The Boomerang Model: Value adding to a traditional Container Deposit Approach

BOOMERANG ALLIANCE

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For More Information Please Contact:
Jeff Angel, National Convenor:
Ph: 02 9211 5022 email jeff.angel@tec.org.au
Dave West, National Policy Director
Ph: 0404 093 718 email westd@iprimus.com.au

A Snapshot:

- **Industry figures are exaggerating the financial impacts of a national Container Deposit Scheme – ignoring the value of unredeemed deposits and sale of material in both their advertising and in the charges they are forcing onto consumers in the Northern Territory**
- **The adoption of the Boomerang Alliance (BA) approach to Container Deposit system will represent the single biggest initiative undertaken by government to increase recycling – a boost that is over 10 times the size of the E-Waste Product Stewardship initiative, and twice the size of the Publishers National Environment Bureau's Newspaper Recycling Initiative**
- **The scheme operates efficiently and requires no payments from the beverage industry (other than the deposit) until recovery rates exceed 86.5%. $120million of the surplus generated from the establishment period has been quarantined to ensure the budget does not 'blow out'. If the interest earnings from the surplus earned was applied to offset performance the scheme can self-fund for recovery rates as high as 93% which ranks with the best practice performance globally.**
- **The BA model will see some 1,700 recycling collection points established around the country – these depots will also be able to cost effectively recover (at least) another 113,000 tonnes of recyclate & dramatically reduce the cost of recovering problem wastes such as car batteries, mobile phones, CFL globes, used paint and chemical containers and electronic waste.**
- **PWC/Wright Corporate Strategy have estimated the BA model will reduce the cost of MSW waste and recycling collection services by $737million over the 20 year study period and reduce the cost of overall existing packaging waste and recycling services by some $2.72billion over the study period.**
- **No other initiative is fully funded – instead relying on existing waste and recycling services to absorb significant costs.**
- **The CDS models assessed in the RIS give the recycling industry 'bankable growth'. Based on the CRIS data the overall industry will grow by some $716million p.a.**
- **The BA model will create another 2,236 recycling jobs + another 1,878 indirect jobs – a 10.05% lift in the overall size of the industry.**
- **The BA model will produce a financial surplus of some $1.718billion and generate some $1.09billion of interest over the 20 year study period. These monies could be used to provide a substantial stimulus to stakeholders along the recycling value chain.**
- **Consumers who redeem all of the containers they consume will actually see their cost of living reduced by some $10.73 per annum.**

Introduction

This document describes the financial impacts associated with the Boomerang model of an efficient, low cost container deposit system (CDS, its features are outlined below). The recent Packaging Impacts Consultation RIS (CRIS) attempted to model it but omitted important features and overstated some costs. Understanding the financial impacts is important as the Boomerang Alliance scheme is designed to operate at a financial surplus. The CRIS which examined broader economic costs and benefits (CBA) correctly deals with this as a simple transfer; **however** the monies earned and programs undertaken with these monies **should** be considered as benefits (or costs where appropriate) in a CBA. Such benefits are outlined below.

Missing from the CRIS analysis were:

- Employment Growth;
- Benefits derived from financial surpluses (e.g. interest earned);
- Co-Benefits derived from infrastructure supplied by CDS (i.e. other recovery received at the depots)
- Calculation of value added growth from the proportion of scrap material reprocessed in Australia.

Please note the calculations undertaken herein **do not** reflect the rough financial cost estimates contained within the BA submission to the CRIS as it became obvious there were a number of considerations that required more detailed analysis than was available during the consultation period.

To develop a financial forecast as will be undertaken in a Decision RIS (DRIS) it was necessary to recalculate all figures outlined within the CRIS as the economic analyses have 3 calculations to adjust between a financial and economic calculation because:

- To estimate a net present value the CRIS applies a level of discounting to both revenues and costs to reflect the value of the dollar in the future.
- The economic value is based on the additional revenues i.e. the additional materials with an assumed baseline of growing recycling rates in future years. A financial calculation estimates the total revenues and charges for the system as a whole.
- An economic value assumes some costs and benefits are simply transfers between parties whereas a financial analysis considers the direct impacts along the value chain.

Employment Growth

On the current mix of depots labour costs represent around 30% of total handling fees charged. Based on the financial analysis herein and discussions with industry figures we estimate the following full time jobs will be created with the adoption of the BA Model:

- 750 jobs created working at Hubs (250 X 3 staff)[1];
- 620 fulltime jobs at manual depots (310 depots X 2 fulltime);
- 320 jobs working at automated depots (640 automated depots X 1/2 staff member each)[2]
- 25 jobs working in data management and servicing for automated depots;
- 107 jobs working in transportation (between depots and hubs)
- 8 jobs working in scheme administration
- 406 jobs in reprocessing recovered material back to raw materials (based on Access Economics estimates if 75% of the additional scrap material is recycled in Australia)[3]
- 1,878 indirect jobs – sales and services to the operation[4]

TOTAL NEW JOBS CREATED FROM SCHEME: 4,114

NB There is also around 1,240 part time jobs in the manual depots & hubs

[1] Most hubs will have more than 3 staff, but the additional staff would work in other collection activities

[2] RVM operations do not have fulltime staff – discussions with technology providers indicates there would be an. Av. 0.5 staff per depot for cleaning, maintenance, and bin change over etc.

[3] Based on Access Economics "employment in Waste Management & Recycling) July '09 for the DEWHA

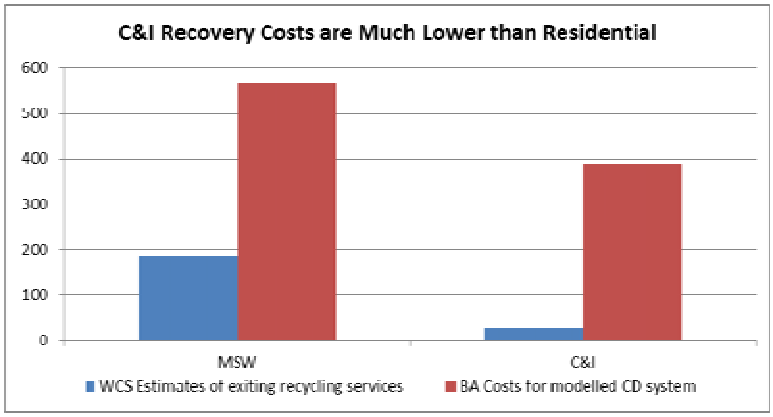
[4] Access Economics estimated that there are 0.84 indirect jobs for each 1 job in the recycling sector

The Direct Costs and Financial Benefits

Our analysis is based on the consumption patterns identified by the RIS Consultants PWC and Wright Corporate Strategy (PWC/WCS) but does correct a number of errors regarding costs. The following are the key areas where the CRIS has overstated key aspects of costs:

1. Handling Fees. Handling Fees have been modelled by PWC/WCS at 4.5¢ per container. This is a reasonable (if inflated) assessment for handling fees to manual depots (comparable to the 4.25¢ handling costs estimated as the current handling costs in South Australia) but is significantly overstated for the handling fees for the 'Hubs' operations.

   Hubs are primarily designed for the large container volumes redeemed via the Commercial & Industrial sector and as a consolidation point for smaller collection depots. For this reason Hubs are assumed to redeem 25% of all containers – comparable to the 30% PWC/WCS identify as being the proportion of consumption identified as "away from home". To this end the Hubs will handle higher volumes resulting in significantly fewer transactions and much lower sorting costs as they will be permitted to handle redemption by weight rather than a physical count of containers. The average volume per transaction at the Hub is 4,100 containers compared to the average volume per transaction at a Depot of just 323 containers.



For the financial analysis Boomerang Alliance has modelled the handling fees per container for Hubs at a rate of 3.1¢ per container (or $390.60 per tonne) compared to a fee of 4.5¢ per container (or $567.00 per tonne).

These savings for servicing the commercial sector are consistent with the costs of operation for other waste and recycling collection. To illustrate, the table to the above compares the BA modelled costs for Hubs with the costs of C&I Recycling and Depots with the costs of MSW recycling services.

2. We have also adjusted costs for reverse vending machines (RVM) based depots which have a significantly lower cost than experienced in South Australia, as they have significantly less labour and operate in much smaller premises than a manual depot. Industry sources have suggested that **at worst** the costs of an RVM based collection point would cost around 4¢ per container - reflecting a price reduction of 0.25¢ per container on the South Australian operation. Interestingly PWC/WCS applied a lower cost per container (of 4¢/container for automated depots in option 4B but not in option 4A).

It should be noted that the CRIS models there would be some 610 automated depots and 340 manual depots, yet for some reason it also assumes that automated depots would attract just 22.5% of the total recovery (see copy of CRIS table below). This is inconsistent with the original BA model and creates a significant cost distortion. Larger automated depots would manage at least 40% of the total redemption.

3. The remnant collection via kerbside recycling has not attracted a handling fee as the operators receive the value of the container refund when they have not paid the deposit itself. Under the BA model, Kerbside Operators can only redeem (by weight) at a Hub – they do not receive a handling fee (neither does the Hub – which receives a basic baling and audit fee of 0.4¢ per container – this equates to $254.55 per transaction for the kerbside remnant).

4. The WCA/PWC model uses a cost of 0.4¢ per container for co-ordination (mistakenly using the Boomerang Alliance's figures for **both** administration and consolidation i.e. baling etc. and then adds in a further charge for baling). 0.4¢ represents a cost of $48million p.a. which grossly exaggerates

costs. Consolidation costs have been extracted out and placed in a new line item (baling) and an estimate of 0.1¢ per container ($12million p.a.) allocated for co-ordination fees – this equates to $480,000 p.a. for each of 250 hubs to administer the scheme in their region.

5. Transport, compaction and baling (or crushing in the instance of glass) has been added back into the model. Baling (0.25¢ per container) and transport from the Depot to the Hub (0.65¢ per container) totals a payment of 0.9¢ per container – a higher figure than the 0.72¢ modelled in the CRIS but transport payments should only applied to the proportion collected at depots (the redemption via Hubs and Kerbside Recycling does not incur transportation costs).

Based on the above when modelling the financial impacts of a CDS we have chosen to use neither the Boomerang Alliance or PWC modelled costs and we have sought to identify a reasonable median considering both analyses. The table below highlights the 3 different cost models (Boomerang Alliance cost estimates; PWC/WCS estimates and a median price adjusted to reflect the points above). All 3 models are based on a recovery rate of 80% of all container recovered (NB: it is important to note that BA models an overall recovery rate of 80-85% of all containers – BDA/WCS modelled on recovering 85% of all tonnes of containers – which means recovery rates of 90+%). Costs per container are as follows:

	Scenario A: BA Modelled			Scenario B: Median Cost			Scenario C: PWC/WCS Modelled		
Aspect of Operation	¢ container	% of redemption	Weighted ¢/container	¢ container	% of redemption	Weighted ¢/container	¢ container	% of redemption	Weighted ¢/container
Unredeemed @ 80% recovery[5]			2.5			2.5			2.5
Sale of Recyclate[6]	2.2	100%	2.2	2.2	100%	2.2	2.2	100%	2.2
Total Income			4.7			4.7			4.7
Co-Ordination	-0.1	100%	-0.1	-0.1	100%	-0.1	-0.4	100%	-0.4
Hub	-3	25%	-0.75	-3.1	25%	-0.775	-4.5	25%	-1.125
Larger Urban Depots[7]	-3.5	65%	-2.275	-4	40%	-1.6	-4.5	25%	-1.125
Smaller Regional Depots[8]				-4.5	25%	-1.125	-4.5	40%	-1.8
Rural and Remote	-6	2%	-0.12	-6	2%	-0.12	-6	2%	-0.12
Other (e.g. kerbside)	0	8%	0	0	8%	0	0	8%	0
Baling	-0.25	98%	-0.245	-0.25	98%	-0.245	-0.72	98%	-0.7056
Transport to hub	-0.5	65%	-0.325	-0.65	65%	-0.4225			
Transport (remote)	-0.87	2%	-0.0174	-0.87	2%	-0.0174	-0.87	2%	-0.0174
Total Cost:			-3.8324			-4.4049			-5.293
Deficit / Surplus			0.8676			0.2951			-0.593

The median costs outlined herein are very conservative when compared to the existing costs of the South Australian Scheme which is some 30 years old. A table comparing the efficiencies of the Boomerang Alliance model compared to the existing SA CD scheme can be found at the end of this briefing.

Table 58 – Assumed trips by infrastructure type (Option 4A)

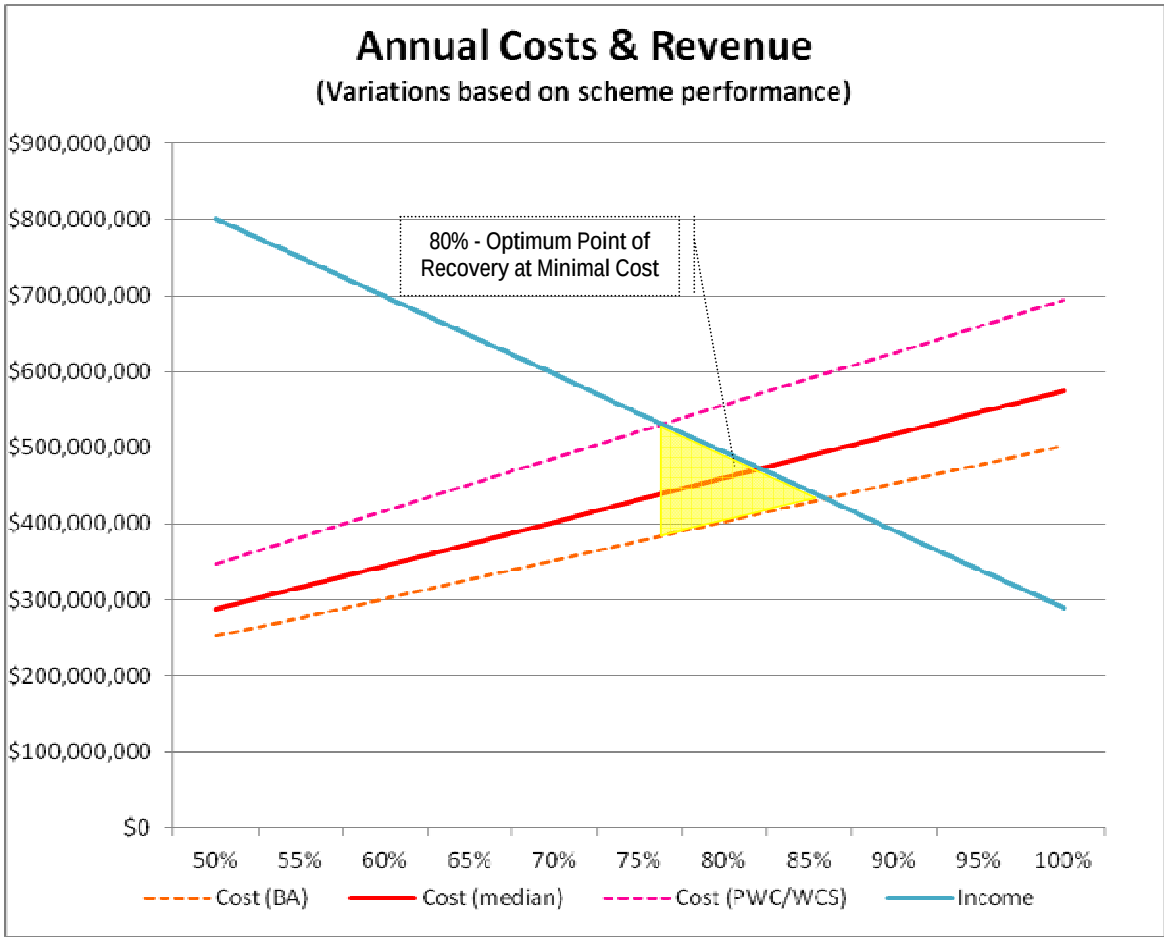
Infrastructure Type	Number	Redemption Proportion (%)	Source
Hubs	250	25.5	BA estimate of redemption by infrastructure type (see Table 31).
Collection depots (spokes)	310	50.5	
RVMs (spokes)	640	22.5	
Rural/remote collection centres (spokes)	700	1.5	
Total	**1900**	**100**	

[5] Calculation for unredeemed: 80% rec. rate = 2¢ / container sold or 2.5¢ / container redeemed
[6] Sale of recyclate = RIS total redemption / number of containers redeemed. N.B. totals are substantially lower than that outlined in the RIS.
[7] Largely automated and gaining significant cost savings from use of RVMs
[8] While many of these depots may be automated they are assumed to be a manual operation to ensure cost estimates are not understated

The Optimal Point of Performance

It is also important to recognise that the RIS models a very high rate of return – 85% of total tonnes of beverage containers whereas the Boomerang Alliance model projects a total recovery rate of 80-85% of total container numbers (these 2 numbers are not the same because of the differing weights per container). Modelling a system on the basis of tonnages distorts both costs and benefits as it assumes a static mix of aluminium, plastic and glass – this is flawed e.g. PWC/WCS assume that aluminium represents 36.8% of all redemption; @ an 80% recovery rate this would require aluminium to achieve a recovery rate of some 120%).

It is important that when a Decision RIS is undertaken it models a system that will deliver the optimum rate of return as outlined in the graph below:



It is a key principle of economic modelling to seek to optimise the point where marginal costs marry with marginal revenues. The DRIS analysis should seek to create a model which achieves this position.

Estimated Financial Surpluses

Based on the figures above our analysis projects the following surplus (see Attachment A for work sheets):

Year	Revenue	Costs	Surplus/Deficit in Year	Overall Surplus
End of Yr 1 ('16) (58% recovery)	$725million	-$336million	$389mill	$389mill
End of Yr 5 ('20) (growing to 80%)	$538million	-$464mill	$74million	$1.155billion
Ongoing P.A. at 80%	$519million	-$483million	$36million	
Total Over Study period (2015-2035)	$11.246billion	-$9.527billion		$1.719billion

Interest earnings from a financial surplus of this sort of extent are significant. At the current NAB interest rate for a 12 month term deposit (interest paid monthly) of 4.55% (well below the average over the previous 20 years) – the interest generated would be as outlined in the table to the right.

Year	Surplus	Interest Earned in Year
End of Yr 1	$389mill	$18.1million
End of Yr 5	$1.192billion	$55.3milliion
Additional Interest P.A. (once 80% is achieved)	$36million	$1.6million

We estimate the total surplus over the 20 years of the study period (after covering CDS costs) to be **approx. $1.719billion with interest earned (before any spending on supplementary schemes) to earn a further $1.093billion.**

At the minimum it would be reasonable to apply the interest to the CRIS Cost Benefit Analysis – reducing the overall cost modelled to just $321million over the 25 year study period (less errors already acknowledged by PWC/WCS). These numbers are used to form the basis of our calculations for the accompanying proposals on the use of the surplus and deployment of infrastructure.

Further, the Australian Food & Grocery Council has been running a misleading campaign, suggesting that some of the key numbers contained within the CRIS are in some way related to the economic data to exaggerate the impacts as part of a scare campaign. For example they have suggested handling fees are an additional cost to consumers – this is untrue. Nor has Boomerang Alliance **ever** claimed there are no costs to run the scheme – the notion **any** recycling comes without cost is ridiculous. What we show is that there is a nett economic benefit from the adoption of a national CD system styled after the Boomerang Alliance Model and that the financial cost to consumers is avoidable where they redeem their deposit. Where they choose to not redeem the impacts vary.

Deposits Paid LESS Redemption + Handling Fees – Offset (income from sale of scrap recyclate + unredeemed – savings in MSW services).

	Beverages Consumed P.A.	Deposits Paid P.A.	Redemptions Received P.A.	Handling Fees P.A.@ 4.4¢ av	Less offset (unredeemed + scrap sale) @ 4.7¢	Total Cost / Saving P.A.
Concerned Consumers - redeem 100% of their consumption	569	-$56.90	$56.90	-$25.036	$26.743	$1.71
Active Participants - redeem 70% i.e. their at home consumption	569	-$56.90	$39.83	-$17.5252	$18.7201	-$15.88
Polluters - Don't redeem and allow someone else to affect recovery	569	-$ 56.90	Nil	Nil	Nil	-$56.90

As the table above demonstrates there is little to no cost impact on consumers who do the right thing. The financial impacts are borne by those people who pollute (i.e. litter) or those who choose to donate their deposit so that someone else does the recovery for them (for example leaving the surplus containers in the kerbside system). Additionally, based on the CRIS analysis each Australian home can expect to save around $10.73 per annum in waste and recycling costs.

Using the Surplus

Based on the modelling above Boomerang Alliance has sought to utilise some of the surplus and the interest earned to develop programs to achieve one of three objectives:

1. To provide incentive across the entire recycling value chain to ensure the maximum economic and environmental benefit is received.
2. To offset any cost impacts that may be experienced by stakeholders.
3. To partially correct existing inequities in the costs of current recycling programs.

These programs include:

Program	Cost P.A.	Cost Over 20 Years	Description
Quarantined Reserve		$120million	The reserve is established over the first 5 years of operation and is used to ensure that scheme operation is always funded. The monies earn interest which goes to the CD fund. The reserve is calculated to ensure that should an unexpected event change the economics of the scheme (e.g. a global crash in the price of scrap materials) there is a sufficient reserve to cover the costs of the scheme until a charge is levied on bottlers. $120million represents coverage for the most extreme scenario we could imagine i.e. where the scheme has operated for a 12 month period with scrap prices having fallen by 50%
Infrastructure Capital Loan Fund		$500million	This fund is established over the first 5 years of operation using the larger surpluses while the scheme develops. The intent is to provide a funding mechanism similar to a bond for large recycling infrastructure projects (e.g. AWTs, MRFs, and reprocessing facilities) at a low interest rate (modelled at 4.55% interest). Details of possible projects and their return are outlined herein.
Reprocessing Bounty	$50million	$250million	Largely funded via interest earnings - the reprocessing bounty seeks to reverse the current trend of increasing quantities of scrap being exported for the actual refining process. Operating for 5 years to assist major recycling manufacturers transition into a low carbon economy; the bounty will be based on the potential greenhouse gas savings of each major material (i.e. paper & cardboard, glass, plastic, steel and aluminium) the scheme pays $15 per tonne of Co2-e abated via the transformative process from scrap to new material – incentivising manufacturing to lower its carbon footprint while supporting Australian manufacturing.
Public Litter Fund	$16.6million	$332million	Boomerang Alliance does not accept that paying for food courts, shopping centres etc. to recycle their rubbish as advocated by the AFGC's National Bin Network – these facilities operate at a profit and the responsibility for recycling should be borne by their proprietors like any other reasonable cost of doing business. However, there is definitely a need to increase the number of waste and recycling bins in our true public places – beaches, parks, roadsides and footpaths. To this end we propose the spending of some $18.2million (slightly less in the first 2 years

			while bins are rolled out) per annum to both expand and **service** the placement these bins. While the NBN proposal does not cover the cost to service a bin - we have consulted with local government – allocating $1,820 per annum to provide and service each bin.[9] The CRIS proposal 2b touts the notion of placing 30,000 bins into the public arena but leaves the cost to service these bins to a 3rd party. By the data provided to BA we estimate the National Bin Network will add as much as $182million a year to local government waste and recycling costs.[10]
Supply Side Incentive (Beverage Retailers)	$20million	$400million	The supply side incentive focuses on retailers of beverages. Retailers potentially have 2 roles in the scheme: 1/ Promotion of the scheme and where consumers can redeem at the point of sale; & 2/ Larger supermarkets and shopping centres providing space in their car parking area for the establishment of an automated collection point. $20million p.a. has been allocated as an incentive for retailers to participate in the scheme if they meet defined Key Performance Indicators.
Rural Waste & Recycling Rebate	$12.92million	$245.5million	Regional and rural communities often suffer from inequities to their metropolitan cousins and the same is true for recycling. Costs to operate recycling systems are considerably higher and in many instances rural dwellers actually have no access to recycling. 305 of Australia's 564 local government organisations service the estimated 2.4million people (approx. 646,000 households) living in rural Australia – the vast number would be considered to suffer some level of disadvantage in the provision of waste and recycling services. We propose a payment to local government of $12.92million per annum ($20 per rural household) to support the provision of waste and recycling in rural Australia.
Community Litter & CD Depot Grants	$5.75million	$115.5million	These grants form 2 parts: 1. $8.5million per annum for 3 years to assist charities such as the Scouts to establish collection points so they can participate in the scheme operations (Funding is adequate to establish 75 hubs, 600 depots and 600 smaller rural depots). 2. $90million over 10 years to form a grants fund for major litter reduction initiatives.

[9] Pers. Comm. with Mike Ritchie of MRA. $5 per bin lift cost X 7 days per week

[10] Assumes 10,000 of the NBN's proposed bins will be located in MSW controlled places such as footpaths, parks etc. X $1,820 p.a. in collection (lift) costs.

ENGO Sector Waste & Recycling Grants	$6million	$120million	The Community Sector makes a significant contribution to the effort to reduce waste and litter. We propose that $6million p.a. be spent on community initiatives: $1million p.a. to both Clean Up Australia and Keep Australia Beautiful to underpin major programs $4million to be distributed to the lead advocacy groups on waste and recycling.
Zero Waste Australia (govt)	$10million	$200million	$20million p.a. for the first 10 years of scheme operation to: * Establish a lead body Zero Waste Australia within the NEPC charged with the job of investigating, implementing and overseeing EPR and Product Stewardship Schemes * Implement the National Waste Strategy (estimated to cost $23million)

Distributional impacts

A summary of the financial impacts on key stakeholders (average over 20 years) including the schemes outlined above would look as follows:

Sector	Direct Financial Impacts	Other Costs identified by BA	Other Benefits identified by BA	Incentives Outlined by BA	Av Annual Nett Financial Impact
General Industry	-$0.35million[11]	Nil	Nil	Nil	-$0.35million
Beverage Manufacturers[12]	Nil	-$10million[13]	Nil	$52million	$42million
Australian Packaging Manufacturers	Nil	Nil	Nil	Nil	Nil
Beverage Retailers	Nil	-$5.8million[14]	Nil	$52million	$46.2million
Local Government	$41.6million[15]	Nil	$90.2million[16]	$52.3million	$93.9million
Recycling Collection & Transporters	$476million[17]	Nil	$18.1million[18]	Nil	$494.1million
Refiners	$135million[19]	Nil	Nil	$50million	$185million
Government Agencies	-$0.55million	Nil	Nil	$20million	$19.45million
Community Sector (litter & recycling focussed groups)	Nil	Nil	$56.4million[20]	$10million	$66.4million

[11] CRIS estimate of business participation costs
[12] Assumes nett impact of deposit charges are borne by the retailer
[13] Estimated cost for beverage companies for scheme compliance i.e. labelling changes, gaining CD co-ordinator approval of new bottles/ cans & internal administration costs for payment of deposits etc.
[14] Estimated cost of increased overdraft on beverage stock: Total annual deposits / stock holding (say 12 months) X 5% interest p.a.
[15] http://www.scew.gov.au/publications/pubs/packaging-impacts/q-a-packaging-cris.pdf Q26 - 100% Kerbside collection and transport savings + 70% (proportion of recycling from the 'at home' sector) of Recycling at MRF saving + 70% of estimated reductions in landfill operating costs
[16] Assumes that costs to operate MSW recycling services are reduced by deposit value of remnant material in MSW (8% of consumption redeemed by MSW recycling
[17] Growth of sector = total of handling fees paid
[18] Estimated value of additional material recovered at CD depots, less an average cost of $85/tonne for sorting and transport costs
[19] Value of Additional Scrap material collected
[20] Estimate that 5% of container redemption will be undertaken by community groups for fund raising purposes and will receive deposit values

CDS Specification: Operating Parameters & Necessary Rules

The recent CRIS undertaken by the Standing Council or Environment & Water (SCEW) attempted to model the Boomerang Alliance's proposed scheme. While a reasonable attempt was made many of the scheme's key features and benefits were not included in the assessment. This summary seeks to outline the structure and key aspects of the Boomerang Alliance Container Deposit Scheme to ensure that when a Decision RIS is undertaken it is expanded to include all of these features.

Deposit: 10¢ per container

Scheme Coverage: All beverages consumed (including milk and wine) between 0.1 up to 3litres.

Redemption Points: Retailers may redeem should they wish but the main point of redemption in urban areas will be an automated collection machines generally found in the car park of major supermarkets and may also be located in convenient locations such as service stations and shopping centres etc. This would be facilitated by regulations requiring any beverage retailer (supermarkets, bottle shops) with over 200 square metres of shop space needing to have within 500 metres, a collection point or make space available in their premises or parking areas.

Retailers have an obligation to either locate themselves within a convenient distance to a collection point or would be required to provide hard stand space for the operation of a collection point, at the minimum, retailers in rural and remote will pursue container collection at their premises (as rental costs are low and additional incomes would be appreciated).

Redemption is by way of a voucher or deposit receipt issued by the depot to be redeemed at a convenient retail point (this reduces cost, eliminates security concerns at depots, and actually encourages consumer spending, providing additional benefits.

Governance of Scheme: The Boomerang Alliance Model would be governed by a non-profit body with a board of directors comprising an Independent Chair & Company Secretary (appointed by SCEW) and representatives from the beverage industry (3 seats); recycling industry (2 seats); depot operators (2 seats); and the community sectors (3 seats).

The chair must have no pecuniary interest related to the food and grocery industry, packing or recycling sectors. Community representatives and the 2 independent roles are the only positions that are to be remunerated for their services and should reflect a realistic payment for the time and effort expected of independent directors.

All deposits, revenues earned from the sale of scrap, payment of handling fees and redemptions would be processed via a quarantined quasi-government fund administered by the secretariat and governed by the not for profit board.

The priorities of the board are to administer the fund and audit payments and receipts. The secretariat and these services can be housed within the service corporation itself – though we believe it would be a better if the secretariat was a unit established within the current National Environment Protection Council NEPC Service Corporation forming a sub body to implement and administer EPR and Product Stewardship Schemes.

Beverage Manufacturers and importers would be prohibited from owning a hub or collection depot to ensure that monopolistic behaviour and eliminate conflicts of interest.

Funding: The legislation and regulations to establish the scheme would create revenues from a number of sources to pay for operation:

- Unredeemed deposits
- Sale of recyclate collected
- Approval of bottles and licensing fees for depots
- If recovery rates are eventually so high as to create a shortfall in the annual operation of the scheme a small administration charge on producers and importers of beverages. In many jurisdictions these fees are set at different levels for different materials so that high performing

and valuable materials such as aluminium are not unreasonably penalised. However it should be noted that if passed onto consumers the impact will be very small as it is spread over billions of containers.

Key Aspects of Funding: The scheme should be designed to produce a small surplus each year. This both provides financial surety for the operation and provides funds to stimulate upstream recycling outcomes as designed below.

The scheme should also be designed to achieve coverage that will recover between 75 – 80% of all containers – i.e. the most cost effective point of recovery (at this level of recovery there is a need for fewer collection points than modelled by BDS/PWC at a lower cost than modelled).

It should be noted that based on WCS modelling an 80% redemption rate (based on % of containers recycled) at the above costs will produce an annual surplus of some $36million p.a.

The surpluses are to be used to achieve further social and economic benefits (as outlined above) as the scheme will bank significant surpluses well over and above these amounts during the implementation period – estimated to be $1.15billion in the first 4 years of operation.

Key Aspects Regarding Collection Mechanism: The system would be administered regionally **not** using a "Super Collector" structure like that in South Australia and the NT. This would allow recovered materials to be baled and transported via a central point (reducing costs – though this has not been recognised in the CRIS); a more efficient audit trail and greater transparency.

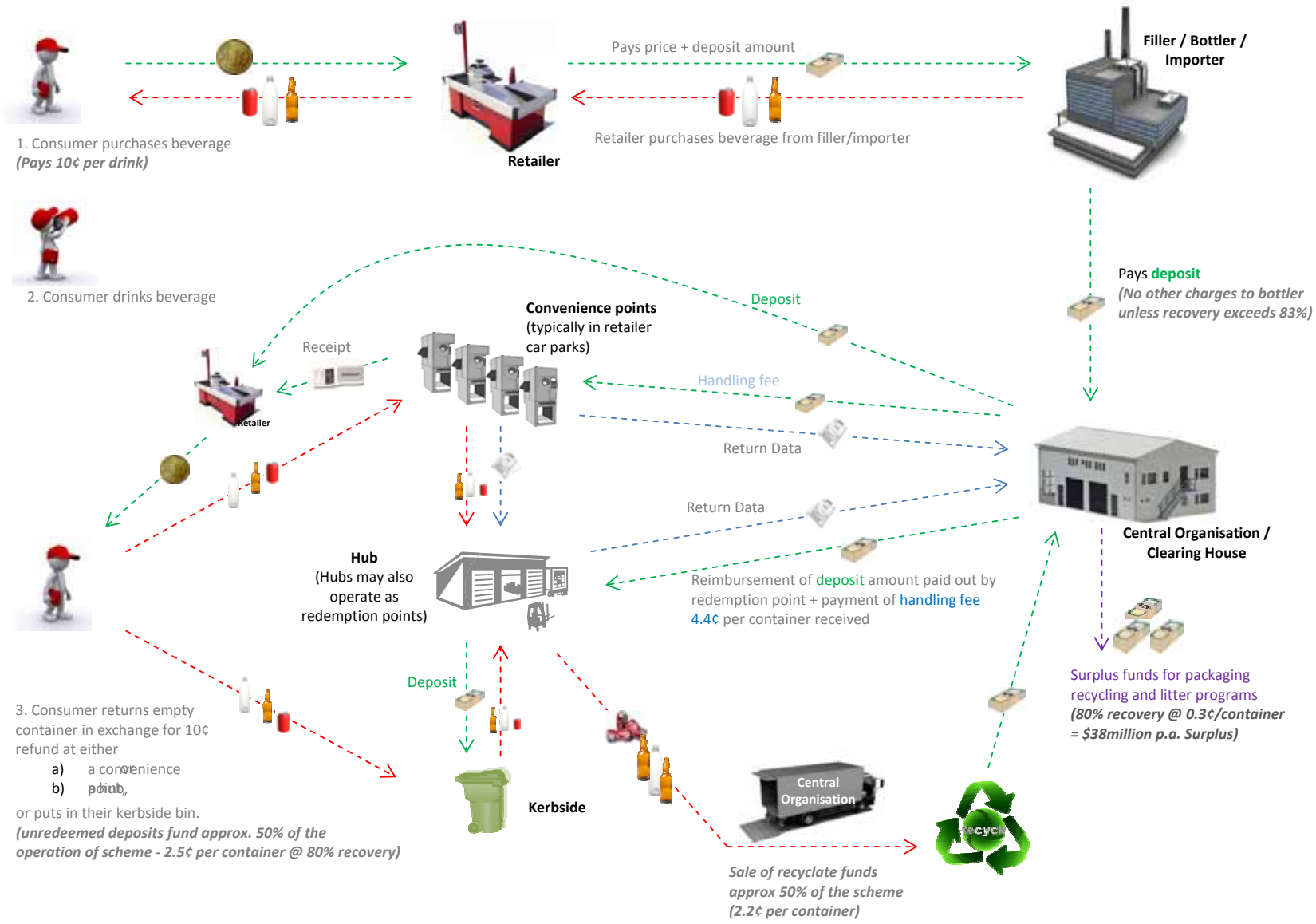
The regional administration point (known as the Hub) would be licensed to operate both as a typical collection point but would also hold an exclusive license to be the sole point of redemption of containers by weight – ensuring that material recovered from kerbside collection, mining the waste stream and Commercial and Industrial Sector do not get paid **both** a handling fees and the 'windfall' deposit value they received. As these centres will typically recover a high proportion of containers via larger quantities of materials with lower sorting costs it is anticipated that costs for this component of operations (around 25% of total recovery) would receive a much lower handling fee than other collection depots.

All other collection points would return their containers via an operational hub to create a single point of audit trail and decentralised points to negotiate superior contractual arrangements.

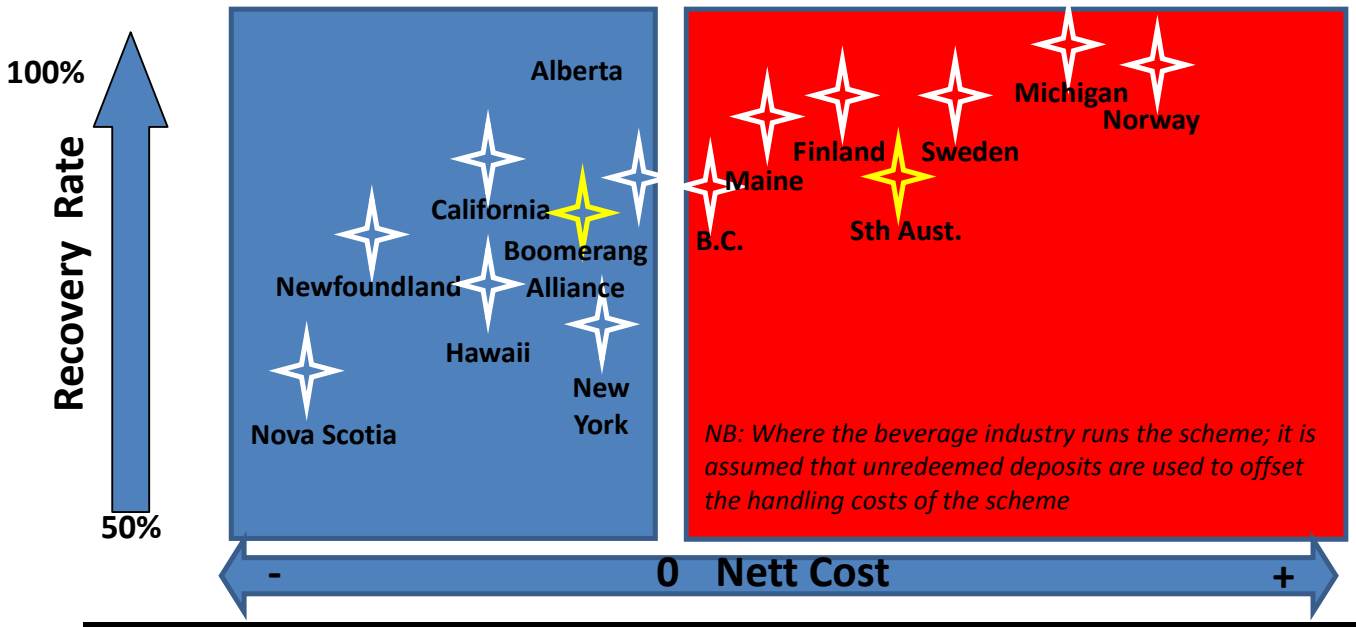
These 250 Hubs located around the country are also the ideal premises to operate as the "licensed" collection points for other priority wastes (e-waste, CFL globes, mobile phones, used chemical containers etc.). Again no economic value for the potential savings to the cost of these schemes has been attributed in the CRIS. Government should ensure the briefing for the Decision RIS considers both the economic benefits (lower collection costs) of licensed infrastructure for other schemes and additional material likely to be recovered as a benefit of this model.

The majority of Operational Hubs would be existing MRFs and Transfer Stations already operating across the country.

BA MODEL - AUSTRALIA



Examples of Container Deposit Net Costs & Collection Rates around the world



Sources: CM Consulting , BottleBill.org, & pers coms

MAJOR COST DRIVERS OF CDS SYSTEMS AROUND THE WORLD:

1. Performance: The level of unredeemed deposits offsets overall cost; systems with lower performance have larger surpluses.
2. Sorting: Requirements to sort by brand (such as the SA & NT system) can double handling & transport costs;
3. Automation: Reverse Vending Machines significantly reduce property and labour costs and allow materials to be compacted before transportation.
4. Consolidation & compaction before any long haul transportation significantly reduces transportation costs – particularly in Australia where the large geographic spread of population centres is a significant issue.
5. Centralised Control: The decentralised approach of system co-ordination in older CD schemes like South Australia means there are few transport efficiencies (each depot has to transport to at least 2 destinations) and triples administration costs (with key roles replicated in each super collector).
6. Redemption by Voucher. Rather than receiving a cash payment when containers are redeemed efficient, modern systems provide consumers with a voucher or deposit receipt to be exchanged next time a consumer shops. This substantially improves the cash flows of each depot and eliminating security costs.

Comparison of System Efficiencies when compared to Existing South Australian Scheme

BA System Feature	**Evidence of Saving compared to South Australia**	**Level of Saving**
No Requirement to Sort by Brand	In 2005 the South Australian EPA commissioned Hudson Howell to review the industry arrangements of CDL in South Australia[21]. It found: *It is the collection arrangement contractual terms that give rise to inefficiencies at the Collection Depot. It has been generally agreed during the consultation for this project that the streamlining of sorting, recording and accounting procedures has the potential to substantially reduce the cost of the CDL system to all industry participants and consumers. The current system is inefficient because of contractual arrangements which require the sorting and accounting for containers based Super Collector contracts (sorting by brand). When combined with the need to also sort by glass colour and deposit and non-deposit containers, the system becomes quite inefficient, lacking in the benefits of bulk processing.* In August 2002 Russ Martin (Then C4ES) undertook a study for the ACT Government on "The Impacts of implementing CDL in the ACT"[22] Martin notes: *"The need to sort by brand imposes additional effort … comes at a cost of higher collection and processing costs."* By comparison Martin notes that the Californian Redemption Value Scheme (which the Boomerang Alliance model is heavily based on): *"The inefficiencies of brand sorting under traditional CDL are eliminated under the program implemented in CRV."* RW Beck's analysis "Understanding Beverage Container Recycling – A value Chain Assessment" noted that gross handling costs in traditional CDL depots in the USA were (then) **4.07¢** per container compared to **1.62¢** in California.	Elimination of the need to sort by brand substantially reduces handling costs when compared to current South Australian costs of 4.22¢ per container. Combined with other features (ability to redeem by weight; use of automated Reverse Vending Machine technologies etc.) handling fees are thought to be reduced by between 20 - >50%. **Our Conclusion:** RIS estimates a handling cost of 4.5¢, SA scheme is costed by SA EPA at 4.22¢. There is a broad consensus of opinion these costs reflect those of an inefficient 'old scheme' **Boomerang Alliance estimates 4 different payment levels with RVM depots @ 4¢/container and smaller volume manual depots @ 4.5¢/ container are consistent with other modelling and international costs.**
Use of Reverse Vending Machines to reduce handling costs	Martin also notes in his report "The Impacts of implementing CDL in the ACT" that RVM based depots typically have an operating cost some 21.6% lower than the manual handling depots operating in South Australia[23]. R.W Beck identifies "Reverse vending machines are clearly a much lower cost collection mechanism compared to manual labour in deposit systems" concluding a traditional CDL manual depots (SA) attract an average handling cost of 4.07¢ per container compared to just 2.53¢ average cost for an automated collection point. Beck estimates labour costs for the operation of a traditional manual depot comprise as much as 82% of overall costs.	Using an RVM based collection system eliminates around 75% of the labour costs associated with the operation of a depot. **Our Conclusion:** RIS attributes no financial saving to RVM depots compared to manual handling depots (The RIS models at 106% of current SA costs) **Boomerang Alliance modelling RVM depots at a cost 20% lower than manual depots (4¢ Vs.**

[21] Hudson Howell 2005. See: http://www.epa.sa.gov.au/xstd_files/Container%20deposit/Report/cdl_collection.pdf
[22] http://www.tams.act.gov.au/__data/assets/pdf_file/0011/189308/actcdl.pdf
[23] C4ES analysis showed that based on costs in 200 an RVM depot operating 3 reverse vending machines would cost $196,000 p.a. to establish and operate in metro Canberra compared to $250,000 p.a. to establish and operate a South Australian styled manual handling depot.

		4.5¢ is a conservative assessment.
Redemption by weight at Hubs for high volume redeemers	Redemption by weight (to allow better and more efficient participation by large volume kerbside and commercial operations) is a major feature of the BA model that was also borrowed from the Californian CRV. Ackerman (et al 1995) notes that the scheme uses periodic auditing to establish bulk redemption values. This allows high volume users to redeem by the simple approach of weighing each cage of materials. Typically high volume redeemer's transactions represent some 4,100 containers. The CRIS outlines that it takes 3.4minutes to redeem an average 12.79 containers – suggesting a bulk delivery would take up some 320 minutes of depot staff's time to sort a bulk delivery. If the process is simplified to a simple weight handling time is reduced to less than 35 minutes. The only additional equipment needed is a set of scales or a weigh bridge – which are also required for the sale of scrap material; meaning there are no additional capital costs to redeem by weight. Comparatively the labour cost to process high volume redeemers containers would typically be in the order of $133.33[24] (or 3.25¢ per container) compared to just $14.59 (or 0.3¢ per container) using the redemption by weight approach.	Establishing a component of the collection network to deal with high volume points of redemption is a consistent strategy within recycling to reduce costs and is typically reflected in the lower costs per tonne to recover materials from the C&I sector compared to the MSW sector. **Our Conclusion:** Development of a proportion of the collection network to be geared up for high volume redemption, combined with system rules allowing redemption by weight eliminates nearly 90% of the processing costs. **A 'volume' redemption rate of 3¢ per container for "Hub" operations is realistic and if anything generous.**
Consolidation of materials locally	In South Australia each depot returns its containers to 1 of 3 super collectors in Adelaide. Containers are not compacted, crushed or baled. Meaning the average truckload of material carries just 2-3 tonnes of materials. This creates 3 major inefficiencies : • Each depot has to deliver to at least 2 different points of consolidation. • Payloads for transport within the scheme is sub-optimised. • Regional and rural collectors have to undertake long haul transport to Adelaide rather than a local consolidation point. Hudson Howell in their 2005 review of South Australian collection arrangements for the SA EPA notes: *"There are potential supply chain improvements by reduce the amount of containers coming from long distances in a non-compressed form".* and recommends: *"Bulking at the Collection Depot for glass and non-glass containers (two splits as glass is breakable and must be handled differently) with a maximum of two of the Super Collectors (preferably one) undertaking the sorting and administrative arrangements (one glass and the other non-glass).* *Which would see*	Consolidation of materials at a Hub located in each geographic region combined with rules allowing crushing, compaction and baling before significant long haul transport . **Our Conclusion:** **Boomerang Alliances estimates of 0.65¢ for transportation and 0.25¢ for consolidation are if anything overstated.**

[24] Assumes a nominal wages cost of $25 per hour

	Collection Depots benefit from maximum improved efficiencies without incurring capital costs which would otherwise be required. *Super Collectors would benefit from improved economies of scale."*	
Administration and Co-Ordination	The South Australian CDL requires brand owners to make their own collection arrangements. This means each brand or group of brand establish an agent (Super Collector) to undertake collection. As a result the scheme is operated on a fragmented basis and super collectors cannot seek to work together without being at risk of breaching trade practices provisions. Hudson Howell also notes that under the current arrangement *The potential for significant cost savings exists in current collection industry arrangements although it appears that the Super Collectors have no immediate incentive to improve collection industry arrangements. Higher container recovery rates mean lower profits or higher costs (passed on to manufacturers).* Under The Boomerang Alliance financial administration arrangements are centralised with bottlers paying the deposit to a non-profit industry body. Psychical administration and consolidation is managed by a central hub in each region so transport efficiencies are maximised.	The Boomerang Alliance model eliminates duplication of costs experienced within the South Australian Super Collector arrangement and eliminates significant expense in co-ordination, administration, and transportation.
Redemption By Voucher	The Boomerang Alliance model redeems by voucher that can be exchanged for goods at a grocery store where the SA CDL redeems with cash. This has 2 substantial benefits: 1. The depot does not have to pay out deposits and carry debt for the refunds it has made – this reduces the level of working capital required by each depot by around $34,000 (2 weeks of deposit redemptions). 2. Depots only require minimal security arrangements as there are not large amounts of cash held on premises	Redemption by voucher eliminates security and cash flow costs reducing the operation of each depot by between $30,000 - $50,000 p.a. for each depot.

Attachment A: Financial Flows over 25 years

Input / Output Data

YEAR	Consumption Growth	Bev Container Consumption (tonnes)					Bev Container Consumption (containers)				Consumption (millions of containers)	Recovery Rates			
		LPB	Glass	Plastic	Al.	Total	LPB	Glass	Plastic	Al.		LPB	Glass	Plastic	Al.
Base Year (2010/11)		31,321	786,000	170,000	51,600	1,038,921	753,583,260	3,760,224,000	4,743,170,000	3,447,963,600	12,704,940,860	40.48%	46.05%	54.70%	61.30%
2011 (cal year)	0.37%	31,437	788,908	170,629	51,791	1,042,765	756,371,518	3,774,136,829	4,760,719,729	3,460,721,065	12,751,949,141				
2015 (yr 1)	0.73%	32,384	812,682	175,771	53,352	1,074,188	779,164,514	3,887,869,147	4,904,182,384	3,565,008,707	13,136,224,752				
2016	0.73%	32,621	818,614	177,054	53,741	1,082,030	784,852,415	3,916,250,592	4,939,982,916	3,591,033,271	13,232,119,193	45.5%	51.0%	59.7%	66.3%
2017	0.73%	32,859	824,590	178,346	54,133	1,089,929	790,581,838	3,944,839,221	4,976,044,791	3,617,247,813	13,328,713,663	50.5%	56.0%	64.7%	71.3%
2018	0.73%	33,099	830,610	179,648	54,529	1,097,885	796,353,085	3,973,636,547	5,012,369,918	3,643,653,722	13,426,013,273	55.5%	61.0%	69.7%	76.3%
2019	0.73%	33,340	836,673	180,960	54,927	1,105,900	802,166,463	4,002,644,094	5,048,960,218	3,670,252,395	13,524,023,170	60.5%	66.0%	74.7%	81.3%
2020	0.73%	33,584	842,781	182,281	55,328	1,113,973	808,022,278	4,031,863,396	5,085,817,628	3,697,045,237	13,622,748,539	65.5%	71.0%	79.7%	85.0%
2021	0.63%	33,795	848,090	183,429	55,676	1,120,991	813,112,818	4,057,264,135	5,117,858,279	3,720,336,622	13,708,571,855	70.5%	76.0%	81.0%	85.0%
2022	0.63%	34,008	853,433	184,585	56,027	1,128,053	818,235,429	4,082,824,900	5,150,100,786	3,743,774,743	13,794,935,858	71.0%	76.0%	81.0%	85.0%
2023	0.63%	34,222	858,810	185,748	56,380	1,135,160	823,390,312	4,108,546,696	5,182,546,421	3,767,360,524	13,881,843,953	71.0%	76.0%	81.0%	85.0%
2024	0.63%	34,438	864,220	186,918	56,735	1,142,311	828,577,671	4,134,430,541	5,215,196,464	3,791,094,895	13,969,299,570	71.0%	76.0%	81.0%	85.0%
2025	0.63%	34,655	869,665	188,095	57,093	1,149,508	833,797,710	4,160,477,453	5,248,052,201	3,814,978,793	14,057,306,158	71.0%	76.0%	81.0%	85.0%
2026	0.63%	34,873	875,144	189,280	57,452	1,156,750	839,050,636	4,186,688,461	5,281,114,930	3,839,013,159	14,145,867,186	71.0%	76.0%	81.0%	85.0%
2027	0.63%	35,093	880,657	190,473	57,814	1,164,037	844,336,655	4,213,064,598	5,314,385,954	3,863,198,942	14,234,986,150	71.0%	76.0%	81.0%	85.0%
2028	0.63%	35,314	886,205	191,673	58,178	1,171,371	849,655,976	4,239,606,905	5,347,866,586	3,887,537,096	14,324,666,562	71.0%	76.0%	81.0%	85.0%
2029	0.63%	35,537	891,789	192,880	58,545	1,178,750	855,008,809	4,266,316,429	5,381,558,145	3,912,028,579	14,414,911,962	71.0%	76.0%	81.0%	85.0%
2030	0.63%	35,760	897,407	194,096	58,914	1,186,177	860,395,364	4,293,194,222	5,415,461,962	3,936,674,359	14,505,725,907	71.0%	76.0%	81.0%	85.0%
2031	0.54%	35,954	902,253	195,144	59,232	1,192,582	865,041,499	4,316,377,471	5,444,705,456	3,957,932,401	14,584,056,827	71.0%	76.0%	81.0%	85.0%
2032	0.54%	36,148	907,125	196,198	59,552	1,199,022	869,712,723	4,339,685,909	5,474,106,866	3,979,305,236	14,662,810,734	71.0%	76.0%	81.0%	85.0%
2033	0.54%	36,343	912,023	197,257	59,873	1,205,497	874,409,172	4,363,120,213	5,503,667,043	4,000,793,484	14,741,989,912	71.0%	76.0%	81.0%	85.0%
2034	0.54%	36,539	916,948	198,322	60,197	1,212,006	879,130,981	4,386,681,062	5,533,386,845	4,022,397,769	14,821,596,657	71.0%	76.0%	81.0%	85.0%
2035	0.54%	36,736	921,900	199,393	60,522	1,218,551	883,878,289	4,410,369,140	5,563,267,134	4,044,118,717	14,901,633,279	71.0%	76.0%	81.0%	85.0%

Handling Fees:

YEAR	Handling Fees @ 4.38¢ per container redeemed				
	LPB	Glass	Plastic	Aluminium	TOTAL
Base Year (2010/11)					
2011 (cal year)					
2015 (yr 1)					
2016	- $15,641,324	- 87,481,206	- 129,173,637	- 104,281,452	- 336,577,618
2017	-$ 17,486,880	-$ 96,759,016	-$ 141,014,143	-$ 112,964,479	-$ 368,224,518
2018	-$ 19,358,547	-$ 106,167,621	-$ 153,020,636	-$ 121,768,721	-$ 400,315,526
2019	-$ 21,256,609	-$ 115,708,435	-$ 165,194,910	-$ 130,695,486	-$ 432,855,440
2020	-$ 23,181,351	-$ 125,382,888	-$ 177,538,773	-$ 137,640,994	-$ 463,744,006
2021	-$ 25,108,111	-$ 135,058,209	-$ 181,571,376	-$ 138,508,132	-$ 480,245,828
2022	-$ 25,445,485	-$ 135,909,075	-$ 182,715,276	-$ 139,380,734	-$ 483,450,570
2023	-$ 25,605,792	-$ 136,765,302	-$ 183,866,382	-$ 140,258,832	-$ 486,496,309
2024	-$ 25,767,108	-$ 137,626,924	-$ 185,024,740	-$ 141,142,463	-$ 489,561,235
2025	-$ 25,929,441	-$ 138,493,973	-$ 186,190,396	-$ 142,031,660	-$ 492,645,471
2026	-$ 26,092,797	-$ 139,366,485	-$ 187,363,395	-$ 142,926,460	-$ 495,749,138
2027	-$ 26,257,181	-$ 140,244,494	-$ 188,543,785	-$ 143,826,897	-$ 498,872,357
2028	-$ 26,422,602	-$ 141,128,035	-$ 189,731,611	-$ 144,733,006	-$ 502,015,253
2029	-$ 26,589,064	-$ 142,017,141	-$ 190,926,920	-$ 145,644,824	-$ 505,177,949
2030	-$ 26,756,575	-$ 142,911,849	-$ 192,129,759	-$ 146,562,386	-$ 508,360,570
2031	-$ 26,901,061	-$ 143,683,573	-$ 193,167,260	-$ 147,353,823	-$ 511,105,717
2032	-$ 27,046,326	-$ 144,459,465	-$ 194,210,363	-$ 148,149,534	-$ 513,865,688
2033	-$ 27,192,376	-$ 145,239,546	-$ 195,259,099	-$ 148,949,541	-$ 516,640,563
2034	-$ 27,339,215	-$ 146,023,839	-$ 196,313,498	-$ 149,753,869	-$ 519,430,422
2035	-$ 27,486,847	-$ 146,812,368	-$ 197,373,591	-$ 150,562,540	-$ 522,235,346

Earnings:

YEAR	Unredeemed Deposits	Material Value (Per Tonne)				Scrap Earnings				
	TOTAL	LPB	Glass	Plastic	Aluminium	LPB	Glass	Plastic	Aluminium	TOTAL
Base Year (2010/11)										
2011 (cal year)										
2015 (yr 1)										
2016	$ 554,769,868	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 3,710,597	$ 41,749,327	$ 69,762,807	$ 55,583,333	$ 170,806,063
2017	$ 492,176,120	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 4,148,419	$ 46,177,048	$ 76,157,509	$ 60,211,496	$ 186,694,471
2018	$ 428,638,939	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 4,592,435	$ 50,667,188	$ 82,641,855	$ 64,904,269	$ 202,805,748
2019	$ 364,147,888	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 5,042,713	$ 55,220,424	$ 89,216,815	$ 69,662,347	$ 219,142,300
2020	$ 303,498,583	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 5,499,320	$ 59,837,438	$ 95,883,366	$ 73,364,391	$ 234,584,515
2021	$ 274,405,524	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 5,956,406	$ 64,454,865	$ 98,061,254	$ 73,826,587	$ 242,299,112
2022	$ 275,725,161	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,036,442	$ 64,860,931	$ 98,679,039	$ 74,291,694	$ 243,868,106
2023	$ 277,462,230	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,074,471	$ 65,269,555	$ 99,300,717	$ 74,759,732	$ 245,404,475
2024	$ 279,210,242	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,112,741	$ 65,680,753	$ 99,926,312	$ 75,230,718	$ 246,950,524
2025	$ 280,969,266	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,151,251	$ 66,094,541	$ 100,555,848	$ 75,704,672	$ 248,506,312
2026	$ 282,739,373	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,190,004	$ 66,510,937	$ 101,189,350	$ 76,181,611	$ 250,071,902
2027	$ 284,520,631	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,229,001	$ 66,929,956	$ 101,826,842	$ 76,661,555	$ 251,647,355
2028	$ 286,313,111	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,268,243	$ 67,351,615	$ 102,468,352	$ 77,144,523	$ 253,232,733
2029	$ 288,116,883	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,307,733	$ 67,775,930	$ 103,113,902	$ 77,630,534	$ 254,828,099
2030	$ 289,932,020	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,347,472	$ 68,202,918	$ 103,763,520	$ 78,119,606	$ 256,433,516
2031	$ 291,497,652	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,381,748	$ 68,571,214	$ 104,323,843	$ 78,541,452	$ 257,818,257
2032	$ 293,071,740	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,416,210	$ 68,941,499	$ 104,887,192	$ 78,965,576	$ 259,210,476
2033	$ 294,654,327	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,450,857	$ 69,313,783	$ 105,453,582	$ 79,391,990	$ 260,610,212
2034	$ 296,245,461	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,485,692	$ 69,688,077	$ 106,023,032	$ 79,820,707	$ 262,017,507
2035	$ 297,845,186	$ 250.00	$ 100.00	$ 660.00	$ 1,560.00	$ 6,520,715	$ 70,064,393	$ 106,595,556	$ 80,251,739	$ 263,432,402

Net Financial Impacts (Not including expenditure on schemes using surpluses):

YEAR	Direct Deficit / Surplus		Interest Earned	Nett
	Earned in Year	Compound Surplus	@ 4.55% paid monthly	Before Expenditure on Schemes
Base Year (2010/11)				
2011 (Cal year)				
2015 (Yr 1)				
2016	$ 388,998,313.51	$ 388,998,313.51	$ 18,073,235.08	$ 407,071,548.60
2017	$ 310,646,073.69	$ 699,644,387.21	$ 32,506,149.89	$ 732,150,537.10
2018	$ 231,129,161.45	$ 930,773,548.66	$ 43,244,632.61	$ 974,018,181.28
2019	$ 150,434,747.97	$ 1,081,208,296.63	$ 50,233,975.42	$ 1,131,442,272.05
2020	$ 74,339,091.90	$ 1,155,547,388.53	$ 53,687,841.00	$ 1,209,235,229.53
2021	$ 36,458,808.01	$ 1,192,006,196.54	$ 55,381,752.22	$ 1,247,387,948.76
2022	$ 36,142,697.38	$ 1,228,148,893.93	$ 57,060,976.63	$ 1,285,209,870.56
2023	$ 36,370,396.38	$ 1,264,519,290.30	$ 58,750,780.17	$ 1,323,270,070.47
2024	$ 36,599,529.87	$ 1,301,118,820.18	$ 60,451,229.46	$ 1,361,570,049.64
2025	$ 36,830,106.91	$ 1,337,948,927.09	$ 62,162,391.58	$ 1,400,111,318.67
2026	$ 37,062,136.59	$ 1,375,011,063.67	$ 63,884,334.03	$ 1,438,895,397.70
2027	$ 37,295,628.05	$ 1,412,306,691.72	$ 65,617,124.71	$ 1,477,923,816.43
2028	$ 37,530,590.50	$ 1,449,837,282.22	$ 67,360,831.98	$ 1,517,198,114.20
2029	$ 37,767,033.22	$ 1,487,604,315.45	$ 69,115,524.60	$ 1,556,719,840.04
2030	$ 38,004,965.53	$ 1,525,609,280.98	$ 70,881,271.78	$ 1,596,490,552.76
2031	$ 38,210,192.35	$ 1,563,819,473.32	$ 72,656,554.00	$ 1,636,476,027.32
2032	$ 38,416,527.38	$ 1,602,236,000.71	$ 74,441,422.74	$ 1,676,677,423.45
2033	$ 38,623,976.63	$ 1,640,859,977.34	$ 76,235,929.77	$ 1,717,095,907.11
2034	$ 38,832,546.11	$ 1,679,692,523.45	$ 78,040,127.14	$ 1,757,732,650.59
2035	$ 39,042,241.86	$ 1,718,734,765.30	$ 79,854,067.18	$ 1,798,588,832.48

Cash Flows (Including Schemes outlined above):

YEAR	Operating Surplus Deficit / Surplus Earned in Year	Expenditure on Schemes	Nett Balance Before Interest Earnings	Interest Earned on balance @ 4.55% paid monthly	Balance	Community Recycling Infrastructure Grants	Retailer Incentive	Rural & Regional Recycling Rebate	Community Sector	Public Rubbish Bins	Bounties	Zero Waste Australia	Community Litter & Recycling Grants
2016	$388,998,314	-$64,500,000	$324,498,314	$13,628,929	$338,127,243	$8,500,000			$6,000,000			$20,000,000	30,000,000
2017	$310,646,074	-$126,520,000	$522,253,316	$21,934,639	544,187,956	$8,500,000	$20,000,000	$12,920,000	$6,000,000	$9,100,000	$50,000,000	$20,000,000	
2018	$231,129,161	-$131,070,000	$644,247,117	$27,058,379	$671,305,496	$8,500,000	$20,000,000	$12,920,000	$6,000,000	$13,650,000	$50,000,000	$20,000,000	
2019	$150,434,748	-$157,120,000	$664,620,244	$27,914,050	$692,534,294		$20,000,000	$12,920,000	$6,000,000	18,200,000	50,000,000	20,000,000	$30,000,000
2020	$74,339,092	-$127,120,000	$639,753,386	$26,869,642	$666,623,028		$20,000,000	$12,920,000	$6,000,000	$18,200,000	$50,000,000	$20,000,000	
2021	$36,458,808	-$127,120,000	$575,961,836	$24,190,397	$600,152,234		$20,000,000	$12,920,000	$6,000,000	$18,200,000	$50,000,000	$20,000,000	
2022	$36,142,697	-$107,120,000	$529,174,931	$22,225,347	$551,400,278		$20,000,000	$12,920,000	$6,000,000	$18,200,000		$20,000,000	$30,000,000
2023	$36,370,396	-$ 77,120,000	$510,650,674	$21,447,328	$532,098,003		$20,000,000	$12,920,000	$6,000,000	$18,200,000		$20,000,000	
2024	$ 36,599,530	-$ 77,120,000	$491,577,533	$20,646,256	$512,223,789		$20,000,000	$12,920,000	$6,000,000	$18,200,000		$20,000,000	
2025	$36,830,107	-$ 77,120,000	$471,933,896	$19,821,224	$491,755,119		$20,000,000	$12,920,000	$6,000,000	$18,200,000		$20,000,000	
2026	$37,062,137	-$ 57,120,000	$471,697,256	$19,811,285	$491,508,541		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2027	$37,295,628	-$ 57,120,000	$471,684,169	$19,810,735	$491,494,904		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2028	$37,530,591	-$ 57,120,000	$471,905,494	$19,820,031	$491,725,525		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2029	$37,767,033	-$ 57,120,000	$472,372,558	$19,839,647	$492,212,206		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2030	$38,004,966	-$ 57,120,000	$473,097,171	$19,870,081	$492,967,253		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2031	$38,210,192	-$ 57,120,000	$474,057,445	$19,910,413	$493,967,858		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2032	$38,416,527	-$ 57,120,000	$475,264,385	19,961,104	$495,225,489		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2033	$38,623,977	-$ 57,120,000	$476,729,466	20,022,638	$496,752,103		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2034	$38,832,546	-$ 57,120,000	$478,464,650	20,095,515	$498,560,165		$20,000,000	$12,920,000	$6,000,000	$18,200,000			
2035	$39,042,242	-$ 57,120,000	$480,482,407	$20,180,261	$500,662,668		$20,000,000	$12,920,000	$6,000,000	$18,200,000			