

## INTRODUCTION

This brief review has been prepared to respond to the Packaging Impacts Consultation Regulatory Impact Statement (RIS) produced for the COAG Standing Council on Environment & Water (SCEW). The document seeks to review the report and attachments; key data and findings; and comment on the analysis and conclusions made, particularly in the Cost Benefit Analysis (CBA). In the main this review focuses on Mandatory Container Deposit Systems (CDS); options 4(a) and 4(b).

From the outset, we congratulate the RIS Consultants on their effort in compiling such a range of data and detailed analysis. While there remain some significant issues of debate there has been much improvement since the last effort (Beverage Container Investigation, 2010, BDA/WCS).

This review has 6 parts:

1. Commentary regarding assumptions made on current consumption, recovery and disposal
2. The Base Case
3. A Multi-Criteria Analysis evaluating a number of key considerations regarding each option
4. Optimistic projections of unproven schemes
5. Analysis and review of key aspects of the CBA regarding Options 4(a) and 4(b)
6. Financial costs

### KEY FINDINGS

The RIS CBA concludes that option 4(a) will cost \$1.144 billion, but we highlight that this is a cost over a 20 year study period. The annualised cost represents just \$70.7million per annum including 'participation costs' (see Appendix B) but our analysis suggests an **annualised benefit of \$60.25million or \$1.205billion over 20 years.**

Additionally we estimate some **\$1.784billion** becomes available in the first 4 years from unredeemed deposits (based on RIS data - see Appendix A) and that this can be used to offset scheme costs and support significant additional recycling efforts – an uncoded benefit of adopting a national CDS.

Programs that could be supported include – more reprocessing in Australia; much improved commercial and industrial collections; end market development; education campaigns; and assistance for any transitional issues with council contracts. In fact this surplus is of such an extent that it could fund every initiative outlined in options 1 – 2c of the RIS.

Depending on how the funds are deployed on additional packaging collection and litter management – option 4(a) should be attributed more tonnes for recycling and environment protection, than shown in the RIS.

When the CDS reaches an 80% redemption rate in 2020 we estimate using the RIS data that the financial cost per container will be one tenth of a cent. Prior to that there could be no consumer impact if some of the unredeemed funds are used to offset scheme costs. Further we have found overstated costs and understated benefits - that when adjusted suggest a surplus of about half to one cent per container.

#### The Boomerang Alliance:

- Australian Conservation Foundation • Arid Lands Environment Centre • CleanUp Australia • Conservation Council of South Australia • Conservation Council of Western Australia • Environment Centre of the Northern Territory • Environment Tasmania • Environment Victoria • Friends of the Earth • Greenpeace Australia Pacific • Local Government & Shires Association of NSW • Mineral Policy Institute • NSW Nature Conservation Council • National Toxics Network • Queensland Conservation Council • Tasmanian Conservation Trust • Total Environment Centre

The table below outlines the RIS costs and benefits as they stand:

	Option 4(a)	
	CBA Assumed (Over 20 Years)	CBA Assumed (Av. Per Annum)
<b>Sub Total Cost (PV, millions)</b>	<b>\$2,125</b>	<b>\$106.25</b>
Scheme design and implementation	\$11	\$0.55
Scheme operation and compliance	\$4,383	\$219.15
Collection, transport and recycling	-\$2,723	-\$136.15
Household participation	\$447	\$22.35
Business participation	\$7	\$0.35
<b>Sub Total Benefits (PV, millions)</b>	<b>\$710</b>	<b>\$35.50</b>
Market value of resources recovered	\$463	\$23.15
Avoided costs of regulation	\$35	\$1.75
Avoided costs of landfill	\$98	\$4.90
Avoided costs of litter clean up	\$114	\$5.70
<b>Sub Total NPV (millions)</b>	<b>-\$1,414</b>	<b>-\$70.70</b>

We believe that despite the RIS methodology claiming a CDS to be the most expensive option - with further clarification and economic analysis of the data presented within the RIS - a convincing and substantial case for the adoption of Option 4 (a) can be produced because:

- ✓ Options 4 (a) & (b) are the only options offered that provide certainty regarding the projected outcomes and at the earliest opportunity; and are the only options that guarantee results beyond the study period;
- ✓ Option 4 (a) is the only option that creates funds for jurisdictions that can be used to reduce the existing taxpayer burden, to provide waste and recycling services;
- ✓ Option 4 (a) is the only option that provides significant stimulus for the growth of the Australian Recycling Industry, specifically noting that:
  - No economic value has been provided regarding the employment growth the scheme generates nor the additional value (above the premium scrap price) created for reprocessors from CDS material purity; and
  - The proposed bounties outlined in the original Boomerang model (and ignored by the RIS) are focussed on ensuring further value adding in the Australian recycling supply chain (by rewarding domestic reprocessing). No economic value of this additional reprocessing likely to be undertaken in Australia has been attributed in the RIS;
- ✓ The substantial private sector investment (some \$300million) that a CDS will attract has been considered a cost with little to no consideration of the substantial benefits to the Australian economy and environment by:
  - Offsetting collection costs (and improving performance) of current and future product stewardship schemes; and
  - The value of non-CDS materials readily recovered by this new infrastructure.

Additionally there are a number of key assumptions made and evaluations omitted that once rectified substantially reduce the costs and increase benefits to show that the actual NPV is not an annualised cost of -\$70.7million but a **benefit of some \$60.25million per annum<sup>1</sup>**.

<sup>1</sup> Calc - \$70.7millpa RIS estimated cost less: \$67.9mill pa. in additional container recovery (Table 3, page 4) + \$44.95mill pa reduced costs (Table 8, page 16 NPV/pa) + \$18.1mill pa in recovery (after costs) of additional material at collection centres (Table 9, page 18) = **\$60.25million pa. av. annual benefit**  
 Note: we have not adjusted the RIS scheme cost per container in this calculation

Notably the RIS fails to provide a financial cost to the beverage industry (and potentially all consumers) of a CDS, unlike other options where an industry cost is shown. On our estimation the RIS produces a financial cost of about one tenth of a cent per container in 2020; or a conservative surplus of about half a cent per container under our recalculations of scheme cost (excluding recalculated material benefits).

There is now a clear case for action by Australian governments. A national CDS will create massive environmental and economic benefits, new jobs, support for charities, long term security for the Australian Recycling Industry. Importantly it will deliver on the community's support for a CDS as opposed to further industry proposals such as the National Bin Network or mandated targets in a co-regulatory Australian Packaging Covenant.

None of the non-CDS options are reliable or proven anywhere in the world to reach projected targets; nor have comprehensive local government support or are politically sustainable. They would be inefficient measures for the community and government as they grapple with failed targets and controversy.

## 1. ASSUMPTIONS MADE ON CURRENT PACKAGING CONSUMPTION RECOVERY & DISPOSAL

The RIS presents current packaging as shown in the second column in Table 1, below. Yet these figures are inconsistent both with discussions undertaken by the Australian Packaging Covenant Council and a study recently released by the Australian Food and Grocery Council's (AFGC) Product Stewardship Forum (PSF).

The PSF study of beverage containers by Industry Edge and OMG Equilibrium has brought to light more accurate data on consumption. This has been acknowledged as a problem with data from the Australian Packaging Covenant (APC) (upon which the RIS largely depends) in the previous Pitcher independent audit and the mid-term review. The PSF report significantly increases glass and plastic beverage container consumption through a review of imports. However it should be noted that further increases in consumption may be necessary once a more accurate assessment is made of non-beverage glass and plastic packaging consumption via imports.

It also examined recycling but this is less accurate as in the case of glass (the heaviest material) – it potentially includes stockpiles at reprocessors and use as road base which is not equivalent to repeated recycling of glass and should be reported separately as downcycling.

In sum the recycling rates for packaging as a whole and beverage containers specifically have been significantly exaggerated.

**Table 1: Adjustment 2011 Consumption tonnes**

Packaging material	RIS Packaging Consumption Estimate (tonnes)	RIS estimate Beverage Container Consumption	PSF Estimate Beverage Container Consumption	Adjusted Est. Beverage Consumption	Adjusted Est. Packaging Consumption	Notes to Adjustment
Paper/cardboard	2,680,000	?	31,321 <sup>2</sup>	31,321	2,711,321	* Added PSF LPB to bev. container as RIS seems to disregard this consumption * Added LPB to overall consumption
Glass	991,000	786,000	961,454	961,454	1,166,454	* Used PSF consumption for bev. containers as it is more specific in its analysis * Added PSF increase to overall consumption
Plastics	565,285	170,000	267,216 <sup>3</sup>	267,216	565,285	*Used PSF number as it is more specific in its analysis * No adjustment to overall plastic consumption – insufficient info to draw any conclusion as bev containers a minority of consumption
Steel cans	136,249	68,000	Not Provided	68,000	136,249	Used RIS data – though analysis of split between bev. containers & other packaging seems to be arbitrary
Aluminium	51,600	51,600	57,196	57,196	65,362	*Used PSF number as it is more specific in its analysis *NB RIS Analysis seems to indicate there is no other aluminium packaging consumed. However PSF identifies at least 8,166 tonnes of aluminium in aerosol containers alone
Composite Bev Containers	-	-	-	11,479	11,479	* Added cordials based on BDA 2010 as RIS seems to disregard this consumption
<b>Total</b>	<b>4,424,134</b>	<b>1,075,600</b>	<b>1,317,187</b>	<b>1,396,666</b>	<b>4,656,150</b>	

<sup>2</sup> Estimated quantity of Liquid Paperboard

<sup>3</sup> PET and HDPE only

It should be noted this simple analysis highlights that beverage container consumption is likely to be some 321,066 tonnes higher, and packaging overall 232,016 tonnes larger (and possibly more if there are further unaccounted for non-beverage container imports and aluminium foils) than those stated in the Packaging Impacts RIS and by the APC – a discrepancy of some 29.8% and 5.2% respectively.

Given that recycling is based on an estimated finite number of tonnes reprocessed per annum and the qualifications to the PSF report noted above - we rely on the current APC/RIS numbers. This indicates that estimated recycling rates should be adjusted as follows:

**Table 2: Adjusted 2011 Recycling tonnes**

Packaging material	Adjusted Packaging Consumption (tonnes)	Adjusted Beverage Container Consumption	RIS Packaging Recycling Estimate (tonnes)	RIS Beverage Container Recycling Estimate	% Recycling Rate - Packaging	% Recycling Rate - Bev. Containers
Paper/cardboard	2,711,321	31,321	2,024,000	12,680 <sup>4</sup>	74.65%	40.48%
Glass	1,166,454	961,454	466,000	362,000	39.95%	37.65%
Plastics	565,285	267,216	197,000	93,000	34.85%	34.80%
Steel cans	136,249	68,000	41,000	27,000	30.09%	39.71%
Aluminium	65,362	57,196	35,000	31,640 <sup>5</sup>	53.54%	55.32%
Composite Bev Containers	11,479	11,479	-	2,058 <sup>6</sup>		17.93%
<b>Total</b>	<b>4,656,150</b>	<b>1,396,666</b>	<b>2,763,000</b>	<b>528,378</b>	<b>59.49%</b>	<b>37.83%</b>

An alternative analysis using the PSF beverage container plastic (129,753t) and aluminium (36,600t) recycling numbers changes plastic beverage container recycling to 48% and aluminium to 64%; and overall beverage container recycling to 41%. The overall packaging rate is adjusted to 60%.

A serious review of the official recycling rates is required in view of:

- Increased beverage container consumption numbers;
- Likely inadequate data on imported non-beverage glass and plastic containers/other packaging;
- Likely reprocessor stockpiles of glass (from the 2011 PSF year) and need to identify downcycling for road base.

These adjustments highlight 2 important considerations. They are:

1. That beverage containers are one of the primary problems in Australian recycling. Performing at a rate of around 40%; and
2. That Options 4 (a) and 4 (b) will recover some 218,000 tonnes more recycle per annum than outlined in the RIS and CBA.

Most importantly the Product Stewardship Forum’s analysis applied by us also indicates a number of very important findings that have a significant impact on the cost benefit analysis – namely that the additional recycling substantially increases the benefits ascribed to the value of recycle in options 4 (a) & 4 (b). Other options generally (optimistically) target a finite amount of tonnes with constrained infrastructure and as such will not receive this level of benefit:

**Table 3: Additional Container Recovery**

Material	Additional Tonnes Per Annum	Scrap Value Per Tonne	Additional Benefit Per Annum
Liquid Paper Board	12,376	\$150	\$1.856mill
Glass	140,363	\$100	\$14.036mill
Plastic (PET & HDPE)	43,941	\$660	\$29mill
Aluminium	14,116	\$1,560	\$22.021mill
Other Composites	7,125	\$150	\$1.073mill
<b>TOTAL</b>	<b>217,921</b>		<b>\$67.986mill</b>

<sup>4</sup> Used BDA/WCS recycling numbers from previous RIS

<sup>5</sup> Aerosol can recycling subtracted from aluminium can recycling – Source PSF Report by Industry Edge OMG Equilibrium

<sup>6</sup> Used BDA/WCS recycling numbers from previous RIS

Cost of recovery in models such as Container Deposits 4 (a) and (b) already include the cost of a fixed amount of recovery infrastructure (that can absorb an expanded recovery of this rate) and as a result create almost 100% bottom line benefits to these models.

## 2. THE BASE CASE PROJECTED RECYCLING PERFORMANCE

Having established that current consumption levels are significantly underestimated (which results in benefits being dramatically understated for options 4 (a) and (b)) we would also note that the Base Case for the RIS involves APC and other state government policies as currently devised. It is projected they will achieve 79% packaging recycling over the period 2020 to 2030; and beverage container recycling will improve from the current assumed 48.7% to peak at nearly 70% by 2030. These are brave assumptions – but importantly they influence what additional recycling is assessed as achieved from each option – and thus the scale of benefits.

They could also lead to the assumption that 'business as usual' is sufficient and no intervention to achieve a quick and sustained improvement is necessary. It is not simply a matter of having a 'reference point'. The results of the CBA should have some anchor in reality.

Recycling during the term of the APC is estimated by the APC to have increased from an initial 39% in 2003 to the current estimated 62.5% (still below the 2010 target of 65%). It is widely acknowledged (including in the RIS) this is only because of the major interventions in the expansion of kerbside recycling and significant growth in export markets. Neither of these developments can be attributed to the APC, and the APC does not envisage any instrument with such influence over coming years. It should be acknowledged that the expansion of kerbside recycling services has come at significant cost to ratepayers; and that to continue to drive recycling gains via this mechanism (if in fact possible) will come at a far greater cost than those estimated within the CBA.

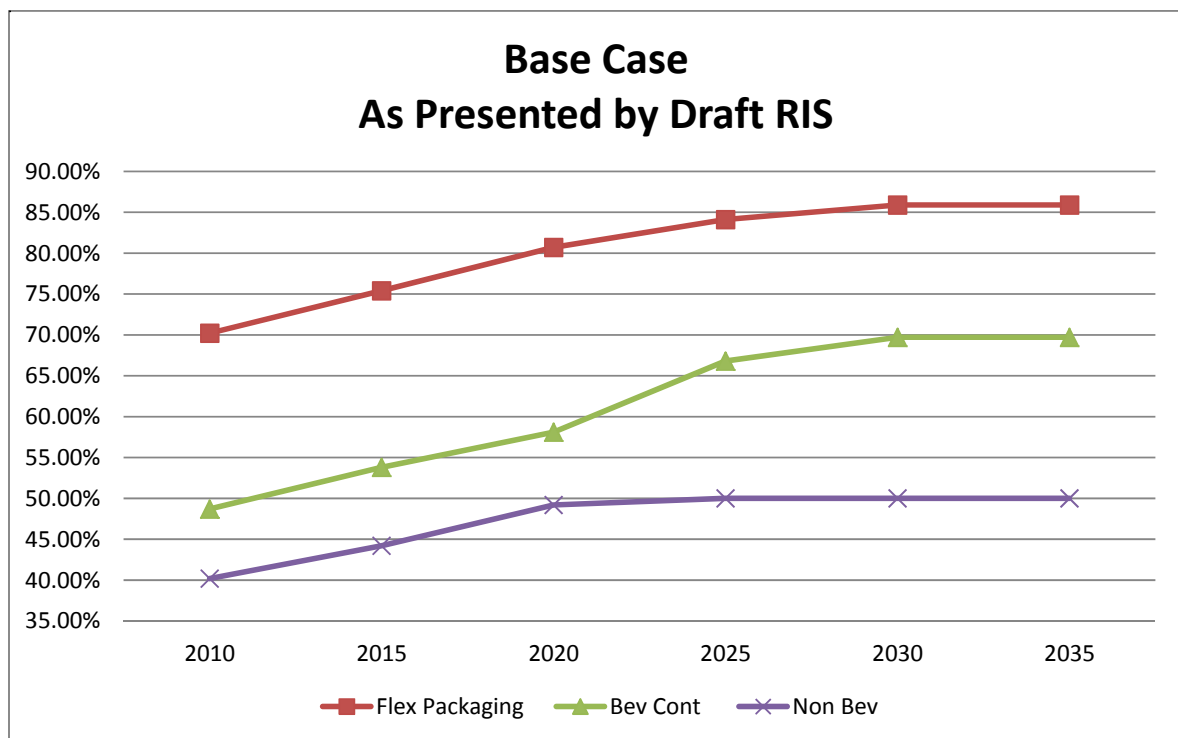
The Base Case also appears to assume there will be comprehensive, nation-wide cooperation from councils in much improved public space collection – but this is far from assured and unlikely given lift and contamination costs. Also we are not aware of the APC having any significant plans with its current funds for a big rollout of bins. It is now undertaking major, new work on product design and packaging recyclability. In fact we would suggest that the Base Case seems to assume a big bin rollout – which duplicates Option 2b.

The RIS data shows the main material that has caused the rise in packaging recycling is paper/cardboard which has now reached 75.5% and is 73.3% of the total weight of recycled packaging. This is close to world's best practice. When paper/cardboard is removed from the total recycling figures, all the other materials reach only a 37.2% recycling rate. Thus the Base Case largely targets these.

We have consulted several waste policy experts and they too regard the trajectory (plotted within the base case) as 'risky' and 'unconvincing'. They point to:

- only a 'major step change' can create major improvement;
- the best that can be expected is a plateau in recycling results;
- as the economy grows so too does waste generation and there is no evidence of plans for an accompanying growth in infrastructure in particular for away-from-home;
- the carbon price mechanism will advantage landfillers (due to exemptions/credits) in the medium term;
- the various government policies, funding and economic drivers for 'business as usual' will fluctuate and not be a consistent source of upwards pressure.

There is no evidence that the Base Case can overcome the substantial 'packaging problems' dissected in Part 4 of Attachment A. The views expressed within the Base Case are overly optimistic and reflect a performance level that no jurisdiction in the world has achieved without significant regulatory intervention. The chart below graphically demonstrates the projections.

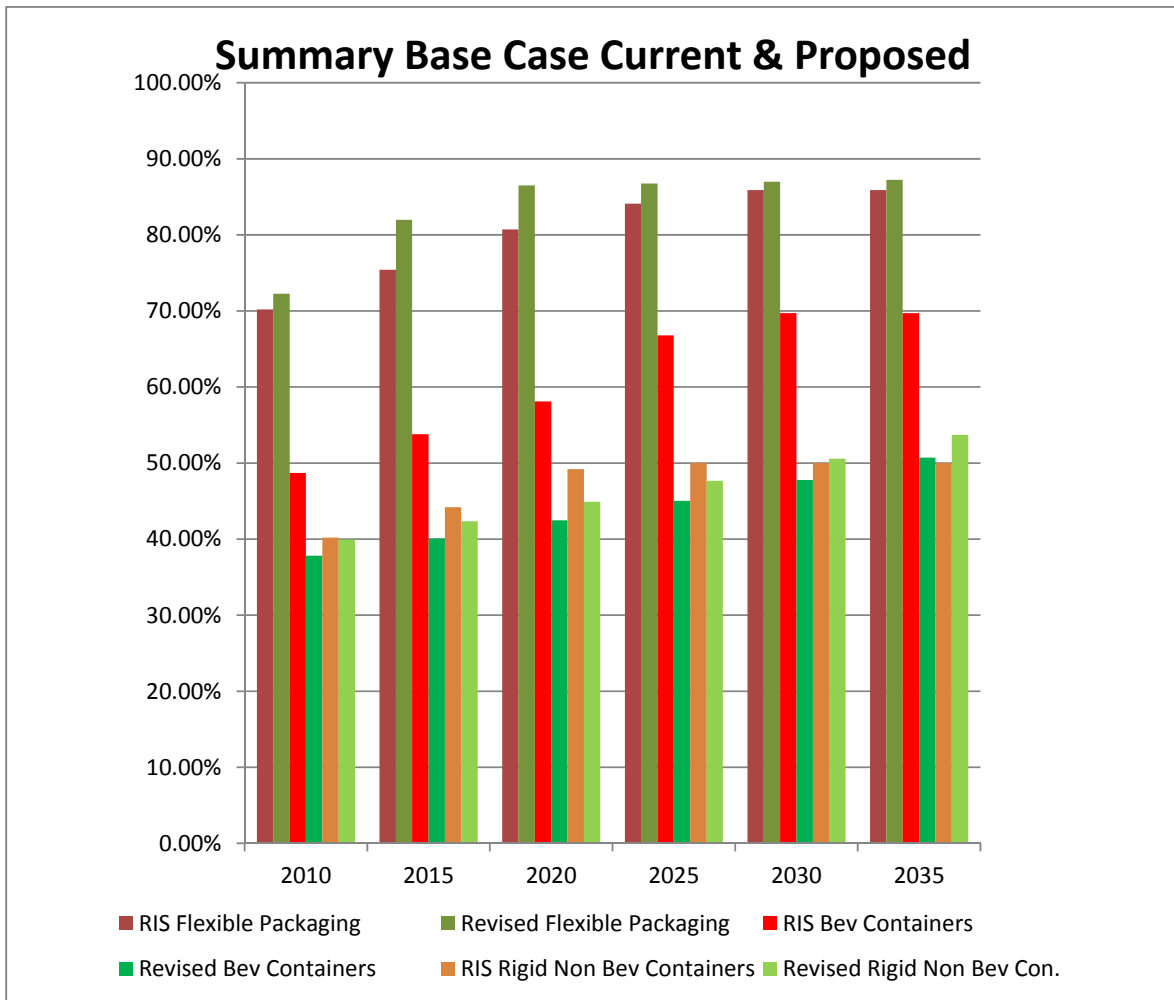


While the data provided makes it almost impossible to review in detail we would suggest the following adjustments (based on material types) need to be considered:

- That the 2010 recycling data reflect adjusted consumption figures in the report undertaken for the PSF by Industry Edge / OMG Equilibrium;
- That the impacts of assumptions regarding growth coming largely from the beverage container sector be tested to highlight the change in each option if growth does not come from beverage containers;
- That aluminium has not increased to any great extent over the 2003-10 Covenant period and will not in the future. However the Base Case claim it will, means there is little or no scrap value from increased aluminium recovery via a CDS depriving material benefit within the CBA for options 4 (a) and (b);
- That over the APC period steel can recycling rates have actually fallen;
- That glass recycling rates and projections should adjust for the reduction in stockpiles that have built up over a 10 year period;
- Recovery of plastic containers could be increased if a new waste to energy market was established but this would be contrary to good collection and recycling practise. In fact if a CDS were put into place it would divert the base case plastic containers to more lucrative reprocessing.

These changes would lay out a Base Case as follows:





Note: inadequate data to recalculate flexible packaging.

**Table 4: Revised Base Case Data**

Revised Base Case By Material	2010	2015	2020	2025	2030	2035
<b>CONSUMPTION:</b>						
Paper/Cardboard	2,680,000	2,768,240	2,859,385	2,953,531	3,050,776	3,151,224
LPB Containers	31,321	32,352	33,417	34,518	35,654	36,828
Glass Non Bev	205,000	211,750	218,722	225,923	233,362	241,045
Glass Bev Containers	961,454	993,110	1,025,809	1,059,584	1,094,471	1,130,506
Plastic Flex	213,069	220,084	227,331	234,816	242,547	250,533
Non Bev Rigid Plastic	85,000	87,799	90,689	93,675	96,760	99,946
Plastics Bev Containers	267,216	276,014	285,102	294,489	304,185	314,201
Steel Non Bev. Cans	68,249	70,496	72,817	75,215	77,691	80,249
Steel Drink Cans	68,000	70,239	72,552	74,940	77,408	79,956
Alum. Non Bev.	8,166	8,435	8,713	8,999	9,296	9,602
Aluminium Bev Cont.	57,196	59,079	61,024	63,034	65,109	67,253
Other Composites	11,479	11,857	12,247	12,651	13,067	13,497
<b>RECYCLING</b>						
Paper/Cardboard	2,011,320	2,362,038	2,573,446	2,658,178	2,745,699	2,836,102
LPB Containers	12,680	12,941	13,367	13,807	14,262	14,731
Glass Non Bev	104,000	114,591	126,260	139,117	153,284	168,894
Glass Bev Containers	362,000	398,864	439,482	484,236	533,547	587,881
Plastic Flex	79,000	87,475	96,860	107,251	118,758	131,498
Non Bev Rigid Plastic	25,000	27,682	30,652	33,940	37,582	41,613
Plastics Bev Containers	93,000	102,977	114,025	126,258	139,803	154,802
Steel Non Bev. Cans	14,000	14,461	14,937	15,429	15,937	16,462
Steel Drink Cans	27,000	27,889	28,807	29,756	30,735	31,747
Alum. Non Bev.	3,360	3,541	3,731	3,931	4,143	4,365
Aluminium Bev Cont	31,640	33,341	35,133	37,021	39,011	41,108
Other Composites	2,058	2,134	2,205	2,277	2,352	2,430
<b>RECYCLING</b>						
Paper/Cardboard	75.05%	85.33%	90.00%	90.00%	90.00%	90.00%
LPB Containers	40.48%	40.00%	40.00%	40.00%	40.00%	40.00%
Glass Non Bev	50.73%	54.12%	57.73%	61.58%	65.69%	70.07%
Glass Bev Containers	37.65%	40.16%	42.84%	45.70%	48.75%	52.00%
Plastic Flex	37.08%	39.75%	42.61%	45.67%	48.96%	52.49%
Non Bev Rigid Plastic	29.41%	31.53%	33.80%	36.23%	38.84%	41.64%
Plastics Bev Containers	34.80%	37.31%	39.99%	42.87%	45.96%	49.27%
Steel Non Bev. Cans	20.51%	20.51%	20.51%	20.51%	20.51%	20.51%
Steel Drink Cans	39.71%	39.71%	39.71%	39.71%	39.71%	39.71%
Aluminium Non Bev	41.15%	41.98%	42.82%	43.69%	44.57%	45.46%
Aluminium Bev Cont	55.32%	56.43%	57.57%	58.73%	59.92%	61.12%
Other Composites	17.93%	18.00%	18.00%	18.00%	18.00%	18.00%

**Commentary and explanation regarding this revision**

1. All consumption estimates have been increased at an annual rate of growth of 0.65% per annum but the commencing year (2010) has been adjusted to reflect recommended adjustments based on the PSF report discussed in Part 1 of this review.
2. Paper and Cardboard recycling rates have been assumed to continue to improve at the same annual rate during the APC reporting periods 2003 – 2010 (recycling rates grow by 2.4 percentage points per annum until they reach 90%). It should be noted however that no jurisdiction has ever reached this level of performance anywhere in the world without regulatory intervention; nor should any assumption for resource recycling for energy conversion be ‘lumped’ into a calculation for recycling. Material for waste to energy options does not have the same economic value as recycling (in fact it comes at a substantial net cost to the economy) nor does it have the same level of natural resource conservation values.
3. Rates for Liquid Paperboard (LPB) have been assumed to remain static as – there has been little historic improvement recorded; there are little to no policy responses in place to improve the recycling rates of LPB; and commercial markets for LPB are limited.

4. Glass (non-beverage and beverage) recycling assumed to grow at the average rate of 1.3% per annum.
5. Plastic assumes a growth rate of 1.4% per annum across all 3 sectors. Note estimates of plastic (non-beverage and flexible may now be overestimated due to unaccounted for imports as occurred with beverage container consumption)
6. It is assumed steel can recycling rates will remain static as recycling rates have actually fallen over the period 2003-2007.
7. Aluminium can recycling rates have been increased at a rate of 0.4% per annum (the average improvement over the period 2003-2010).

### 3. MULTI-CRITERIA ANALYSIS OF PROPOSED RIS OPTIONS

How do the various schemes compare? The RIS focuses on the numbers, leaving qualitative factors to discussion. However in order to more effectively compare and highlight options it should contain a multi-criteria analysis as shown below:

**Table 5: MCA (each measure is scored -3 to +3)**

OPTION	<b>Surety</b> <i>(Extent to which the measure is proven to be effective)</i>	<b>Permanence</b> <i>(Extent to which the option is likely to continue beyond the study period)</i>	<b>Resilience</b> <i>(Risk the option may fail due to external influences)</i>	<b>Adaptability</b> <i>(Extent to which collection systems &amp; infrastructure can be used for other programs)</i>	<b>Government Funding</b> <i>(Extent the option impacts on jurisdictional budgets)</i>	<b>Tax Burden</b> <i>(Impact on tax and rate payers)</i>
<b>1. NATIONAL PACKAGING WASTE STRATEGY</b>	<b>0</b> APC and other stewardship bodies have delivered moderate gains but failed to meet previous targets.	<b>-1</b> Program relies on industry support for a finite period.	<b>-2</b> Option is heavily dependent on international demand for recycle & industry goodwill.	<b>1</b> Moderate litter & recycling benefits from labelling & co-ordination.	<b>-2</b> Completely funded by government.	<b>-2</b> Ratepayer charges likely to increase, with local government continuing to fund public place waste collection, kerbside & litter abatement.
<b>2. (a) Australian Packaging Covenant replaced by co-regulation under the Act</b>	<b>-1</b> Unproven internationally & legislation is currently untested. Litter targets would be virtually impossible to measure as would have to discount other measures not financially supported.	<b>+2</b> Co-Regulatory agreements are able to be renewed but arrangements are finite and negotiable downwards. No guarantee of long term council support.	<b>0</b> Proposal is heavily dependent on market forces. Targets are overall sectoral targets with individual poor performers able to escape any individual penalty. No guarantee of long term council support.	<b>-2</b> Does not propose any specific infrastructure or collection systems.	<b>1</b> Government can increase budgets by levying charges for target failure. Administration charges are borne by government & government is likely to have to contribute to scheme and invest time and resources in periodic complex negotiation..	<b>-2</b> Ratepayer charges likely to increase, with local government continuing to fund public place waste collection, kerbside & litter abatement.
<b>2. (b) Industry Packaging Stewardship,</b>	<b>-2</b> No proven successes at this scale of operation or funds or lack of regulation. No hard evidence additional bins will sustainably deliver proposed results.	<b>-2</b> RIS proposal is for a fixed 20 year period – but industry only committed to 5 years with review. Cannot mandate long term council support.	<b>-2</b> Proposal is for a fixed amount of money & will not increase if market conditions deteriorate.	<b>+1</b> Bins and litter programs can be utilised for other materials, but does not develop infrastructure for other problem wastes.	<b>-1</b> No impact or benefit to government budgets. Continues to place majority of financial burden on local government.	<b>-1</b> Kerbside recycling charges likely to continue to increase. Some reduction in public place waste management options.
<b>2. (c) Extended Packaging Stewardship</b>	<b>-1</b> Unproven internationally & legislation is currently untested. Litter targets would be virtually impossible to measure as would have to discount other measures not financially supported.	<b>+2</b> Co-Regulatory agreements are able to be renewed but arrangements are finite and negotiable downwards.	<b>0</b> Proposal is heavily dependent on market forces. Targets are overall sectoral targets with individual poor performers able to escape any individual penalty.	<b>-1</b> Does not propose any specific infrastructure or collection systems but is likely to require industry funding of some collection infrastructure.	<b>1</b> Government can increase budgets by levying charges for target failure Administration charges are borne by government.	<b>-2</b> Ratepayer charges likely to increase, with local government continuing to fund of public place waste collection, kerbside & litter abatement.
<b>3. Mandatory Advanced Disposal Fee</b>	<b>1</b> ADF's for packaging are a proven measure. However unlike the international example this proposal does not adequately cover costs of recycling borne via ratepayers.	<b>3</b> Regulatory System that does not expire or require renewal	<b>0</b> ADF funds activity, but as it does not fully fund the scheme it remains susceptible to market and political fluctuations.	<b>2</b> Fees are used to develop infrastructure and schemes but does not underpin existing schemes.	<b>1</b> Substantial increase in funds to deliver new programs.	<b>0</b> Does not offset existing costs. Would be regarded as a tax by all consumers.

<b>4 (a) Boomerang Alliance CDS</b>	<b>3</b> CDS schemes are proven in jurisdictions across the world & in Australia over an extended period.	<b>3</b> Regulatory system that does not expire or require renewal.	<b>2</b> Shortfalls in costs are recovered from the polluter via unredeemed deposits; or very small container price increase.	<b>3</b> Proposal specifically develops infrastructure that is able to be used for other product stewardship schemes SA experience shows CD depots also collect significant amounts of other material.	<b>3</b> Develops substantial surpluses in initial years & completely funds government administration.	<b>3</b> Substantially offsets existing costs.
<b>4 (b) Hybrid CDS</b>	<b>3</b> More expensive than 4a) but CDS schemes are proven across jurisdictions across the world & in Australia over an extended period.	<b>3</b> Regulatory system that does not expire or require renewal.	<b>2</b> Shortfalls in costs are recovered from the polluter; or very small container price increase.	<b>2</b> SA experience shows CD depots also collect significant amounts of other material.	<b>2</b> Develops substantial surpluses in initial years & completely funds government administration.	<b>3</b> Substantially offsets existing costs.

#### 4. OPTIMISTIC PROJECTIONS OF UNPROVEN SCHEMES (2a, 2b, 2c, 3)

The RIS and ABARE reviews clearly reveal that other options are less certain in being able to achieve targets. In our view the results from these options should be overtly and highly qualified in the various tables showing results because it will not be possible to further test their assumptions with any degree of robustness.

This particularly applies to those options that require an industry contribution. These are subject to negotiation and there is no evidence that they can reach the levels achieved in overseas jurisdictions. Nor is there any undertaking by industry to financially support a 20 year program (as is made clear by [www.nationalbinnetwork.org.au](http://www.nationalbinnetwork.org.au)).

Successful overseas programs for bin infrastructure have far greater support. For example the Swiss ADF or Belgium Fost schemes which utilise bins have much higher contributions than anticipated in the RIS and additionally cover collection and recycling costs with additional regulatory underpinnings. Such schemes are not on the Australian political horizon.

Importantly none of the options can mandate the crucial council or commercial sector involvement and financial support – even if a new arrangement mandates a target on the industry. Their application would be patchy with periodic objection by councils and ratepayers and review by the commercial sector about cost and effectiveness. Government would be faced with demands for renegotiation every few years and certainly industry would not be signing a blank cheque.

They would also be broadly perceived as an unpopular tax by brand owners and can require an imposition on all packaging and brand companies where those that already recycle impressively would pay a levy based on tonnage - creating a perverse disincentive to recycle. The largest domestic producers of packaging (Visy & Amcor) already recover well over 100% of the materials they produce and subjecting them to a packaging tax without consideration of their recovery is simply charging the best performers to subsidise their competitors entry/expansion into the market. If those companies already recovering over say 70% of the material they produce were exempted from the scheme at least 70% of the revenues would be lost.

Alternatively a complex set of variations could be introduced – but this would be impractical and costly for government.

The RIS ADF is a grant scheme based on a tax on brand owners and recyclers and not a genuine ADF because:

- The only effective ADFs (Green Dot) take over the entire system and fund it from producer rather than taxpayer charges – e.g. Green Dot pays for kerbside operation;
- Applying a limited grants program often results in transference rather than additional recycling – i.e. rolling stock is gradually pulled out of existing operations to operate in more profitable subsidised areas as imports may not be subject to the charge – creating a perverse outcome where dirty imports have a price advantage;
- The scheme does not target a levy on all imported packaging – creating a further perverse subsidy that encourages dirty imports.

Option 3 and its projected results should similarly be treated with great caution.

## 5. REVIEW OF KEY ASPECTS OF CBA OPTIONS 4(a) and 4(b)

While there is comprehensive data provided, the RIS and associated CBA are far more difficult to understand in detail and it is difficult to follow a number of the underlying assumptions. Notwithstanding this we believe the following recalculations should apply.

### Operating Costs

The CBA presents the costs for the Boomerang Alliance Model as follows:

Cost Assumption Value	Value	Proportion of applicable infrastructure (%)	Note
Capital and operating costs – hubs, collection centres and RVMs (c/container)	4.5	98%	Applies to hubs, collection centres & rvms
Capital and operating costs – rural/remote collection points (c/container)	6	1.5%	Applies to rural & remote Infrastructure only
Coordination across system (c/container) 0.4 100 Applies to all infrastructure	0.4	100%	Applies to all infrastructure
Baling and Transport - collection centres, RVMs, and regional collection centre points to hubs, urban and rural (c/container)	0.72	100%	Applies to all infrastructure
Rural/remote transport - hubs to reprocessors (\$/tonne) 106.30 Applies to rural and remote	106.3	1.5%	Applies to rural and remote infrastructure only

These costs are substantially higher than those presented to WCS by us (aggregated average of 4.3¢/container). If this was applied the costs in 2020 would be about \$150m less. Importantly the RIS assumes only about 22% of containers are returned via RVMs which is a significant underestimation of the contribution by an efficient lower cost system.<sup>7</sup>

However, in this submission we have adopted the PWC/WCS figure as a conservative estimate of cost, so long as the approach is applied across the board for each option - which frankly, is not evident in options 1-3.

What is significant and inconsistent to the model we presented to WCS is the way the costs outlined are applied. The Boomerang Alliance model was developed with 4 distinct streams of recovery presented – each with specific collection points and fee structures applied.

#### a. Metropolitan and Regional Collection Centres and RVMs located in high street locations

These centres redeem containers returned by most households at largely automated centres. As outlined in the CBA they are expected to handle around 73% of all container redemption. This is incorrect they will handle around 65.5% of all containers redeemed.

There are 2 cost components that are applied to the recovery operation:

- Handling Fees (the capital and operating costs of the centre) – modelled at 4.5¢/container in the RIS; and
- Transport Fees (identified as baling and transport) from the collection centre to the Hub – modelled at 0.72¢/container adjusted to 0.36¢ (as baling fees are paid to the hub not the collection centre).

#### b. Redemption by Recycling and Waste Collectors

This collection point redeems containers returned from household (and some C&I collection) where people have chosen to forfeit their deposit. As they receive and retain the 10¢ deposit they do not earn a container handling fee or a transport payment and experience little to no cost compared to the

<sup>7</sup> In Appendix B of the RIS (p32), there are 640 RVMs used at core consumption centres; and at up to 230 collection centres 'where appropriate', ie, are likely to be competitive with manual sorting.

redemption value. At the conservative level at least 8% of the overall redemption will come via this stream.

### c. Rural and Remote Collection Network

This cost was included in recognition that Australia has significant rural and remote populations and that their remote distance to reprocessing should result in the payment of a higher fee – modelled at 6¢/container in the RIS. We also included an additional payment for transportation within our model – as did PWC/WCS at a cost of \$106.30 per tonne.

### d. Metropolitan / Regional Hubs located in light industrial areas, existing MRFs, or Transfer Stations

These centres consolidate materials from the collection centres and also act as a redemption point in their own right – mostly redeeming containers from larger redemption points (C&I, family events, apartment buildings, contract cleaners). Where a Collection Centre or RVM will typically redeem some 15-30 containers per customer visit; these centres will typically be processing in excess of 100 containers per customer visit and are able to redeem on a weight basis (based on average container weights) similar to those used in California. These centres will collect around 25.5% of all redemptions direct from a customer.

As such these centres undertake a bulk operation, processing far more containers per centre, processing each container for redemption faster and dealing with smaller numbers of customers overall. Consistent with almost any commercial activity large volume transactions the handling fee should be modelled at some 20% less.

There are 2 payment components:

- A payment of 3.6¢/container for the material they collect;
- A baling (no transport applicable) of 0.35¢ per container for materials received from kerbside operators and collection centres.

**Table 6: Adjusted handling and transport costs**

Cost Assumption Value	Value	Proportion of applicable infrastructure (%)	Note
Capital and operating costs –Collection centres and RVMs (c/container)	4.5	65.5%	Hubs & Kerbside recovery removed from this cost area and transferred below
Transportation to Hubs – Collection Centres and RVMs (c/container)	0.36	65.5%	Adjusted to reflect that only these centres receive a transportation payment
Capital and operating costs – for material redeemed via kerbside waste & recycling operations	0	8%	Adjusted to reflect these centres are rewarded by the container redemption
Transportation to Hubs – – for material redeemed via kerbside waste & recycling operations	0	8%	Adjusted to reflect these centres are rewarded by the container redemption
Capital and operating costs – Rural/remote collection points (c/container)	6	1%	Applies to rural & remote Infrastructure only
Rural/remote transport: Hubs to reprocessors (\$/tonne)	106.3	1%	Applies to rural and remote infrastructure only
Capital and operating costs – Hubs (c/container)	3.6	25.5%	Applies to hubs only who redeem in bulk
Baling at Hubs	0.36	99%	Paid at Hub for all recovery

**Table 7: Adjustment to previously overstated weighted cost per tonne**

Cost Assumption	Value \$/tonne	Proportion of applicable infrastructure (%)	Weighted Value / Tonne
Capital and operating costs –Collection centres and RVMs (c/container)	\$548	65.5%	\$358.94
Transportation to Hubs – Collection Centres and RVMs (c/container)	\$44	65.5%	\$28.2
Capital and operating costs – for material redeemed via kerbside waste & recycling operations	\$0	8%	\$0
Transportation to Hubs – for material redeemed via kerbside waste & recycling operations	\$0	8%	\$0
Capital and operating costs – Rural/remote collection points (c/container)	\$731	1%	\$7.31
Rural/remote transport - Hubs to reprocessors (\$/tonne)	\$106	1%	\$10.60
Capital and operating costs – Hubs (c/container)	\$438.40	25.5%	\$111.79
Baling at Hubs	\$44	99%	\$43.56
Co-ordination across system	\$49	100%	\$49
<b>Weighted Total</b>			<b>\$609.40</b>



Further it would appear that the costs reflect operation over the entire country (as Boomerang Alliance modelled), but that the recovery and benefits of the SA and NT CDS have been included in the Base Case. This would reasonably mean that the total cost should be reduced by 8% to reflect the fact that the Base Case is already covering the related costs. The adjustments outlined above would indicate that in the CBA calculations the costs identified as ‘scheme initiatives and infrastructure’ should be adjusted as follows.

**Table 8: Adjusted scheme costs**

Period	RIS estimated costs	Revised cost based on changed parameters	THEN further reduced cost based on operation across 92% of the nation (SA & NT excluded) <sup>8</sup>	Reduction in cost
2020	\$583million	\$516million	\$474million	\$109million
2035	\$674million	\$596million	\$548million	\$126million
PV	\$4,716million	\$4,171million	\$3,837million	\$879million

Additionally while excluding SA and NT from option 4a saves on costs (and there may be some reduction in material value benefits) – there will be little impact on the claimed savings for kerbside and MRFs because SA has had its CDS for over 30 years and the NT has had a low level of activity in this area. Participation costs will also have to be netted out.

**Application of cash surpluses within the 4(a) CD Scheme to deliver additional benefits**

While it is understood that the consultant brief did not extend to a GDP economic impact it needs to be made clear that a number of key elements of the Boomerang Alliance CDS model have not been assessed in this RIS. Such a study should be undertaken as it unfairly devalues the BA CDS.

The model on which 4 (a) was to be based seeks to do far more than a traditional CDS scheme with aspects designed to:

- Effectively recover beverage containers and reduce litter; **but also**
- To create necessary infrastructure that can be harnessed to recover additional recycle; and
- To create incentives for materials recovered in Australia to be reprocessed domestically – adding economic and environmental value to the nation. This is a feature of a number of CDS approaches – notably California and Germany.

The value added processing is a key element of the Boomerang Alliance scheme. We estimate that some \$1.784billion in cash surpluses from unredeemed deposits will be generated over 2016-2020 (see Appendix A). The figure is larger if our CDS cost adjustments per container are accepted and the interest on the fund included. This fund should not be allocated to industry as ‘profit’ for its sole benefit (although it could be partly used to offset scheme costs up to 2020), but rather used for more socially, economically and environmentally beneficial purposes.

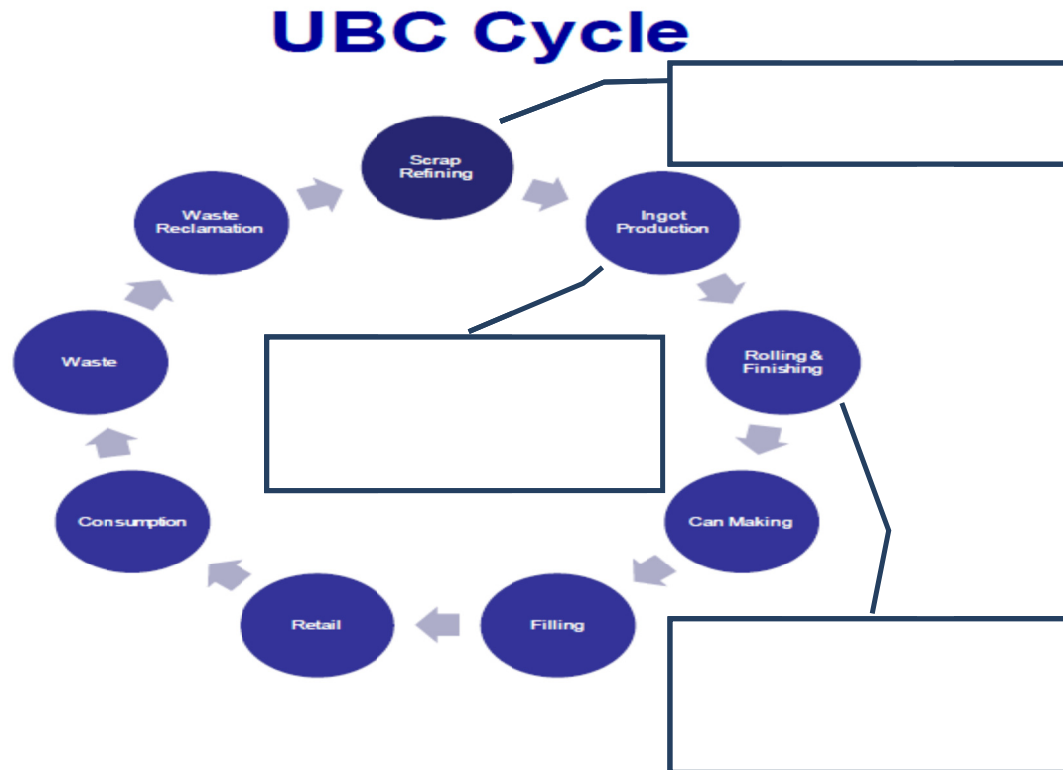
While the RIS methodology treats a significant proportion of these monies as a transfer, we have also advocated a clear recognition in a separate analysis that:

- A portion of the financial surpluses should be used to create incentives (e.g. bounties) to encourage further reprocessing of material. For example an \$18million bounty would easily capture another 180,000 tonnes per annum of reprocessing within the domestic economy – adding at least \$36million p.a. to Australia’s GDP.  
For example in aluminium alone Alcoa ARP estimates there are a further 15,000 tonnes of aluminium scrap beverage containers already recovered but exported for reprocessing. Combined with an additional 17,000 tonnes per annum of aluminium recycling, the extra aluminium reprocessed domestically would add the following to the Australian economy:

<sup>8</sup> Based on current population estimates that place South Australia at 7% of the national population and the NT @ 1% of national population

- 17,000 tonnes per annum of additional aluminium recovered and reprocessed domestically – adds \$2,500 a tonne in new domestic economic activity - \$42.5million growth in GDP pa.<sup>9</sup>
- 15,000 tonnes of exported scrap reprocessed domestically – adds \$940 tonne in new domestic economic activity - \$14.1million growth in GDP pa.

The following chart was prepared by Alcoa ARP and outlines the supply and consumption chain of an aluminium used beverage container and the added value for capturing not only recovery but the reprocessing stage of recycling:



To value the Boomerang CDS model (4a) based on scrap value alone both ignores key aspects of the scheme but also potentially denies a major stimulus to the Australian manufacturing sector.

This sort of stimulus and the growth in economic value is apparent for nearly all beverage materials (particularly aluminium and plastic) and supports key industry sectors within the Australian economy. Both Alcoa ARP and O-I have testified to the benefits of this style approach to previous federal and state upper house enquiries.

The attribution of CD surpluses generated up to 2020 to both offset costs and stimulate non-beverage collection are also key features of the scheme. Additionally funds could be used to support much improved commercial and industrial collections, end market development and education campaigns and consideration be given to any transitional costs support for councils in contract changes. In fact these surpluses (estimated to be \$1.42b in the period between 2016 and 2020) are of such an extent that they can fully fund every initiative outlined in options 1 – 2c of the RIS.

Depending on how the funds are deployed on additional packaging collection and litter management – option 4(a) should be attributed more tonnes diverted from landfill and recycled and reduced litter than in the RIS.

<sup>9</sup> RIS projects a base case for aluminium recovery rates that are unrealistic and as a result attributes little to no value of aluminium recovery to the CDS models

### Additional value created in reprocessors due to CDS material purity

If additional value created in reprocessors due to quantity and quality of scrap material available is included, there is very substantial relative benefit for CDS options. This is because there is significant value attributable to Australian reprocessors due to the extra value they create (lower costs and higher margins) directly as a result of the CDS material purity which allows them to:

- a) access higher quality /value applications with greater market prices (e.g. PET bottle to bottle, instead of PET strapping or fibre for clothing; similar for other plastics; LPB and/or
- b) reduce costs of reprocessing (e.g. by eliminating the need for additional costly sorting, rejections, wastage in the reprocessing itself (aluminium, glass).

The full extent of this additional value is not reflected in the price premium of CDS scrap prices (over kerbside or public space), but a majority of it instead directly benefits the reprocessor (not the scrap seller) through improved margins (higher sales price, lower costs). The CBA should be adjusted accordingly. We also note that PWC in their 2010 report to TEC acknowledged this benefit.

### Attribution on non-beverage container benefits from additional recycling and offsets of future product stewardship schemes

The Consultants have not valued any co-benefit attributed to other materials likely to be collected from the new depots to be established, but acknowledge this activity is likely and the norm in South Australia. They highlight this activity comes at a cost rightfully, but to simply zero this cost out is under-represent the value of the infrastructure.

Taking the most conservative estimate it is reasonable to assume that the 250 proposed 'hubs' that are a feature of option 4(a) will each collect at least as much material as the 55 CD depots do in South Australia; and to attribute a maximum cost of \$85/tonne (MRF costs estimated in the RIS). This is well below Boomerang Alliances estimates and attributes no benefit at all to the other 1,650 collection points.

On this basis alone Option 4(a) can be reasonably assumed to recover another 113,385 tonnes of recyclate and provide an annual benefit of some \$18,116,070 per annum (\$362million in NPV over the 20 year study period).

**Table 9: Additional materials recovered pa**

COMMODITY	Tonnes collected at 55 SA CD Depots	Extrapolate (Pro-Rata 55 Depots to 250 Hubs)	Sales Value / Tonne	New Economic Activity	Less: Cost @ MRF Charge of \$85/tonne	Benefit Per Annum
Non Deposit Glass	7,401.3	33,642	\$100.00	\$3,364,227	\$2,859,593	\$504,634
Brass, Copper, Batteries	5,125.0	23,295	\$525.00	\$12,230,114	\$1,980,114	\$10,250,000
Mixed Plastics @ \$660 per tonne (Comprising below)	212.2	965	\$660.00	\$636,600	\$81,986.36	\$554,614
PVC	63.0	286				
HDPE	130.0	591				
Non Deposit PET	19.2	87				
LPB	333.0	1,514	\$150.00	\$227,045	\$128,659.1	\$98,386
Paper and Cardboard	8,061.0	36,641	\$181.00	\$6,632,005	\$3,114,477	\$3,517,527
Steel	3,600.0	16,364	\$280.00	\$4,581,818	\$1,390,909	\$3,190,909
<b>Total</b>	<b>71,493.0</b>	<b>113,385</b>		<b>\$27,671,809</b>		<b>\$18,116,070</b>

It may be claimed that some of these materials are already in kerbside collections and recycled and there is simply a diversion. However, it should be noted that the higher value product is not recycled via kerbside and could be expanded to include e-waste (creating further kerbside and landfill savings). Further we would expect that some of the additional returns are by people who don't use or have access to the kerbside separation system. A new national CDS could be constructed to focus on those non-beverage materials that cannot be recycled via kerbside operations, thus increasing its utility for this purpose.

## 6. FINANCIAL COSTS

Unlike the 2010 BDA/WCS report Beverage Container Investigation, to environment ministers, the RIS does not show the financial cost to industry (and potentially consumers) of a CDS. This is also unlike the analysis of other options which clearly show the level of industry contribution.

To arrive this figure we have applied the same technique as BDA/WCS. The results show that under the RIS numbers there is a cost of about one tenth of a cent per container in 2020 when CDS returns reach 80%; or half a cent surplus under our revised calculations of scheme costs (and excluding increased material sales value and interest earned on the unredeemed fund). Unredeemed deposits cover scheme costs in the ramp up to 80%. Consequently there will be no permanent price increase in beverage prices and no impact on sales or associated jobs.

We note the conclusions of the ACIL Tasman report (2011) for the AFGC about economic impacts and point to the (absurd) key assumption that unless purchasers immediately redeem their deposit – then they regard this as a price increase that will influence purchasing patterns. We can find no evidence to support this assumption from CDS elsewhere. We also note that beverage prices are not static or uniform – major retailers engage in significant price competition that far exceeds suggested price impacts. While there may be state-specific impacts with state-alone CDS (influenced by transport distances and degree of brand separation at collection centres) – the price impact will be smoothed out at with a national CDS and the Boomerang option does not have brand separation.

<b>Financial cost/surplus per container</b>	
Number of containers in 2020	= 14b [assume 13b in 2010/11 x 0.75%pa growth]
RIS says 80% collected in 2020	= 11.20b
<b>Benefits:</b>	
Unredeemed amount	= 2.80b x 10cents = \$280m
Material value	= \$248m
[RIS says 22% more collected under 4a above base case of 58% is worth \$69m = \$3.1m p%, so 80% = \$251m]	
<b>Scheme costs:</b>	
	= \$545m OR
	= \$474 BA revised (Table 8, p16)
<b>2020 result</b> [costs minus benefits]= \$17m financial cost pa. (based on RIS) OR	
	= \$54m surplus (BA adjusted scheme costs)
<b>Financial cost per container</b>	= Between 0.1cents cost OR 0.40cents surplus [total sales divided by 2020 cost/surplus]

## APPENDIX A: RIS and BA adjusted cost/surplus, \$mill

The following is based on RIS data. The surplus would be greater if interest earned on the fund, increased material sales and adjusted costs outlined above are included. Further the cost per container when 80% recovery is reached becomes a surplus of .40 cent to one cent.

YEAR/BEV CONT	RETURN RATE %	UNREDM \$m	MATERIAL SALES \$m	COST \$m	NET SURPLUS/COST \$m
2010-11/13b	49				
2015/13.5b	54				
2016/13.6b	60	544	186	397	333
2017/13.7b	65	479	201	433	247
2018/13.8b	70	414	217	470	161
2019/13.9b	75	347	232	507	72
2020/14b	80	280	248	545	-17
Total		1,784	1,084	2,352	813*

\* first 4 years, thence no surplus after 2019. CDS costs = one tenth of a cent per container

Sources are based on RIS data:

- 0.75% increase in consumption pa;
- 80% in 2020 (and 5% pa return growth rate, Tony Wright pers comm 29/3/12);
- material sales are worth \$3.1m per %;
- CDS cost per container is 4.87cents

The RIS uses a trajectory reaching 80% in 2020. The assumed ramp-up recovery rates are realistic, for example in 2007 Ontario, Canada which had mandatory kerbside recycling with glass bottles for more than 20 years, decided to put a deposit on all wine and spirit containers (10 and 20 cents) to be returned at beer store only retail locations (versus liquor stores) throughout the province. There was concern that people would not participate because they were used to the convenience of the kerbside system, but the results show the overall collection rate in the system is 77.5% (yr 4), up from 63% in (yr 1).<sup>10</sup> In 2000 California expanded its program in 2000, over existing kerbside recycling. The most recent collection rates have ramped up for glass to 85% with a deposit value between 5-10 cents.

<sup>10</sup> <http://www.thebeerstore.ca/tbs-environmental-report.html>