LGAQ
LOCAL GOVERNMENT ASSOCIATION OF QUEENSLAND

30 March 2012

Standing Council on Environment and Water Secretariat
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Canberra ACT 2601

scew.secretariat@environment.gov.au

Dear Sir/Madam

**Submission - Packaging Impacts Consultation Regulation Impact Statement**

Please find attached the Association's submission on the above Consultation Regulation Impact Statement. Also attached is a report prepared on behalf of the Association: *Cost-Benefit and Impact Analysis for Queensland from the Packaging Impacts RIS Options*.

The Association thanks the Government for the opportunity to comment. If you require further information, please contact Christine Blanchard, Principal Advisor Environmental Health, telephone 07 3000 2243 or email christine_blanchard@lgaq.asn.au.

Yours faithfully,

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# COAG STANDING COUNCIL ON ENVIRONMENT AND WATER

# Packaging Impacts Consultation Regulation Impact Statement

## SUBMISSION

**Local Government Association of Queensland Ltd**

**30 March 2012**

The Local Government Association of Queensland (LGAQ) is the peak body for local government in Queensland. It is a not-for-profit association setup solely to serve councils and their individual needs. LGAQ has been advising, supporting and representing local councils since 1896, allowing them to improve their operations and strengthen relationships with their communities. LGAQ does this by connecting councils to people and places that count; supporting their drive to innovate and improve service delivery through smart services and sustainable solutions; and delivering them the means to achieve community, professional and political excellence.

## Executive Summary

The Association has held a position, through its policy statement, of being opposed to the introduction of container deposit legislation (CDL) on the basis of its high cost, limited impact on the overall waste stream and inequitable impact across the State. Whilst this Consultation Regulatory Impact Statement (CRIS) lists a number of options to deal with packaging waste, the focus has been primarily on CDL so this is the key issue addressed in this submission.

AEC*group* were engaged to undertake a cost benefit analysis of the options in the CRIS as they relate to Queensland local government. The following outcomes were found:

- The Queensland evaluation confirms that the introduction of a CDS would impose considerable net costs on the economy and should not be further considered;
- This is not unanticipated given that Appendix A to the RIS (Problem Statement for Packaging) (p.20) indicates that as at 2009, 85.4% of households already use municipal kerbside recycling services and 96.6% of households recycle, and a CDS would result in duplicated effort in recovering containers which are suitably dealt with in the majority of instances through existing service provision;
- In addition to being very high cost, the RIS CBA (p.3) notes that "*A CDS moves from a well understood and utilised, centralised kerbside recycling system offering substantial coverage to a decentralised system requiring significant behavioural change*";
- Further, the RIS (p.45) indicates that options 4a and 4b are not estimated to deliver a net benefit under any sensitivity test;
- A number of the inputs and assumptions contained within the CBA RIS actually understate the extent of participation costs and overstate the extent of potential cost savings and benefits associated with a CDS, and it is anticipated that a review of these inputs and assumptions would make the net impact considerably worse;
- The inconvenience factor for a CDS imposed on Queensland households is very significant, particularly when a CDS will work to undermine effective, centralised kerbside recycling schemes in most densely populated urban and regional centres (resulting in an unnecessary duplication in transportation effort);
- In addition, assumed cost savings from the provision of collection services, the processing of recyclables at MRFs, reduced waste to landfill, and reduced littering all appear to be overstated and fail to take into account the fixed costs associated with these services;
- If CDS is to be further evaluated, it is essential that all inputs, assumptions and calculations regarding each major impact be clearly provided in a technical report for critical review;
- No one other alternative option from Options 1-3 appears to stand out as the most appropriate option to introduce, although it does appear that Option 2a produces a potential low net benefit albeit for a marginal improvement in resource recovery outcomes;
- Given the recognition of increasing cost to achieve increasing resource recovery, Option 2c – an Extended Packaging Stewardship arrangement – appears to produce the best resource recovery outcomes for a moderate cost;

- What is evident from this analysis is that the focus should be placed on dealing with identified problem areas rather than considering schemes that work to undermine existing schemes with broad coverage (i.e. at-home recycling services in urban and regional centres);
- Such problem areas include:
    - Resource recovery within commercial premises (both SMEs and larger waste generators) for materials other than bulk paper and cardboard via comingled recycling services
    - Resource recovery for both domestic premises and commercial premises in regional, rural and remote areas
    - Facilitation of end markets for recyclables collected in regional, rural and remote areas
    - Continuing improvements in packaging at the source;
- If Option 2c or Option 3 are able to be utilised to fund such initiatives (in the absence of effective regulation and government subsidy arrangements regarding the provision of recycling services being able to do so), then they should be further considered regarding their appropriateness given their degree of flexibility to target problem areas;
- Where possible, such activities should leverage off existing facilities on a commercial basis to ensure appropriate economies of scale and scope, although noting that contamination rates will need to be controlled via effective monitoring and regulation; and
- Commercial premises may need to have 'ownership' of recycling services to ensure that contamination can be controlled effectively (through price controls, etc.), otherwise general waste may find its way into shared bin networks.

# Introduction

Local government in Queensland plays a significant role in managing waste, from provision of bins to collection and transport and then disposal or treatment of waste. Councils in Queensland are diverse and range from Brisbane City Council with a population in excess of one million people with sophisticated waste management disposal and processes to smaller rural councils with populations in the hundreds and basic waste management processes. The common theme with residents in these communities is they all generate waste with councils ultimately being responsible for management of this waste.

The Local Government Association of Queensland on behalf of Queensland councils has prepared this submission. The Association's policy position for some years has been: "l*ocal government is opposed to the introduction of Container Deposit Legislation (CDL) on the basis of its high cost, limited impact on the overall waste stream and inequitable impact across the State."* This submission is based on this policy position, which has been affirmed by members at Annual Conference. This position, however, does not remove the right of individual councils to make submissions on this Regulatory Impact Statement with issues or concerns that are relevant to their local communities.

Queensland local government invests significant funds in waste management and receives little, if any, funding or subsidy from state or federal governments for treatment of waste. The geography of Queensland is unique, in that approximately half of the more than four million population live outside the metropolitan corner of southeast Queensland. This presents challenges in management of waste in that transport distances are considerable but towns and cities are spread out making tonnages difficult to accumulate in one place. Standard procedure currently is that most resource recovery, particularly for beverage containers, occurs in either southeast Queensland, southern states or off shore. Fluctuating prices for collected product place additional strain on kerbside contracts with some councils prepared to carry the risk of marketing product but most choosing to use a contractor to manage this risk. Whilst schemes such as container deposit systems may seem ideal in getting containers returned, the question begs what to do with this product once it is collected, particularly in rural and regional areas? Are we simply purchasing material that will be landfilled if transport costs prohibit recovery of the material?

Waste management is one of the most significant budget items for councils. Whilst there is a variance in the level and sophistication of waste treatment there is no denying that councils invest heavily in this area. Extensive kerbside recycling programs already exist across Queensland with 86% of households having access to a kerbside recycling program. Kerbside systems are further enhanced by drop off systems at landfills or transfer stations for larger items. Local communities fund these systems with no external assistance. In many cases the recycling programs are already subsidised by local communities.

Litter is acknowledged as an issue in local government across the state and there is no doubt that beverage containers make up a proportion of this litter. However, there are questions as to whether container deposit legislation would significantly reduce littering or whether it is a community education issue that is better dealt with through other more cost effective means?

The Association has been a signatory to the Australian Packaging Covenant since its commencement. Local government in Queensland has been assisted to develop markets for recyclable products through Covenant funding.

Recent waste reform in Queensland has seen the introduction of an industry waste levy (commenced 1 December 2011) and contemporary legislation for waste management, including development of targets for reduction of waste to landfill and increased resource recovery. The road to this new legislation and levy has been long and difficult but a successful outcome of negotiations was that more than two thirds of the funds raised by the industry waste levy were to remain within waste reduction and resource recovery programs in both state and local government (with industry involvement). The state election held on 24 March 2012 now sees a change of government and the new LNP government has indicated it will most likely repeal the industry waste levy. This will certainly have an impact on programs that were planned, particularly in regional and rural Queensland, as funds will most likely be withdrawn. The true extent of these changes is yet to be known.

The carbon tax, due to commence 1 July 2012, will also have an impact on waste sent to landfill in the larger communities in Queensland. The full impact of this new carbon pricing mechanism is yet to be known but there will most certainly be a reduction in waste sent to landfill and industry may have an opportunity to further develop recyclable markets if landfill prices are increased.

The development of this Consultation Regulatory Impact Statement is timely as issues such as CDL have been on the table for many years and need to be put to bed one way or the other. The Association engaged AEC*group* to prepare a cost benefit analysis on the options as discussed in the CRIS as they relate to Queensland local government and this report provides the bulk of the submission by the Association.

The Association thanks the Government for the opportunity to comment on this RIS and looks forward to a sensible outcome on these issues that work for all communities in Queensland.

**Data Snapshot**

The Queensland Department of Environment and Resource Management provided the following data for the 2007-08 year[1] (this is the most recent data available from DERM):

- 32.6 million tonnes of solid waste generated by Queensland households, business and industry.
- 29% of this waste (9.4 million tonnes) was recovered for reuse and 22% (7.1 million tonne) was landfilled.
- The amount of municipal solid waste sent to landfill in 2007-08 fell by approximately 10 percent compared with 2006-07. This reduction can be attributed to a combination of an increase in recycling and reduction in green waste.
- On average, local government in Queensland collected 287kg of kerbside waste from each resident (compared to 270kg in 2006-07). Similarly they collected 64kg of recyclable paper and packaging materials per resident (61kg in 2006-07). Queensland residents self delivered 115kg of waste (typically large items unsuited to kerbside collection) per capita to local government landfills and transfer stations (101kg in 2006-07).
- The amount of paper and packaging materials collected by councils for recycling has risen from 169 000 tonnes in 2003-04 to 269000 tonnes in 2007-08 (a 59% increase). There have been large increases in the amounts of glass, paper and cardboard recycled, with relatively small increases in the amounts of plastic, steel and aluminium containers recycled.
- Queensland councils provide kerbside waste collection services to 1,508,000 households (approximately 94% of all households). They also provide 86 percent of these households with kerbside recycling services. Most of the waste generated by Queensland households is either collected through these kerbside collections or is "self delivered" by households directly to council drop-off centres (such as landfills and transfer stations).

## CRIS Questions

The questions provided in the Packaging Impacts Consultation Regulation Impact Statement have been answered below:

***Chapter 2:***

**What do you think are the future challenges relating to packaging and packaging waste?**

As the primary service provider for waste in Queensland, local government faces a number of different challenges. The Queensland population, due to tourism and the resource sector, is extremely transient, possibly more so than any other state. People move from metropolitan areas, where they have access to efficient and effective waste management services, to regional and remote

[1] Department of Environment and Resource Management, Queensland Waste and Recycling Report Car 2007-08, accessed 30 March 2012, http://www.derm.qld.gov.au/environmental_management/waste/waste_management/wastewise_publications/waste_and_recycling_reports/pdf/report-card-2008.pdf

areas, where they have similar expectations. Local government elected members are pressured to provide these services and more often than not they are far from economically viable.

An ever-increasing population sees a corresponding (or slightly lower according to reports attached to the CRIS) increase in the amount of packaging waste being handled or disposed by local government. Whilst any measures that reduce this amount of waste would be welcomed, the cost of any such measure must clearly balance with the perceived or real benefit.

One of the main challenges for local government in Queensland in coming years will be managing waste in regional and rural areas. High community expectations coupled with high transport and disposal costs will see many recycling programs subsidised by other council programs.

Local government has invested significant amounts in collection, transport and waste management infrastructure. It is difficult to recoup many of these costs and the general rate revenue mostly covers them. Provision of away from home infrastructure is extremely costly and cannot be charged on a user pays service. Whilst some industry programs have contributed to provision of infrastructure for away from home recovery, ultimately it is local government who wears the cost for these services.

**What packaging materials do you think will dominate in the future? What are the likely impacts?**

From a local government perspective the dominating packaging materials will continue to be those found in kerbside streams now: paper, cardboard, aluminium, steel, plastics and glass. It is unlikely that the waste stream will change composition significantly in the short term. Glass continues to be the primary cause for concern due to its capacity to break into fines and contaminate other recycling streams.

**What changes will occur with secondary packaging?**

Cardboard boxes are relatively well managed in metropolitan areas at the moment, as recycling opportunities are readily available. In regional and rural areas this is not the case and cardboard is generally landfilled.

Items such as shrink-wrap are difficult to recover in any market and due to light weighting can be difficult to recover in significant tonnes. From a transport perspective secondary packaging seems to be more common than it has been in previous years so recovery of these items will be a challenge for local government in coming years. Developing regional and metropolitan recovery markets for these products will need to become a priority if the aims of the National Waste Policy are to be met.

**How will the trends for on line shopping affect packaging consumption or choice of packaging material?**

On line shopping produces more secondary packaging than standard consumer shopping. An increasing trend in this type of shopping will see an increase in secondary packaging materials. Whilst recovery of some of these types of products will be managed in metropolitan areas, it is unlikely to be managed in rural and regional areas.

***Chapter 3:***

**Do you agree with the packaging resource recovery and litter management problems identified above?**

This chapter has identified a number of problems in relation to the recycling rate both at home and away from home. Whilst the recycling rate away from home can be increased, the question begs to be asked: how much, as a community, are we prepared to spend to obtain higher recycling rates?

The RIS notes that "*current policy settings do not address the relatively low recycling rates for common packaging materials away from home because of the lack of effective recovery systems and the diffuse responsibility for managing that waste*". Primarily local government is responsible for management of these wastes and the disparity of services available occurs for a number of reasons.

Infrastructure to collect material away from home is a significant cost impost on local government. Street furniture is a considerable cost when providing these services, without factoring in servicing costs for the bins.

Supplying sufficient street furniture to increase away from home recovery is a burden on local government and whilst there has been some industry assistance to date, it is not sufficient to provide the number of bins required. The contamination levels are often significant, as the general community seems reluctant to use these bins appropriately when away from home (although they will most likely use them correctly when at home). This provides challenges to local governments and the result is that few street bins are provided and events in some areas are not serviced by away from home infrastructure at all.

The options suggested in this RIS (to be discussed in coming sections) do provide alternate ideas for management of this material, however the cost of some of the options far outweigh the benefit and other options will have minimal impact on recovery of this material. From a local government perspective, the tonnages suggested in the CRIS are extremely optimistic and are unlikely to be recovered through a system such as the National Bin Network.

**Are there any problems with packaging resources recovery and litter management that have not been identified in Chapter 3?**

Issues in regional and rural Queensland with infrastructure are again noted. Where councils have limited or no kerbside recycling, there is unlikely to be recovery of any material in these areas. This can see substantial tonnages (although probably not substantial when compared to national figures) being landfilled due to lack of available infrastructure.

**What impost do fragmented and inconsistent frameworks for packaging resource recovery and litter management have on your businesses? What are the scale and scope of these impacts?**

The frameworks vary from council to council and the biggest impact is on the community. There is a community expectation that rural and regional councils will provide the same level of infrastructure as that found in the metropolitan areas. This places a moral and financial burden on local government elected members – services are often not economically viable, yet there is an expectation that these services will be provided.

**Would inconsistent state-based CDSs impose a cost on your business? How significant would this cost be?**

The geography of Queensland is such that if CDSs were to be introduced in neighbouring states and not in Queensland, then there would be some material that would migrate over the border to Tweed (from the southern end of the Gold Coast). There could be some migration in the Goondiwindi area due to it's proximity to Moree and possibly from Stanthorpe into Glen Innes. These are not major population centres. The western boundary of Queensland with Northern Territory is not heavily populated so migration of material across these borders would be minimal.

***Chapter 5:***

**Are there any other options that you think would be effective in addressing the problems set out in Chapter 3?**

The diversity of our country means that no single option is going to be suited to every community in every state. Changing population and increasing consumption are likely to see an increase in the amount of packaging waste generated so the burden on local government to deal with this waste is not likely to be eased in coming years.

The options listed in the CRIS are possibly those that are the most likely to be available and an analysis has been done on each. All prove to be varied in their cost and effectiveness and it is likely that some will be beneficial to some communities and not others.

The Association is not able to offer any conclusive alternative solution at this time.

**Will these options achieve the outcomes outlined in this chapter?**

No alternative options provided.

**If initiatives in option 2(c) and option 3 are broadly the same, who would be more effective and/or efficient in overseeing these initiatives to achieve targets: non-government organisations, government or industry?**

Using government to oversee the initiatives ensures that appropriate targets are met but the overheads with government agencies can be extreme and sometimes funds do not reach the programs for which they are intended. Local government would be seeking an assurance, if the federal government were to administer the funds, that the majority of funds reached the programs that would achieve the outcomes, and not be spent on public servants.

The Association does not support state governments being allocated these funds. If government is to administer the fund, then it must be done federally to ensure that multiple layers of government are not absorbing valuable dollars.

Arrangements such as the Australian Packaging Covenant have proven capable of administering programs that have achieved outcomes but there is sometimes not widespread community support for this type of administration. The Association has been a signatory to the Covenant since its' commencement and would support the APC administering these type of funds, provided appropriate frameworks were put in place to safeguard funds.

**The funds created by the ADF (option 3) would be collected and managed by the Commonwealth Government. On what initiatives should the Commonwealth Government invest this funding?**

Local government is at the receiving end of end-of-life packaging and therefore would benefit most from programs aimed at improving recycling processes or litter management. A number of initiatives are suggested for investment of this funding:

- Community litter education has declined over recent years. For many years, the successful "Do the Right Thing" campaign was conducted and research indicates a high memory for this program. Local government has been involved (with the PSF) in the rebranding of this to "Do the Right Thing: Use the Right Bin" which has been successful in some areas but the program needs to be targeted more succinctly through areas such as television advertising. The community needs constant reminding of the impacts of litter and broad scale media attention is required on a long-term basis.
- Regional areas in Queensland have limited or no recovery options for materials that are considered recyclable in metropolitan areas. The tyranny of distance or lack of significant tonnages of product sees many resources landfilled in rural and regional areas of this state. Providing funding for industry and local government to develop local solutions for local problems is essential and whilst these programs will never receive significant tonnages, there needs to be an acknowledgment of the impact of waste on rural and regional communities.
- An extension of the type of programs offered under previous rounds of the Australian Packaging Covenant would serve Queensland local government well.

**At what point in the packaging supply chain should the ADF be imposed to achieve the best outcomes?**

The ADF needs to be imposed as close as possible to the manufacturing/import of the packaging product (or, in the case where goods are repackaged, at that point).

**Under option 4, should beverage containers be required to be recyclable as part of the CDS proposals?**

Why would any government implement a CDS scheme that paid for containers that could only be landfilled? A requirement for containers to be recyclable should be mandatory in any CDS scheme considered.

Containers in rural and regional Queensland that would be returned under any CDS scheme would be likely to be landfilled anyway given the transport distances and lack of recovery options in these areas.

**Are the timeframes for implementations and review of the product stewardship arrangements appropriate?**

Given the time taken for the implementation of the e-waste scheme (not to mention tyres!) it is likely that all the timeframes mentioned will be extended.

***Chapter 6:***

**Are the projected rates for packaging recycling and litter reduction realistic?**

Given the data provided in the report the Association is satisfied with the projections for packaging recycling and litter reduction. There is insufficient data available in Queensland to indicate otherwise.

**Are the costs and benefits identified for each option realistic? Are there any additional costs or benefits that should be factored into the CBA? Are you able to provide data to back up your views?**

See notes provided in report by AEC*group*.

**What impact, if any, would the options have on packaging consumption, for example would the options lead to a reduction in consumption levels?**

See notes provided in report by AEC*group*.

**Do the options provide opportunities for increasing the recycling levels of other materials? If so to what extent?**

It is not clear whether the options will result in an increase in recycling levels of other materials. Given the geography of Queensland and the resultant lack of significant tonnes of recyclables in many regional areas, it is unlikely that any of these options will result in new products being able to be recovered. Underpinning options with legislation is likely to be the most successful solution to these problems but these are unlikely to be supported if accompanying recycling markets are not developed.

**What is the likely impact of the options on costs to households and businesses?**

See notes provided in report by AEC*group*.

**What is the likely impact of the option on kerbside collections systems?**

See notes provided in report by AEC*group*.

**What effects are the options likely to have on competition? Are any of the options likely to restrict competition?**

See notes provided in report by AEC*group*.

## Conclusion

Local government is a key provider of waste management services in Queensland. Providing certainty for services already in existence is of importance to councils and implementing high cost systems such as CDL that would impact on materials collected in kerbside systems needs substantial investigation.

Identifying the gaps that currently exist in waste management programs is a logical way forward and has been skirted around in this RIS but not considered sufficiently. Commercial and industrial recycling services are currently optional in many circumstances and do not have sufficient take up within the industry community due to the cost exceeding waste collection services. Consideration needs to be given to either mandating or subsidising these systems to make them more appealing.

The away from home sector is being handled partially by industry and local government but needs to be better managed. Contamination rates and provision of infrastructure remain a challenge as does providing the service in rural and remote areas. Implementing elements of options such as the national bin network could provide good outcomes for both local government and communities.

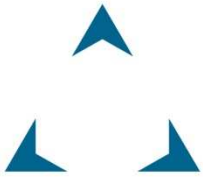
Rural and remote areas, particularly in Queensland, remain our greatest challenge. More than two million people reside in these areas in this state and there is a general expectation, from a relatively transient population, that similar services to metropolitan areas will be provided by local governments in these areas. Whilst these services can be provided, there are insufficient tonnes to make them viable and transport distances to market add extreme costs. Developing local solutions to local problems is the key here but this needs some intervention by state and federal governments and financial assistance is essential. The use of an advanced disposal fee combined with extended packaging stewardship in these instances may be the best option.

For further information in relation to this submission contact Christine Blanchard, Principal Advisor, Environmental Health on (07) 3000 2243 or christine_blanchard@lgaq.asn.au.


# Cost-Benefit and Impact Analysis for Queensland from the Packaging Impacts RIS Options

*Local Government Association of Queensland*

**March, 2012**



AECgroup

Outcome Driven

# Document Control

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# Executive Summary

## Background

The LGAQ has commissioned AEC*group* to undertake an independent assessment of the potential impact for Queensland of implementing the various options identified in the Packaging Impacts Consultation Regulation Impact Statement (RIS), in particular a Container Deposit Scheme (CDS). In addition, the assessment is to evaluate, at a high level, the implications of each option for Queensland Local Government Authorities and their communities.

It is important to note that this evaluation is not meant to provide an exact replica of the comprehensive Cost-Benefit Analysis (CBA) undertaken as part of the RIS. Instead, it is meant to provide an evaluation of the indicative (relative) impacts of each option for Queensland, following relevant amendments to selected inputs and assumptions deemed inappropriate in the local context. It is important to note that for a number of impacts, it was very difficult to determine the exact treatment within the CBA undertaken as part of the RIS. In some instances, the level of comparability is unclear and increased certainty may be achieved with the provision of more detailed information contained within the national analysis.

## Outcomes from the RIS CBA

The packaging options considered in the RIS include:

- Option 1: National Waste Packaging Strategy;
- Option 2: Co-Regulatory Packaging Stewardship, with three specific sub-options:
  - 2a: The Australian Packaging Covenant replaced by co-regulation under the Product Stewardship Act 2011
  - 2b: Industry Packaging Stewardship
  - 2c: Extended Packaging Stewardship;
- Option 3: Mandatory Advance Disposal Fee (ADF); and
- Option 4: Mandatory Container Deposit Scheme (CDS), with two specific sub-options:
  - 4a: Boomerang Alliance CDS
  - 4b: Hybrid CDS.

Based on the outcomes within the RIS CBA, Option 2a is the only option with a positive NPV outcome and benefit-cost ratio (BCR) above 1. When considering potential willingness to pay estimates, Options 2c and Option 3 appear to represent the most beneficial options when evaluating aggregate impacts, particularly given the increased level of resource recovery achieved via these options. Meanwhile, Option 4a and 4b feature very low BCRs of 0.33 and 0.29, and are shown to place a considerable cost burden on the economy.

## Outcomes from the Queensland Evaluation

The table on the following page outlines the CBA outcomes for the Queensland evaluation undertaken as part of this study. It is important to note that a number of inputs and assumptions contained within the RIS CBA have been amended in producing these outcomes, with reference to both the local context in addition to likely impacts that would occur in reality.

**Table E.1: CBA Outcomes for All Packaging Options – NPV and BCR Comparison**

| Item | Option 1 | Option 2a | Option 2b | Option 2c | Option 4 |
|---|---|---|---|---|---|
| **COSTS** | | | | | |
| *Scheme Design and Implementation* | | | | | |
| Regulation Design and Implementation | $ - | $ - | $ - | $ - | $ - |
| Government Participation Costs | $ - | $ - | $ - | $ - | $ - |
| Communications - Scheme Material | $ - | $ - | $ - | $ - | $ - |
| Communications - Other Recycling Material | $ - | $ - | $ - | $ - | -$ 1,040,960 |
| *Collection, Transport and Recycling* | | | | | |
| Participation Costs (Household) | -$ 13,285,031 | -$ 12,614,118 | -$ 25,296,793 | -$ 41,041,856 | -$ 549,810,734 |
| Participation Costs (Business) | -$ 1,583,745 | -$ 1,519,630 | -$ 2,725,327 | -$ 5,181,705 | -$ 590,315 |
| Additional Collection Costs (Household) | -$ 9,991,959 | -$ 9,433,489 | -$ 16,858,469 | -$ 32,226,699 | $ - |
| Additional Collection Costs (Business) | -$ 2,401,527 | -$ 2,267,300 | -$ 4,051,864 | -$ 5,969,022 | $ - |
| Transport Cost Savings | $ - | $ - | $ - | $ - | $ 13,621,779 |
| Processing at MRFs (or cost savings) | -$ 8,747,961 | -$ 8,259,020 | -$ 14,759,590 | -$ 24,114,783 | $ 51,047,231 |
| *Scheme Operation* | | | | | |
| Government Administration of Regulations | $ - | $ - | $ - | $ - | $ - |
| Scheme Administration | $ - | -$ 834,737 | -$ 834,737 | -$ 834,737 | -$ 588,216 |
| Scheme Operation | -$ 19,967,775 | -$ 3,502,521 | -$ 44,519,305 | -$ 71,544,857 | -$ 858,953,521 |
| *Scheme Compliance* | | | | | |
| Businesses | $ - | -$ 1,969,979 | -$ 1,969,979 | -$ 1,969,979 | $ - |
| **Total Costs** | **-$ 55,977,997** | **-$ 40,400,794** | **-$ 111,016,064** | **-$ 182,883,638** | **-$ 1,346,314,736** |
| **BENEFITS** | | | | | |
| *Financial Benefits* | | | | | |
| Market Value of Resources (MRF) - Base Value | $ 25,923,246 | $ 24,474,344 | $ 43,737,792 | $ 71,460,477 | -$ 68,329,137 |
| Market Value of Resources (CDS) - Premium | $ - | $ - | $ - | $ - | $ 181,336,662 |
| *Avoided Costs* | | | | | |
| Regulatory Costs | $ - | $ 3,082,384 | $ 3,082,384 | $ 3,082,384 | $ - |
| Landfill Externalities | $ 1,776,924 | $ 1,675,875 | $ 3,014,009 | $ 4,947,437 | $ 3,111,808 |
| Landfill Operating Costs | $ 5,226,246 | $ 4,929,043 | $ 8,864,734 | $ 14,551,286 | $ 9,152,375 |
| Litter Control | $ 3,331,286 | $ 3,331,286 | $ 3,867,711 | $ 3,867,711 | $ 5,914,842 |
| **Total Benefits** | **$ 36,257,701** | **$ 37,492,932** | **$ 62,566,629** | **$ 97,909,294** | **$ 131,186,549** |
| **Net Benefit/(Cost)** | **-$ 19,720,295** | **-$ 2,907,862** | **-$ 48,449,435** | **-$ 84,974,343** | **-$ 1,215,128,187** |
| **BCR** | **0.65** | **0.93** | **0.56** | **0.54** | **0.10** |
| *Willingness to Pay Benefits* | | | | | |
| Increased Recovery of Packaging | $ 79,465,428 | $ 75,180,434 | $ 134,591,533 | $ 218,523,273 | $ 140,831,553 |

Source: AEC*group*

## Study Conclusions and Recommendations

The following outcomes are notes in relation to this study:

- The Queensland evaluation confirms that the introduction of a CDS would impose considerable net costs on the economy and should not be further considered;
- This is not unanticipated given that Appendix A to the RIS (Problem Statement for Packaging) (p.20) indicates that as at 2009, 85.4% of households already use municipal kerbside recycling services and 96.6% of households recycle, and a CDS would result in duplicated effort in recovering containers which are suitably dealt with in the majority of instances through existing service provision;
- In addition to being very high cost, the RIS CBA (p.3) notes that "*A CDS moves from a well understood and utilised, centralised kerbside recycling system offering substantial coverage to a decentralised system requiring significant behavioural change*";
- Further, the RIS (p.45) indicates that options 4a and 4b are not estimated to deliver a net benefit under any sensitivity test;
- A number of the inputs and assumptions contained within the CBA RIS actually understate the extent of participation costs and overstate the extent of potential cost savings and benefits associated with a CDS, and it is anticipated that a review of these inputs and assumptions would make the net impact considerably worse;
- The inconvenience factor for a CDS imposed on Queensland households is very significant, particularly when a CDS will work to undermine effective, centralised kerbside recycling scheme in most densely populated urban and regional centres (resulting in an unnecessary duplication in transportation effort);
- In addition, assumed cost savings from the provision of collection services, the processing of recyclables at MRFs, reduced waste to landfill, and reduced littering all appear to be overstated and fail to take into account the fixed costs associated with these services;
- If CDS is to be further evaluated, it is essential that all inputs, assumptions and calculations regarding each major impact be clearly provided in a technical report for critical review;
- No one other alternative option from Options 1-3 appears to stand out as the most appropriate option to introduce, although it does appear that Option 2a produces a potential low net benefit albeit for a marginal improvement in resource recovery outcomes;
- Given the recognition of increasing cost to achieve increasing resource recovery, Option 2c – an Extended Packaging Stewardship arrangement – appears to produce the best resource recovery outcomes for a moderate cost;
- What is evident from this analysis is that the focus should be placed on dealing with identified problem areas rather than considering schemes that work to undermine existing schemes with broad coverage (i.e. at-home recycling services in urban and regional centres);
- Such problem areas include:
    - Resource recovery within commercial premises (both SMEs and larger waste generators) for materials other than bulk paper and cardboard via comingled recycling services
    - Resource recovery for both domestic premises and commercial premises in regional, rural and remote areas
    - Facilitation of end markets for recyclables collected in regional, rural and remote areas
    - Continuing improvements in packaging at the source;
- If Option 2c or Option 3 are able to be utilised to fund such initiatives (in the absence of effective regulation and government subsidy arrangements regarding the provision

of recycling services being able to do so), then they should be further considered regarding their appropriateness given their degree of flexibility to target problem areas;

- Where possible, such activities should leverage off existing facilities on a commercial basis to ensure appropriate economies of scale and scope, although noting that contamination rates will need to be controlled via effective monitoring and regulation; and
- Commercial premises may need to have 'ownership' of recycling services to ensure that contamination is able to be controlled effectively (through price controls, etc.), otherwise general waste may find its way into shared bin networks.

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# 1. Introduction

## 1.1 Background

On 7th December 2011, the Commonwealth Government released the Packaging Impacts Consultation Regulation Impact Statement (RIS). The RIS has been developed to further evaluate a limited number of measures that have the potential to increase packaging waste recovery rates and decrease litter throughout Australia. The RIS also includes a Cost-Benefit Analysis (CBA) of each of the proposed measures to assess the impact for Australia.

However, it does not provide any indication of the share of costs and benefits borne by each State and Territory under each of these packaging options, nor does it directly aggregate potential net benefits or costs by stakeholder group.

The packaging options considered in the RIS include:

- Option 1: National Waste Packaging Strategy;
- Option 2: Co-Regulatory Packaging Stewardship, with three specific sub-options:
  - 2a: The Australian Packaging Covenant replaced by co-regulation under the Product Stewardship Act 2011
  - 2b: Industry Packaging Stewardship
  - 2c: Extended Packaging Stewardship;
- Option 3: Mandatory Advance Disposal Fee (ADF); and
- Option 4: Mandatory Container Deposit Scheme (CDS), with two specific sub-options:
  - 4a: Boomerang Alliance CDS
  - 4b: Hybrid CDS.

The Commonwealth Government is seeking stakeholder and public feedback to the Packaging Impacts Consultation RIS by 30th March 2012.

## 1.2 Purpose of This Study

The Local Government Association of Queensland's (LGAQ) current policy statement regarding CDS is as follows:

> *"Local Government is opposed to the introduction of Container Deposit Legislation on the basis of its high cost, limited impact on the overall waste stream and inequitable impact across the State"*

The LGAQ has commissioned AEC*group* to undertake an independent assessment of the impact for Queensland of implementing the various options identified in the Packaging Impacts Consultation RIS, including CDS, in addition to the implications of each option for Queensland Local Government Authorities.

The purpose of this project is to:

- Undertake an independent review of the Packaging Impacts Consultation RIS CBA to determine the applicability of the inputs, assumptions and outcomes associated with each option for Queensland, and apply a mix of CBA inputs and assumptions (where considered applicable) and amended inputs and assumptions (where necessary) to estimate the potential impacts applicable to Queensland;
- Evaluate the impact of each option for Queensland Local Government Authorities and their communities; and
- Review the outcomes of the RIS CBA for Australia, the CBA for Queensland, and the impact for Queensland Local Government Authorities and their communities to determine which option or mix or options will likely deliver the greatest benefit or least cost.

## 1.3 Limitations of the Study

It is important to note here that this report is not meant to provide an exact replica of the comprehensive CBA undertaken as part of the RIS.

Instead, it is meant to provide an evaluation of the indicative (relative) impacts of each option for Queensland, following relevant amendments to selected inputs and assumptions deemed inappropriate in the local context.

It also attempts to identify, at a very high level, the implications of each option for Queensland Local Government Authorities and the residents of Local Government Authorities for the different geographical areas of the state.

It is important to note that for a number of impacts, it was very difficult to determine the exact treatment within the CBA undertaken as part of the RIS, i.e. what inputs/assumptions had been used and how they had been applied. In these instances, impacts were derived for Queensland based on assumptions regarding their treatment and/or a first principles approach. In some instances, the level of comparability is unclear and increased certainty may be achieved with the provision of more detailed information contained within the national analysis.

# 2. Outcomes from the RIS CBA

## 2.1 Packaging Options Investigated in the RIS

The following table provides a brief summary on the various packaging options proposed in the Packaging Consultation Impacts RIS. (The Packaging Options Report included as Appendix B to the Packaging Consultation Impacts RIS provides a comprehensive summary of each of these options.)

**Table 2.1: Packaging Options Proposed in the Packaging Consultation Impacts RIS**

| Option | Detail |
|---|---|
| **Option 1**<br>**National Packaging Waste Strategy** | **Start Date**: 2012<br>**Impact on Packaging Recovery**: 81.1% recovery rate by 2035<br>**Impact on Litter**: 15% reduction relative to 2010 by 2035<br>**Description**: Establishment of a non-regulatory national strategy to increase recovery of packaging waste and reduce litter through ensuring that current resources are utilised to their maximum potential. Strategies being considered include:<br>• A national recycling education and advertising initiative;<br>• A national initiative aimed at litter prevention;<br>• The development of a national methodology to measure littering;<br>• National programs to increase away-from-home recycling in core consumption areas through improved bin labeling;<br>• Information sharing between State and Local Governments;<br>• Consistent labeling of recycling bins; and<br>• Development of voluntary standards for end products and recycling labeling for packaging. |
| **Option 2a**<br>**APC replaced by Co-Regulation** | **Start Date**: 2012<br>**Impact on Packaging Recovery**: 80.6% recovery rate by 2035<br>**Impact on Litter**: 15% reduction relative to 2010 by 2035<br>**Description**: This option involves the transition of the current APC and NEPM to a co-regulatory arrangement as prescribed under the Product Stewardship Act. Litter reduction and packaging recovery targets under the APC's strategic Plan would continue to apply. Under this arrangement, consumer packaging 'brand owners' and packaging distributors would be treated as liable parties under the Act for litter reduction and packaging recovery. |
| **Option 2b**<br>**Industry Packaging Stewardship** | **Start Date**: 2012<br>**Impact on Packaging Recovery**: 81.9% recovery rate by 2035<br>**Impact on Litter**: 15.4% reduction relative to 2010 by 2035<br>**Description**: This option is based on the strategy in Option 2A, plus a greater focus on away-from-home recycling would occur particularly for beverage packaging to encourage higher recovery rates. This option would include the development of a National Bin Network and provide for industry funding sources for greater litter cleanup, education and enforcement programs. |
| **Option 2c**<br>**Extended Packaging Stewardship** | **Start Date**: 2012<br>**Impact on Packaging Recovery**: 86.4% recovery rate by 2035<br>**Impact on Litter**: 15.4% reduction relative to 2010 by 2035<br>**Description**: This option also provides for the stewardship of administering packaging waste programs under the Packaging Stewardship Act. It contains all initiatives that would be covered under Options 2A and 2B. In addition, this would also seek to:<br>• Focus on overall recycling and littering in lagging areas, such as regional communities;<br>• Provide significant support to local kerbside and litter cleanup activities;<br>• Extend business recycling initiatives; and<br>• Develop alternative end markets for the sale of recovered waste. |
| **Option 3**<br>**Mandatory Advance Disposal Fee (ADF)** | **Start Date**: 2012<br>**Impact on Packaging Recovery**: 86.4% recovery rate by 2035<br>**Impact on Litter**: 15.4% reduction relative to 2010 by 2035<br>**Description**: Under this option, a mandatory ADF would be levied on all packaging materials to influence packaging producers' choices in respect of choice of packaging material. It is envisaged that this fee would vary depending on the type of material utilised. All funds raised through the imposition of an ADF would be used to fund initiatives similar to those proposed under Option 2C. As a result, projected recovery rates and litter trends for Option 3 are the same as Option 2C. |

| Option | Detail |
|---|---|
| **Option 4a** **'Boomerang Alliance' Container Deposit Scheme (CDS)** | **Start Date**: 2016<br>**Impact on Packaging Recovery**: 82.8% recovery rate by 2035<br>**Impact on Litter**: 12.4% reduction relative to 2010 by 2035<br>**Description**: This option would involve the establishment of a mandatory CDS using a model proposed by the Boomerang Alliance, which would be based around 1,900 deposit points nationally including a substantial share of collection centres and reverse vending machines in supermarkets and other locations. These deposit points would accept beverage containers, up to 3L, and provide a 10c deposit refund. A not-for-profit government-owned organisation would be established to administer and operate the scheme. |
| **Option 4b** **'Hybrid' Container Deposit Scheme (CDS)** | **Start Date**: 2016<br>**Impact on Packaging Recovery**: 82.8% recovery rate by 2035<br>**Impact on Litter**: 12.4% reduction relative to 2010 by 2035<br>**Description**: This option would involve the establishment of a mandatory CDS using a hybrid model, which would be based around the same number of deposit points as Option 4A but with a focus on establishing the deposit points in store-front style depots. Outcomes in terms of recovery rates and littering trends are the same as Option 4A, but establishment and ongoing operating costs are higher. |

Source: *Packaging Options Report* prepared by WCS for the Standing Council on Environment and Water – Attachment B to the Packaging Impacts Consultation RIS.

## 2.2 Outcomes of Packaging Impacts Consultation RIS

### 2.2.1 Quantified Financial and Non-Financial Outcomes

The RIS CBA[1] was prepared at an aggregate level for Australia as a whole. The summary outcomes from the RIS CBA are outlined below:

- All packaging options will result in an overall increase in packaging recovery rates by 2035 when compared to the base case;
- Option 2a is the only option which achieves a positive Net Present Value (NPV);
- All other options were assessed to have negative NPVs and Benefit Cost Ratios (BCRs) below 1;
- Options 1 and 2b involve relatively low costs and benefits and are estimated to result in small net cost, whereas options 2c and 3 – despite having greater identified benefits – result in larger net costs given they also feature greater identified costs; and
- Options 4a and 4b, whilst having relatively high resource recovery benefits (although not as high as options 2c and 3), are by far the highest cost options and have the lowest BCRs of all the options.

The following table provides a summary of the RIS CBA outcomes by stakeholder (not provided directly within the RIS CBA), as determined by applying the relevant stakeholder group identified within the RIS CBA. Appendix A provides the information extracted from the RIS CBA (pp.90-98), and this information has been brought together to determine the potential net impacts on each stakeholder group.

It is extremely difficult to make informed comment on the aggregated impacts by stakeholder group as they do not include wealth transfer effects.

What is evident, however, is that households will face considerable costs under the CDS options, primarily due to the imposition of significant participation costs when compared with the low participation costs associated with kerbside recycling schemes. By contrast, recyclers will generally benefit under all options as a result of the additional value associated with the increased recovery of packaging materials.

[1] *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS.

**Table 2.2: RIS CBA Outcomes Summarised by Stakeholder – NPV**

| Stakeholder | Option 1 | Option 2 (a) | Option 2 (b) | Option 2 (c) | Option 3 | Option 4 (a) | Option 4 (b) |
|---|---|---|---|---|---|---|---|
| Business/Employees | -$20 | -$20 | -$37 | -$61 | -$61 | -$7 | -$7 |
| Commonwealth Government | $0 | -$2 | -$2 | -$2 | -$344 | -$2 | -$2 |
| Commonwealth Government/Industry | -$3 | -$3 | -$4 | -$4 | -$4 | -$10 | -$10 |
| Households | -$52 | -$53 | -$116 | -$207 | -$207 | -$411 | -$421 |
| Industry Product Stewardship Organisations (PSOs) | -$87 | -$13 | -$180 | -$345 | $0 | -$4,382 | -$4,719 |
| Local Government | $83 | $86 | $157 | $259 | $259 | $176 | $176 |
| Local Government / Recyclers | -$116 | -$136 | -$176 | -$319 | -$319 | $2,723 | $2,724 |
| Packaging Industry | $0 | -$2 | -$2 | -$2 | -$2 | $0 | $0 |
| Recyclers | $148 | $153 | $275 | $449 | $449 | $463 | $463 |
| State Government | $0 | $35 | $35 | $35 | $35 | $35 | $35 |
| **All Stakeholders** | **-$49** | **$46** | **-$51** | **-$198** | **-$195** | **-$1,414** | **-$1,761** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, AEC*group*

### 2.2.2 Other Potential Stakeholder Benefits

In addition to the above quantified net impacts, the RIS also discusses a number of other potential stakeholder benefits which are isolated from the main CBA calculation due to a number of factors (e.g. difficulty in calculation, non-inclusion in previous draft CBA reports presented) and as a result of potential duplication in the valuation of CBA benefits (i.e. they may already be included in the above impacts). These benefits include:

- Society's willingness to pay for the benefit of increased recovery packaging for recycling;
- Society's willingness to pay for the benefit of reduced littering;
- Potential co-benefits through increased recovery of other recyclable products (although it is recognised that there would also be corresponding costs associated with accessing any potential co-benefits such as the need for additional infrastructure and storage areas, transportation to reprocessing areas and end markets, potential additional environmental controls, etc.);
- Avoided costs of sourcing additional resources through greater utilisation of recycled packaging; and
- Avoided costs of mixed waste contamination (although any such potential benefits would only accrue in regions where Alternative Waste Technologies are in place).

Benefits associated with society's willingness to pay for increased recycling is quantified in the RIS as per the following table. The willingness to pay for reduced litter is also quantified in the RIS, but the RIS CBA indicates that the marginal impacts to litter volumes from each option do not provide any additional benefits over and above the base case scenario, and therefore are excluded. Due to the difficulty in estimating the net impact of the last three benefits outlined above and some concern over whether they should actually be considered, they are not quantified in the RIS CBA.

While willingness to pay values are presented alongside the quantified RIS CBA outcomes in the following table, it is noted in the RIS CBA that ***these values should not simply be added together due to the potential risk of duplication***. However, combining the impacts does give an indication regarding the potential ranking of options given a best case outcome.

**Table 2.3: RIS CBA Outcomes Including Willingness to Pay – NPV**

| Stakeholder | Option 1 | Option 2 (a) | Option 2 (b) | Option 2 (c) | Option 3 | Option 4 (a) | Option 4 (b) |
|---|---|---|---|---|---|---|---|
| CBA Outcome | -$49 | $46 | -$51 | -$198 | -$195 | -$1,414 | -$1,761 |
| Willingness to Pay | $296 | $295 | $534 | $871 | $871 | $588 | $588 |
| **Adjusted Outcome** | **$247** | **$341** | **$483** | **$673** | **$676** | **-$826** | **-$1,173** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, AEC*group*

The following table summarises the outcomes by stakeholder if willingness to pay estimates are in fact combined with the RIS CBA outcomes, i.e. under a best case outcome scenario. All benefits associated with society's willingness to pay for increased packaging recovery is attributed to households, which on face value more than offsets the previously determined net costs. Options 1-3 produce net benefits with options 2c and 3 appearing to provide the greatest net benefit, while considerable net costs are still incurred under the CDS options.

**Table 2.4: RIS Outcomes (Including Willingness to Pay) by Stakeholder – NPV**

| Stakeholder | Option 1 | Option 2 (a) | Option 2 (b) | Option 2 (c) | Option 3 | Option 4 (a) | Option 4 (b) |
|---|---|---|---|---|---|---|---|
| Business/Employees | -$20 | -$20 | -$37 | -$61 | -$61 | -$7 | -$7 |
| Commonwealth Government | $0 | -$2 | -$2 | -$2 | -$344 | -$2 | -$2 |
| Commonwealth Government/Industry | -$3 | -$3 | -$4 | -$4 | -$4 | -$10 | -$10 |
| Households | $244 | $242 | $418 | $664 | $664 | $177 | $167 |
| Product Stewardship Organisation (PSO) | -$87 | -$13 | -$180 | -$345 | $0 | -$4,382 | -$4,719 |
| Local Government | $83 | $86 | $157 | $259 | $259 | $176 | $176 |
| Local Government / Recyclers | -$116 | -$136 | -$176 | -$319 | -$319 | $2,723 | $2,724 |
| Packaging Industry | $0 | -$2 | -$2 | -$2 | -$2 | $0 | $0 |
| Recyclers | $148 | $153 | $275 | $449 | $449 | $463 | $463 |
| State Government | $0 | $35 | $35 | $35 | $35 | $35 | $35 |
| **All Stakeholders** | **$247** | **$341** | **$483** | **$673** | **$676** | **-$826** | **-$1,173** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, AEC*group*

### 2.2.3 Outcomes Summary

Based on the outcomes within the RIS CBA and in considering any potential willingness to pay estimates, options 2c and 3 appear to represent the most beneficial options when evaluating aggregate impacts. However, when excluding the willingness to pay estimates, options 1, 2a and 2b appear to produce better outcomes than options 2c and 3.

Even after considering any potential willingness to pay estimates, options 4a and 4b appear to impose considerable net costs on the economy and therefore further consideration of these options is not warranted.

# 3. Queensland Packaging Estimates

## 3.1 Recycling Trends

The Queensland Government's Department of Environment and Resource Management (DERM) provides comprehensive data on waste management and recycling trends in Queensland.

The following table summarises volumes recovered by Local Government Authorities through kerbside collection, drop-off deposit bins and away-from-home recycling bins in 2008 as per DERM's most current publication on Waste Management and Recycling (for the 2007/08 year). This table excludes any direct recovery from the business sector.

For the purposes of this analysis, Local Government Authorities have been grouped in categories for metropolitan South-East Queensland (SEQ), regional centres and other SEQ areas, and rural, remote and other areas. These categories have been utilised to reflect the different waste management practices undertaken across the state based on considerable differences in population density and geographic location relative to potential markets. Appendix B provides a complete breakdown of recycling data for the Local Government Authorities within each Statistical Division (SD) of Queensland.

**Table 3.1: Recyclables Collected by Queensland Local Government Authorities, 2008**

| Item | Metro SEQ | Regional Centres, Other SEQ | Rural, Remote, Other | Total |
|---|---|---|---|---|
| **Recyclables Collected (t)** | | | | |
| Volumes Recovered (t) | 205,800 | 59,550 | 3,350 | **268,700** |
| Add: Contaminated Waste (t) | 19,914 | 5,762 | 324 | **26,000** |
| **Total Recyclables Collected (t)** | **225,714** | **65,312** | **3,674** | **294,700** |
| LGAs providing Kerbside Recycling Services | 7 | 11 | 8 | **26** |
| LGAs with only Recycling Drop-off Points | 0 | 0 | 9 | **9** |
| LGAs Providing No Recycling Services | 0 | 1 | 25 | **26** |
| Remaining LGAs – No Data Available | 0 | 1 | 11 | **12** |
| **Total LGAs** | **7** | **13** | **53** | **73** |
| **Population Served** | **2,765,523** | **1,125,145** | **417,902** | **4,308,570** |
| **Recyclables Collected per Capita (kg)** | **82** | **58** | **9** | **68** |

Source: Queensland Government, AEC*group*
Notes: The DERM report contains data for 61 of the 73 Queensland LGAs, which represents 99% of the State's population. DERM data, from the 2007 report, was also used as the basis for the Queensland volumes utilised in the RIS. Population data as per OESR – medium series, and may vary slightly to the population figures published in the DERM report.

In addition to Local Government Authority-operated recycling services, many privately-owned Recyclers collect recovered waste from businesses and other away-from-home locations throughout Queensland. DERM estimated total paper and packaging recovered by Recyclers in 2008 at approximately 405,000 tonnes. Given the minimal data regarding contamination rates of volumes collected by Recyclers, it is assumed for the purposes of this evaluation to be equivalent to the contamination for waste collected by Local Government Authorities.

Overall, approximately 294,700 tonnes of recyclables are assumed to be collected by Local Government Authorities and 444,000 tonnes of recyclables are assumed to be collected by Recyclers, resulting in an estimated total of 738,700 tonnes collected across the State (of which 673,700 tonnes is effectively recovered).

## 3.2 Estimate of Packaging Recovery

Given that a share of recovered waste will be due to the presence of non-packaging materials, adjustments need to be made to the above figures to derive the packaging component of each recycling stream across the state. At a high level, roughly 28% of

recyclables collected by Local Government Authorities and 12% of recyclables collected by Recyclers (from business) are assumed to comprise of non-packaging items.

The following table summarises estimated packaging consumption, including an evaluation of the potential volume recovered, littered and disposed to landfill across the state.

**Table 3.2: Total Packaging Consumed in Queensland, 2008**

| Item | Metro SEQ | Regional Centres, Other SEQ | Rural, Remote, Other | Business, Away from Home | Total QLD |
|---|---|---|---|---|---|
| Packaging Recovered (t) | 148,690 | 43,025 | 2,420 | 357,300 | **551,435** |
| Recovered but Contaminated (t) | 14,388 | 4,163 | 234 | 34,573 | **53,358** |
| Packaging Littered (t) | 0 | 0 | 0 | 11,314 | **11,314** |
| Packaging Landilled (t) | 44,603 | 37,307 | 28,728 | 156,130 | **266,768** |
| **Total Packaging Consumed (t)** | **207,681** | **84,494** | **31,383** | **559,316** | **882,875** |
| **Total Packaging Recovered (t)** | **148,690** | **43,025** | **2,420** | **357,300** | **551,435** |
| **Recovery Rate (%)** | **71.6%** | **50.9%** | **7.7%** | **63.9%** | **62.5%** |
| **Packaging Consumed per Capita (kg)** | **75** | **75** | **75** | **n.a.** | **205** |

Source: Queensland Government, AEC*group*
Note: Landfill and litter volumes derived through assuming a 62.5% recovery rate, with littering equivalent to 6% of packaging consumed. Same contamination rate assumed for business as for domestic premises. Litter rates represent 6% of packaging available to be littered.

The RIS states that the average national recovery rate of packaging waste is currently around 62.5% (comprising a household recovery rate of 60% and business recovery rate of 63.9%). When applied to Queensland recovery rates to derive consumption levels, this suggests that Queenslanders consume around 75kg per capita at home and 205kg per capita across the State. These consumption rates are in line with the RIS that suggests that Australian households, on average, consume 76kg per capita and 206kg per capita including business packaging.

While average national recovery rates may in fact be the higher than those in Queensland, given the lack of comprehensive data on Queensland packaging recovery rates by region, application of national averages appears to provide adequate results to determine trends in consumption and recovery rates for Queensland (and for the purpoess of comparing the relativity of outcomes for each option identified in the RIS).

From a regional perspective, the following outcomes are estimated:

- Around 72% of packaging is estimated to be recovered in metropolitan SEQ where kerbside recycling is commonplace;
- Average recovery rates are lower at around 51% in regional centres and areas surrounding SEQ where the provision of kerbside recycling services is generally only provided to the more highly populated areas of regions; and
- In the remote areas of Queensland where kerbside recycling services are generally not provided and drop off centres exist in a minority of areas, the recovery rate drops to around 8%, with the majority of packaging waste sent to landfill within general waste bins or via self haul.

## 3.3 Estimate of Beverage Container Recovery

In order to understand the impacts for Queensland from the implementation of a CDS, it is necessary to isolate beverage container volumes from total packaging volumes. The following assumptions[2] have been applied to derive beverage container volumes in Queensland:

- Beverage containers represent 24.9% of packaging consumed (being around 47.5% household packaging and 11.8% of business packaging);

[2] Sourced from *Problem Statement for Packaging 2011* prepared by PWC/WCS for the Standing Council on Environment and Water – Attachment A to the Packaging Impacts Consultation RIS.

- The current recovery rate of beverage containers is less than for other packaging, and is estimated to be around 48.7% (represented by a 60% recovery rate for households and only a 22.4% recovery rate for businesses);
- Littering rates for beverage containers is around 63%[3], which is lower than the national average of 87% applied in the RIS; and
- Contamination rates for beverage containers collected are equivalent to total packaging.

The following table provides an estimate of beverage container volumes for the 2007/2008 financial year.

**Table 3.3: Beverage Containers Consumed in Queensland, 2008**

| Item | Metro SEQ | Regional Centres, Other SEQ | Rural, Remote, Other | Business, Away From Home | Total QLD |
|---|---|---|---|---|---|
| Containers Recovered (t) | 70,578 | 20,422 | 1,149 | 14,825 | **106,974** |
| Recovered but Contaminated (t) | 6,829 | 1,976 | 111 | 1,435 | **10,351** |
| Containers Littered (t) | 0 | 0 | 0 | 7,128 | **7,128** |
| Containers Landfilled (t) | 21,180 | 17,712 | 13,638 | 42,666 | **95,196** |
| **Total Containers Consumed (t)** | **98,588** | **40,110** | **14,898** | **66,053** | **219,649** |
| **Total Containers Recovered (t)** | **70,578** | **20,422** | **1,149** | **14,825** | **106,974** |
| **Recovery Rate (%)** | **71.6%** | **50.9%** | **7.7%** | **22.4%** | **48.7%** |
| **Containers Consumed per Capita (kg)** | **36** | **36** | **36** | **n.a.** | **51** |

Source: Queensland Government, AEC*group*

## 3.4 Projected Recovery Rates

Projections from OESR estimate that Queensland's average annual population growth between 2008 and 2031 will be 1.86%, higher than the national average within the RIS of just over 1.3%. As per the RIS, packaging consumed is expected to grow at a lower rate to that of population growth due to greater utilisation of light-weight packaging materials and increased efficiencies in packaging design. However, this reduction may be partially offset by increased utilisation of recyclable materials for packaging by industries. Overall, the RIS suggests that packaging will grow at a factor roughly equal to 50% of population growth. The RIS also assumes that under a 'business-as-usual' scenario littering should reduce by 10% by 2035 relative to 2010 volumes.

The following table summarises the anticipated recovery rates and littering trends anticipated under a 'business-as-usual' scenario for Queensland. It is expected that even without the options prescribed in the RIS, there will still be improvements in littering and recovery rates as Local Government Authorities move towards achieving the targets set out in the Queensland Waste Strategy. This approach is also relatively in line with the targets for the Australian Packaging Covenant.

**Table 3.4: Recovery Rates under a 'Business-As-Usual' Scenario**

| Year | Metropolitan SEQ | Regional Centres, SEQ Surrounds | Rural, Remote, Other | Business | Total QLD |
|---|---|---|---|---|---|
| **Total Packaging** | | | | | |
| 2010 | 71.6% | 50.9% | 7.7% | 63.9% | **62.5%** |
| 2015 | 76.5% | 57.3% | 8.7% | 68.8% | **67.5%** |
| 2020 | 81.6% | 63.9% | 9.7% | 73.9% | **72.5%** |
| 2025 | 86.1% | 69.7% | 10.6% | 78.4% | **77.0%** |
| 2030 | 88.0% | 72.2% | 10.9% | 80.3% | **79.0%** |
| 2035 | 88.0% | 72.2% | 10.9% | 80.3% | **79.0%** |

[3] Extrapolated from Queensland data provided in the *Keep Australia Beautiful Annual Report 2009-10*.

| Year | Metropolitan SEQ | Regional Centres, SEQ Surrounds | Rural, Remote, Other | Business | Total QLD |
|---|---|---|---|---|---|
| **Beverage Packaging** | | | | | |
| 2010 | 71.6% | 50.9% | 7.7% | 22.4% | **48.7%** |
| 2015 | 76.7% | 57.5% | 8.7% | 27.5% | **53.8%** |
| 2020 | 81.0% | 63.1% | 9.6% | 31.8% | **58.1%** |
| 2025 | 89.7% | 74.4% | 11.3% | 40.5% | **66.8%** |
| 2030 | 90.0% | 84.2% | 12.8% | 43.4% | **69.7%** |
| 2035 | 90.0% | 84.2% | 12.8% | 43.4% | **69.7%** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, AEC*group*
Note: Future recovery trends have been based on existing recovery rates and population location, capped at 90% for SEQ metropolitan and 85% for all other categories.

# 4. CDS Evaluation (RIS Option 4)

## 4.1 CDS Evaluation Approach

Two slightly different forms of CDS are included in the RIS, being a Boomerang Alliance CDS (Option 4a) and a Hybrid CDS (Option 4b). The number of collection points, level of packaging recovery and litter trends are comparable across both options, although the level of infrastructure and operating structure varies slightly.

For the purposes of this assessment, a review of Option 4a has only been undertaken given that Option 4b is of even greater cost in terms of scheme initiatives and infrastructure and household participation. It is believed that costs could be scaled up from the 'best case' Option 4a to an Option 4b equivalent if necessary.

Inputs and assumptions underlying the evaluation of a CDS will be determined following a review of the appropriateness of the inputs and assumptions contained within the RIS CBA, in addition to an evaluation of the local Queensland context (where possible).

Impacts on the Commonwealth Government and other State Governments have been excluded from the analysis given that they will occur outside of Queensland.

## 4.2 CDS Servicing Structure

The RIS identifies that the introduction of a CDS would involve the establishment of a total of 1,900 collection points nationally. Using the relative population of Queensland compared to Australia, plus factoring the relative occurrence of the population of regional and remote communities, the following table provides a possible allocation of container deposit points for Queensland.

**Table 4.1: Total National and Possible Queensland Deposit Points for a CDS**

| Type of Collection Point | Allocation Basis Applied | National Deposit Points (4a) | Queensland Deposit Points |
|---|---|---|---|
| Hubs/Consolidation Depots | Major Cities + Inner Regional | 250 | 47 |
| Collection Depots | Total Population | 310 | 63 |
| RVMs | Total Population | 640 | 129 |
| Remote/Rural Collection Centres | Outer Regional + Remote | 700 | 220 |
| **Total Deposit Points** | | **1,900** | **459** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, ABS, AEC*group*
*Notes:* Population allocations have been based on 2008 numbers contained within *ABS Publication 3218.0 Regional Population Growth, Australia; Table 1 Estimated Population by Remoteness Area*

A preliminary evaluation of potential deposit points per local government area within each category of region suggests that average distances to the nearest deposit point could be 5km for metropolitan SEQ, 20km for regional centres and SEQ surrounds, and 45km for rural, remote and other areas of Queensland.

It is important to note here that the above estimates have been derived on the basis of relative population (by remoteness). Given the unique demographic spread of population in Queensland between regional and remote areas, in reality consideration needs to be given to both population densities and distance travelled for determining where deposit points may be located. As such, the actual number of deposit for Queensland could be considerably higher than that outlined above to ensure appropriate coverage (with a higher relative cost to service).

## 4.3 Impact of CDS on Projected Beverage Container Recycling

The RIS suggests that the implementation of CDS will drive an overall increase in the recovery rate of beverage containers to 85% by 2035 (compared to 69.7% under a business-as-usual scenario), in addition to reducing beverage container litter volumes by

around 30% (compared to 10% under a business-as-usual scenario). The national target of 85% is based on recovery rates currently being achieved in South Australia.

Given the demographic, economic and behavioural constraints to recycling in regional and remote areas of Queensland, the anticipated recovery rates implied in the RIS are unlikely to be achieved at the same level for all regions in Queensland and a higher recovery will be required in metropolitan areas to achieve this target (capped at a maximum recovery level of 90%). In addition, business participation will be lower than that of households.

The following table presents a mix of possible container recovery rates between regions to ensure overall recovery targets under a CDS are met in Queensland.

**Table 4.2: CDS Beverage Container Recovery Rates Suggested for Queensland**

| Year | Metro SEQ | Regional Centres, SEQ Surrounds | Rural, Remote, Other | Business | Total QLD |
|---|---|---|---|---|---|
| 2010 | 71.6% | 50.9% | 7.7% | 22.4% | **48.7%** |
| 2015 | 76.7% | 57.5% | 8.7% | 27.5% | **53.8%** |
| 2020 | 90.0% | 85.0% | 83.6% | 61.2% | **80.0%** |
| 2025 | 90.0% | 85.0% | 85.0% | 73.7% | **85.0%** |
| 2030 | 90.0% | 85.0% | 85.0% | 73.7% | **85.0%** |
| 2035 | 90.0% | 85.0% | 85.0% | 73.7% | **85.0%** |

Source: AEC*group*
Note: Future recovery trends have been based on existing recovery rates and population location. Capped at 90% in metropolitan SEQ and 85% for other categories.

Overall, total volumes of beverage packaging consumed are projected to increase from 219,648 tonnes in 2008 to around 280,388 tonnes by 2035, with the average recovery rate of beverage packaging increasing from the current level of 48.7% to 85.0% (achievable by 2025). As part of this assumed increased rate of recovery, littering of beverage containers is also assumed to reduce by 30% by 2035.

Overall, the implementation of a CDS is likely to result in an increase to the recovery of beverage packaging by around 15.3% (above 'business-as-usual' scenario) by 2035. Recovery rates will vary between 90% for metropolitan areas and 73.7% for businesses and away from home locations. It is also anticipated the littering will reduce by a further 20% beyond the base case as a result of a CDS.

## 4.4 Assessment of CDS Costs

### 4.4.1 Scheme Design and Implementation

#### *4.4.1.1 Regulation, Design and Implementation*

It is anticipated that all regulation, design and implementation costs for a national CDS will be funded by the Commonwealth Government and as such impacts within Queensland would be negligible apart from potential lost Commonwealth expenditure in the state as a result of the diversion of funds. This approach is in line with the outcomes prepared in the RIS, which assigns all of these costs to the Commonwealth Government.

***Adopted Queensland Value:***

***Nil cost (all costs attributed to Commonwealth Government), outside of opportunity cost for Commonwealth expenditure in Queensland.***

#### *4.4.1.2 Communication*

The RIS identifies communication costs for marketing and education programs directly associated with the implementation and operation of a national CDS and anticipates that these costs will be borne by the Commonwealth Government.

However, it is also likely that Local Government Authorities will incur costs in revising waste and recycling publications to incorporate the new recycling opportunities available to ratepayers under a CDS. In addition, given that historically Local Government

Authorities have been the key responsible party for managing waste and recycling in Queensland, it is anticipated that Local Government Authority staff will most likely be the first point of contact for households requiring clarification regarding the new recycling scheme. While such costs will definitely exist, they would only likely be expected to be incurred in the short term during the first year of scheme implementation.

These costs are not factored into the RIS, but are factored into this evaluation at an estimated average cost of $20,000 per Local Government Authority.

***Adopted Queensland Value:***

***Communication costs (associated with the revision of marketing and education material) and resourcing costs (from responding to additional queries) of $1,460,000 (equal to $20,000 per Local Government Authority on average) is expected to be incurred by Queensland Local Government Authorities during the first year of implementation of the CDS. These costs are not factored into the RIS CBA.***

### 4.4.2 Collection, Transport and Recycling

#### *4.4.2.1 Household Participation Costs*

The costs incurred for households in participating in a CDS are significant and involve three main aspects:

- Time spent accumulating, storing, transporting and redeeming beverage containers;
- Vehicle operating costs associated with transporting and redeeming beverage containers; and
- The requirement for a third internal storage option for beverage containers both within the kitchen (short-term storage) and adjacent to external kerbside waste and comingled recycling bins (longer-term storage).

The RIS CBA attempts to value the first two impacts outlined above and excludes the valuation of the third impact.

The main driver of household participation costs is the distance required to be travelled to access a deposit point from each household. The RIS suggests average travel distances to deposit points of around 2km for metropolitan areas and 11.6km for regional and rural areas as a national average.

However, the Queensland impacts are likely to be considerably higher than these assumptions average distances. Based on a high-level assessment of the size of Queensland's local government areas and population densities, in addition to the number of potential deposit points, travel distances could in fact be more like 5km for metropolitan SEQ areas, 20km for regional centres and SEQ surrounds, and 45km for rural, remote and other areas. These estimates are considered more appropriate remain less than the alternative distance calculation outcomes outlined on p.116 of the RIS CBA of 10.2km for urban and 52.0km for regional.

As a result, a much greater cost will be incurred by Queensland households, particularly those in regional and remote areas, as a result of the introduction of a CDS. In order to provide an equivalent level of service to that suggested in the RIS for Queensland (i.e. achieving the same average distance to nearest deposit point), the number of deposit points for Queensland would need to be significant, further increasing overall scheme costs.

The other time and cost assumptions utilised in the CBA RIS to derive household participation costs also appear to be considerably understated and not reflective of likely actual outcomes. The following table provides an assessment of each household participation cost input/assumption, in addition to the adopted value for the purposes of the Queensland impact analysis.

**Table 4.3: Household Participation Cost Assumptions**

| Issue | RIS CBA | Adopted | Discussion |
|---|---|---|---|
| Vehicle Operating Costs | 15.4c/km | 23c/km | • The vehicle operating cost estimate is extremely low and not reflective of actual outcomes particularly when evaluating impacts over the longer term<br>• The adopted value is consistent with the NSW Road and Traffic Authority's Economic Analysis Manual as referenced in the RIS CBA (p.45)<br>• The adopted value for the purposes of this evaluation is still considered to be a low point estimate, with the cost more likely to be of the order of 40c/km in reality in terms of the real long-run marginal cost per km travelled (still well below allowable ATO values and exclusive of taxation effects) |
| Distance to Deposit Point (return trip = double this distance) | Urban=2.0km<br>Reg'l=11.6km | SEQ=5km<br>Reg'l=15km<br>Other=40km | • These average travel distances have been determined using a preliminary first principles analysis for Queensland and are more likely to reflect the local situation than the assumptions provided in the RIS CBA<br>• The geography of Queensland means that the average servicing standards (in terms of average distance to the nearest deposit point) specified in the RIS CBA would require a considerable increase in the number of deposit points presently assumed<br>• It is noted in the RIS CBA (p.45) that "*the CDS will distribute collection centres geographically to ensure coverage and consumer convenience. Preliminary infrastructure requirements have been estimated, but these are subject to verification based on a population/geographical analysis.*"<br>• No effective assessment can be undertaken without greater certainty surrounding the average travel distances (and upper end of travel distances) based on this evaluation |
| Trips per Year | 2 trips | 6 trips | • The RIS CBA assumes that households will only be required to make 2 trips per year (one trip every 26 weeks) to deposit points, based on a single study that suggests 25% of SA households in 2004 visited 1-3 times per year, 41% visited 4+ times per year and 34% indicated other<br>• The RIS CBA assumes that the 34% other responses in the survey represent households that do not participate in the CDS (which is an issue in itself in deriving the effectiveness of introducing a CDS versus effective kerbside recycling)<br>• The RIS CBA also assumes that those indicating 4+ times per year in the survey only visited 4 times, when many could potentially be visiting each and every week<br>• Use of an outdated survey with inappropriate survey parameters is not considered valid, particularly given the extent of impacts associated with household participation and the potential impacts associated with different rates of visitation than those assumed<br>• It would appear that if the RIS CBA assumption is put into practice that each household would be required to transport in excess of 25kg of containers each visit – obviously, dealing with this volume of containers would result in large transaction costs (and high average redemption times) which do not appear to have been adopted<br>• The adopted value for the purposes of this evaluation of 6 trips per annum is considered to be a more reasonable estimate reflective of actual outcomes |

| Issue | RIS CBA | Adopted | Discussion |
|---|---|---|---|
| Average Trip Speed | Urban=50km<br>Reg'l=75km | SEQ=40km<br>Reg'l=50km<br>Other=75km | • The average speed for a relatively short trip for urban areas means that the average speed should be lower than that assumed in the RIS CBA<br>• 40km has been adopted for metropolitan SEQ given the length of the assumed trip<br>• The speed in regional centres will also still be impacted by some level of traffic<br>• It is unclear whether the RIS CBA has appropriately considered the time to pack the car, get ready for the trip out, find a park, etc. – this would significantly reduce the average trip speed if not quantified elsewhere<br>• It is highly likely that average trip speeds could be lower than adopted in the Queensland evaluation as a result of these factors |
| New Trips | RVMs=10%<br>Remote=10%<br>Other=50% | All=50% | • Given the relatively low number of assumed trips and the volume of containers required to be transported each trip, it is assumed that 50% of trips will be new trips on average across the board<br>• It is not considered that this will overstate the number of new trips generated as a result of the CDS as any increased incidence of common trips to RVMs would be at least offset by the reduced incidence of common trips to other collection centres and transport logistics impacts associated with common trips |
| Redemption Time | RVMs=1.7min.<br>Other=5min. | All=5min. | • There is uncertainty surrounding the actual walk distance to/from deposit points<br>• An average redemption time of 5 minutes is used for the purposes of this evaluation, although this could still be understated given the need to open the back door or boot to unload, the need to wait for any other transactions being undertaken, and the need for all containers to be appropriated received and processed<br>• While RVMs are assumed to be located at convenient locations such as shopping centres, there are obvious time factors that need to be taken into account including unloading the container/s, distance from the car park to the RVM, need for additional care given considerable traffic movements occurring, etc.<br>• It is entirely possible that the redemption time could be up to twice this value for certain transactions and as such it is unlikely that the average time would be lower than 5 minutes even if RVM transactions are less than 5 minutes on average |
| Sorting Time | 1min./week x 50% additional participation, scaled down for resource recovery relation to Option 2c | 1min./week x 50% additional participation | • Additional participation costs are only applied to 50% of households, as per the RIS CBA<br>• The base sorting time for Options 2c and 3 is assumed to be an additional 1 minute per week for participating households<br>• Adoption of a CDS would require at least the same amount of additional sorting time to separate and store containers separately from other recyclables, in addition to increased coverage of recycling activities to areas without kerbside recycling services |
| Additional Trips per Week to Recycling Bin/s | 1/week x 50% additional participation, scaled down for resource recovery relation to Option 2c | 1/week x 50% additional participation | • At least 1 additional trip per week for participating households is envisaged, given the need for two (likely smaller) separate storage containers and the difficulty with taking two storage containers down at the one time |
| Walk Time per Additional Trip to Recycling Bin/s | 50.2 seconds | 50.2 seconds | • RIS CBA value is adopted |

| Issue | RIS CBA | Adopted | Discussion |
|---|---|---|---|
| Container Transfer Time per Trip to Recycling Bin/s | 5 seconds | 5 seconds | • RIS CBA value is adopted |
| Away from Home Sorting and Transfer Time | 5 seconds/ applicable trip | 5 seconds x 50% additional participation | • Value similar to the RIS CBA adopted, although time cost applied in accordance with assumed additional participation to reflect sorting and transfer time only rather than trip time to bins (assuming the majority of trips will occur anyway and for CDS the sorting and transfer time will be to retain containers and store in many instances) |
| Value of Time | $13.01/hr | $13.01/hr | • RIS CBA value is adopted |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, AEC*group*

The following table summarises household participation costs based on population levels in 2035. Given utilisation of the CDS will increase over time, participation costs are phased in each year as recovery rates increase when determining the NPV outcome.

**Table 4.4: Household Participation Costs in 2035**

| Item | Metro SEQ | Regional Centres, SEQ Surrounds | Rural, Remote, Other | Total QLD |
|---|---|---|---|---|
| Additional Distance Travelled (km p.a.) | 51,882,068 | 63,321,206 | 62,719,767 | 177,926,040 |
| Vehicle Cost ($/km) | $0.23 | $0.23 | $0.23 | $0.23 |
| **Total Vehicle Operating Costs ($)** | **$11,932,876** | **$14,564,567** | **$14,425,546** | **$40,922,989** |
| Total Time Impact (hrs p.a.) | 3,230,716 | 2,475,351 | 1,232,995 | 6,939,062 |
| *Additional Travel Time (hrs p.a.)* | *1,297,052* | *1,266,484* | *836,264* | *3,399,799* |
| *Additional Sorting Time (hrs p.a.)* | *88,135* | *35,858* | *13,318* | *137,311* |
| *Accumulation Walk Time (hrs p.a.)* | *73,740* | *30,001* | *11,143* | *114,884* |
| *Additional Transfer Time[a] (hrs p.a.)* | *124,901* | *50,816* | *18,874* | *194,591* |
| *Container Redemption Time (hrs p.a.)* | *432,351* | *175,901* | *65,333* | *673,584* |
| Value of time ($/hour) *(hrs p.a.)* | $13.01 | $13.01 | $13.01 | $13.01 |
| **Total Value of Time ($)** | **$26,230,489** | **$20,283,357** | **$12,293,564** | **$58,807,410** |
| **Total Household Participation ($)** | **$38,163,364** | **$34,847,924** | **$26,719,110** | **$99,730,399** |
| ***Average Cost per QLD Household*** | **$22.07** | **$49.53** | **$102.24** | **$37.01** |

Source: AEC*group*
Notes: (a) Includes away from home sorting and transfer time.

***Adopted Queensland Value:***

***Household participation costs associated with the introduction of a CDS are expected to be very significant at close to $100 million per year by 2035 (in real terms). In addition, those households located within regional, rural and remote areas in Queensland will incur much higher participation costs compared to metropolitan areas, a direct result of the geographical constraints associated with these areas.***

***It is important to note here that the NPV of household participation costs derived in this evaluation for Queensland exceeds the NPV of household participation costs derived in the RIS CBA for the whole of Australia. This is a direct result of the majority of the inputs and assumptions applied in the RIS CBA relating to household participation costs appearing to be significantly understated.***

#### *4.4.2.2 Business Participation Costs*

For businesses, participating employees will spend time sorting their waste into redeemable containers, recyclable waste and general waste. All assumptions within the RIS CBA have been applied, with the exception of workplace participation in the CDS which has been increased from 10% to 25% (as individuals sort containers to either retain their containers for future redemption or utilise designated deposit points).

***Adopted Queensland Value:***

***Business participation costs associated with the introduction of a CDS are not expected to be that significant. When taking into account the entire business sector, it is possible that this value is understating the true participation cost impact of a CDS, particularly if a considerable increase in recovery is targeted across the board.***

#### *4.4.2.3 Collection and Transport Costs*

The realisation of cost savings from general domestic kerbside and away-from-home collection services is primarily dependent on the frequency of bin collection services, not volumes collected. The RIS CBA (p.117) confirms that this is the case by indicating that the basis for pricing kerbside collection services is a unit cost per bin lift which within existing contracts will not change even if the haul of recyclables changes.

If targeted recovery rates under a CDS are achieved, this could potentially reduce the total volume of kerbside recyclables collected by up to 20% (with actual volumes reduced over time and diversion to a CDS occurs). It is not envisaged that this reduction will trigger a cessation to kerbside collection services by Local Government Authorities, nor a reduction in collection frequencies (with the majority already fortnightly). However, it is important to note here that for those regional and remote Local Government Authorities with limited or no recycling services in place, a reduction in materials able to be recycled via a kerbside service may actually further impact the viability of providing a comingled recycling service in the future.

The only short to medium term potential collection and transport cost saving that may exist under a CDS relates to whether collection trucks are able to undertake longer runs and reduce the occurrence of return trips to MRFs (or relevant transfer stations) once the truck is full. The following table summarises the transport cost assumptions used to determine cost savings in the RIS CBA.

**Table 4.5: Calculation of Kerbside Recycling Transport Costs**

| Item | Amount |
|---|---|
| Truck Capacity for Loads to MRF (tonnes/truck) | 10 |
| Return trip to MRF (hrs/trip) | 1.5 |
| Truck operating cost ($/hr) | $120 |
| **Transport Costs per Tonne Transferred to CDS** | **$18** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS

Many Local Government Authorities in Queensland utilise external contractors to conduct the kerbside collection and transport services for their region. As a result, it is unlikely that any potential savings will be passed onto Local Government Authorities (and households) until contracts are renewed and will be retained by the contractor at least in the short to medium term. In addition, around 20% of Local Government Authorities currently provide kerbside services with split bins, where both collection and transport frequency is dependent on household general waste. These Local Government Authorities will not change their current collection and transport processes and may not be able to benefit from increased efficiencies in truck runs.

In addition, a number of Local Government Authorities have indicated in past waste strategy evaluations that truck run efficiencies may not be able to be achieved given logistics issues. As a result, it has been assumed that only a maximum of 80% savings

to transport costs are achievable with these savings shared between Recyclers and Local Government Authorities.

No other collection service cost savings are envisaged.

For the other options evaluated in the RIS, the additional recycling costs of $187/tonne for kerbside recycling services and $26/tonne for the away from home/business sector is applied to 75% of the additional volume recovered (to reflect the fact that increased recycling volumes within existing services will incur minimal additional costs).

***Adopted Queensland Value:***

***Cost savings of $18/tonne may be available on kerbside recycling collection transport costs due reduced volumes per lift and increased servicing capacity per truck run. However, these cost savings are only applied to 80% of instances given current structures of servicing in certain regions. Cost savings are assumed to be shared between both Local Government Associations and Recyclers. No other savings in collection costs are anticipated. The extent of these cost savings are well below those assumed in the RIS CBA, but are considered appropriate.***

#### *4.4.2.4 Processing at MRFs*

The RIS CBA estimates that the average cost of processing recyclables at a Materials Recovery Facility (MRF) is around $85/tonne. However, this includes an assumed average contamination rate of 20% and a landfill cost of $200/tonne to dispose of contaminated waste. Both the average contamination rate assumed and the landfill cost applied in the RIS CBA appear too high and will skew the results by calculating a higher cost saving under a CDS than what would be experienced in practice.

Given that existing MRFs currently process with beverage containers alongside other comingled recyclables, the marginal processing cost at MRFs is not expected to be significant. This is particularly the case given that the MRFs are currently located in densely populated areas with relatively high volumes and within established structures and operations. In fact, many Local Government Authorities with existing kerbside recycling services have indicated that MRF net revenues will decline as a result of the loss of beverage containers (the value of which is addressed in the benefits section).

Existing MRFs have also been established to deal with recycling volumes inclusive of beverage containers and it is likely that a reduction in volumes would reduce productivity and potentially affect their viability for Recyclers, depending on the proportion of beverage container revenue at each site as well as the level of fixed costs within the business' operating costs.

This could in turn impact Local Government Authorities by:

- Closure of unprofitable MRFs, therefore increasing transport costs for LGAs who will need to transport recyclate to other MRFs located further away; or
- Imposition of new or increased tonnage rates by MRF to LGAs upon renewal of contracts to ensure adequate financial viability of their operations.

Upon implementation of a CDS scheme, beverage containers that are still collected through kerbside recycling will need to be appropriately sorted by MRF operators to ensure maximum sale price.

Overall, there is a risk that no cost savings will be achieved under the introduction of a CDS. However, for the purposes of this evaluation a best practice outcome has been assumed, with additional MRF processing costs of $45/tonne applied (i.e. excluding landfill cost of residual given it is dealt with elsewhere).

***Adopted Queensland Value:***

***No cost savings on MRF processing costs can be guaranteed as a result of the implementation of a CDS. However, a value of $45/tonne has been applied (excluding landfilling of residual which is dealt with elsewhere). Replication of the massive cost savings assumed in the RIS CBA could not be achieved and it is unsure whether such large benefits can be reasonably justified.***

### 4.4.3 Scheme Operation

#### *4.4.3.1 Government Administration of Regulations*

It is anticipated that the administration of regulations will be funded by the Commonwealth Government and as such impacts within Queensland would be negligible (apart from potential lost Commonwealth expenditure in the state as a result of the diversion of funds). This approach is in line with the outcomes prepared in the RIS, which assigns all of these costs to the Commonwealth Government.

***Adopted Queensland Value:***

***Nil cost (all costs attributed to Commonwealth Government), outside of opportunity cost for Commonwealth expenditure in Queensland.***

#### *4.4.3.2 Scheme Administration, Initiatives and Infrastructure*

The RIS prescribes that the costs of scheme initiatives and infrastructure under a CDS will be borne by Industry PSOs, and defines these costs to include:

- Operating and capital costs associated with the various deposit points to be established across the State;
- Transport costs, including baling as well as transport from RVMs, rural and urban collection points to consolidation depots;
- Transport cost for transfer of containers from consolidation points to reprocessing centres; and
- Overheads such as administration and co-ordination costs.

Industry will simply pass any net costs incurred through managing and operating a CDS onto consumers through price adjustments. Industry bodies are likely to initially increase prices equivalent to the deposit amount under the scheme. The value of the price increase for all containers that are not redeemed through deposit points will provide some level of funding to cover the cost of scheme infrastructure and initiatives. Should this prove to be insufficient in the long term as recovery rates increase, further price increases can be expected. Based on a preliminary evaluation, this could be a further $0.10 per container which would need to be recovered from households or reduced industry profits.

The following table summarises the cost per tonne associated with collection, handling and transport of containers recovered under a Container Deposit Scheme.

**Table 4.6: CDS Operating and Capital Costs ($/tonne)**

| Item | Metro SEQ | Regional Centres, SEQ Surrounds | Rural, Remote, Other |
|---|---|---|---|
| Operating and Capital Costs | $548 | $640 | $731 |
| Transport and Baling | $88 | $88 | $194 |
| Co-ordination and administration | $49 | $49 | $49 |
| **Total Cost per Tonne** | **$685** | **$776** | **$974** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS
Note: RIS applies a weighted average cost of $689 per tonne, but this is based on assuming 2% of volumes are sourced from remote locations, which is not representative of Queensland. The cost for Regional Areas has been derived through extrapolation of Metropolitan and Remote costs provided in the RIS

The RIS assumes that the costs of scheme initiatives and infrastructure will be borne by Industry PSOs, although there is a degree of risk that the geographic and economic barriers that have historically existed in establishing and operating recycling facilities in Queensland's regional and remote areas will require some level of responsibility by Local Government Authorities. At the very least, it is expected that a CDS would expect to leverage off existing Local Government Authority and other commercial facilities without appropriate compensation. Such facility usage also has the potential for flow-on impacts in terms of capacity constraints and resourcing.

It is interesting to note that the RIS (p.53) included an assessment of the effect of reducing capital and operating costs by 30% for the CDS options, even though it would appear that best case cost estimates have been incorporated and assumptions have already been made regarding the ability to 'piggyback' off existing waste facilities (generally run by Local Government Authorities). Given the inherent uncertainties associated with determining the necessary network to ensure effective service provision, sensitivity should possibly also be included in relation to a potential increase in capital and operating costs by 30%.

***Adopted Queensland Value:***

***Significant costs will be incurred in establishing and managing the CDS infrastructure and operational network. In fact, a low estimate for these costs is considered to be $685 per tonne in metropolitan areas, $776 in regional areas and $974 in remote areas. Actual outcomes for remote areas of Queensland could be considerably higher than this in practice.***

***In addition, a risk exists that Local Government Authorities in regional, rural and remote areas may be left with at least some additional level of responsibility as a result of a CDS being implemented across Queensland, which could place additional resourcing pressures on already constrained and stressed financial positions.***

### 4.4.4 Scheme Administration and Compliance

The cost of administering a CDS is estimated by the RIS CBA to be an additional $375,000 per annum over and above the current cost of the existing Australian Packaging Covenant (considered to be the 'business-as-usual' benchmark for administration costs). These costs will ultimately be funded by households and businesses through industry adjusting end user prices to accommodate additional the costs.

Compliance costs incurred by Industry to modify product labeling for a CDS will also be ultimately borne by consumers. However, the RIS assumes that this is a immaterial one-off change to design and labeling and the costs are therefore excluded from the CBA.

***Adopted Queensland Value:***

***Scheme administration costs of $375,000 per annum will ultimately be borne nationally by consumers through price adjustments to beverage containers, with a share of this cost allocated to Queensland.***

## 4.5 Assessment of CDS Benefits

### 4.5.1 Financial Benefits

#### *4.5.1.1 Market Value of Recovered Beverage Packaging*

This benefit relates to the financial market value of recovered beverage containers that are diverted from the landfill and litter streams. In addition, the RIS CBA assumes that a higher value will be achieved on certain containers as a result of reduced cross-contamination and better quality products. Obviously, some of the recovered value will simply replace the value already being gained through resource recovery associated with kerbside recycling collection services.

The following table summarises the estimated market value and premium value of recovered resources identified in the RIS CBA and applied in this evaluation.

**Table 4.7: Market Value of Resources ($/tonne)**

| Item | MRF Packaging Materials | MRF Beverage Containers | CDS Premium Beverage Containers |
|---|---|---|---|
| Paper/cardboard | $181 | $181 | $181 |
| Glass | $30 | $30 | $100 |
| Aluminium Cans | $1,560 | $1,560 | $1,560 |
| Plastics | $372-$560 | $372-$560 | $660 |
| Steel Cans | $280 | $280 | $280 |
| Liquid Paperboard | $150 | $150 | $150 |
| **Weighted Average ($/tonne)** | **$146** | **$79** | **$154** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, EPHC, DERM, AEC*group*
Note: Weighted Average used in the RIS is $162/tonne, determined using national material compositions. The Queensland weighted average in the above table has been determined using volumes by material for Queensland.

***Adopted Queensland Value:***

***Recyclers will achieve higher prices on containers in addition to increasing container volumes as a result of the introduction of a CDS. The market values of these resources as outlined in the RIS CBA are included in the Queensland evaluation.***

### 4.5.2 Avoided Costs

#### *4.5.2.1 Regulatory Costs*

It is understood that savings may be possible for State Government through the avoided duplication of regulatory design, implementation, and administration costs. However, no savings are envisaged for the Queensland Government or Queensland Local Government through reduced regulatory costs as a result of the introduction of a national CDS.

States and Territories that already have (are are planning to have) a CDS in place, such as South Australia and Northern Territory, will see savings occur through the absorption of their state-based CDS legislation into national legislation and regulation. States without a CDS in place will not access any such financial benefit.

In addition, a CDS targets only a portion of the packaging stream and regulations would still be necessary for other waste streams. In fact, a risk exists that the implementation of a national CDS may result in additional regulatory costs to incorporate the impact of the new CDS scheme into waste strategies and other policies.

***Adopted Queensland Value:***

***Nil benefit included in the Queensland evaluation.***

#### *4.5.2.2 Landfill Externalities*

There are a range of external costs associated with the landfilling of waste that are incurred by third parties. These externalities for landfill sites predominantly take the form of environmental impacts, such as greenhouse gases, leachate as well as social impacts through noise, smell, dust and traffic on the surrounding community. The diversion of beverage containers from landfill will have the benefit of reducing the impact of these externalities.

The following table summarises the estimated cost of landfill externalities applicable to each tonne of beverage containers landfilled as outlined in the RIS CBA. A value of $10.20/tonne, as determined by adopting the mid-points of each of the identified externalities, has been applied in the Queensland evaluation. The value adopted in the RIS CBA would appear to be higher than this and may even be based on the maximum values from the identified ranges.

**Table 4.8: Landfill Externalities ($/tonne of landfill)**

| Item | Value |
|---|---|
| Greenhouse gas emissions | ($5.30)-$13.50 |
| Other Air Emissions | $0.20-$1.00 |
| Leachate | $0.00 |
| Disamenity (noise, smell, dust, etc( | $1.00-$10.00 |
| **Adoption of Mid Points ($/tonne)** | **$10.20** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS

***Adopted Queensland Value:***

***Reduced landfill externalities valued at $10.20/tonne are included in the evaluation as per the mid-points of the identified value ranges for each aspect highlighted, which appears to be below the value adopted within the RIS CBA (based on available information).***

#### 4.5.2.3 *Landfill Operating Costs*

Avoidable direct costs associated with landfilling waste are identified at between $30-$40/tonne in the RIS CBA. While it is acknowledged that this range is reflective of the long-run marginal cost of waste disposal to landfill for a high volume, large landfill site, actual marginal costs of landfilling in the short to medium term at an existing landfill sites are more likely to be less than $20/tonne given fixed establishment and operating costs. Further, the Waste Management Association of Australia estimates landfilling costs to be $25/tonne inclusive of land purchase, site development and post-closure care (RIS CBA, p. 134).

To provide a true indication of actual potential cost savings, a value of $10-$20/tonne could be adopted for the first 10 years followed by $30-$40/tonne thereafter as new landfills are required to be brought online.

For the purposes of this evaluation, the lower end of the range identified in the RIS CBA is adopted, i.e. $30/tonne.

***Adopted Queensland Value:***

***Cost savings associated with reduced landfilling of waste are included at $30/tonne. This value is less than the $35/tonne adopted within the RIS CBA.***

#### 4.5.2.4 *Litter Cleanup*

Most Local Government Authorities in Queensland provide litter control services, in the form of street sweeping and other clean up services. A reduction in the volume of beverage containers being littered may result in some avoided costs for litter control services.

The cost of providing litter control services was estimated to be $13.90 per capita in the RIS, based on services provided in Victoria, although the largest portion of this cost relates to street sweeping services in metropolitan areas and does not necessarily reflect litter control practices in Queensland.

An examination of litter control expenditure for Local Government Authorities suggest a median litter control spend of $5.53 per capita is representative of costs incurred in Queensland. Based on Keep Australia Beautiful data, beverage containers accounted for 42% of litter by volume and 3% by number. For the purposes of this evaluation, it is assumed that variable litter control service costs are incurred as a result of the volume of waste rather than number. Variable costs are then assumed to account for half of litter service costs, given that many litter control services will be undertaken regardless of the volume of waste littered.

***Adopted Queensland Value:***

***An assumed variable portion (50%) of litter control expenditure by Local Government Authorities ($5.53 per capita) is reduced with the incidence of litter volumes due to the introduction of the CDS.***

## 4.6 Potential Willingness to Pay Benefits

### 4.6.1 Social Benefit of Reduced Litter and Increased Resource Recovery

The social benefits from the reduced occurrence of litter and increased resource recovery are discussed in the RIS in terms of society's willingness to pay for increased amenity (i.e. households will place a value on increased resource recovery and reduced litter because they want to live in a society that is less wasteful, preserves finite resources for future generations, cleaner and less damaging to the environment).

Society's willingness to pay has been calculated on the basis that households are willing to pay $2.77 for each percentage point increase in resource recovery above the current level of recycling, capped at 80% of households as an aggregation factor for scheme non-participants. As per the RIS CBA, no social benefit for reduced litter exists above the 'business-as-usual' scenario.

## 4.7 Cost-Benefit Analysis Outcomes

The following table summarises the calculated NPV outcomes for Queensland from the introduction of a CDS, when including willingness to pay benefits in the assessment. It is evident that the introduction of a CDS will impose considerably net costs on the economy. In fact, the outcome for Queensland is actually comparable with the national total as determined in the RIS CBA, highlighting the significance of the various inputs and assumptions adopted within the RIS CBA and the sensitivity of outcomes to these inputs and assumptions.

The relevant stakeholders assigned each impact category, as identified in the RIS CBA, are also outlined in the table below, although the end incidence of each benefit and cost will vary from these stakeholder groups depending on market outcomes.

**Table 4.9: Cost-Benefit Analysis Outcomes for a CDS by Item – NPV**

| TOTAL QLD | Stakeholder | NPV |
|---|---|---|
| **COSTS** | | |
| *Scheme Design and Implementation* | | |
| Regulation Design and Implementation | Commonwealth Government | $ - |
| Government Participation Costs | Commonwealth Government | $ - |
| Communications - Scheme Material | Commonwealth Government | $ - |
| Communications - Other Recycling Material | Local Government | -$ 1,040,960 |
| *Collection, Transport and Recycling* | | |
| Participation Costs (Household) | Households | -$ 549,810,734 |
| Participation Costs (Business) | Businesses | -$ 590,315 |
| Additional Collection Costs (Household) | LGAs / Recyclers | $ - |
| Additional Collection Costs (Business) | Recyclers | $ - |
| Transport Cost Savings | LGAs / Recyclers | $ 13,621,779 |
| Processing at MRFs (or cost savings) | LGAs / Recyclers | $ 51,047,231 |
| *Scheme Operation* | | |
| Government Administration of Regulations | Commonwealth Government | $ - |
| Scheme Administration | Industry PSOs | -$ 588,216 |
| Scheme Operating Costs | Industry PSOs | -$ 858,953,521 |
| *Scheme Compliance* | | |
| Businesses | Packaging Industry | $ - |
| **Total Costs** | | -$ 1,346,314,736 |
| **BENEFITS** | | |
| *Financial Benefits* | | |
| Market Value of Resources (MRF) - Base Value | Recyclers | -$ 68,329,137 |
| Market Value of Resources (CDS) - Premium | Recyclers | $ 181,336,662 |
| *Avoided Costs* | | |
| Regulatory Costs | State Government | $ - |
| Landfill Externalities | Households | $ 3,111,808 |
| Landfill Operating Costs | Local Government | $ 9,152,375 |
| Litter Control | Local Government | $ 5,914,842 |
| *Willingness to Pay Benefits* | | |
| Increased Recovery of Packaging | Households | $ 140,831,553 |
| **Total Benefits Including WTP** | | $ 272,018,102 |
| **Net Benefit/(Cost) Including WTP** | | -$ 1,074,296,634 |

Source: AEC*group*

Notes: Costs and negative benefits are represented by negative values, while benefits and negative costs are represented by positive values.

# 5. Comparison with Other Options

The inputs and assumptions relating to the other options are comparable with those adopted in the evaluation of a CDS where amendments have been made to the RIS CBA inputs and assumptions and those adopted in the RIS CBA where no such amendments have been made. The following high-level issues drive some of the costs associated with each option:

- Household and business participation costs being significantly less and focussed instead on an increased number of households and businesses participating in recycling activities and improved sorting activities from those with current access to recycling activities;
- Scheme costs being dependent on the initiatives proposed to increase packaging recycling recovery levels and reduce litter levels to desired levels; and
- Incidence of scheme costs and scheme administration being borne by a mix of Commonwealth Government, State Government and/or Industry PSOs depending on the option selected.

Option 3 is excluded from the assessment table given that it is assumed to produce comparable outcomes to Option 2c.

The following table summarises the CBA outcomes for Queensland for all of the options under evaluation (and relative to a CDS.

For the purposes of this evaluation, no sensitivity analysis has been undertaken. The comprehensive RIS CBA should appropriately deal with sensitivity surrounding other key variables. Sensitivity surrounding the discount rate is considered to be particularly important given the delay in the implementation of a CDS relative to other schemes and the significant annual net costs incurred as a result of the CDS. In addition, average long-term bond rates have declined in recent years suggesting a lower discount rate should at least be considered.

**Table 5.1: CBA Outcomes for All Packaging Options – NPV and BCR Comparison**

| Item | Option 1 | Option 2a | Option 2b | Option 2c | Option 4 |
|---|---|---|---|---|---|
| **COSTS** | | | | | |
| *Scheme Design and Implementation* | | | | | |
| Regulation Design and Implementation | $ - | $ - | $ - | $ - | $ - |
| Government Participation Costs | $ - | $ - | $ - | $ - | $ - |
| Communications - Scheme Material | $ - | $ - | $ - | $ - | $ - |
| Communications - Other Recycling Material | $ - | $ - | $ - | $ - | -$ 1,040,960 |
| *Collection, Transport and Recycling* | | | | | |
| Participation Costs (Household) | -$ 13,285,031 | -$ 12,614,118 | -$ 25,296,793 | -$ 41,041,856 | -$ 549,810,734 |
| Participation Costs (Business) | -$ 1,583,745 | -$ 1,519,630 | -$ 2,725,327 | -$ 5,181,705 | -$ 590,315 |
| Additional Collection Costs (Household) | -$ 9,991,959 | -$ 9,433,489 | -$ 16,858,469 | -$ 32,226,699 | $ - |
| Additional Collection Costs (Business) | -$ 2,401,527 | -$ 2,267,300 | -$ 4,051,864 | -$ 5,969,022 | $ - |
| Transport Cost Savings | $ - | $ - | $ - | $ - | $ 13,621,779 |
| Processing at MRFs (or cost savings) | -$ 8,747,961 | -$ 8,259,020 | -$ 14,759,590 | -$ 24,114,783 | $ 51,047,231 |
| *Scheme Operation* | | | | | |
| Government Administration of Regulations | $ - | $ - | $ - | $ - | $ - |
| Scheme Administration | $ - | -$ 834,737 | -$ 834,737 | -$ 834,737 | -$ 588,216 |
| Scheme Operation | -$ 19,967,775 | -$ 3,502,521 | -$ 44,519,305 | -$ 71,544,857 | -$ 858,953,521 |
| *Scheme Compliance* | | | | | |
| Businesses | $ - | -$ 1,969,979 | -$ 1,969,979 | -$ 1,969,979 | $ - |
| **Total Costs** | **-$ 55,977,997** | **-$ 40,400,794** | **-$ 111,016,064** | **-$ 182,883,638** | **-$ 1,346,314,736** |
| **BENEFITS** | | | | | |
| *Financial Benefits* | | | | | |
| Market Value of Resources (MRF) - Base Value | $ 25,923,246 | $ 24,474,344 | $ 43,737,792 | $ 71,460,477 | -$ 68,329,137 |
| Market Value of Resources (CDS) - Premium | $ - | $ - | $ - | $ - | $ 181,336,662 |
| *Avoided Costs* | | | | | |
| Regulatory Costs | $ - | $ 3,082,384 | $ 3,082,384 | $ 3,082,384 | $ - |
| Landfill Externalities | $ 1,776,924 | $ 1,675,875 | $ 3,014,009 | $ 4,947,437 | $ 3,111,808 |
| Landfill Operating Costs | $ 5,226,246 | $ 4,929,043 | $ 8,864,734 | $ 14,551,286 | $ 9,152,375 |
| Litter Control | $ 3,331,286 | $ 3,331,286 | $ 3,867,711 | $ 3,867,711 | $ 5,914,842 |
| **Total Benefits** | **$ 36,257,701** | **$ 37,492,932** | **$ 62,566,629** | **$ 97,909,294** | **$ 131,186,549** |
| **Net Benefit/(Cost)** | **-$ 19,720,295** | **-$ 2,907,862** | **-$ 48,449,435** | **-$ 84,974,343** | **-$ 1,215,128,187** |
| **BCR** | **0.65** | **0.93** | **0.56** | **0.54** | **0.10** |
| *Willingness to Pay Benefits* | | | | | |
| Increased Recovery of Packaging | $ 79,465,428 | $ 75,180,434 | $ 134,591,533 | $ 218,523,273 | $ 140,831,553 |

Source: AEC*group*

# 6. Implications for Queensland Local Government Authorities

The RIS CBA outcomes cannot be easily allocated to stakeholder groups, outside of non-financial costs which can generally be assigned to individual stakeholder groups. At the end of the day, any net financial costs will be borne by either households through higher prices or higher taxes or businesses through reduced profitability.

Of greatest concern to Local Government Authorities include financial and resourcing implications associated with each option, in addition to the financial and non-financial implications of policy changes on residents within their relevant jurisdictions (as local representatives of the people).

Notwithstanding the effects of a number of RIS CBA inputs and assumptions which require review and amendment, thereby impacting end outcomes (as evidenced by the Queensland evaluation), the following table provides a high-level assessment regarding the implications for Local Government Authorities from each option.

As a result of this high-level analysis, it would appear that Option 4 will have a considerable impact on the financial position of Local Government Authorities in aggregate, with those in metropolitan and regional areas incurring significant costs and those in rural and remote areas potentially being able to access relatively low benefits. Improved outcomes in these areas are envisaged under Option 2c or Option 3 with a considerably reduced impact on Local Government Authorities and households.

**Table 6.1: Local Government Implications from Packaging Options**

| Option | Local Government Authorities | Households |
|---|---|---|
| **Option 1**<br>**National Packaging Waste Strategy** | • On face value, this option within the RIS CBA would appear to produce outcomes for Local Government Authorities at marginal additional cost<br>• Additional administration costs may be incurred as a result of enhanced litter measurement and waste reporting frameworks, increased presence of away-from-home recycling and labeling of recycling bins, etc.<br>• Any extension of recycling services or increased utilisation of recycling services would most likely occur on a cost recovery basis<br>• However, some minor cost savings may be achieved as a result of reduced litter (minimal) and reduced waste requiring to be landfilled (although this may also reduce the gate fee revenues which fund fixed capital and operating costs that still need to be funded at least through the medium term)<br>• Minor progression towards resource recovery targets | • Households will incur additional participation costs associated with increased resource recovery activities, but this should be more than offset by any potential willingness to pay benefits associated with increased resource recovery across the state<br>• Any increased costs associated with business and industry participation in the strategy and its underlying initiatives could result in increased product and service costs for households, although these are anticipated to be relatively minor under this option |
| **Option 2a**<br>**APC replaced by Co-Regulation** | • Similar impacts to Option 1 are envisaged<br>• Minor progression towards resource recovery targets | • Similar impacts to Option 1 are envisaged |
| **Option 2b**<br>**Industry Packaging Stewardship** | • Similar impacts to Option 1 are envisaged, although the extent of progression towards resource recovery targets would be slightly greater<br>• There is potential for some negative impact on current servicing arrangements provided to non-domestic premises in metropolitan and regional areas with kerbside collection services following the rollout of the National Bin Network<br>• Slightly greater reduction in litter management costs<br>• Minor progression towards resource recovery targets | • Any increased costs associated with business and industry participation in the strategy and its underlying initiatives could result in increased product and service costs for households, although these are anticipated to be relatively minor under this option, and industry costs are envisaged to be higher under this option than Option 1<br>• However, the potential willingness to pay benefits are also higher |

| Option | Local Government Authorities | Households |
|---|---|---|
| **<u>Option 2c</u>**<br>**Extended Packaging Stewardship** | • The net effect of the extension of business recycling initiatives and an increased focus on recycling and littering outcomes in lagging areas is unclear but presumed to be fully funded as part of the scheme<br>• As such, Local Government Authorities are assumed to be able to provide services (where required) on a full cost recovery basis including additional resourcing implications<br>• There is potential for some negative impact on current servicing arrangements provided to non-domestic premises in metropolitan and regional areas with kerbside collection services, in addition to existing recycling service provision in rural and remote areas (minimal)<br>• Slightly greater reduction in litter management costs<br>• Reduced waste to landfill could result in reduced landfilling costs (although this may also reduce the gate fee revenues which fund fixed capital and operating costs that still need to be funded at least through the medium term)<br>• More significant progression towards resource recovery targets as non-commercial service delivery is undertaken | • Households will incur additional participation costs associated with increased resource recovery activities, but this should be more than offset by the anticipated potential willingness to pay benefits associated with increased resource recovery across the state<br>• Increased consistency in the level of service provision (in relation to recycling) provided to households irrespective of location<br>• The increased costs associated with compliance with the regulation and its underlying initiatives will need to be recovered via increased product and service costs for households given their significance |
| **<u>Option 3</u>**<br>**Mandatory ADF** | • Similar impacts to Option 2c are envisaged, although there is potential for greater certainty in the initiatives to be funded given Commonwealth Government scheme administration | • Similar impacts to Option 2c are envisaged, with the ADF being used to finance relevant initiatives directly from consumers and managed by the Commonwealth Government<br>• It is possible under Option 2c that part of the costs may be funded outside of a direct increase in product and service costs and so it is possible that cost increases under this option could be higher (but not guaranteed) |

| Option | Local Government Authorities | Households |
|---|---|---|
| **Option 4a**<br>**'Boomerang Alliance' CDS** | • Considerable impacts are envisaged for existing domestic kerbside recycling service volumes and contract costs per tonne collected given the high fixed nature of service costs which are unlikely to be reduced significantly (primarily contracted)<br>• A number of Local Government Authorities also adopt a split bin system which will still need to be collected weekly<br>• The viability of MRF processing could be undermined in many instances<br>• The introduction of a CDS when significant MRF processing infrastructure already exists will result in cost duplication<br>• Existing MRF operators may need to increase rates per tonne to overcome reduced throughput, or may need to reduce commissions on successful MRFs back to Local Government Authorities<br>• In fact, many Local Government Authorities with existing kerbside recycling services have indicated that MRF net revenues will decline as a result of the loss of beverage containers<br>• The RIS (p.54) states that: "*Under option 4, a large quantity of recyclable materials would be diverted from the kerbside and C&I collection systems. This would lead to estimated avoided costs for local governments and commercial businesses of $2.72 billion for both sub-options. There would also be lost benefits for these parties from the value of recovered materials, which have not been quantified.*"<br>• For those regional and remote Local Government Authorities with no recycling services in place (and no access to markets for recyclables), a CDS will help to target a portion of their waste stream but will mean that other aspects of the waste stream will remain untouched<br>• Some of the commodity risk associated with MRF operations may also be transferred to the private sector<br>• Litter management costs may be reduced, although it is important to recognise the fixed nature of many of these activities within a Local Government Authority context<br>• RIS CBA indicates the potential need to leverage off existing infrastructure and locations to help facilitate a CDS without commercial compensation, and Local Government Authorities in regional, rural and remote areas may need to provide access to their waste facilities and other sites which has obvious resourcing and capacity issues | • Household participation costs associated with a CDS are deemed to be very significant, as would be expected when replacing an efficient kerbside recycling service which currently accesses most households across the state with a decentralised deposit-based system<br>• These costs are significantly understated in the RIS CBA<br>• Potential willingness to pay benefits associated with increased resource recovery across the state are envisaged to be lower than under Option 2c and Option 3, despite the fact that scheme costs are considerably higher<br>• Consequently, households will also be required to fund the scheme through increased purchase costs for beverage containers, given it would appear that the value of unredeemed deposits is insufficient to cover the costs of the scheme<br>• Alternatively, company profits would decline and the RIS (p.56) notes that "*…there could be potential flow-on effects for workers employed in the beverage manufacturing and ancillary industries (freight, retail, etc.)*".<br>• While these financial implications are not included in the RIS CBA given that they are transfers within the economy, the RIS (p.54) does state that: "*… the financial impacts of these flows for certain affected parties could be substantial*" |
| **Option 4b**<br>**'Hybrid' CDS** | • Similar impacts to Option 4b are envisaged, albeit with potential greater certainty surrounding the appropriate provision of deposit points outside of metropolitan areas | • Similar impacts to Option 4b are envisaged, albeit with potential greater certainty surrounding the appropriate provision of deposit points outside of metropolitan areas (potentially reducing average distance travelled but also potentially further increasing product purchase costs) |

Source: AEC*group*

# 7. Outcomes

The following outcomes are notes in relation to this study:

- The Queensland evaluation confirms that the introduction of a CDS would impose considerable net costs on the economy and should not be further considered;
- This is not unanticipated given that Appendix A to the RIS (Problem Statement for Packaging) (p.20) indicates that as at 2009, 85.4% of households already use municipal kerbside recycling services and 96.6% of households recycle, and a CDS would result in duplicated effort in recovering containers which are suitably dealt with in the majority of instances through existing service provision;
- In addition to being very high cost, the RIS CBA (p.3) notes that "*A CDS moves from a well understood and utilised, centralised kerbside recycling system offering substantial coverage to a decentralised system requiring significant behavioural change*";
- Further, the RIS (p.45) indicates that options 4a and 4b are not estimated to deliver a net benefit under any sensitivity test;
- A number of the inputs and assumptions contained within the CBA RIS actually understate the extent of participation costs and overstate the extent of potential cost savings and benefits associated with a CDS, and it is anticipated that a review of these inputs and assumptions would make the net impact considerably worse;
- The inconvenience factor for a CDS imposed on Queensland households is very significant, particularly when a CDS will work to undermine effective, centralised kerbside recycling scheme in most densely populated urban and regional centres (resulting in an unnecessary duplication in transportation effort);
- In addition, assumed cost savings from the provision of collection services, the processing of recyclables at MRFs, reduced waste to landfill, and reduced littering all appear to be overstated and fail to take into account the fixed costs associated with these services;
- If CDS is to be further evaluated, it is essential that all inputs, assumptions and calculations regarding each major impact be clearly provided in a technical report for critical review;
- No one other alternative option from Options 1-3 appears to stand out as the most appropriate option to introduce, although it does appear that Option 2a produces a potential low net benefit albeit for a marginal improvement in resource recovery outcomes;
- Given the recognition of increasing cost to achieve increasing resource recovery, Option 2c – an Extended Packaging Stewardship arrangement – appears to produce the best resource recovery outcomes for a moderate cost;
- What is evident from this analysis is that the focus should be placed on dealing with identified problem areas rather than considering schemes that work to undermine existing schemes with broad coverage (i.e. at-home recycling services in urban and regional centres);
- Such problem areas include:
    - Resource recovery within commercial premises (both SMEs and larger waste generators) for materials other than bulk paper and cardboard via comingled recycling services
    - Resource recovery for both domestic premises and commercial premises in regional, rural and remote areas
    - Facilitation of end markets for recyclables collected in regional, rural and remote areas
    - Continuing improvements in packaging at the source;
- If Option 2c or Option 3 are able to be utilised to fund such initiatives (in the absence of effective regulation and government subsidy arrangements regarding the provision

of recycling services being able to do so), then they should be further considered regarding their appropriateness given their degree of flexibility to target problem areas;

- Where possible, such activities should leverage off existing facilities on a commercial basis to ensure appropriate economies of scale and scope, although noting that contamination rates will need to be controlled via effective monitoring and regulation; and
- Commercial premises may need to have 'ownership' of recycling services to ensure that contamination is able to be controlled effectively (through price controls, etc.), otherwise general waste may find its way into shared bin networks.

# References

**Population and other Demographic Data**

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# Appendix A: RIS Cost-Benefit Analysis Outcomes

**Table A.1: RIS Cost-Benefit Analysis Outcomes for Australia**

| Item | Option 1 | Option 2 (a) | Option 2 (b) | Option 2 (c) | Option 3 | Option 4 (a) | Option 4 (b) |
|---|---|---|---|---|---|---|---|
| **COSTS** | | | | | | | |
| ***Scheme Design and Implementation*** | | | | | | | |
| Regulation Design and Implementation | $0 | $1 | $1 | $1 | $1 | $1 | $1 |
| Communications | $3 | $3 | $4 | $4 | $4 | $10 | $10 |
| ***Collection, Transport and Recycling*** | | | | | | | |
| Household Participation Costs | $83 | $83 | $152 | $250 | $250 | $447 | $457 |
| Business Participation Costs | $20 | $20 | $37 | $61 | $61 | $7 | $7 |
| Collection and Transport Costs | $53 | $70 | $58 | $125 | $125 | -$759 | -$759 |
| Processing at MRFs | $63 | $66 | $118 | $194 | $194 | -$1,964 | -$1,964 |
| ***Scheme Operation*** | | | | | | | |
| Government Administration of Regulations | $0 | $1 | $1 | $1 | $1 | $1 | $1 |
| Scheme Administration | $0 | $3 | $3 | $3 | $0 | $3 | $3 |
| Scheme Initiatives and Infrastructure | $87 | $10 | $177 | $342 | $342 | $4,379 | $4,716 |
| ***Scheme Compliance*** | | | | | | | |
| Businesses | $0 | $2 | $2 | $2 | $2 | $0 | $0 |
| **Total Costs** | **$311** | **$258** | **$554** | **$984** | **$981** | **$2,125** | **$2,471** |
| **BENEFITS** | | | | | | | |
| ***Financial Benefits*** | | | | | | | |
| Market Value of Resources | $148 | $153 | $275 | $449 | $449 | $463 | $463 |
| ***Avoided Costs*** | | | | | | | |
| Regulatory Costs | $0 | $35 | $35 | $35 | $35 | $35 | $35 |
| Landfill Externalities | $31 | $30 | $36 | $43 | $43 | $36 | $36 |
| Landfill Operating Costs | $29 | $31 | $55 | $91 | $91 | $62 | $62 |
| Litter Cleanup | $54 | $56 | $102 | $168 | $168 | $114 | $114 |
| **Total Benefits** | **$262** | **$304** | **$503** | **$786** | **$786** | **$710** | **$710** |
| **Net Present Value (NPV)** | **-$49** | **-$46** | **$51** | **$198** | **$195** | **$1,414** | **$1,761** |
| **Benefit Cost ratio (BCR)** | **0.84** | **1.18** | **0.91** | **0.80** | **0.80** | **0.33** | **0.29** |
| ***Potential Willingness to Pay Benefits*** | ***$296*** | ***$295*** | ***$534*** | ***$871*** | ***$871*** | ***$588*** | ***$588*** |

Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS, AEC Group.

**Table A.2: RIS Distribution of Cost and Benefits to Stakeholders**

| Item | Option 1 | Option 2 (a, b & c) | Option 3 | Option 4 (a & b) |
|---|---|---|---|---|
| **COSTS** | | | | |
| ***Scheme Design and Implementation*** | | | | |
| Regulation Design and Implementation | N/A | Commonwealth Government | Commonwealth Government | Commonwealth Government |
| Government Participation Costs | Commonwealth Government | N/A | N/A | N/A |
| Communications | Commonwealth Government / Industry | Commonwealth Government / Industry | Commonwealth Government / Industry | Commonwealth Government / Industry |
| ***Collection, Transport and Recycling*** | | | | |
| Household Participation Costs | Households | Households | Households | Households |
| Business Participation Costs | Businesses/Employees | Businesses/Employees | Businesses/Employees | Businesses/Employees |
| Collection and Transport Costs | Local Government / Recyclers | Local Government / Recyclers | Local Government / Recyclers | Local Government / Recyclers |
| Processing at MRFs | Local Government / Recyclers | Local Government / Recyclers | Local Government / Recyclers | Local Government / Recyclers |
| ***Scheme Operation*** | | | | |
| Government Administration of Regulations | N/A | Commonwealth Government | Commonwealth Government | Commonwealth Government |
| Scheme Administration | Industry Product Stewardship Organisations (PSOs) | Industry PSOs | Commonwealth Government | Industry PSOs |
| Scheme Initiatives and Infrastructure | Industry PSOs | Industry PSOs | Commonwealth Government | Industry PSOs |
| ***Scheme Compliance*** | | | | |
| Businesses | Packaging Industry | Packaging Industry | Packaging Industry | Packaging Industry |
| **BENEFITS** | | | | |
| ***Financial Benefits*** | | | | |
| Market Value of Resources | Recyclers | Recyclers | Recyclers | Recyclers |
| ***Avoided Costs*** | | | | |
| Regulatory Costs | State Government | State Government | State Government | State Government |
| Landfill Externalities | Households | Households | Households | Households |
| Landfill Operating Costs | Local Government | Local Government | Local Government | Local Government |
| Litter Cleanup | Local Government | Local Government | Local Government | Local Government |
| ***Potential Willingness to Pay Benefits*** | | | | |
| Willingness to Pay for Recycling | Households | Households | Households | Households |

Source: Source: *Cost Benefit Analysis Report* prepared by WCS and PwC for the Standing Council on Environment and Water – Attachment C to the Packaging Impacts Consultation RIS (p.98), AEC Group.

# Appendix B: Product Recovery by Queensland Local Government Authorities

### Table B.1: Local Government Authority Recycling, Queensland 2008

| SD | LGA | Area of LGA (km2) | Population | Recycling Provided | Packaging Recovered (t) |
|---|---|---|---|---|---|
| | Brisbane (C) | 1,367 | 1,031,297 | Kerbside | |
| | Ipswich (C) | 1,089 | 154,669 | Kerbside | |
| | Logan (C) | 913 | 270,888 | Kerbside | |
| | Moreton Bay (R) | 2,011 | 357,902 | Kerbside | |
| | Redland (C) | 537 | 137,402 | Kerbside | |
| **BRISBANE SD** | | **5,917** | **1,952,158** | | **128,900** |
| | Gold Coast (C) | 1,358 | 499,514 | Kerbside | |
| **GOLD COAST SD** | | **1,358** | **499,514** | | **50,300** |
| | Sunshine Coast (R) | 3,126 | 313,851 | Kerbside | |
| **SUNSHINE COAST SD** | | **3,126** | **313,851** | | **26,600** |
| | Somerset (R) | 5,379 | 20,683 | Kerbside | |
| | Lockyer Valley (R) | 2,273 | 34,060 | No Data | |
| | Scenic Rim (R) | 4,256 | 36,300 | Kerbside | |
| **WEST MORETON SD** | | **11,908** | **91,043** | | **700** |
| | Bundaberg (R) | 6,451 | 92,651 | Kerbside | |
| | Cherbourg (S) | 32 | 1,213 | No Data | |
| | Fraser Coast (R) | 7,125 | 96,010 | Kerbside | |
| | Gympie (R) | 6,898 | 46,526 | Kerbside | |
| | North Burnett (R) | 19,708 | 10,684 | Kerbside | |
| | South Burnett (R) | 8,399 | 31,812 | Drop off points only | |
| **WIDE BAY-BURNETT SD** | | **48,613** | **278,896** | | **10,100** |
| | Toowoomba (R) | 12,973 | 155,644 | Kerbside | |
| | Goondiwindi (R) | 19,294 | 11,023 | No | |
| | Southern Downs (R) | 7,120 | 34,738 | Kerbside | |
| | Western Downs (R) | 38,039 | 30,973 | Drop off points only | |
| **DARLING DOWNS SD** | | **77,426** | **232,378** | | **12,500** |
| | Rockhampton (R) | 18,361 | 111,902 | Kerbside | |
| | Gladstone (R) | 10,488 | 57,780 | Kerbside | |
| | Banana (S) | 28,577 | 15,481 | Drop off points only | |
| | Central Highlands (R) | 59,884 | 29,343 | Drop off points only | |
| | Woorabinda (S) | 391 | 965 | No Data | |
| **FITZROY SD** | | **117,701** | **215,471** | | **13,300** |
| | Mackay (R) | 7,621 | 112,984 | Kerbside | |
| | Isaac (R) | 58,862 | 22,007 | Drop off points only | |
| | Whitsunday (R) | 23,856 | 33,237 | Drop off points only | |
| **MACKAY SD** | | **90,339** | **168,228** | | **6,300** |
| | Townsville (C) | 3,733 | 176,137 | Kerbside | |
| | Burdekin (S) | 5,052 | 18,268 | Kerbside | |
| | Charters Towers (R) | 68,388 | 12,548 | Drop off points only | |
| | Hinchinbrook (S) | 2,811 | 12,249 | Kerbside | |
| | Palm Island (S) | 71 | 2,193 | No Data | |
| **NORTHERN SD** | | **80,055** | **221,395** | | **13,700** |
| | Cairns (R) | 4,128 | 159,184 | Kerbside | |
| | Aurukun (S) | 7,375 | 1,196 | No Data | |
| | Cassowary Coast (R) | 4,701 | 30,458 | Drop off points only | |
| | Cook (S) | 106,188 | 3,825 | Drop off points only | |
| | Croydon (S) | 29,578 | 277 | No | |
| | Etheridge (S) | 39,332 | 935 | No | |
| | Hope Vale (S) | 1,118 | 832 | No Data | |
| | Kowanyama (S) | 2,576 | 1,141 | No Data | |
| | Lockhart River (S) | 3,545 | 608 | No Data | |
| | Mapoon (S) | 530 | 263 | No Data | |
| | Napranum (S) | 1,995 | 928 | No | |
| | Northern Peninsula Area (R) | 1,030 | 2,264 | No | |
| | Pormpuraaw (S) | 4,433 | 673 | No | |
| | Tablelands (R) | 64,999 | 45,448 | Kerbside | |
| | Torres (S) | 886 | 3,690 | No | |
| | Torres Strait Island (R) | 489 | 4,895 | No | |
| | Weipa (T) | 11 | 3,291 | No | |
| | Wujal Wujal (S) | 11 | 352 | No Data | |
| | Yarrabah (S) | 158 | 2,636 | No | |
| **FAR NORTH SD** | | **273,083** | **262,896** | | **6,200** |
| | Burke (S) | 40,126 | 564 | Kerbside | |
| | Carpentaria (S) | 64,373 | 2,124 | No | |
| | Cloncurry (S) | 48,113 | 3,406 | No | |
| | Doomadgee (S) | 1,862 | 1,240 | No Data | |
| | Flinders (S) | 41,538 | 1,870 | No | |
| | McKinlay (S) | 40,880 | 964 | No | |
| | Mornington (S) | 1,232 | 1,088 | No | |
| | Mount Isa (C) | 43,349 | 21,993 | No | |
| | Richmond (S) | 26,602 | 953 | No | |
| **NORTH WEST SD(e)** | | **308,075** | **34,202** | | **-** |
| | Barcaldine (R) | 53,677 | 3,406 | No | |
| | Barcoo (S) | 62,001 | 370 | No | |
| | Blackall Tambo (R) | 30,451 | 2,074 | No | |
| | Boulia (S) | 61,102 | 442 | No | |
| | Diamantina (S) | 94,823 | 315 | No Data | |
| | Longreach (R) | 40,638 | 4,283 | No | |
| | Winton (S) | 53,935 | 1,409 | No | |
| **CENTRAL WEST SD** | | **396,627** | **12,299** | | **-** |
| | Maranoa (R) | 58,830 | 13,189 | Kerbside | |
| | Balonne (S) | 31,150 | 4,852 | Kerbside | |
| | Bulloo (S) | 73,807 | 377 | No | |
| | Murweh (S) | 40,742 | 4,838 | No | |
| | Paroo (S) | 47,714 | 1,962 | No | |
| | Quilpie (S) | 67,633 | 1,021 | No | |
| **SOUTH WEST SD** | | **319,876** | **26,239** | | **100** |
| **TOTAL** | | **1,734,104** | **4,308,570** | | **268,700** |

Source: DERM, ABS

Note: Population and waste recovered represent amounts per 2008

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