

SA EPA – CDS Review: Council Survey Report

July 2020



Document verification

Date	Version	Title	Prepared by	Reviewed by	Approved by
28 Feb 2020	V1	Rawtec_SA EPA – CDS Review Council Survey Report (Draft)	J Webb	M Rawson, M Allan	M Rawson
3 March 2020	V2	Rawtec_SA EPA – CDS Review Council Survey Report (Updated Draft)	J Webb	M Rawson, M Allan	M Rawson
1 June 2020	V3	Rawtec_SA EPA – CDS Review Council Survey Report (Final)	J Webb	J Webb	J Webb
1 July 2020	V4	Rawtec_SA EPA – CDS Review Council Survey Report (Final - Updated)	J Webb	J Webb	J Webb

Acknowledgements

Rawtec and SA EPA would like to acknowledge and thank the councils, council authorities (and their member council) and the SA Local Government Association for provided survey responses and/or were able to meet face to face to provide insights and details not able to be included in survey responses.

Important notes

This document has been prepared by Rawtec Pty Ltd (Rawtec) for a specific purpose and client (as named in this document) and is intended to be used solely for that purpose by that client.

The information contained within this document is based upon sources, experimentation, and methodology which at the time of preparing this document were believed to be reasonably reliable and the accuracy of this information subsequent to this date may not necessarily be valid. This information is not to be relied upon or extrapolated beyond its intended purpose by the client or a third party unless it is confirmed in writing by Rawtec that it is permissible and appropriate to do so.

Unless expressly provided in this document, no part of this document may be reproduced or copied in any form or by any means without the prior written consent of Rawtec or the client.

The information in this document may be confidential and legally privileged. If you are not the intended recipient of this document (or parts thereof) or do not have permission from Rawtec or the client for access to it, please immediately notify Rawtec or the client and destroy the document (or parts thereof).

This document, parts thereof or the information contained therein must not be used in a misleading, deceptive, defamatory or inaccurate manner or in any way that may otherwise be prejudicial to Rawtec, including without limitation, in order to imply that Rawtec has endorsed a particular product or service.



Executive summary

Project overview

South Australia's Container Deposit Scheme (CDS) legislation was introduced in 1977. Since its inception, the scheme's overall design has remained mostly unchanged. Recently there has been a strong call from the public and industry to revise and update the scheme. To respond to this, the State Government began reviewing the CDS in 2019.

To assist in the review, Rawtec was engaged by the South Australian Environment Protection Authority to directly survey South Australian (SA) councils to understand:

- The direct and indirect benefits and value of the current CDS to the council waste and recycling services and facilities, and their communities.
- The positive and adverse impacts that making any changes to the CDS would have on the council or authority's waste/recycling services it provides to residents/ratepayers.
- The likely impacts to council from increasing the types of plastic, metal, LPB or glass container containers in the CDS.

In addition to the survey, modelling of the expected benefits indicated in survey responses was also undertaken to understand:

- The current value the CDS has to councils from CDS containers placed into kerbside household comingled recyclables bins.
- The value to SA councils from increasing the type and range of containers included in the CDS.

Survey overview

Note regarding survey target audience and findings

This report summarises the findings and opinions from a survey directed at SA councils only. It does not represent the wider CDS collection depot, container/beverage manufacturing or packaging, or waste and resource recovery industries or stakeholders. Where possible, survey comments or figures have been presented as they were provided in the survey responses. Some responses have been reworded to provide clarity to the readers of this report. Some statements or figures contained in survey responses have been excluded from this report, as they were provided on a commercial in confidence basis.

Survey overview and responses

In total 18 survey responses covering 22 councils (out of 68 total councils in SA), including 12 councils in Greater Adelaide and 10 regional councils were received. This included:

- four responses from council authorities (which cover multiple councils), including East Waste, Adelaide Hills Region Waste Management Authority, Fleurieu Regional Waste Authority and Northern Adelaide Waste Management Authority
- 13 individual council responses
- one survey response was received from the South Australian Local Government Association.

Survey response key findings

The key themes identified in survey responses for each of the survey topics are provided below.

Direct benefits to councils from the CDS

- The container deposit scheme (CDS) provides an income stream at council resource recovery centres and other facilities (e.g. service centres, community events) (four responses covering six councils).
- Councils receive a reduced gate fee for comingled recyclables processing at a materials recovery facility (MRF) due to the value of CDS containers within incoming material streams (three responses covering six councils).
- The CDS provides employment at both council operated material recovery facilities and Collection Depots. (three responses covering four councils). One response estimated that around 1.3 full-time equivalent employees are required for treating and recovering CDS items for every 10,000 tonnes of comingled recyclables processed at MRFs in SA.

Indirect benefits to councils from the CDS

- Councils receive reduced costs for comingled recyclables collection and processing, due to reduced volumes of contaminating broken glass and liquids within incoming materials, as well as, an overall volume reduction due to glass CDS bottles taken to Collection Depots instead of placed into kerbside household bins (14 responses covering 19 councils).
- The CDS provides significant litter reduction outcomes, resulting in reduced costs for councils as councils are responsible for managing litter in SA (14 responses covering 17 councils).
- The CDS provides opportunities for additional income for vulnerable people who collect CDS containers, which also assists with reducing litter (six responses covering seven councils).

Impacts to councils from increasing the types of plastic, metal, or liquid paper board beverage containers in the CDS

- It would result in more plastic, metal or LPB beverage containers being returned at Collection Depots rather than placed into kerbside household bins, and in turn, lowering collection costs as more bins can be collected per round. This would also lower emissions due to fewer collection vehicles being required, and less waste to landfill and reduced landfill costs from containers not being placed into waste bins (five responses covering 14 councils).
- Comingled recycling processing costs would be reduced due to an overall increase in the value of incoming materials at MRFs and less contamination (e.g. liquids), as additional beverage containers are removed from incoming streams (eight responses covering 10 councils).
- The volume of containers collected by informal collectors would most likely increase, providing additional income and result in a reduction in street litter (eight responses covering 12 councils).

Impacts to councils from increasing the types of glass beverage containers in the CDS

- More glass beverage containers would be returned at Collection Depots rather than placed into kerbside household bins. This would result in reduced comingled recyclables processing costs for councils due to a reduction in the amount of broken glass received at MRFs that can contaminate and reduce the quality of other recovered recyclables (i.e. paper/cardboard) materials, and is too small to be recovered and ends up in a landfill. It would also reduce the overall volume of material requiring processing (15 responses covering 16 councils).
- It would reduce collection costs, due to enabling increased compaction rates during the collection of comingled recyclables bin material, as well as, reducing the overall weight of material requiring transport by collection vehicles (10 responses covering 11 councils).

Additional beverage container types recommended for inclusion into the CDS

The top four additional container types recommended for inclusion into the CDS included:

- glass wine bottles (14 responses covering 19 councils)
- all plastic (HDPE, PET and PP) plain milk bottles and containers (11 responses covering 14 councils)
- glass spirit bottles (10 responses covering 13 councils)
- all foiled and non-foiled LPB plain milk cartons (nine responses covering 10 councils).

Impacts to councils from including all types of glass beverage and non-beverage containers in the CDS (e.g. wine/spirit bottles, oil/sauce/condiment/spice bottles and jars)

- It would significantly reduce the amount of glass going to landfill (and associated costs) by reducing the overall weight of waste bin material and glass fines requiring landfill disposal from MRFs (12 responses covering 18 councils).
- It would significantly reduce kerbside household bin collection costs by reducing the amount of bin material requiring transport and enabling increased compaction rates during the collection of comingled recyclables bin material (9 responses over 14 councils).
- It would reduce collection costs, compaction rates during collection of comingled recyclables can be increased, as well as, reducing the overall weight of material requiring transport by collection vehicles (10 responses covering 11 councils).

Value of CDS and non-CDS containers to facilities that received containers

- The value of CDS containers to resource recovery centres ranges between \$330-\$3,000 per annum (three responses covering four councils). Non-CDS containers received, provide negligible value/return.
- A regional CDS collection depot run by a council receives approximately 4c per container that it receives and provides a 10c rebate to customers for (one response covering one council).

Impacts that any increases in the types of containers included in the CDS would have on the wider community or council

- From a community perspective, increasing the types of glass containers in the CDS increases awareness that glass is a highly valued commodity and can be used over and over again in the circular economy (seven responses covering 11 councils).
- From a community perspective, increasing the number and type of glass items in the CDS increases the chance that glass containers could be reused again (refilled), rather than being crushed, recycled, and remade due to the additional value (return value) is placed on each container (eight responses covering 10 councils).
- Including additional container types in the CDS, provides additional opportunity to renew recycling education messages (nine responses covering eight councils).

Other council suggestions, feedback or comments related to the review of the CDS

- Including additional containers in the CDS should be the focus of the review (three responses covering four councils).
- The CDS should have a greater focus on the circular economy and resource recovery, as well as litter reduction (two responses covering two councils).

Details of council household audits

The review also asked for details around any recent kerbside household audits undertaken by councils. These have been provided separately to this report.

Current value of the CDS to councils - key findings

The current value of CDS to SA councils is estimated at \$3.5m per annum¹, based on the additional value that CDS containers have in incoming materials reflecting as a reduced comingled recyclables processing fee. This includes \$2.6m for councils in Greater Adelaide and \$0.9m for regional SA councils. Estimated employment at South Australian materials recovery facilities dedicated to the recovery of CDS containers is 20 FTEs.

Value of including additional container types in the CDS

Scenario modelling

The surveyed councils indicated a range of expected benefits from increasing the type and range of containers included within the CDS. By building on the analysis from the SA EPA - CDS Review: Kerbside Household Bin Audit project, two identified key benefits were able to be modelled to understand the financial impact that including additional containers within the CDS would have on South Australian (SA) councils. These included:

- comingled recycling processing gate rate savings from the value of the additional CDS containers within incoming tonnes at MRFs
- savings per annum from tonnes of material type redirected from kerbside household comingled recyclables bins to another location (e.g. Collection Depots, informal collection activities).

The value of these benefits was modelled for the top 5 beverage containers by count in kerbside household bins (identified during an audit as part of the SA EPA - CDS Review: Kerbside Household Bin Audit project). These included:

- plastic HDPE milk containers
- glass wine bottles
- foiled LPB milk containers
- non-foiled LPB milk containers
- glass spirit bottles.

The modelling was repeated across six scenarios that assumed different proportions of containers remaining in the kerbside household comingled recyclables bins (with the balance redirected to Collection Depots) for each container type if they were included in the CDS. The scenarios modelled included:

- Scenario 1: 90% of containers remaining in comingled recyclables bins
- Scenario 2: 70% of containers remaining in comingled recyclables bins
- Scenario 3: 50% of containers remaining in comingled recyclables bins
- Scenario 4: 30% of containers remaining in comingled recyclables bins
- Scenario 5: 7% of containers remaining in comingled recyclables bins²
- Scenario 6: 1% of containers remaining in comingled recyclables bins.

¹ The estimated value to councils for current CDS containers recovered through MRF, is based on an industry estimate. Please also note that this figure does not account for variabilities in profit sharing from the value of CDS containers in incoming materials that varies between commercial and council operated MRFs.

² The estimated current splits of CDS containers between kerbside household comingled recyclables bins and Collection Depots etc. (~93%).

Scenario modelling key findings

Table 1 overleaf provides a summary of the outputs from the modelling. The key findings include the following.

- When comparing Scenarios 1-5:
 - initially, the estimated maximum gate rate savings (from the value of the containers being included in the CDS) are greater than the estimated maximum savings from the lower overall volume of comingled recyclables requiring processing (due to containers being diverted from kerbside household comingled recyclables bins to Collection Depots).
 - however, the gate rate savings become less than the savings from the lower overall volume of comingled recyclables requiring processing when less than:
 - ~50 per cent of glass wine and spirit bottles remain in the comingled recyclables bins
 - ~93 per cent of plastic HDPE milk, foiled LPB milk and non-foiled LPB milk containers remain in the comingled recyclables bins (as in Scenario 5)
 - the combined gate rate and volume reduction value savings from including the current non-CDS beverage containers in the CDS, reduces as more containers are diverted from the kerbside household comingled recyclables bins to other location (i.e. Collection Depots). For example:
 - For plastic HDPE milk, foiled LPB milk and non-foiled LPB milk drink containers the combined estimated savings reduces significantly, from \$1,856,000, \$738,000 and \$383,000 (Scenario 1), to \$280,000, \$104,000 and \$48,000 (Scenario 5).
 - For glass wine and spirit bottles, the combined estimated savings reduces, however, remain significant, from \$1,469,000 and \$267,000 (Scenario 1) to \$968,000 and \$183,000 (Scenario 5).
- Scenario 6 shows that if practically all of each of the current non-CDS container types were removed from the kerbside household comingled recyclables bins (~99 per cent), then SA councils may receive the following estimated maximum total savings (combined gate rate and volume reduction savings):
 - \$159,000 per annum for plastic HDPE milk containers
 - \$927,000 per annum for glass wine bottles
 - \$56,000 per annum for foiled LPB milk containers
 - \$23,000 per annum for non-foiled LPB milk containers
 - \$177,000 per annum for glass spirit bottles.



Table 1: Est. maximum per annum savings for all SA councils if the modelled container types are included in the CDS

Scenario	Saving types (est. maximum per annum)	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Scenario 1: 90% of containers remaining in kerbside household comingled recyclables bins	Gate rates savings (\$) per annum	\$1,804,000	\$1,129,000	\$720,000	\$376,000	\$202,000
	Savings from the reduction in total material requiring processing (\$) per annum	\$52,000	\$340,000	\$18,000	\$7,000	\$65,000
	Total	\$1,856,000	\$1,469,000	\$738,000	\$383,000	\$267,000
Scenario 2: 70% of containers remaining in kerbside household comingled recyclables bins	Gate rates savings (\$) per annum	\$1,405,000	\$886,000	\$560,000	\$292,000	\$157,000
	Savings from the reduction in total material requiring processing (\$) per annum	\$72,000	\$469,000	\$25,000	\$10,000	\$90,000
	Total	\$1,477,000	\$1,355,000	\$585,000	\$302,000	\$247,000
Scenario 3: 50% of containers remaining in kerbside household comingled recyclables bins	Gate rates savings (\$) per annum	\$1,005,000	\$639,000	\$400,000	\$209,000	\$112,000
	Savings from the reduction in total material requiring processing (\$) per annum	\$91,000	\$598,000	\$32,000	\$12,000	\$114,000
	Total	\$1,096,000	\$1,237,000	\$432,000	\$221,000	\$226,000
Scenario 4: 30% of containers remaining in kerbside household comingled recyclables bins*	Gate rates savings (\$) per annum	\$604,000	\$387,000	\$240,000	\$125,000	\$67,000
	Savings from the reduction in total material requiring processing (\$) per annum	\$111,000	\$727,000	\$38,000	\$15,000	\$139,000
	Total	\$715,000	\$1,114,000	\$278,000	\$140,000	\$206,000
Scenario 5: 7% of containers remaining in kerbside household comingled recyclables bins*	Gate rates savings (\$) per annum	\$147,000	\$95,000	\$58,000	\$30,000	\$16,000
	Savings from the reduction in total material requiring processing (\$) per annum	\$133,000	\$873,000	\$46,000	\$18,000	\$167,000
	Total	\$280,000	\$968,000	\$104,000	\$48,000	\$183,000
Scenario 6: 1% of containers remaining in kerbside household comingled recyclables bins*	Gate rates savings (\$) per annum	\$20,000	\$13,000	\$8,000	\$4,000	\$2,000
	Savings from the reduction in total material requiring processing (\$) per annum	\$139,000	\$914,000	\$48,000	\$19,000	\$175,000
	Total	\$159,000	\$927,000	\$56,000	\$23,000	\$177,000



Contents

Executive summary	i
Acronyms	viii
Glossary	viii
Data accuracy disclaimers	viii
1. Project background	1
1.1 Project overview	1
1.2 Report structure	1
1.3 Note regarding survey target audience and project findings.....	1
2. Council survey development and responses	2
2.1 Survey development.....	2
2.2 Summary of survey responses and analysis undertaken	3
3. Council survey response summaries	4
3.1 Direct benefits to councils from the CDS.....	4
3.2 Indirect benefits to councils from the CDS.....	5
3.3 Impact to councils from increasing the types of plastic, metal, or LPB beverage containers in the CDS	6
3.4 Impact to councils from increasing the types of glass beverage and non-beverage containers in the CDS ...	8
3.5 Facilities that received CDS and non-CDS containers.....	11
3.6 Impacts that any changes to the CDS would have on the wider community.....	12
3.7 Other suggestions/feedback related to the CDS review from a council perspective.....	13
4. Value of current CDS containers to councils	15
5. Potential value of including non-CDS containers in the CDS to councils	16
5.1 Benefits modelled	16
5.2 Scenarios modelled.....	16
5.3 Container types modelled for additional value to councils if included in the CDS.....	17
5.4 Modelling base data and assumptions	17
5.5 Impacts unable to be considered within the modelling	17
5.6 Summary of scenario modelling output findings	17
6. Data sources and assumptions	21
6.1 Tonnes of kerbside household comingled recyclables processed in SA per annum.....	21
6.2 CDS containers sold, recovered, and placed into comingled recyclables bins	21
6.3 MRF gate rate and CDS recover rate assumptions.....	21
6.4 Non-CDS containers placed into kerbside household comingled recyclables bins.....	21
Appendix 1: Survey introduction letter and survey form	23
SA EPA introduction letter.....	23
Survey	24
Appendix 2: Scenario modelling output tables	28
Baseline: Without any scenario modelling for recovery of container types.....	28
Scenario 1: 90% of containers remain in kerbside household comingled recyclables bins.....	29
Scenario 2: 70% of containers remain in kerbside household comingled recyclables bins.....	30
Scenario 3: 50% of containers remain in kerbside household comingled recyclables bins.....	31
Scenario 5: 7% of containers remain in kerbside household comingled recyclables bins	33
Estimated savings for the top five current non-CDS beverage containers for each scenario	35



Acronyms

ABS	Australian Bureau of Statistics
CDS	Container Deposit Scheme
COAG	Council of Australian Governments
FTE	Full-time equivalent
HDPE	High-Density Polyethylene
LPB	Liquid Paper Board
MRF	Materials Recovery Facility
PET	Polyethylene Terephthalate
PP	Polypropylene
RRC	Resource Recovery Centre
SA	South Australia
SA EPA	South Australian Environment Protection Authority

Glossary

Collection Depot(s)	Locations where CDS container are returned and a refund is provided.
Informal collectors/ informal collection activities	Persons who forage through household bins (generally comingled recyclables bins and waste bins) to recovery and return CDS containers that are eligible for refunds at Collection Depots.
Resource Recovery Centres	Resource recovery centres (including transfer stations) perform an essential service to local communities by providing a designated location to aggregate, sort and consolidate waste and recyclable materials, and where viable, divert these materials away from landfill, through either recycling or resource recovery.
Materials recovery facility	A materials recovery facility (MRF) is a specialised plant that receives and processes material from kerbside household comingled recyclables bins, and separates, recovers and prepares recyclable materials for marketing to end-user manufacturers.

Data accuracy disclaimers

When reviewing the findings in this report, please note that:

- 1) Figures provided for the estimated value of the CDS for SA councils are high-level estimates only and are based on a range of assumptions (detailed in Section 6). They are not intended to be relied upon other than for this purpose.
- 2) Some figures provided within this report are based on extrapolation of bin composition attained from an audit of kerbside household bins undertaken as part of the SA EPA – CDS Review: Kerbside Household Bin Audit Project, which provides a snapshot of household container disposal behaviours for that specific period in time.
- 3) Figures have been rounded where necessary as to not over-represent the accuracy of the data. The totals and summary figures in some tables may not equate.
- 4) Figures related to CDS containers only include the estimated amount of CDS containers placed into kerbside household comingled recyclables bins (~7% of CDS containers returned through the CDS). The majority of CDS containers are returned at other locations (e.g. Collection Depots).



1. Project background

1.1 Project overview

South Australia's Container Deposit Scheme (CDS) legislation was introduced in 1977. Since its inception, the scheme's overall design has remained mostly unchanged. Recently there has been a strong call from the public and industry to revise and update the scheme. To respond to this, the State Government began reviewing the CDS in 2019. To assist in the review, Rawtec was engaged by the South Australian Environment Protection Authority (SA EPA) to directly survey South Australian councils to understand the:

- direct and indirect benefits and financial value of the current CDS to the council waste and recycling services and facilities, and their communities
- positive and adverse impacts that making any changes to the CDS would have on the council or authority's waste/recycling services it provides to residents/ratepayers
- likely impacts to council from increasing the types of plastic, metal, LPB and glass container containers in the CDS.

Several expected benefits from increasing the type and range of containers included within the CDS were indicated within the council survey feedback. By building on the analysis previously undertaken as part of the SA EPA - CDS Review: Kerbside Household Bin Audit Project, two key benefits identified were then modelled to understand the financial impact that including additional current non-CDS containers within the CDS (see Section 5 for a summary of this modelling).

1.2 Report structure

This report provides a summary of the project undertakings and key findings, including:

- summary of the survey development (Section 2)
- key findings from the survey responses (Section 3)
- summary of the modelling of key benefits that including additional containers in the CDS would have for councils in SA (Section 4)
- base datasets and assumptions used in the modelling (Section 5).

1.3 Note regarding survey target audience and project findings

Please note the following.

- This report summarises the findings and opinions from a survey directed at councils only. It does not represent the wider CDS collection depot, container/beverage manufacturing or packaging, or waste and resource recovery industries or stakeholders.
- Where possible, survey statements or figures have been presented as they were provided in the survey responses. However, some responses have been reworded to provide clarity to the readers of this report or have been excluded from this report as they were provided on a commercial in confidence basis.
- Any individual or extrapolated values or figures provided in this report are high-level only and are not intended to be relied upon other than for this purpose.
- Some figures contained within this report have been rounded where necessary as to not over-represent the accuracy of the data and extrapolation. Therefore, totals and summary figures in some tables may not equate.

Council Survey



2. Council survey development and responses

2.1 Survey development

Survey themes

Councils were surveyed as part of the project to understand the value of the South Australian Container Deposit Scheme (CDS) to South Australian (SA) councils (in its current form), as well as the impacts on councils from including additional plastic, metal, LPB, or glass containers in the CDS. The survey questions were structured around the following topics.

- Direct benefits from the CDS
- Indirect benefits from the CDS
- Impacts from changes to the types of plastic, metal, LPB or glass containers included in the CDS
- Facilities that received CDS and non-CDS containers (e.g. resource recovery facilities (RRCs), council-run Collection Depots, material recovery facilities (MRFs))
- Impacts that any changes to the CDS would have on the wider community or council.

A summary of the key themes from the council responses to the survey questions is provided in Section 3.

This Survey also asked for details around any kerbside household audits that councils have recently undertaken. Several councils indicated that they have undertaken recent audits and were happy to provide the audit results to the South Australian Environment Protection Authority (SA EPA) as part of the CDS Review. Details of these have been provided to the SA EPA separately to this report.

Survey development and data capture steps

The survey was developed, and data captured in the following steps:

1. A survey was developed with input and review from the SA EPA. A copy of the survey questions is provided in Appendix 1.
2. An introduction letter from the SA EPA was included along with the survey to provide survey respondents with an overview of the CDS review and the importance of the feedback sought to be obtained through this survey. A copy of this letter is provided in Appendix 1.
3. The surveys were sent out to prospective respondents by the SA Local Government Association (SA LGA) on behalf of Rawtec and the SA EPA. The survey was also included in a SA LGA council bulletin.
4. Three face to face meetings were undertaken with the LGA SA, East Waste and NAWMA.
5. Rawtec directly contacted five additional councils to provide the survey and encourage additional survey responses.



2.2 Summary of survey responses and analysis undertaken

Survey responses received

In total, 18 total survey responses covering 22 councils (out of 68 total councils in SA), including 12 councils within Greater Adelaide and 10 regional councils were received. This included:

- four responses from council authorities (which cover multiple councils), including East Waste, Adelaide Hills Region Waste Management Authority, Fleurieu Regional Waste Authority and Northern Adelaide Waste Management Authority
- 13 individual council responses
- one survey response was received from the South Australian Local Government Association.

Councils that provided survey responses

Individual survey responses were provided from the following councils.

- Adelaide Hills Council
- City of Adelaide
- City of Campbelltown
- City of Mitcham
- City of Norwood Payneham & St Peters
- City of Port Adelaide
- City of Prospect
- City of West Torrens
- District Council of Streaky Bay
- Port Augusta City Council
- Port Pirie Regional Council
- Town of Walkerville
- Whyalla City Council.

Respondents' position in their organisation

Survey responses were received from the following positions within councils.

- Chief Operating Officer
- Community Waste Project Officer
- Coordinator Environment and Sustainability
- Environment & Sustainability Officer
- Executive Officer
- General Manager
- Group Manager, Assets & Infrastructure
- Manager of Waste and Emergency Management
- Manager Waste, Cleansing and Fleet
- Manager, Infrastructure & Civil Works
- Project Control Officer
- Senior Policy Officer
- Strategic Resource Recovery Coordinator
- Sustainability Officer
- Team Leader Waste Management
- Technical Officer
- Waste Management Officer



3. Council survey response summaries

3.1 Direct benefits to councils from the CDS

This survey topic looked to identify any direct benefits that councils/authorities gained from the CDS that can be measured. The survey questions for this survey topic included:

1. *Do any of the council or authority's waste/recycling services receive any direct benefits from the value of CDS containers recovered from waste/recycling bins or material collected?*
2. *If yes, then please describe:*
 - a. *How the benefit is calculated?*
 - b. *The approximate value of the benefit to the council or authority?*

A summary of the key response themes for these survey questions including the number of responses and councils covered by the responses can be found in Table 2 below.

Table 2: Key themes related to the direct benefits of the CDS to councils

Key response themes	Responses	Councils covered
The CDS provides an income stream at council resource recovery centres and other facilities (e.g. council service centres, community events). Estimates of this value are provided in Section 3.5.	4	6
Councils receive a reduced gate fee for comingled recyclables processing at MRFs due to the value of CDS containers within incoming material streams.	3	6
The CDS provides employment at both council operated MRFs and Collection Depots. One response estimated that around 1.3 FTEs are required for treating and recovering CDS items for every 10,000 tonnes of comingled recyclables bin material processed at MRFs in South Australia.	3	4

Key survey response comment:

"The CDS provides reduced costs for comingled recyclables processing contracts based on the additional value of CDS containers in the comingled recyclables stream."

One comments from within a single response for this survey topic stated that councils receive reduced landfill disposal costs based on the CDS diverting containers away from kerbside household bins and street litter waste bins.



3.2 Indirect benefits to councils from the CDS

This survey topic looked to identify any indirect benefits that councils/authorities gained from the CDS that are difficult to measure. The survey question for this survey topic was:

Please describe any other indirect benefits that the CDS has on the council or authority's services.

A summary of the key response themes for these survey questions including the number of responses and councils covered by the responses can be found in Table 3 below.

Table 3: Key response themes related to the indirect benefits of the CDS to councils

Key response themes	Responses	Councils covered
Councils receive reduced costs for comingled recyclables collection and processing, due to: <ul style="list-style-type: none"> reduced volumes of contaminating broken glass and liquids within incoming materials an overall volume reduction due to glass CDS bottles taken to Collection Depots instead of placed into kerbside household bins. 	14	19
The CDS provides significant litter reduction outcomes, resulting in reduced costs for councils as councils are responsible for managing litter in SA.	14	17
The CDS provides opportunities for additional income for vulnerable people who collect CDS containers, which also assists with reducing litter.	6	7
The CDS enables a higher commodity value for CDS containers as the majority of containers returned are separated into appropriate streams (material, colour etc.) at Collection Depots, rather than mixed in comingled recyclables bins with other materials and contaminants.	2	5

Key survey response comment:

“The Council is responsible for enforcing the Local Nuisance and Litter Control Act 2016. The data shows that the CDS has already achieved significant litter reduction with over 612 million containers which equates to approximately 41,372 tonnes recovered for recycling in 2018-19.”

Other comments from within single responses for this survey topic included the following.

- The CDS encourages patronage at the council recycling facilities.
- The CDS reduces waste to landfill by encouraging the community to source separate CDS containers.
- The CDS creates awareness and educates the community regarding the recovery and recycling of containers.
- The CDS provides employment at Collection Depots.



3.3 Impact to councils from increasing the types of plastic, metal, or LPB beverage containers in the CDS

This survey topic included the following two survey questions.

Question 1

The first question related to this survey topic was:

1. *What would the likely impacts to the council/authority be from increasing the types of plastic, metal, and LPB containers in the CDS?*

A summary of the key response themes for this question, including the number of responses and councils covered by the responses can be found in Table 4 below.

Table 4: Key response themes related to the impacts of including additional plastic, metal or LPB containers in the CDS

Key response themes	Responses	Councils covered
More plastic, metal or LPB beverage containers would be returned at Collection Depots, rather than placed into kerbside household bins, resulting in: <ul style="list-style-type: none"> • lower collection costs as more bins can be collected per round • lower emissions due to fewer collection vehicles being required • less waste to landfill and reduced landfill costs from additional container types not being placed into waste bins. 	5	14
Comingled recycling processing costs would be reduced due to: <ul style="list-style-type: none"> • increase in value of incoming materials • less contamination (e.g. liquids) as additional beverage containers are removed from incoming streams. 	8	10
The volume of containers collected by informal collectors would most likely increase, providing: <ul style="list-style-type: none"> • additional income for these persons • a reduction in street litter. 	8	12
It would support the viability of the SA's recycling system due to an increase in source separation by households, businesses, and communities.	8	8
RRCs/Collection Depots may require investment to manage additional containers.	2	4
It would potentially increase illegal dumping of containers if: <ul style="list-style-type: none"> • recycling facilities are too busy, not located effectively or have inadequate trading hours • an increase in informal collection activities leads to more littering. 	2	2

Key survey response comment:

"Increasing the types of containers included in the CDS may contribute to the commercial viability of the recycling system during this time of industry transition (i.e. impacts of China National Sword Policy and COAG waste export bans)."

Other comments from within single responses for this survey topic included the following.

- It would provide additional tools/topics for educating residents and business on the value of recycling
- It would help create uniformity concerning all beverage containers being captured under the CDS.

Question 2

The second question related to this survey topic was:

2. *Are there any particular types of plastic, metal or LPB containers that would provide the most benefit to the council/authority if included in the CDS and why?*

A summary of the key response themes for this question, including the number of responses and councils covered by the responses can be found in Table 5 below.

Table 5: Recommendation for particular types of additional plastic, metal or LPB containers to include in the CDS

Key response themes	Responses	Councils covered
All plastic plain milk bottles and containers (HDPE, PET and PP)	11	14
All plain milk cartons, including foiled LPB containers and non-foiled LPB containers	9	10
Polystyrene containers	8	8
All LPB containers	8	8
Flavoured milk drinks not currently in the CDS (e.g. greater than one litre)	3	5
Metal (aluminium/steel) cans/containers (e.g. fruit, beans, coconut milk)	2	2

Key survey response comment:

"Containers that should be considered for the CDS include containers made of materials less likely (or not able) to be recycled locally (in Australia) i.e. polystyrene (PS) and any laminated paper board (LPB) products."

Other comments from within single responses for this survey topic included:

- single-use snack packaging (e.g. chip packets, lolly/confectionery bags, chewing gum containers)
- disposable coffee cups
- excluding any additional container types in the CDS for the following material types:
 - metal containers, as they currently have a good recycling outcome
 - LPB containers, as these are a problematic material in MRFs with limited markets.



3.4 Impact to councils from increasing the types of glass beverage and non-beverage containers in the CDS

This survey topic included the following three survey questions.

Question 1

The first question related to this survey topic was:

1. *What would the likely impacts to the council/authority be from increasing the types of glass (beverage) containers in the CDS?*

A summary of the key response themes for this question, including the number of responses and councils covered by the responses can be found in Table 6 below.

Table 6: Key response themes related to the impacts of including any additional glass beverage containers in the CDS

Key response themes	Responses	Councils covered
It would reduce comingled recyclables processing costs at MRF for councils due to reducing: <ul style="list-style-type: none"> the amount of broken glass received at the MRF that is too small for resource recovery and ends up in landfill and can contaminate material streams, reducing the quality of recovered paper/cardboard materials the overall volume (weight) of material requiring processing. 	15	16
Reduce the collection costs based on: <ul style="list-style-type: none"> potentially allowing an increase in compaction rates during collection. reducing the overall weight of material requiring transportation via kerbside collection vehicles. 	10	11
It would reduce council recycling performance reporting as a larger proportion of material by weight are removed from the kerbside household recycling system.	1	4
It would require additional education activities and messages from councils.	2	2
It would reduce street litter and illegal dumping.	2	2

Key survey response comment:

“Increasing glass, specifically wine bottles, in the CDS would result in a reduction in glass breakage which in turn would lead to a reduction in contamination (glass fines) of the recycling stream (particularly paper/cardboard) which impacts the value of other recovered materials. Reduced weights of bins and potentially higher compaction ratios could also be achieved, making the kerbside household bin collection service more efficient and cost-effective.”

Other comments from within single responses for this survey topic included:

- increase the viability of regional comingled recyclables
- lower landfill costs
- reduce volumes in street litter bins
- increased source separation within households
- additional revenue for community members collecting the CDS materials.



Question 2

This second question related to this survey topic was:

2. *Are there any particular types of (beverage) glass containers that would provide the most benefit to the council/ authority if included in the CDS and why?*

A summary of the key response themes for this question, including the number of responses and councils covered by the responses can be found in Table 7 below.

Table 7: Recommendations for the particular types of additional glass beverage containers to include in the CDS

Key response themes	Responses	Councils covered
Glass wine bottles	14	19
Glass spirit bottles	10	13
Glass jars and containers for sauces, jams etc.	3	3

Key survey response comment:

"Including wine bottles in the CDS would provide the most significant benefit in terms of its impact on both resource recovery rates and council recycling costs while causing the least confusion for consumers (who associate the CDS with beverage containers)."



Question 3

The third question related to this survey topic was:

3. *What likely impacts would including all recyclable glass (beverage and non-beverage) containers and jars in the CDS have on the kerbside household bin system, MRF operations, and/or glass recovery operations?*

A summary of the key response themes for this question, including the number of responses and councils covered by the responses can be found in Table 8 below.

Table 8: Key response themes related to the impacts of including all glass beverage and non-beverage containers in the CDS

Key response themes	Responses	Councils covered
It would significantly reduce the amount of glass going to landfill (and associated costs) by reducing the overall weight of waste bin and MRF glass fines material requiring landfill disposal, as glass is taken out of kerbside household bins and returned at Collection Depots	12	18
It would significantly reduce collection costs by reducing the amount of kerbside household bin material requiring transport, and enabling increased compaction rates during collection	9	14
It would significantly reduce comingled recyclables processing costs for councils due to: <ul style="list-style-type: none"> reduced incidents of paper/cardboard being contaminated with broken glass/glass fines reducing the overall weight of comingled recyclables materials requiring processing increasing the value of all glass containers received at a MRF. 	9	11
It would increase the amount of source-separated glass (by type and colour) which has a higher commodity value incentivising and supporting local glass beneficiation and re-manufacturing businesses	3	6

Key survey response comments:

"The presence of glass in the yellow bin impacts on the compaction rate that councils and waste collection services can use to transport recycling to MRFs. If all glass was included in the CDS this would significantly reduce the amount of glass in yellow bins and councils could use higher compaction rates and achieve further efficiencies in collections (i.e. fewer trucks/runs required to service, the same number of properties). Councils would also avoid making most of the solid waste levy payments associated with sending glass fines to landfill. Therefore, there would be significant cost savings for councils associated with including all recyclable glass containers in the CDS. "

"Councils pay a dollar per tonne amount for recyclables processing. Given that glass is the only "heavy" material that is collected through the yellow bin system, the presence of glass in the yellow bin is responsible for a significant proportion of councils' costs."



3.5 Facilities that received CDS and non-CDS containers

This survey topic looked to identify any impacts on council facilities that receive CDS and non-CDS containers. Survey questions for this survey topic included:

1. *Does your council or authority have any facilities that receive CDS containers and/or non-CDS containers (yes/no)?*
2. *If yes, please detail or attach separately any approximate material value (commodity and/or container deposit) for CDS materials or other potential non-CDS containers that you can provide.*

A summary of the key response themes for these survey questions including the number of responses and councils covered by the responses can be found in Table 9 below.

Table 9: Key response themes related to council facilities that receive CDS and non-CDS containers

Facility type	No. identified	Approx. benefit	Responses	Councils covered
Resource recovery centres	3	Ranging between \$330 and \$3,000 per annum from CDS containers. Negligible return on separated milk cartons and wine bottles.	3	4
Council operated Collection Depots	1	This facility receives approximately a 4c per CDS container received as a handling fee.	1	1
MRFs	1 operating and 1 proposed	It would significantly reduce collection costs by reducing the amount of kerbside household bin material requiring transport, and enabling increased compaction rates during collection	2	5



3.6 Impacts that any changes to the CDS would have on the wider community

This survey topic looked to identify any impacts that any changes to the CDS would have on the wider community. The survey question for this survey topic was:

Please detail any other potential positive or adverse impacts that any changes to the CDS would directly/indirectly have on the council's wider community:

A summary of the key response themes for these survey questions including the number of responses and councils covered by the responses can be found in Table 10 below.

Table 10: Key response themes related to the impacts that any changes to the CDS would have on the wider community

Key response themes	Responses	Councils covered
From a community perspective, increasing the types of glass containers in the CDS increases awareness that glass is a highly valued commodity and can be used over and over again in the circular economy.	7	11
From a community perspective, increasing the number and type of glass items in the CDS increases the chance that glass containers could be reused again, rather than being crushed, recycled, and remade.	8	10
Including additional container types in the CDS, provides additional opportunity to renew recycling education messages.	9	8
Including additional items in the CDS will provide an additional level of transparency in the recycling system, which helps restore the community's faith in South Australia's recycling systems.	3	7
It would provide new funding sources for charity/sporting organisations.	1	4
Increase the overall viability of MRFs (e.g. reduced gate rates) which has flow-on effects to councils and their community/residents.	1	4
Including additional container types in the CDS, may result in less litter resulting from increase container types being collected by informal collectors, resulting in lower volumes for street litter bins.	2	2

Key survey response comment:

"Councils often receive queries from residents regarding the ultimate fate of recyclables placed in council yellow bins. The CDS review provides a significant opportunity to restore the community's faith in South Australia's recycling systems. The outcomes of the CDS review should ensure that any containers approved for sale through the scheme are ultimately recycled and are recycled within Australia. "

Other comments from within single responses for this survey topic stated that including additional container types in the CDS:

- would require additional investment in return facilities to ensure that convenient access is available to all residents
- may provide additional income opportunities to the informal collectors
- may increase in people undertaking informal collection activities recovering CDS beverage containers from private bins.



3.7 Other suggestions/feedback related to the CDS review from a council perspective

This survey topic looked to identify other suggestions, feedback, or comments regarding the impact that any changes to the CDS would have from a council perspective. The survey questions for this survey topic was:

Please provide any other further suggestions, feedback, or comments regarding the impact that any changes to the CDS would have from a council perspective

A summary of the key response themes for these survey questions including the number of responses and councils covered by the responses can be found in Table 11 below.

Table 11: Key response themes related to any other suggestions, feedback or comments regarding the CDS review or impact that any changes to the CDS would have from a council perspective

Key response themes	Responses	Councils covered
The inclusion of other containers should be the focus of the CDS review.	3	4
The CDS should have a greater focus on the circular economy and resource recovery, as well as litter reduction.	2	2
The EPA should utilise the opportunity of the CDS review to increase extended producer responsibility along with the beverage and single-use packaging supply chain.	2	2
Establishment of a central data management system would make it easier for councils to report and find information on material flows, resource recovery rates, reporting on circular economy targets.	2	2

Key survey response comment:

"It would be beneficial to see an expanded and active circular economy in South Australia. The CDS should have a greater focus on resource recovery as well as litter reduction. The inclusion of other containers such as wine and spirit bottles should be considered, along with any glass container (e.g. milk, juice, water, condiments, and other jars) as well as larger milk and juice containers. This would ensure that items can be recycled without being compromised in the kerbside household bin material recycling process, providing added value to the remanufacturers located in South Australia who are sourcing materials.

Other comments from within single responses for this survey topic stated the CDS review should:

- focus on how the CDS can assist regional councils to provide better recycling services to their communities
- investigate increasing the return value to 20c should be considered
- implement measures to ensure the key stakeholders are publicly accountable
- consider implementing a national scheme, which is consistent and transparent and would ensure that MRF operators can claim the deposit regardless of where the material is processed
- ensure that any changes to CDS are holistic (not just a focus on the front end of the process)
- consider the management of lids and how this is communicated
- include education and communication of messaging, for example how reducing contamination (broken glass) is required to maximise the value of the content of the recycling bin
- facilitate research on innovation and technological solutions to improve resource recovery i.e. technology to improve sorting, transportation, and handling of materials
- improved facility layout and design to facilitate ease of access and fast turnaround times.



Value of CDS to Councils



4. Value of current CDS containers to councils

Feedback in the survey responses indicated that South Australian (SA) councils receive several benefits from the CDS. The following two benefits were able to be measured (to some degree).

- The CDS provides a reduction in gate fees for comingled recyclables processing at a material recovery facility (MRF) due to the value of CDS containers within incoming material streams.
- The CDS provides employment at both council operated MRFs and Collection Depots.

Table 12 provides the estimated value benefits for councils across all SA councils. Please note that:

- The figures in this table are high-level estimates only and do not account for variabilities in profit sharing of the CDS benefit (included in gate rates) that vary between commercial and local government operated MRFs.
- The value of the CDS containers within this table only includes the CDS containers placed into kerbside household comingled recyclables bins (which is estimated to be approximately seven per cent of total CDS containers sold in SA per annum). The remaining ~93% of CDS containers are returned via Collection Depots (majority returned to these depots) or placed into other bins services, for example, commercial comingled recyclables bins, street litter bins or waste bins, or are illegally disposed of as litter in the environment.

Table 12: Estimated value of current CDS containers within the kerbside household comingled recyclables bins

	Total comingled recyclables tonnes per annum ^{*3}	The estimated maximum value of CDS containers in comingled recyclables to SA councils per annum ⁴	Estimated FTEs dedicated to the recovery of CDS containers in SA MRFs ⁵
Area	Tonnes/annum	\$/annum	Est. FTEs
Greater Adelaide	103,600	\$2.6m	15
Regional SA	35,700	\$0.9m	5
Total SA	139,300	\$3.5m	20

Table sources:

** Green Industries SA 2019, South Australia's Recycling Activity Survey Report for 2017-18*

³ Figures sourced from Green Industries SA 2019, South Australia's Recycling Activity Survey Report for 2017-18

⁴ Estimated value in MRF gate rates for current CDS containers recovered through MRF is based on an industry estimate.

⁵ Estimated FTEs dedicated to the recovery of CDS containers in MRFs is based on the extrapolation of a figure provided within a survey response, with consideration to wider industry practices.

5. Potential value of including non-CDS containers in the CDS to councils

5.1 Benefits modelled

Many expected benefits from increasing the type and range of containers included within the CDS were indicated within the council survey feedback. By building on the analysis previously undertaken as part of the SA EPA – CDS Review: Kerbside Household Bin Audit project, two key benefits identified for South Australian (SA) councils were modelled to understand the financial impact that including additional current non-CDS containers within the CDS. The key benefits modelled were:

- the gate rate saving from the value of additional containers being include in the CDS
- the savings from the lower overall volumes of comingled recyclables requiring processing due to containers being diverted from kerbside household comingled recyclables bins to Collection Depots (or removed by informal collectors).

Other value or benefits that have not been quantified, may include:

- Increases comingled recyclables compaction limits which can increase collection efficiency and reduce costs.
- Reduction in street litter.
- Impacts that a sudden increase in the volume of source-separated materials for these current non-CDS container types would have on commodity values and processing/manufacturing operations. This would mainly be relevant for to the CDS scheme super collectors, NGOs and Collection Depots.

5.2 Scenarios modelled

As the current CDS has been operating for around 43 years (since 1977), it is expected that it would take considerable time (3+ years) for the current CDS container recovery levels to be achieved for any additional containers included in the CDS. Table 13 below provides a summary of the scenarios modelled for the following current non-CDS container types including the estimated percentage of container that remain in the kerbside household comingled recyclables bin upon inclusion within the CDS, as well as the percentage of containers diverted to other locations (e.g. Collection Depots, waste bins, informal collection activities). Scenario 5 is based on non-CDS containers achieving the estimated percentage of CDS containers recovered through the CDS currently being placed into comingled recyclables bins (~7 per cent) compared to the amount received at other locations (e.g. Collection Depots). Table 29 of Section 6 details how this was estimated.

Table 13: Summary of scenarios modelled

Scenarios	% of containers remain in kerbside household comingled recyclables bins	% of containers diverted from kerbside household comingled recyclables bins to Collection Depots (e.g. Collection Depots)
Scenario 1	90%	10%
Scenario 2	70%	30%
Scenario 3	50%	50%
Scenario 4	30%	70%
Scenario 5*	7%	93%
Scenario 6	1%	99%

Table note: *This scenario is based on the estimated percentage of CDS containers recovered through the CDS currently being placed into comingled recyclables bins compared to the amount received at other locations (e.g. Collection Depots).

5.3 Container types modelled for additional value to councils if included in the CDS

The current non-CDS container types modelling within the scenarios are based on the top 5 non-CDS beverage containers by count identified during the SA EPA - CDS Review Kerbside Household Bin Audit project. They include:

- Plastic HDPE milk containers
- Glass wine bottles
- Foiled LPB milk containers
- Non-foiled LPB milk containers
- Glass spirit bottles.

5.4 Modelling base data and assumptions

Section 6 report provides the base data and assumptions used in the scenario modelling, including estimated tonnes of kerbside household comingled recyclable bin material processed in SA, CDS containers sold/recovered in SA, CDS containers placed into comingled recyclables bins, assumed MRF gate rates and CDS recover rates and value.

5.5 Impacts unable to be considered within the modelling

Impacts of the following factors unable to be considered within the modelling included:

- Impacts of containers removed due to informal collection activities
- Breakage of glass items while undertaking resource recovery activities
- Changes to MRF operations (infrastructure, equipment, and personnel) and running costs due to the inclusion of the additional currently non-CDS containers in the CDS.

5.6 Summary of scenario modelling output findings

Table 14 overleaf provides a summary of the modelling outputs for all of SA, including the estimated:

- Maximum gate rate savings from the value of each container type being included in the CDS within incoming tonnes per annum and per tonne (if passed on by MRFs).
- Maximum savings per annum from tonnes of material type redirected from kerbside household comingled recyclables bins each container type being included in the CDS, based on \$100 per tonne current gate rate.
- The tonnes removed from kerbside household comingled recyclables bins and overall percentage reduction in total kerbside household comingled recyclables.

Scenario modelling output tables for Greater Adelaide, regional SA and all SA are provided in Appendix 2, including summary tables and charts for the following estimates across each scenario and for each container type if included in the CDS.

- Number of containers remaining within the kerbside household comingled recyclables bins
- Value of containers (based on 10c return) within the kerbside household comingled recyclables bins
- Tonnes of containers within the kerbside household comingled recyclables bins
- Tonnes diverted from comingled recyclables bins to Collection Depots
- Value of containers (based on 10c return per container) per tonne of comingled recyclables
- Per annum gate rate savings from the reduction in volume requiring processing
- total estimated maximum savings.



The key findings from the modelling include the following.

- When comparing Scenarios 1-5:
 - initially, the estimated maximum gate rate savings (from the value of the containers being include in the CDS) are greater than the estimated maximum savings from the lower overall volume of comingled recyclables requiring processing (due to containers being diverted from kerbside household comingled recyclables bins to Collection Depots).
 - however, the gate rate savings become less than the savings from the lower overall volume of comingled recyclables requiring processing when :
 - less than ~50 per cent of glass wine and spirit bottles remain in the comingled recyclables bins
 - less than ~93 per cent of plastic HDPE milk, foiled LPB milk and non-foiled LPB milk containers remain in the comingled recyclables bins (as in Scenario 5)
 - the combined gate rate and volume reduction value savings from including the current non-CDS beverage containers in the CDS, reduces as more containers are diverted from the kerbside household comingled recyclables bins to other location (i.e. Collection Depots). For example:
 - for plastic HDPE milk, foiled LPB milk and non-foiled LPB milk drink containers the combined estimated savings reduces significantly, from \$1,856,000, \$738,000 and \$383,000 (Scenario 1), to \$280,000, \$104,000 and \$48,000 (Scenario 5).
 - for glass wine and spirit bottles, the combined estimated savings reduces, however, remain significant, from \$1,469,000 and \$267,000 (Scenario 1) to \$968,000 and \$183,000 (Scenario 5).
- Scenario 6 shows that if practically all of each of the current non-CDS container types were removed from kerbside household comingled recyclables bins (~99 per cent), then SA councils may receive the following estimated maximum total savings (combined gate rate and volume reduction savings):
 - \$159,000 per annum for plastic HDPE milk containers
 - \$927,000 per annum for glass wine bottles
 - \$56,000 per annum for foiled LPB milk containers
 - \$23,000 per annum for non-foiled LPB milk containers
 - \$177,000 per annum for glass spirit bottles.



Table 14: Estimated maximum per annum savings for all SA councils if the modelled container type is included in the CDS

Saving type	Saving type	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Scenario 1: 90% of containers remaining in kerbside household comingled recyclables bins						
Maximum estimated gate rate savings from increased value of incoming material if container type included in CDS	<i>Gate rates savings (\$) per annum</i>	\$1,804,000	\$1,129,000	\$720,000	\$376,000	\$202,000
	<i>\$ per tonne gate rate savings</i>	\$12.95	\$8.10	\$5.17	\$2.70	\$1.45
Maximum savings from the redirection of the container type redirected from kerbside household comingled recyclables bins based on \$100 per tonne current gate rate	<i>Savings (\$) per annum from reduction in material requiring processing</i>	\$52,000	\$340,000	\$18,000	\$7,000	\$65,000
	<i>Tonnes removed from kerbside household comingled recyclables bins per annum</i>	519	3,404	180	70	650
	<i>% reduction in total kerbside household comingled recyclables bin material</i>	0.4%	2.4%	0.1%	0.1%	0.5%
Estimated total savings per annum		\$1,856,000	\$1,469,000	\$738,000	\$383,000	\$267,000
Scenario 2: 70% of containers remaining in kerbside household comingled recyclables bins						
Maximum estimated gate rate savings from increased value of incoming material if container type included in CDS	<i>Gate rates savings (\$) per annum</i>	\$1,405,000	\$886,000	\$560,000	\$292,000	\$157,000
	<i>\$ per tonne gate rate savings</i>	\$10.09	\$6.36	\$4.02	\$2.10	\$1.13
Maximum savings from the redirection of the container type redirected from kerbside household comingled recyclables bins based on \$100 per tonne current gate rate	<i>Savings (\$) per annum from reduction in material requiring processing</i>	\$72,000	\$469,000	\$25,000	\$10,000	\$90,000
	<i>Tonnes removed from kerbside household comingled recyclables bins per annum</i>	715	4,691	248	96	897
	<i>% reduction in total kerbside household comingled recyclables bin material</i>	0.5%	3.4%	0.2%	0.1%	0.6%
Estimated total savings per annum		\$1,477,000	\$1,355,000	\$585,000	\$302,000	\$247,000
Scenario 3: 50% of containers remaining in kerbside household comingled recyclables bins						
Maximum estimated gate rate savings from increased value of incoming material if container type included in CDS	<i>Gate rates savings (\$) per annum</i>	\$1,005,000	\$639,000	\$400,000	\$209,000	\$112,000
	<i>\$ per tonne gate rate savings</i>	\$7.22	\$4.59	\$2.87	\$1.50	\$0.81
Maximum savings from the redirection of the container type redirected from kerbside household comingled recyclables bins based on \$100 per tonne current gate rate	<i>Savings (\$) per annum from reduction in material requiring processing</i>	\$91,000	\$598,000	\$32,000	\$12,000	\$114,000
	<i>Tonnes removed from kerbside household comingled recyclables bins per annum</i>	910	5,979	316	123	1,144
	<i>% reduction in total kerbside household comingled recyclables bin material</i>	0.7%	4.3%	0.2%	0.1%	0.8%
Estimated total savings per annum		\$1,096,000	\$1,237,000	\$432,000	\$221,000	\$226,000
Scenario 4: 30% of containers remaining in kerbside household comingled recyclables bins						
Maximum estimated gate rate savings from increased value of incoming material if container type included in CDS	<i>Gate rates savings (\$) per annum</i>	\$604,000	\$387,000	\$240,000	\$125,000	\$67,000
	<i>\$ per tonne gate rate savings</i>	\$4.34	\$2.78	\$1.72	\$0.90	\$0.48
Maximum savings from the redirection of the container type redirected from kerbside household comingled recyclables bins based on \$100 per tonne current gate rate	<i>Savings (\$) per annum from reduction in material requiring processing</i>	\$111,000	\$727,000	\$38,000	\$15,000	\$139,000
	<i>Tonnes removed from kerbside household comingled recyclables bins per annum</i>	1,107	7,267	384	149	1,389
	<i>% reduction in total kerbside household comingled recyclables bin material</i>	0.8%	5.2%	0.3%	0.1%	1.0%
Estimated total savings per annum		\$715,000	\$1,114,000	\$278,000	\$140,000	\$206,000

Saving type	Saving type	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Scenario 5: 7% of containers remaining in kerbside household comingled recyclables bins:						
Maximum estimated gate rate savings from increased value of incoming material if container type included in CDS	<i>Gate rates savings (\$) per annum</i>	\$147,000	\$95,000	\$58,000	\$30,000	\$16,000
	<i>\$ per tonne gate rate savings</i>	\$1.06	\$0.68	\$0.42	\$0.22	\$0.12
Maximum savings from the redirection of the container type redirected from kerbside household comingled recyclables bins based on \$100 per tonne current gate rate	<i>Savings (\$) per annum from reduction in material requiring processing</i>	\$133,000	\$873,000	\$46,000	\$18,000	\$167,000
	<i>Tonnes removed from kerbside household comingled recyclables bins per annum</i>	1,329	8,729	461	179	1,669
	<i>% reduction in total kerbside household comingled recyclables bin material</i>	1.0%	6.3%	0.3%	0.1%	1.2%
Estimated total savings per annum		\$280,000	\$968,000	\$104,000	\$48,000	\$183,000
Scenario 6: 1% of containers remaining in kerbside household comingled recyclables bins						
Maximum estimated gate rate savings from increased value of incoming material if container type included in CDS	<i>Gate rates savings (\$) per annum</i>	\$20,000	\$13,000	\$8,000	\$4,000	\$2,000
	<i>\$ per tonne gate rate savings</i>	\$0.14	\$0.09	\$0.06	\$0.03	\$0.02
Maximum savings from the redirection of the container type redirected from kerbside household comingled recyclables bins based on \$100 per tonne current gate rate	<i>Savings (\$) per annum from reduction in material requiring processing</i>	\$139,000	\$914,000	\$48,000	\$19,000	\$175,000
	<i>Tonnes removed from kerbside household comingled recyclables bins per annum</i>	1,391	9,135	482	188	1,747
	<i>% reduction in total kerbside household comingled recyclables bin material</i>	1.0%	6.6%	0.3%	0.1%	1.3%
Estimated total savings per annum		\$159,000	\$927,000	\$56,000	\$23,000	\$177,000



6. Data sources and assumptions

This section provides a summary of the data sources, data values and assumptions used for extrapolating the value of the CDS and potential value to SA councils of including current non-CDS containers in the CDS (Section 4 and Section 5).

6.1 Tonnes of kerbside household comingled recyclables processed in SA per annum

Table 15: Total tonnes of kerbside household comingled recyclables bin material processed in SA per annum

Area	Tonnes per annum
Greater Adelaide	103,600
Regional SA	35,700
Total SA	139,300

Table source: Green Industries SA 2019, South Australia's Recycling Activity Survey Report for 2017-18

6.2 CDS containers sold, recovered, and placed into comingled recyclables bins

Table 16: CDS containers sold and recovered in SA and placed into comingled recyclables bins

Container types	Tonnes sold		Tonnes returned**		Tonnes placed into kerbside household comingled recyclables bins*	
	Tonnes/annum	% Returned	Tonnes/annum	Tonnes per annum	%	
CDS Metal	4,540	84%	3,800	162	4%	
CDS Glass	40,116	86%	34,500	2,426	7%	
CDS Plastic PET	5,515	69%	3,800	446	12%	
CDS Plastic HDPE	394	64%	250	26	10%	
CDS Plastic Other	NA	NA	NA	1	NA	
CDS LPB	1,307	44%	579	72	12%	
Total	51,872	83%	42,929	3,133	7%	

Table sources:

*SA EPA 2020, CDS Review - Kerbside Household Bin Audit Report

** Green Industries SA 2019, South Australia's Recycling Activity Survey Report for 2017-18

6.3 MRF gate rate and CDS recover rate assumptions

Table 17: MRF recover rates and gate rate assumptions

Assumption	Value	Source
Current MRF gate rate	~\$100 per tonne	Rawtec industry estimate
\$ per tonne value of current CDS containers in incoming comingled recyclables material	~\$25 per tonne	Rawtec industry estimate
Assumed container recovery rate at MRF	70%	Rawtec industry estimate

6.4 Non-CDS containers placed into kerbside household comingled recyclables bins

Table 18: Estimated number of containers within kerbside household comingled recyclables bins

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	19,476,000	13,886,000	8,525,000	4,236,000	2,620,000
Regional SA	9,059,000	3,594,000	2,881,000	1,723,000	564,000
All SA	28,535,000	17,480,000	11,406,000	5,959,000	3,184,000

Table source: SA EPA 2020, CDS Review - Kerbside Household Bin Audit Report

Table 19: Estimated tonnes of each container type within household comingled recyclables bins

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	956	7,308	363	134	1,447
Regional SA	445	1,891	123	55	312
All SA	1,401	9,199	486	189	1,759

Table source: SA EPA 2020, CDS Review - Kerbside Household Bin Audit Report

Appendices



Appendix 1: Survey introduction letter and survey form

SA EPA introduction letter



Figure 1: SA EPA CDS Survey introduction letter

Survey



Rawtec

info@rawtec.com.au

+(618) 8294 5571

11 Paringa Ave, Somerton Park, South
Australia 5044

Dear Council,

Re: Survey as part of the review of South Australia's Container Deposit Scheme (CDS)

The South Australian Environment Protection Authority (SA EPA) is currently undertaking a review of the state's Container Deposit Scheme (CDS), which has been in place since 1977. The review is to identify opportunities for the scheme to be more effective, efficient and transparent, and further support the SA resource recovery sector.

As part of the review, the SA EPA is undertaking data capture activities to provide an evidence base to support any changes to the scheme. This includes the attached survey for SA local governments to understand the:

- Current value of CDS to the councils, their communities and the sector.
- Economic, social and environmental impacts to councils and their communities from any potential changes to the scheme.

SA EPA has engaged Rawtec to undertake this survey (in the pages below). Please return the survey by **Friday 24th January** via email to - Jarvis Webb, Senior Consultant (jarvis.webb@rawtec.com.au)

Please note that individual council or organisation data collected in this survey will be aggregated and anonymised and treated as confidential. If you have questions regarding the survey, please contact Jarvis at Rawtec on (08) 8294 5571.

This survey provides an opportunity for SA councils to provide direct feedback on the value of CDS and the impact any changes may have on the council and their community. Your participation in this survey and any of your suggestions to improve the CDS will be gratefully appreciated.

Yours sincerely,

Kind Regards,

A handwritten signature in blue ink, appearing to read "Jarvis Webb", with a horizontal line extending to the right.

Jarvis Webb
Senior Consultant

Figure 2: Survey page 1 of 4

CDS Review Survey

Council/Authority Details

Council name:	
Respondent name:	Position:
Phone:	Email:

Survey Questions

Question	Response
<p>1. Do any of the council or authority's waste/recycling services receive any direct benefits from the value of CDS containers recovered from waste/recycling bins or material collected?</p>	<p><i>E.g. reduced costs for comingled recycling processing contract based on the percentage of CDS containers in the comingled recycling stream.</i> Response: Yes / No</p>
<p>2. If yes to Q1, please describe:</p>	
<p>2.1. How the benefit is calculated?</p>	<p><i>E.g. a rise and fall formula in the contract or included in gate rate.</i> Response:</p>
<p>2.2. The approximate value of the benefit to the council or authority?</p>	<p><i>E.g. \$ saving per annum or % reduction in costs.</i> Response:</p>
<p>3. Please describe any other indirect benefits that the CDS has on the council or authority's services?</p>	<p><i>E.g. reduced costs for managing litter.</i> Response:</p>
<p>4. Please describe the positive and adverse impacts that the following changes to the CDS would have on the council or authority's waste/recycling services it provides to residents/ratepayers. <i>This includes impacts on kerbside collections, resource recovery centres/transfer stations, MRFs, litter etc.</i></p>	
<p>Part A: What would the likely impacts to the council/authority be from increasing the types of plastic, metal, and LPB containers in the CDS?</p>	<p>Response:</p>
<p>4.1. Part B: Are there any particular types of plastic, metal or LBP containers that would provide the most benefit to the council/authority if included in the CDS and why?</p>	<p>Response:</p>

Figure 3: Survey page 2 of 4

<p>Part A: What would the likely impacts to the council/authority be from increasing the types of glass containers in the CDS?</p>	<p><u>Response:</u></p>
<p>Part B: Are there any particular types of glass containers that would provide the most benefit to the council/authority if included in the CDS and why?</p>	<p><u>Response:</u></p>
<p>Part C: What likely impacts would including <u>all</u> recyclable glass containers and jars in the CDS have on the kerbside bin system, MRF operations, and/or glass recovery operations?</p>	<p><u>Response:</u></p>
<p>5. Does your council or authority have any facilities that receive CDS containers and/or non-CDS containers (yes/no)?</p>	<p><i>This includes:</i></p> <ul style="list-style-type: none"> • Resource recovery centres/transfer stations that accept comingled recycling and/or separated plastic (e.g. milk), glass, other plastic containers. • Material recovery facilities (MRFs) that accept and process/sort comingled recycling streams. <p><u>Response:</u> Yes / No</p>
<p>5.1. If yes for Q5, please detail or attach separately any approximate material value (commodity and/or container deposit) for CDS materials or other potential non-CDS containers that you are able to provide:</p>	<p><i>E.g. approximate commodity prices/rebates for:</i></p> <ul style="list-style-type: none"> • Mixed CDS containers: • PET (e.g. separated milk bottles): • HDPE: (e.g. separated milk bottles): • Glass: • List any others: <p><u>Response:</u></p>
<p>6. Please detail any other potential positive or adverse impacts that any changes to the CDS would directly/indirectly have on the council's wider community:</p>	<p><u>Response:</u></p>
<p>7. Please provide any other further suggestions, feedback or comments regarding the impact that any changes to the CDS would have from a council perspective:</p>	<p><i>This may include impacts from changes to the CDS on:</i></p> <ul style="list-style-type: none"> • The state's kerbside waste collection/MRF system as a whole • SA resource recovery industry • State economy <p><u>Response:</u></p>

Figure 4: Survey page 3 of 4

8. Has your Council conducted any kerbside, public place, facility or other bin or waste/recycling material audits? If so, would you be willing to share any data or reports with the EPA?

Response:

Figure 5: Survey page 3 of 4

Appendix 2: Scenario modelling output tables

Baseline: Without any scenario modelling for recovery of container types

Table 20: Estimated number of containers within kerbside household comingled recyclables bins

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	19,476,000	13,886,000	8,525,000	4,236,000	2,620,000
Regional SA	9,059,000	3,594,000	2,881,000	1,723,000	564,000
All SA	28,535,000	17,480,000	11,406,000	5,959,000	3,184,000

Table 21: Value of containers (based on 10c return per container) placed into kerbside household comingled recyclables bins

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$1,947,600	\$1,388,600	\$852,500	\$423,600	\$262,000
Regional SA	\$905,900	\$359,400	\$288,100	\$172,300	\$56,400
All SA	\$2,853,500	\$1,748,000	\$1,140,600	\$595,900	\$318,400

Table 22: Estimated tonnes of containers placed into kerbside household comingled recyclables bins

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	956	7,308	363	134	1,447
Regional SA	445	1,891	123	55	312
Total SA	1,401	9,199	486	189	1,759

Table 23: Estimated value of containers (based on 10c return per container) per tonne of kerbside household comingled recyclables bin material*

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$18.80	\$13.40	\$8.23	\$4.09	\$2.53
Regional SA	\$25.38	\$10.07	\$8.07	\$4.83	\$1.58
Total SA	\$20.48	\$12.55	\$8.19	\$4.28	\$2.29

Table explanation note: The figure for the \$ per tonne MRF gate rate saving for if plastic HDPE milk containers are included in CDS, is higher for Regional SA compared to the figure for Greater Adelaide, due to the ratio of the estimated number of these container types compared to total tonnes of household comingled recyclables (found in Table 15 of Section 6), being higher compared to the ratio of containers within Greater Adelaide kerbside household comingled recyclables bin material. This higher or lower ratio effect on estimated MRF gate rate savings applies differently to the other container types modelled.

Scenario 1: 90% of containers remain in kerbside household comingled recyclables bins

Table 24: Estimated number of containers placed into kerbside household comingled recyclables bins (Scenario 1)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	12,270,000	8,748,000	5,371,000	2,669,000	1,651,000
Regional SA	5,707,000	2,264,000	1,815,000	1,085,000	355,000
Total SA	17,977,000	11,012,000	7,186,000	3,754,000	2,006,000

Table 25: Value of containers (based on 10c return per container) in kerbside household comingled recyclables bins (Scenario 1)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$1,227,000	\$874,800	\$537,100	\$266,900	\$165,100
Regional SA	\$570,700	\$226,400	\$181,500	\$108,500	\$35,500
Total SA	\$1,797,700	\$1,101,200	\$718,600	\$375,400	\$200,600

Table 26: Estimated tonnes of containers placed into kerbside household comingled recyclables bins (Scenario 1)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	602	4,604	229	84	912
Regional SA	280	1,191	77	35	197
Total SA	882	5,795	306	119	1,109

Estimate tonnes diverted from comingled recyclables bins to Collection Depots and other location (e.g. litter, landfill)

Greater Adelaide	354	2,704	134	50	535
Regional SA	165	700	46	20	115
Total SA	519	3,404	180	70	650
% volume reduction	0.4%	2.4%	0.1%	0.1%	0.5%

Table 27: Estimated value of containers (based on 10c return per containers) per tonne of kerbside household comingled recyclables (Scenario 1)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$11.88	\$8.67	\$5.19	\$2.58	\$1.60
Regional SA	\$16.06	\$6.47	\$5.09	\$3.04	\$1.00
Total SA	\$12.95	\$8.10	\$5.17	\$2.70	\$1.45

Table 28: Summary of per annum benefit from gate rate savings and reduction in volume requiring processing (Scenario 1)

		Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	Est. max. gate rate savings (\$/annum)	\$1,227,000	\$875,000	\$537,000	\$267,000	\$165,000
	Est. max. volume reduction savings (\$/annum)	\$35,000	\$270,000	\$13,000	\$5,000	\$54,000
	Total est. max. savings per annum	\$1,262,000	\$1,145,000	\$550,000	\$272,000	\$219,000
Regional SA	Est. max. gate rate savings (\$/annum)	\$568,000	\$213,000	\$181,000	\$108,000	\$35,000
	Est. max. volume reduction savings (\$/annum)	\$17,000	\$70,000	\$5,000	\$2,000	\$12,000
	Total est. max. savings per annum	\$585,000	\$283,000	\$186,000	\$110,000	\$47,000
Total SA	Est. max. gate rate savings (\$/annum)	\$1,804,000	\$1,129,000	\$720,000	\$376,000	\$202,000
	Est. max. volume reduction savings (\$/annum)	\$52,000	\$340,000	\$18,000	\$7,000	\$65,000
	Total est. max. savings per annum	\$1,856,000	\$1,469,000	\$738,000	\$383,000	\$267,000

Scenario 2: 70% of containers remain in kerbside household comingled recyclables bins

Table 29: Estimated number of containers placed into kerbside household comingled recyclables bins (Scenario 2)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	9,543,000	6,804,000	4,177,000	2,076,000	1,284,000
Regional SA	4,439,000	1,761,000	1,412,000	844,000	276,000
Total SA	13,982,000	8,565,000	5,589,000	2,920,000	1,560,000

Table 30: Value of containers (based on 10c return per container) in kerbside household comingled recyclables bins (Scenario 2)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$954,300	\$680,400	\$417,700	\$207,600	\$128,400
Regional SA	\$443,900	\$176,100	\$141,200	\$84,400	\$27,600
Total SA	\$1,398,200	\$856,500	\$558,900	\$292,000	\$156,000

Table 31: Estimated tonnes of containers placed into kerbside household comingled recyclables bins (Scenario 2)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	468	3,581	178	66	709
Regional SA	218	927	60	27	153
Total SA	686	4,508	238	93	862

Estimate tonnes diverted from comingled recyclables bins to Collection Depots and other location (e.g. litter, landfill)

Greater Adelaide	488	3,727	185	68	738
Regional SA	227	964	63	28	159
Total SA	715	4,691	248	96	897
% volume reduction	0.5%	3.4%	0.2%	0.1%	0.6%

Table 32: Estimated value of containers (based on 10c return per containers) per tonne of kerbside household comingled recyclables (Scenario 2)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$9.25	\$6.81	\$4.04	\$2.01	\$1.25
Regional SA	\$12.51	\$5.07	\$3.96	\$2.37	\$0.78
Total SA	\$10.09	\$6.36	\$4.02	\$2.10	\$1.13

Table 33: Summary of per annum benefit from gate rate savings and reduction in volume requiring processing (Scenario 2)

		Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	Est. max. gate rate savings (\$/annum)	\$954,000	\$680,000	\$418,000	\$208,000	\$128,000
	Est. max. volume reduction savings (\$/annum)	\$49,000	\$373,000	\$19,000	\$7,000	\$74,000
	Total est. max. savings per annum	\$1,003,000	\$1,053,000	\$437,000	\$215,000	\$202,000
Regional SA	Est. max. gate rate savings (\$/annum)	\$441,000	\$162,000	\$141,000	\$84,000	\$27,000
	Est. max. volume reduction savings (\$/annum)	\$23,000	\$96,000	\$6,000	\$3,000	\$16,000
	Total est. max. savings per annum	\$464,000	\$258,000	\$147,000	\$87,000	\$43,000
Total SA	Est. max. gate rate savings (\$/annum)	\$1,405,000	\$886,000	\$560,000	\$292,000	\$157,000
	Est. max. volume reduction savings (\$/annum)	\$72,000	\$469,000	\$25,000	\$10,000	\$90,000
	Total est. max. savings per annum	\$1,477,000	\$1,355,000	\$585,000	\$302,000	\$247,000

Scenario 3: 50% of containers remain in kerbside household comingled recyclables bins

Table 34: Estimated number of containers placed into kerbside household comingled recyclables bins (Scenario 3)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	6,817,000	4,860,000	2,984,000	1,483,000	917,000
Regional SA	3,171,000	1,258,000	1,008,000	603,000	197,000
Total SA	9,988,000	6,118,000	3,992,000	2,086,000	1,114,000

Table 35: Value of containers (based on 10c return per container) in kerbside household comingled recyclables bins (Scenario 3)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$681,700	\$486,000	\$298,400	\$148,300	\$91,700
Regional SA	\$317,100	\$125,800	\$100,800	\$60,300	\$19,700
Total SA	\$998,800	\$611,800	\$399,200	\$208,600	\$111,400

Table 36: Estimated tonnes of containers placed into kerbside household comingled recyclables bins (Scenario 3)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	335	2,558	127	47	506
Regional SA	156	662	43	19	109
Total SA	491	3,220	170	66	615

Estimate tonnes diverted from comingled recyclables bins to Collection Depots and other location (e.g. litter, landfill)

Greater Adelaide	621	4,750	236	87	941
Regional SA	289	1,229	80	36	203
Total SA	910	5,979	316	123	1,144
% volume reduction	0.7%	4.3%	0.2%	0.1%	0.8%

Table 37: Estimated value of containers (based on 10c return per containers) per tonne of kerbside household comingled recyclables (Scenario 2)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$6.62	\$4.92	\$2.89	\$1.43	\$0.89
Regional SA	\$8.95	\$3.65	\$2.83	\$1.69	\$0.55
Total SA	\$7.22	\$4.59	\$2.87	\$1.50	\$0.81

Table 38: Summary of per annum benefit from gate rate savings and reduction in volume requiring processing (Scenario 3)

		Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	Est. max. gate rate savings (\$/annum)	\$682,000	\$486,000	\$298,000	\$148,000	\$92,000
	Est. max. volume reduction savings (\$/annum)	\$62,000	\$475,000	\$24,000	\$9,000	\$94,000
	Total est. max. savings per annum	\$744,000	\$961,000	\$322,000	\$157,000	\$186,000
Regional SA	Est. max. gate rate savings (\$/annum)	\$314,000	\$113,000	\$100,000	\$60,000	\$19,000
	Est. max. volume reduction savings (\$/annum)	\$29,000	\$123,000	\$8,000	\$4,000	\$20,000
	Total est. max. savings per annum	\$343,000	\$236,000	\$108,000	\$64,000	\$39,000
Total SA	Est. max. gate rate savings (\$/annum)	\$1,005,000	\$639,000	\$400,000	\$209,000	\$112,000
	Est. max. volume reduction savings (\$/annum)	\$91,000	\$598,000	\$32,000	\$12,000	\$114,000
	Total est. max. savings per annum	\$1,096,000	\$1,237,000	\$432,000	\$221,000	\$226,000

Scenario 4: 30% of containers remain in kerbside household comingled recyclables bins

Table 39: Estimated number of containers placed into kerbside household comingled recyclables bins (Scenario 4)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	4,090,000	2,916,000	1,790,000	890,000	550,000
Regional SA	1,902,000	755,000	605,000	362,000	118,000
Total SA	5,992,000	3,671,000	2,395,000	1,252,000	668,000

Table 40: Value of containers (based on 10c return per container) in kerbside household comingled recyclables bins (Scenario 4)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$409,000	\$291,600	\$179,000	\$89,000	\$55,000
Regional SA	\$190,200	\$75,500	\$60,500	\$36,200	\$11,800
Total SA	\$599,200	\$367,100	\$239,500	\$125,200	\$66,800

Table 41: Estimated tonnes of containers placed into kerbside household comingled recyclables bins (Scenario 4)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	201	1,535	76	28	304
Regional SA	93	397	26	12	66
Total SA	294	1,932	102	40	370

Estimate tonnes diverted from comingled recyclables bins to Collection Depots and other location (e.g. litter, landfill)

Greater Adelaide	755	5,773	287	106	1,143
Regional SA	352	1,494	97	43	246
Total SA	1,107	7,267	384	149	1,389
% volume reduction	0.8%	5.2%	0.3%	0.1%	1.0%

Table 42: Estimated value of containers (based on 10c return per containers) per tonne of kerbside household comingled recyclables (Scenario 4)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$3.98	\$2.98	\$1.73	\$0.86	\$0.54
Regional SA	\$5.38	\$2.21	\$1.70	\$1.02	\$0.33
Total SA	\$4.34	\$2.78	\$1.72	\$0.90	\$0.48

Table 43: Summary of per annum benefit from gate rate savings and reduction in volume requiring processing (Scenario 4)

		Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	Est. max. gate rate savings (\$/annum)	\$409,000	\$292,000	\$179,000	\$89,000	\$55,000
	Est. max. volume reduction savings (\$/annum)	\$76,000	\$577,000	\$29,000	\$11,000	\$114,000
	Total est. max. savings per annum	\$485,000	\$869,000	\$208,000	\$100,000	\$169,000
Regional SA	Est. max. gate rate savings (\$/annum)	\$188,000	\$66,000	\$60,000	\$36,000	\$12,000
	Est. max. volume reduction savings (\$/annum)	\$35,000	\$149,000	\$10,000	\$4,000	\$25,000
	Total est. max. savings per annum	\$223,000	\$215,000	\$70,000	\$40,000	\$37,000
Total SA	Est. max. gate rate savings (\$/annum)	\$604,000	\$387,000	\$240,000	\$125,000	\$67,000
	Est. max. volume reduction savings (\$/annum)	\$111,000	\$727,000	\$38,000	\$15,000	\$139,000
	Total est. max. savings per annum	\$715,000	\$1,114,000	\$278,000	\$140,000	\$206,000

Scenario 5: 7% of containers remain in kerbside household comingled recyclables bins

Table 44: Estimated number of containers placed into kerbside household comingled recyclables bins (Scenario 5)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	995,000	709,000	436,000	216,000	134,000
Regional SA	463,000	184,000	147,000	88,000	29,000
Total SA	1,458,000	893,000	583,000	304,000	163,000

Table 45: Value of containers (based on 10c return per container) in kerbside household comingled recyclables bins (Scenario 5)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$99,500	\$70,900	\$43,600	\$21,600	\$13,400
Regional SA	\$46,300	\$18,400	\$14,700	\$8,800	\$2,900
Total SA	\$145,800	\$89,300	\$58,300	\$30,400	\$16,300

Table 46: Estimated tonnes of containers placed into kerbside household comingled recyclables bins (Scenario 5)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	49	373	19	7	74
Regional SA	23	97	6	3	16
Total SA	72	470	25	10	90

Estimate tonnes diverted from comingled recyclables bins to Collection Depots and other location (e.g. litter, landfill)

Greater Adelaide	907	6,935	344	127	1,373
Regional SA	422	1,794	117	52	296
Total SA	1,329	8,729	461	179	1,669
% volume reduction	1.0%	6.3%	0.3%	0.1%	1.2%

Table 47: Estimated value of containers (based on 10c return per containers) per tonne of kerbside household comingled recyclables (Scenario 5)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$0.97	\$0.73	\$0.42	\$0.21	\$0.13
Regional SA	\$1.31	\$0.54	\$0.41	\$0.25	\$0.08
Total SA	\$1.06	\$0.68	\$0.42	\$0.22	\$0.12

Table 48: Summary of per annum benefit from gate rate savings and reduction in volume requiring processing (Scenario 5)

		Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	Est. max. gate rate savings (\$/annum)	\$100,000	\$71,000	\$44,000	\$22,000	\$13,000
	Est. max. volume reduction savings (\$/annum)	\$91,000	\$694,000	\$34,000	\$13,000	\$137,000
	Total est. max. savings per annum	\$191,000	\$765,000	\$78,000	\$35,000	\$150,000
Regional SA	Est. max. gate rate savings (\$/annum)	\$46,000	\$16,000	\$15,000	\$9,000	\$3,000
	Est. max. volume reduction savings (\$/annum)	\$42,000	\$179,000	\$12,000	\$5,000	\$30,000
	Total est. max. savings per annum	\$88,000	\$195,000	\$27,000	\$14,000	\$33,000
Total SA	Est. max. gate rate savings (\$/annum)	\$147,000	\$95,000	\$58,000	\$30,000	\$16,000
	Est. max. volume reduction savings (\$/annum)	\$133,000	\$873,000	\$46,000	\$18,000	\$167,000
	Total est. max. savings per annum	\$280,000	\$968,000	\$104,000	\$48,000	\$183,000

Scenario 6: 1% of containers remain in kerbside household comingled recyclables bins

Table 49: Estimated number of containers placed into kerbside household comingled recyclables bins (Scenario 6)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	No. items per annum	No. items per annum	No. items per annum	No. items per annum	No. items per annum
Greater Adelaide	136,000	97,000	60,000	30,000	18,000
Regional SA	63,000	25,000	20,000	12,000	4,000
Total SA	199,000	122,000	80,000	42,000	22,000

Table 50: Value of containers (based on 10c return per container) in kerbside household comingled recyclables bins (Scenario 6)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per annum	\$ per annum	\$ per annum	\$ per annum	\$ per annum
Greater Adelaide	\$13,600	\$9,700	\$6,000	\$3,000	\$1,800
Regional SA	\$6,300	\$2,500	\$2,000	\$1,200	\$400
Total SA	\$19,900	\$12,200	\$8,000	\$4,200	\$2,200

Table 51: Estimated tonnes of containers placed into kerbside household comingled recyclables bins (Scenario 6)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum	Tonnes per annum
Greater Adelaide	7	51	3	1	10
Regional SA	3	13	1	0	2
Total SA	10	64	4	1	12

Estimate tonnes diverted from comingled recyclables bins to Collection Depots and other location (e.g. litter, landfill)

Greater Adelaide	949	7,257	360	133	1,437
Regional SA	442	1,878	122	55	310
Total SA	1,391	9,135	482	188	1,747
% volume reduction	1.0%	6.6%	0.3%	0.1%	1.3%

Table 52: Estimated value of containers (based on 10c return per containers) per tonne of kerbside household comingled recyclables (Scenario 6)

	Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Area	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne	\$ per tonne
Greater Adelaide	\$0.13	\$0.10	\$0.06	\$0.03	\$0.02
Regional SA	\$0.18	\$0.07	\$0.06	\$0.03	\$0.01
Total SA	\$0.14	\$0.09	\$0.06	\$0.03	\$0.02

Table 53: Summary of per annum benefit from gate rate savings and reduction in volume requiring processing (Scenario 6)

		Plastic HDPE milk containers	Glass wine bottles	Foiled LPB milk containers	Non-foiled LPB milk containers	Glass spirit bottles
Greater Adelaide	Est. max. gate rate savings (\$/annum)	\$14,000	\$10,000	\$6,000	\$3,000	\$2,000
	Est. max. volume reduction savings (\$/annum)	\$95,000	\$726,000	\$36,000	\$13,000	\$144,000
	Total est. max. savings per annum	\$109,000	\$736,000	\$42,000	\$16,000	\$146,000
Regional SA	Est. max. gate rate savings (\$/annum)	\$6,000	\$2,000	\$2,000	\$1,000	\$0
	Est. max. volume reduction savings (\$/annum)	\$44,000	\$188,000	\$12,000	\$6,000	\$31,000
	Total est. max. savings per annum	\$50,000	\$190,000	\$14,000	\$7,000	\$31,000
Total SA	Est. max. gate rate savings (\$/annum)	\$20,000	\$13,000	\$8,000	\$4,000	\$2,000
	Est. max. volume reduction savings (\$/annum)	\$139,000	\$914,000	\$48,000	\$19,000	\$175,000
	Total est. max. savings per annum	\$159,000	\$927,000	\$56,000	\$23,000	\$177,000

Estimated savings for the top five current non-CDS beverage containers for each scenario

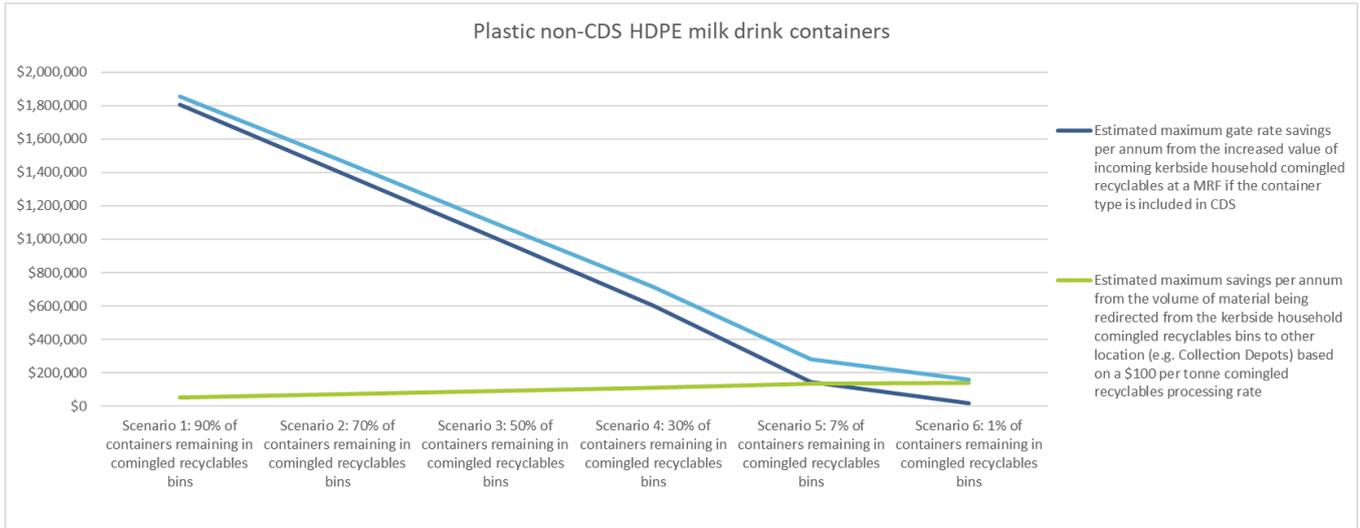


Figure 6: Chart showing the estimated gate rate savings, reduction in the material requiring processing savings and total savings per annum across each scenario for if plastic non-CDS HDPE milk drink containers

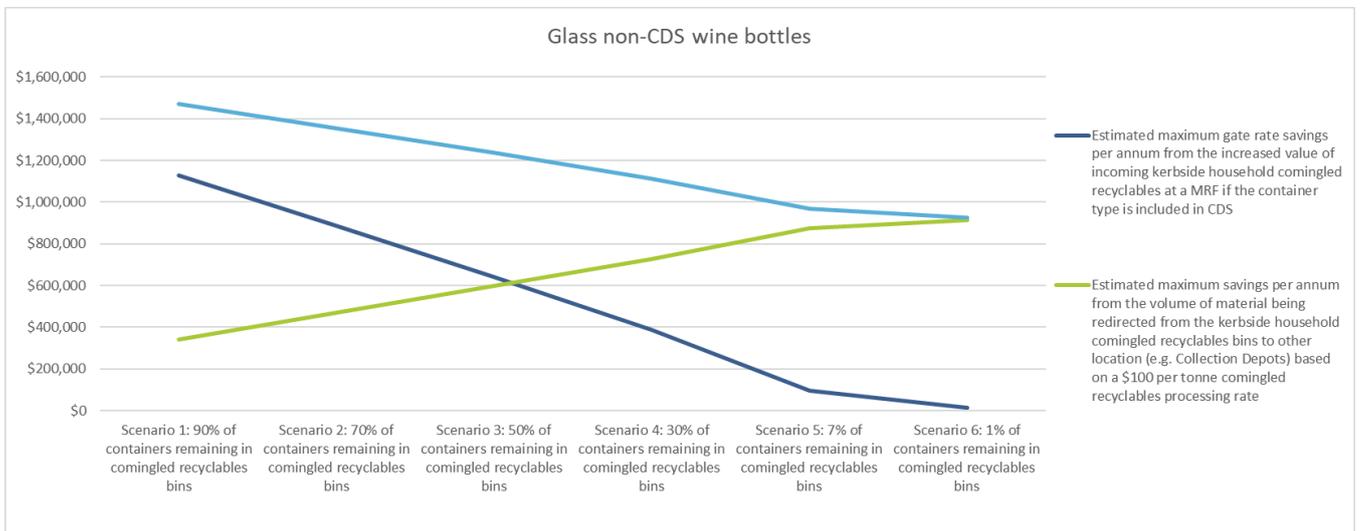


Figure 7: Chart showing the estimated gate rate savings, reduction in the material requiring processing savings and total savings per annum across each scenario for if glass non-CDS wine bottles are included in the CDS

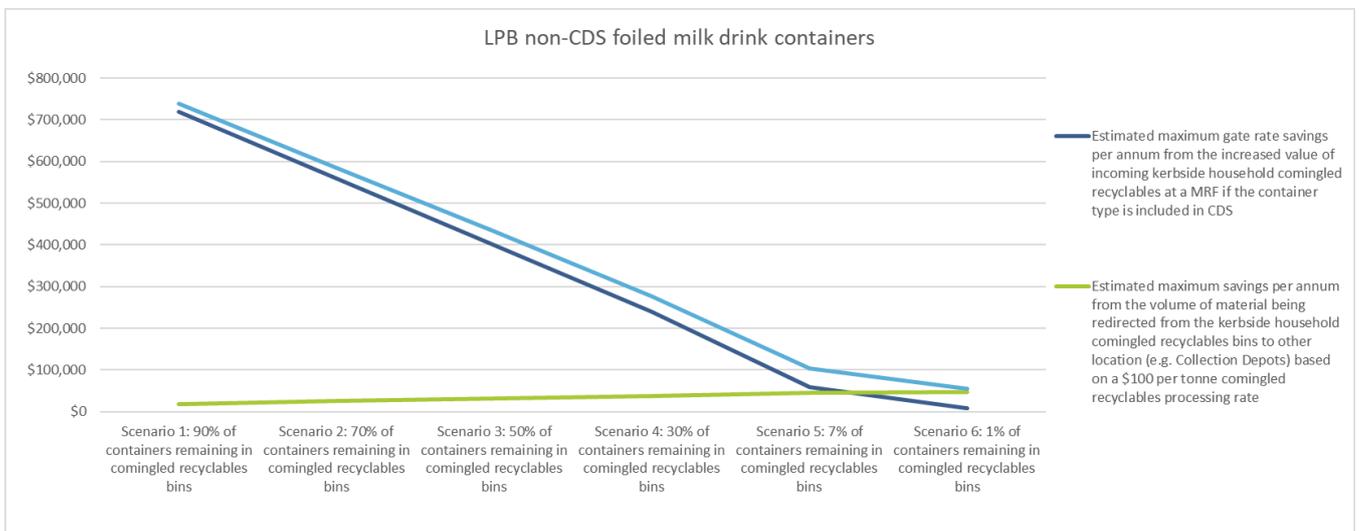


Figure 8: Chart showing the estimated gate rate savings, reduction in the material requiring processing savings and total savings per annum across each scenario for if LPB non-CDS foiled milk drink containers

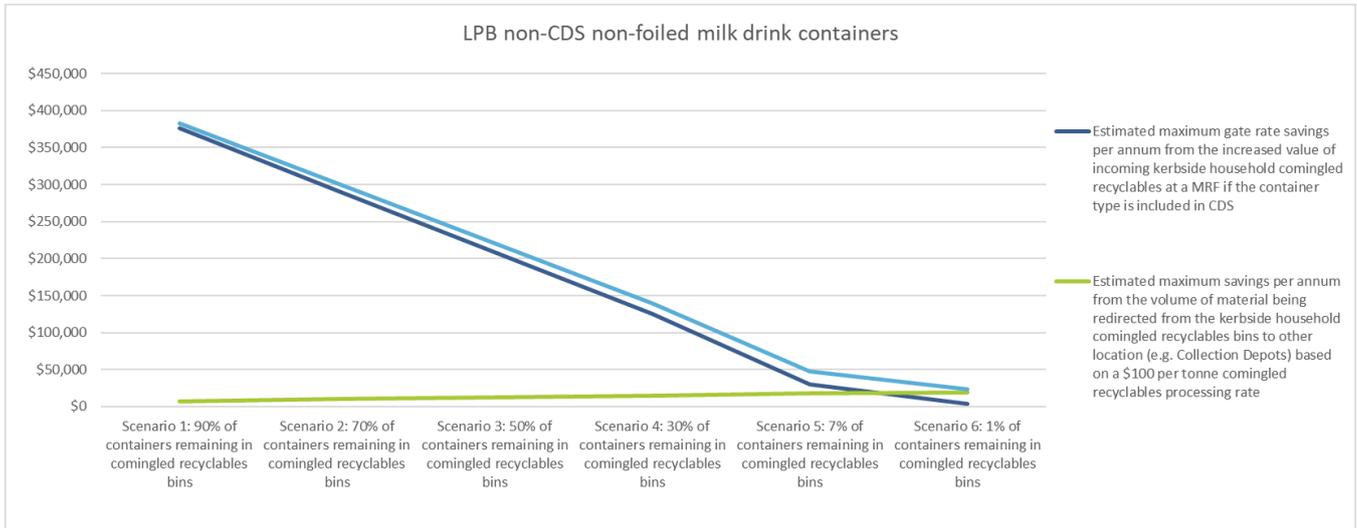


Figure 9: Chart showing the estimated gate rate savings, reduction in the material requiring processing savings and total savings per annum across each scenario for if LPB non-CDS non-foiled milk drink containers are included in the CDS

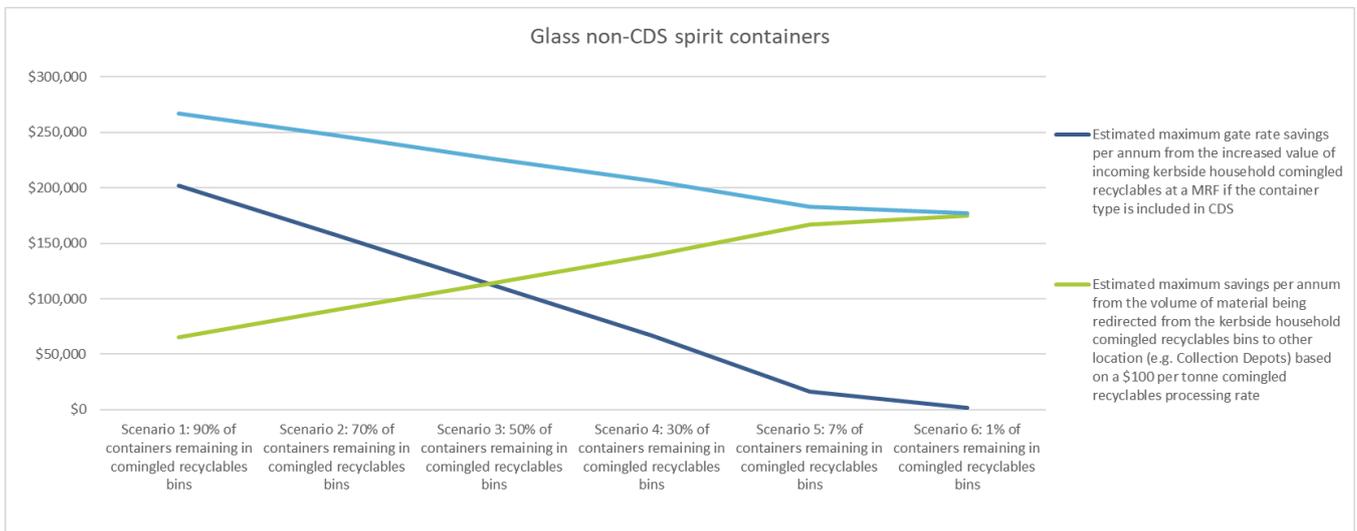


Figure 10: Chart showing the estimated gate rate savings, reduction in the material requiring processing savings and total savings per annum across each scenario for if glass non-CDS spirit bottles are included in the CDS



Table 54: Summary estimated gate rate savings, reduction in the material requiring processing savings and total savings per annum across each scenario for the top five current non-CDS beverage containers if they are included in the CDS

	Scenario 1: 90% of containers remaining in comingled recyclables bins	Scenario 2: 70% of containers remaining in comingled recyclables bins	Scenario 3: 50% of containers remaining in comingled recyclables bins	Scenario 4: 30% of containers remaining in comingled recyclables bins	Scenario 5: 7% of containers remaining in comingled recyclables bins	Scenario 6: 1% of containers remaining in comingled recyclables bins
Plastic non-CDS HDPE milk drink						
Est. max. gate rate savings (\$/annum)	\$1,804,000	\$1,405,000	\$1,005,000	\$604,000	\$147,000	\$20,000
Est. max. volume reduction savings (\$/annum)	\$52,000	\$72,000	\$91,000	\$111,000	\$133,000	\$139,000
Total est. max. savings per annum	\$1,856,000	\$1,477,000	\$1,096,000	\$715,000	\$280,000	\$159,000
Glass non-CDS wine						
Est. max. gate rate savings (\$/annum)	\$1,129,000	\$886,000	\$639,000	\$387,000	\$95,000	\$13,000
Est. max. volume reduction savings (\$/annum)	\$340,000	\$469,000	\$598,000	\$727,000	\$873,000	\$914,000
Total est. max. savings per annum	\$1,469,000	\$1,355,000	\$1,237,000	\$1,114,000	\$968,000	\$927,000
LPB non-CDS foiled milk drink						
Est. max. gate rate savings (\$/annum)	\$720,000	\$560,000	\$400,000	\$240,000	\$58,000	\$8,000
Est. max. volume reduction savings (\$/annum)	\$18,000	\$25,000	\$32,000	\$38,000	\$46,000	\$48,000
Total est. max. savings per annum	\$738,000	\$585,000	\$432,000	\$278,000	\$104,000	\$56,000
LPB non-CDS non-foiled milk drink						
Est. max. gate rate savings (\$/annum)	\$376,000	\$292,000	\$209,000	\$125,000	\$30,000	\$4,000
Est. max. volume reduction savings (\$/annum)	\$7,000	\$10,000	\$12,000	\$15,000	\$18,000	\$19,000
Total est. max. savings per annum	\$383,000	\$302,000	\$221,000	\$140,000	\$48,000	\$23,000
Glass non-CDS spirit						
Est. max. gate rate savings (\$/annum)	\$202,000	\$157,000	\$112,000	\$67,000	\$16,000	\$2,000
Est. max. volume reduction savings (\$/annum)	\$65,000	\$90,000	\$114,000	\$139,000	\$167,000	\$175,000
Total est. max. savings per annum	\$267,000	\$247,000	\$226,000	\$206,000	\$183,000	\$177,000





info@rawtec.com.au

+ (618) 8294 5571

11 Paringa Ave, Somerton Park, South
Australia 5044