behaviour. A mandatory recycled content regulation may be considered under the wider review of the WMA** [2021-B-07701 refers].

Beverage container tax: There is an option to consider adding a tax on beverage containers of different kinds, in the same way we tax or levy other products (eg, cigarettes, petrol). In Norway, two types of tax are applied to beverage containers, an environmental tax and basic tax. The taxes are calculated per packaging unit. **Packaging covered by an approved CRS is subject to a lower environmental tax rate depending on return percentage.** If a return rate is greater than 25 per cent, the environmental tax is reduced on a sliding scale to a rate of zero if the return rate reaches 95 per cent or more. **This encourages the increased return of beverage containers through CRS, while also addressing externalities associated with the packaging type.** The basic tax rate is consistent irrespective of return rate.

Refillables: Refillable beverage containers are on the decline globally in the absence of regulations and enabling infrastructure. T**here are several pathways refillables could be increased in New Zealand including through regulating the requirement to use refillable beverage containers, or as a voluntary approach (potentially supported by investment enabling infrastructure).** These approaches are complementary to, or could be implemented independently of a CRS. **Further work is needed to understand how refillables could be integrated in (or operate alongside) a NZ CRS** [2021-B-07767 refers].