Northern Territory

Container Deposit Scheme

Decision Regulation Impact Statement

ABOUT THIS DECISION REGULATION IMPACT STATEMENT

The Northern Territory Government has prepared the Northern Territory Container Deposit Scheme (NT CDS) Decision Regulation Impact Statement in order to consider a proposal to permanently exempt the *Environment Protection (Beverage Containers and Plastic Bags) Act 2011* (NT) from the *Mutual Recognition Act 1992* (Cth) and the *Trans-Tasman Mutual Recognition Act 1997* (Cth).

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EXECUTIVE SUMMARY

This Decision Regulation Impact Statement (DRIS) addresses the Northern Territory (NT) Government's objective of determining how NT recycling can be made more efficient. Prior to the introduction of the Northern Territory Container Deposit Scheme (NT CDS) the NT had a particularly low rate of recycling by national standards, in the municipal (domestic – at home) sector and in the commercial, hospitality and institutional sectors (away-from-home). The NT's recycling rate was approximately 3.5 per cent while the national rate is approximately 48 per cent. Poor recycling leads to environmental impacts such as litter and high litter-clean-up costs, loss of finite resources, elevated landfill costs and elevated environmental impacts in general.

Introduction of the Northern Territory Container Deposit Scheme

In light of the above considerations, the NT Government investigated options to increase recycling in the NT. The NT Government compiled a Regulatory Impact Statement (RIS), which recommended that a Northern Territory Container Deposit Scheme (NT CDS) be introduced. An NT CDS was subsequently rolled out. The scheme began operating from 3 January 2012. Upon commencement the NT Government enacted a temporary exemption from the *Mutual Recognition Act 1992* (Cth) (MRA) and the *Trans-Tasman Mutual Recognition Act 1997* (Cth) (TTMRA).

Since the introduction of the scheme a successful court challenge has rendered some aspects of the scheme invalid in relation to the MRA. To counteract the impact of this the NT Government has moved to underwrite the scheme until a decision on the granting of a permanent exemption from the MRA has been determined. In addition to this an appeal to the declaration in the Federal Court is also being prepared.

Operation of the NT CDS to Date

Table ES.1 summarises the market costs and benefits for the NT CDS after its first 12 months of operation.

1 Table ES.1: Cost and benefit analysis for NT CDS after first 12 months of operation

Description of Costs / Benefits	Value
Total costs	$2 653 524
Total market benefits	$3 072 362
Net Present Value	**$418 838**

Options to Address the Problems

The costs and benefits of four options were analysed. Two of these options (Option One and Three) undertook an analysis within the context of the NT CDS's operation to date. Options Two and Four undertook an analysis within the national context:

Option One – The Status Quo. This option projects the NT CDS's achievements in its first 12 months over a 25 year analysis period. It projects an incremental rate increase until an 80 percent return rate is achieved in 2029. Given some uncertainty surrounding the NT CDS that results from a prior legal challenge to the scheme, and a subsequent appeal process, a 50 per cent uncertainty has been calculated.

Option Two – National Packaging Recovery Scheme. Option Two constitutes a nationally harmonised approach. It links directly to the national process currently being undertaken to investigate options for regulating the impacts of packaging, including an option of a national container deposit scheme. This process is set out in the national Packaging Impacts Consultation Regulation Impact Statement (Packaging Impacts CRIS)[1].

Option Three – Permanent Exemption from the Mutual Recognition Principle is Granted. Granting of a permanent exemption from the MRA and the TTMRA will result in the *Environment Protection (Beverage Containers and Plastic Bags) Act 2011* (EP (BC&PB) Act) continuing to achieve its objectives and allowing the scheme to expand. This option projects outcomes of the NT CDS within the first 12 months of its operation over a 25 year period factoring in the achievement of an 80 per cent return rate.

Option Four – Other Less Trade-restrictive Approaches. In response to industry feedback during consultation, this option considers the costs and benefits of the NT signing the Australian Packaging Covenant (APC), which then moves to operate under co-regulatory product stewardship as set out under Option 2A of the Packaging Impacts CRIS.

[1] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra.

Key Results

Table ES.2 summarises the key findings of this document's cost benefit analysis. It demonstrates that of the Northern Territory models, Option Three is the most expensive with the greatest benefit. Of the national models, Option Four is the least costly option but with the greatest overall benefit.

2 Table ES.2: Net Present Value (NPV) of key market costs and benefits over 25 years

Options	Option 1	Option 2	Option 3	Option 4
Costs Discounted	$17 283 828	$4 848 000 000	$34 567 655	$257 000 000
Market Benefits Discounted	$22 222 782	$3 433 000 000	$44 445 564	$304 000 000
NPV Discounted	**$4 938 955**	**–$1 415 000 000**	**$9 877 909**	**$47 000 000**

Conclusion

Based upon Net Present Value (NPV) this Decision Regulation Impact Statement (DRIS) recommends Option Four. This option represented one of two options that were considered at a national level. In 2013 a Packaging Impacts Decision RIS will be released which will take into account the model in Option Four. A decision regarding the Packaging Impacts Decision RIS will be made and this may be the appropriate time to consider Option Four as an effective option. It is noted, however, that an alternative option to this recommendation may be appropriate

The alternative approach highlights that Option Three may be the most viable option as it represents a continuation of the NT CDS in its current form with a permanent exemption from the MRA. The continued implementation of the CDS as described under Option Three would support the views currently held by key stakeholders to this process.

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1. STATEMENT OF THE PROBLEM

This Decision Regulation Impact Statement (DRIS) addresses the Northern Territory (NT) objective of increasing recycling. Prior to the introduction of the Northern Territory Container Deposit Scheme (NT CDS) the NT had a very low recycling rate in the municipal (domestic – at home) sector and in the commercial, hospitality and institutional sectors (away-from-home). Poor recycling leads to environmental externalities such as litter and high litter-clean-up costs, loss of finite resources, elevated greenhouse gas output and elevated landfill costs.

In the absence of the NT CDS, continued improvements in recycling rates would have needed to rely on increased efficiencies from the minority of NT local governments who provide municipal kerbside recycling services. The current disparity in provision of such services across the NT's urban, regional and remote settings illustrates that an expansion and improvement of these services cannot be assumed, and has not taken place.

A failure to recycle means a loss of a range of benefits. At a national level these benefits have included:

Economic benefits

- In 2006, the Australian recycling industry had a turnover of $11.5 billion, contributing 1.2 per cent of Australia's GDP, and a capital investment of over $6 billion;
- In this same year, the industry directly employed around 10 900 people and indirectly employed another 27 700; and
- This investment and employment has a number of direct and indirect benefits conservatively estimated at $55 billion[1].

Environmental benefits

- Greenhouse Benefits – national recycling results in a total greenhouse benefit of over 8.8 million tonnes of CO_2 equivalent to taking 1.8 million cars off the road;
- Energy Savings Indicators – the energy saving benefits associated with the Australian recycling performance amounts to over 202 terajoules. Assuming an average household electricity usage of 20 gigajoules and transmission

[1] Australian Packaging Covenant Council, 2011. *The National Packaging Covenant 2010-11 Annual Report,* Australian Packaging Covenant Council, Sydney.

losses of 78.8 percent, recycling in Australia results in energy savings equivalent to 2.1 million households;

- Water Savings Indicators – the water savings associated with the recycling activities in Australia are estimated to be about 134 gigalitre. Based on a volume of 2.5 million litres to fill an Olympic swimming pool, recycling in Australia results in water savings equivalent to about 38 000 pools each year;
- Resource Conservation – equivalent to eight million tons of resources including the resource saving as a result of the reprocessing of Australian post-consumer paper/cardboard is equivalent to three million trees. In the order of 365 000 tonnes of sand, over four million tonnes of iron ore and 1.6 million tonnes of bauxite is being saved through these reprocessing activities. For plastics, the resource savings are measured in tonnes of Oil equivalents (tOe). The 60 000 and 90 000 tOe savings of polyethylene terephthalate (PET) and high-density polyethylene (HDPE) equate to 430 000 and 650 000 barrels of oil equivalent; and
- Social Benefits – long term implications for employment, quality of life, a sustainable future, a stronger economy and improved biodiversity[2].

1.1. The NT Recycling Rate

The analysis below shows that the NT's recycling of all waste types, including beverage containers is significantly below national levels.

1.1.1. Recycling of all Waste Types

The *National Waste Report 2010* provides the most recent data for NT and national recovery and recycling rates for all waste types for 2006-7. It shows the NT to have had a particularly low diversion rate compared to other jurisdictions and to national figures prior to the introduction of the NT CDS. Table 1.1 estimates that for 2006-7 the national diversion rate was 48 per cent while the NT's was 3.5 per cent[3].

[2] Australian Packaging Covenant Council, 2011. *The National Packaging Covenant 2010-11 Annual Report,* Australian Packaging Covenant Council, Sydney.

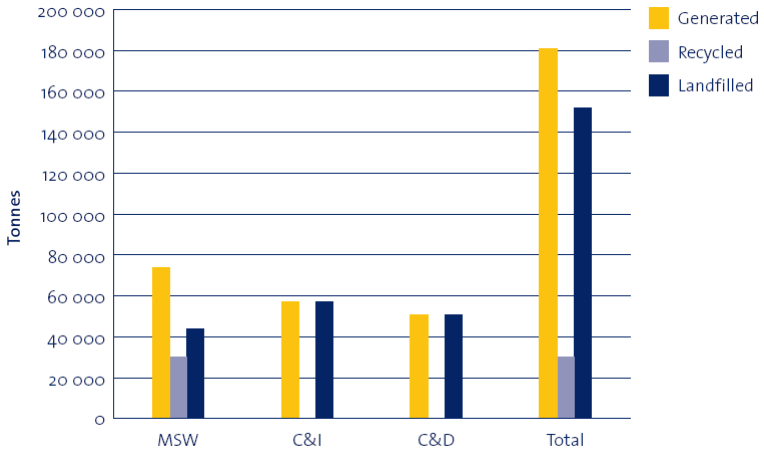
[3] Environment Protection and Heritage Council, 2010. *National Waste Report 2010*, Australian Government, Canberra. p 28.

3 Table 1.1: Australian kilograms of waste generated, recycled and landfilled per person 2006-7

Jurisdiction	Total Generated (kg per capita)	Recycled (kg per capita)	Disposed (kg per capita)	Diversion rate (%)	Population	% of total population
NSW	2230	1160	1070	52	6 888 000	37
Vic	1980	1220	750	62	5 205 000	28
Qld	1930	900	1030	47	4 181 000	20
WA	2490	810	1680	33	2 106 000	10
SA	2090	1370	720	66	1 584 000	8
ACT	2310	1730	580	75	340 000	2
NT	1740	60	1680	3.5	215 000	1
Tas	NA	NA	NA	NA	493 000	2
National Average	**2110**	**1036**	**1073**	**48**		

Figure 1.1 shows that in 2006–07, 181 000 tonnes of waste were generated in the NT, of which only 30 000 tonnes (17%) were recycled, 151 000 tonnes (83%) was disposed to landfill[4].

4 Figure 1.1: NT Waste generated, recycled and landfilled, 2006-7



[4] ibid. p 131.

1.1.2. Recycling of Beverage Containers

The Packaging Stewardship Forum of the Australian Food and Grocery Council estimated that the Australian beverage container recycling rate in 2006-7 was 47 per cent[5].

No raw data exists on the annual recycling rate for beverage containers in the NT prior to the introduction of the NT CDS. To determine this it is necessary to:

Step 1: filter out beverage containers from overall NT recycling data; and

Step 2: express annual tonnes of beverage containers recycled as a percentage of annual sales.

Step 1. Table 1.2 represents the most accurate picture available of packaging recycling in the NT prior to the implementation of the CDS[6]. These figures include non beverage container packaging[7].

5 Table 1.2: NT waste recovery (from NEPC Annual Report 2010/11)

Materials	Recovery by kerbside in NT (tonnes)
Paper	3 376
Glass	1 574
Plastic (PET and HDPE)	248
Aluminium	107
LPB	0
TOTAL	**5 305**

The proportion of recycling before the implementation of the NT CDS can be estimated using the total national proportion of beverage containers to total national packaging consumption. These values can be calculated using values developed for the national Packaging Impacts CRIS (Table 1.3[8]).

[5] Hyder Consulting, Sep 2008. *Australian Beverage Packaging Consumption Recovery and Recycling Quantification Study*, Packaging Stewardship Forum for the Australian Food and Grocery Council.

[6] National Environmental Protection Council, 2011. *Annual Report 2010 – 2011.* Australian Government, Canberra.

[7] Kerbside recycling, in contrast to a CDS, is affected significantly by 'contamination', so that the recycling rate of materials *recycled* would be less than that *recovered*.

[8] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Australian Government, Canberra. Attachment A. pp 74-9.

6 Table 1.3: Proportion of beverage containers to other forms of rigid packaging

Material type	National packaging consumption (tonnes)	Beverage containers consumption (tonnes)	Proportion of beverage containers (%)
Paper/board	2 680 000	0	**0**
Glass	991 000	786 000	**79%**
Plastic	565 000	170 000	**30%**
Aluminium	51 600	51 600	**100%**

Table 1.4 uses the proportion of beverage containers set out in Table 1.3 to estimate the amount of beverage container materials recycled in the NT prior to the NT CDS.

7 Table 1.4: CDS proportion of NT waste recovered

Materials	Packaging recycling in the NT pre CDS[9] (tonnes)	Tonnes of material not covered by CDS[10]	CDS material (tonnes)
Paper etc	3 376	3 376	0
Glass	1 574	330	1 244
Plastic	248	174	74
Aluminium	107	0	107
LPB	0	0	0
TOTAL	**5 305**	**3 880**	**1 425**

Step 2. The total amount of beverage containers sold annually in the NT [11] can be ascertained from CDS sales data available through the NT CDS *Quarterly Reports*[12]*.* Table 1.5 demonstrates that some 11 599 tonnes of beverage containers were sold annually in the NT in the first year of the NT CDS's introduction.

[9] National Environmental Protection Council, 2011. *Annual Report 2010 – 2011.* Australian Government, Canberra

[10] Based on splits estimated by Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Australian Government, Canberra.

[11] The consumption of beverage containers is growing slowly. It is projected at less than 1% growth per annum by Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. Attachment C.

[12] Northern Territory Government 2013. *Cash for Containers Quarterly Report,* Northern Territory Government, Darwin.

8 Table 1. 5: Beverage containers sold (tonnes)

Containers sold	Annual unit sales	Conversion rate: units per tonne[13]	Tonnes
Glass	42 656 570	4 784	8 917
PET	31 147 739	29 205	1067
HDPE	3 929 055	20 008	196
Aluminium	68 079 993	66 821	1 019
LPB	9 153 322	24 060	380
Other	437 734	21 540	20
Total	**155 404 413**		**11 599**

Results for the above calculations demonstrate that:

- beverage container consumption during the first year of the NT CDS was 11 599 tonnes per annum: it is assumed that the consumption for the year prior was of a similar volume;
- beverage container recycling prior to the introduction of the NT CDS was 1 425 tonnes per annum;
- the beverage container recycling rate prior to the introduction of the NT CDS was approximately 12.3 per cent.

The above calculations show that, by national standards, the NT had a low rate of beverage container recycling (12.3%) before the NT CDS was introduced. The NT rate was 12.3 per cent compared to the national rate of 47 per cent.[14]

1.2. Importance of Raising the Recycling Rate in the Northern Territory

Given the large distances between NT settlements and a generally low population density it might be argued that recycling in the NT is inherently inefficient and therefore the NT's low recycling rate relative to the rest of Australia is justifiable and unmanageable. The NT population is mostly located in small, compact settlements. Even remote Indigenous communities consist of houses arranged in close proximity to each other. Travel within NT settlements is very easy, which is not the case in other more congested states. The higher costs of inter-settlement and interstate transport experienced by the NT predominantly

[13] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. Attachment C, p 71.

[14] Hyder Consulting Sep 2008. *Australian Beverage Packaging Consumption, Recovery and Recycling Quantification Study*, Packaging Stewardship Forum for the Australian Food and Grocery Council.

impact the value of recyclate, due to embedded transport costs. These costs are not so great as to negate the range of benefits that recycling generates such as avoided environmental costs, avoided kerbside costs, reduced landfill costs and reduced litter-recovery costs. In addition the NT is currently experiencing unprecedented development as a major site of mineral and hydrocarbon export. Darwin is rapidly consolidating as a major international port and Australian gateway to Asia. In this context it is important that best practice environmental regulation take place at all levels of the economy to ensure sustainable outcomes into the future. As the NT's population grows, the impacts of not recycling will also grow, as will the costs associated with remediating waste management problems that have grown in both breadth and complexity.

1.3. Introduction of the NT CDS

In light of the above considerations, the NT Government investigated the potential for a NT CDS. The *Environment Protection (Beverage Containers and Plastic Bags) Act 2011 (*EP (BC&PB) Act) was introduced and a CDS has been in operation since 3 January 2012.

A plastic bag ban was also introduced under the EP (BC&PB) Act, and kerbside recycling in Palmerston and Darwin continues. In terms of beverage containers, kerbside is highly susceptible to contamination. The plastic bag ban has been highly effective in reducing plastic bag litter. Integrating these other waste management reforms with a CDS complements and augments the NT CDS's outcomes. Together these reforms target a range of packaging material that includes plastic bags, paper and beverage containers. Some containers have a high aluminium and HDPE plastic content, encompassing the most valuable packaging materials in terms of their market value when sold as recyclate. Many beverage containers, such as those made from aluminium and certain plastics, also have particularly high amounts of resources embedded in their production, including energy and water. Beverage containers are the most likely form of packaging to be consumed away from home, making them particularly prone to littering. Beverage containers are also the easiest packaging material to link to an incentive-based scheme such as a CDS. Their size makes it particularly easy for individuals to collect, handle and return to a depot for recycling.

Under the CDS, a 10 cent refundable deposit is provided on those containers returned to approved collection depots. Collection depots return the collected containers to relevant CDS coordinators who pay the 10 cent deposit plus a handling fee per container.

Assessments undertaken prior to the scheme's commencement highlighted that a CDS in the NT would need to have the following characteristics:

- ability to provide reasonable access to communities across the NT;
- opportunities for business development, especially recycling and environmental business in the NT;
- responsiveness to community and industry needs, including minimising costs and maximising benefits to the community and industry; and
- ability to ensure that waste management arrangements are in place for the re-use, recycling or appropriate disposal of containers collected.

The legislation package also bans single use light weight plastic bags in the NT.

The EP (BC&PB) Act, supported by the *Environment Protection (Beverage Containers and Plastic Bags) Regulations 2012 (NT),* requires beverage manufacturers to implement the scheme by:

- developing a waste management arrangement for the collection and reprocessing of the empty beverage containers;
- applying for an approval for the beverages to be sold into the NT; and
- specifying labelling requirements (consistent with the SA scheme) over a transitional period to allow for to the refund to be claimed.

To be redeemable under the NT CDS beverage containers must have been purchased in the NT after the commencement of the scheme.

1.4. Mutual Recognition Principles

The *Mutual Recognition Act 1992* (Cth) (MRA) and the *Trans-Tasman Mutual Recognition Act 1997* (Cth) (TTMRA) apply as laws of the NT by virtue of the *Mutual Recognition (Northern Territory) Act* (NT) and the *Trans-Tasman Mutual Recognition Act 1998* (NT) respectively.

In relation to goods, the MRA and TTMRA apply the ‘mutual recognition principle’. The mutual recognition principle, as explained at section 9 of the MRA, provides that goods produced in or imported into the first State, that may be lawfully sold in that State, may, by virtue of the MRA, be sold in the second State. The Trans-Tasman mutual recognition principle as explained at section 10 of the TTMRA is that goods produced in or imported into

New Zealand, that may be lawfully sold in New Zealand, may by virtue of the TTMRA be lawfully sold in an Australian jurisdiction.

These acts provide that sales of goods to which the principle applies do not require compliance with further requirements of a type set out in the Acts that might otherwise be required under the laws of the importing jurisdiction. These include quality or performance standards, inspection requirements and labelling standards.

The NT CDS component of the EP (BC&PB) Act requires all beverages sold in the NT to carry a label alerting the purchaser to the availability of 10 cent redemption in the NT if bought there. This provision was designed to conform to the statutory exemptions available under the mutual recognition. To provide certainty to those businesses who have already heavily invested in the scheme, the NT is taking the necessary steps to secure permanent exemption of the CDS from the operation of the MRA and TTMRA.

The MRA and the TTMRA make provision for specific goods or laws to be permanently exempted from their scope by their inclusion in schedules to the MRA or TTMRA. The process for adding permanent exemptions requires the support of the relevant Ministerial Council to seek unanimous agreement of Heads of Government (COAG) to the exemption; the making of regulations by the Commonwealth to amend the relevant schedules to the MRA/TTMRA and the prior signification of consent to the amendments by all jurisdictions by Gazette notice.

Because the permanent exemption process is lengthy, the mutual recognition schemes also allow individual jurisdictions to unilaterally invoke temporary exemptions from application of the mutual recognition principle. Temporary exemptions have a limited life of twelve months and cannot be extended.

Regulations have been enacted in the NT to temporarily exempt the EP (BC&PB) Act to the extent that it relates to regulated containers from the mutual recognition principle as applied to goods under the MRA and TTMRA. The temporary exemption for beverage containers expired on 2 January 2013.

The EP (BC&PB) Act allows beverage manufacturers/importers a two year period to make the required changes to their labels. The reason for this is to minimise the inconvenience and cost incurred by those companies in doing so. Allowing a two year transitional period enables the changing of labels during already scheduled labelling changes.

Many beverage manufacturers have transited to the new label since the introduction of the CDS.

2. OBJECTIVES OF GOVERNMENT ACTION

Noting the gap between NT and national rates of waste recovery and recycling, the objective of this Decision RIS is to analyse whether more efficient structures exist for the reuse and recycling of waste materials'.

3. OPTIONS TO ADDRESS THE PROBLEMS

As part of the Decision Regulation Impact Statement (DRIS) process four options are considered to achieve the NT Government's objective. The detailed analysis of each of these options is provided in Section 4.2.

Before outlining the cost and benefits of the options a background section outlines the costs and benefits achieved by the NT CDS in its first 12 months of operation. During this time the scheme had a significant impact on the NT recycling rate and on externalities such as littering and litter clean-up costs, landfill costs, and broader environmental costs. In its first year, the NT CDS achieved a beverage container return rate of 33.8 per cent.

3.1. Option One – the Status Quo

This option projects the NT CDS's achievements in its first 12 months over a 25 year analysis period. It projects an incremental rate increase until an 80 per cent return rate is achieved in 2029. Given the uncertainty surrounding the NT CDS that results from a prior legal challenge to the scheme and subsequent appeal process a 50 per cent uncertainty factor has been applied to the operation of the NT CDS.

3.2. Option Two – National Packaging Recovery Scheme

Option Two constitutes a nationally harmonised approach. It links directly to the national process currently being undertaken to investigate options for regulating the impacts of packaging, including options for a national container deposit scheme. This process is set out in the national Packaging Impacts CRIS[1].

In undertaking this national process COAG will consider national harmonisation issues and as such will recommend its own decision within its Packaging Impacts Decision RIS. It should also be noted that the NT Government has received in principle support in writing from all States and Territories to approve permanent exemption for the continuation of the NT CDS in its current format.

In principle, the NT Government supports a national CDS. Clearly, however, a national scheme will not be introduced, if at all, before 2017. Indeed there is no certainty that a national scheme will in fact be introduced at all. It should be noted that the NT Government began rolling out its CDS before the release of the COAG Packaging Impacts Consultation RIS.

[1] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra.

3.3. Option Three – Permanent Exemption From the MRA is Granted

Granting of a permanent exemption from the MRA and the *Trans-Tasman Mutual Recognition Act 1997* (Cth) (TTMRA) will result in the EP (BC&PB) Act continuing to achieve its objectives and allowing the scheme to expand. This option projects achievements of the NT CDS within the first 12 months of its operation over a 25 year period and factoring in the achievement of an 80 per cent return rate.

3.4. Option Four – Other Less Trade-restrictive Approaches

In response to industry feedback during consultation, this option considers the costs and benefits of the NT signing the Australian Packaging Covenant (APC), which then moves to operate under co-regulatory stewardship as set out under Option Two A of the Packaging Impacts CRIS.

4. IMPACT ANALYSIS

The purpose of an impact analysis is to present indicative information relating to:

- the estimated net economic impacts of the options being considered by governments;
- the impacts on different groups within the community that are likely to be affected by the options;
- the risks associated with each option; and
- any effects they may have on national competition.

Groups within the community expected to be affected to varying degrees include:

- households/consumers (in all jurisdictions including the NT and New Zealand);
- businesses (in all jurisdictions including the NT and New Zealand) including:
    - beverage manufacturers;
    - beverage importers and exporters;
    - retailers; and
    - the waste management industry.
- the NT Government and NT local government; and
- the broader NT, New Zealand and Australian community.

This section provides an analysis of the effectiveness and efficiency of each option in achieving the NT's environmental objectives. The analysis involves approximate estimates of costs and benefits based on assumptions that are described prior to their use.

In some instances estimates are based on those presented in the national Packaging Impacts CRIS[15]. The results presented in that document are generally expressed in present values, meaning costs and benefits across a 25-year assessment period (2011 to 2035) were converted to 2011 dollars using the standard discount rate of seven per cent.

[15] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra.

Sensitivity testing was undertaken to test the impacts of changing key assumptions and inputs to the analysis.

In order to undertake a cost-benefit analysis on the options, the Packaging Impacts CRIS estimated the projected packaging recycling and litter reduction performance for its base case and each option. These projections were based on past recycling and litter trends and a professional assessment of the likely impacts of the initiatives identified for each option.

The packaging consumption projections presented in the Packaging Impacts CRIS were based on population projections and historical packaging consumption growth rates. Between 2003 and 2010 packaging consumption in Australia increased at 51 per cent of the rate of population growth. For this analysis the ratio of packaging consumption growth to population growth was assumed to be 51 per cent from 2011 to 2015, 50 per cent from 2016 to 2020 and 49 per cent from 2021 to 2035. The ratio decreases marginally over time due to increased light weighting of packaging.

Recycling projections presented in the Packaging Impacts CRIS were broken down by consumption location (at-home versus away-from-home) and for each product type (beverage containers, non-beverage packaging) based on:

- a range of identified initiatives (including the time period over which each initiative was assumed to operate);
- packaging industry plans and targets;
- experience in other jurisdictions; and
- assumptions about the maximum achievable recycling rate by product or material.

Due to the lack of data on litter quantities at a national level, litter projections presented in the Packaging Impacts CRIS were developed based on an estimate of the proportion of packaging that could be available to be littered. This was estimated to be around one million tonnes in 2010. Total litter per annum was estimated to be between 40 000 to 160 000 tonnes, which is between four per cent and 16 per cent of total packaging that is available to be littered. The core assumption for the Packaging Impacts CRIS base case is that litter volumes would represent six per cent of packaging available to be littered, representing around 60 000 tonnes in 2010, which was assessed to be the most reasonable estimate within the above range. Litter projections were presented in the Packaging Impacts CRIS on a per tonne basis to ensure consistency with collection and recycling projections.

4.1. Cost Benefit Analysis

The following parameters apply across all options:

- the base year of the appraisal is 2011. To allow for consistency of analysis across all options, the data for the years 2011 and 2012 for Options One and Three was calculated on the basis of subtracting the Consumer Price Index (CPI) for those years;

- evaluation period: 25 years, from 2013 the total period of evaluation needs to be long enough to capture all potential costs and benefits of the proposal. 25 years is used to maintain consistency with the current Packaging Impacts CRIS process;

- Net Present Value (NPV) is calculated by subtracting estimated costs over the evaluation period from benefits. A positive NPV indicates that an option would result in a net benefit to the Australian economy, whereas a negative NPV suggests that an option would impose a net cost.

- Discounting has been applied at 7% for calculations made over 25 years;

- Sensitivity testing has been applied at 3 and 10%;

In addition, a 50% uncertainty has been applied to Option One, and further sensitivity analysis has been applied to Option Three due to unique circumstances that may arise in the Northern Territory.

Estimations that are based on the Packaging Impacts CRIS pertain to costs and benefits for Option 4(A), the Boomerang Alliance CDS. This is required as appropriate NT data are not available. This is particularly the case when it comes to estimating the scheme operation and compliance costs where depots across the NT have widely varying costs.

Listed below in Figure 4.1 are the assumptions of the national options taken from the Packaging Impacts CRIS for Options Two and Four.

9 Figure 4.1: Packaging Impacts CRIS's key assumptions and estimates

	Assumption Type	Assumption
General assumptions	Base year of appraisal	2011
	Evaluation period	25 years
	Real discount rate	7%
Projections	Consumption Projections	Same for all options and based on historical growth of packaging consumption relative to population growth.
	Litter projections	Due to the lack of data on litter, a method to project litter under each option was developed which examines the 'packaging available to be littered'.
	Landfill projections	Landfill projections are iterated from the consumption and recycling projections.
Cost assumptions	Scheme design and implementation costs	Regulation design / implementation costs, government participation costs and communications costs.
	Scheme operation	Government costs to administer regulations, scheme administration costs, scheme initiatives and infrastructure.
Benefit assumptions	Use values	Market value of resources, avoided regulatory costs, avoided landfill externalities, avoided costs of mixed waste contamination and avoided costs of litter clean up.
	Non-use values	Society's willingness to pay for increased recycling.

4.1.1. Key Results

Table 4.1 summarises the key findings of this document's cost benefit analysis. Options One and Three explore the impacts on the Northern Territory (NT), whilst Option Two and Four are national models. Table 4.1 shows that of the NT models, Option Three is the most expensive with the greatest market benefit, and of the national options, Option Four is the least costly option but with the least market benefit.

10 Table 4.1: Key market costs and benefits over 25 years discounted at 7 per cent

Options	Option 1	Option 2	Option 3	Option 4
Costs	$17 283 828	$4 848 000 000	$34 567 655	$257 000 000
Market Benefits	$22 222 782	$3 433 000 000	$44 445 564	$304 000 000
NPV discounted	**$4 938 955**	**–$1 415 000 000**	**$9 877 909**	**$47 000 000**

4.1.2. Sensitivity Testing

The following tables subject the key findings of this document's cost benefit analysis to a range of sensitivity tests, including:

- 10 per cent discount rate over 25 years;
- 3 per cent discount rate over 25 years;
- 7 per cent discount rate over 10 years;
- 10 per cent discount rate over 10 years;
- 3 per cent discount rate over 10 years; and
- further sensitivity testing at 3% and 10% has been applied to the additional models within Option 3.

11 4.2 Net Present Value (NPV) of key market costs and benefits over 25 years (10% sensitivity)

Options	Option 1	Option 2	Option 3	Option 4
NPV	**$3 681 724**	**-$971 000 000**	**$7 363 447**	**$38 000 000**

12 Table 4.3 Net Present Value (NPV) of key market costs and benefits over 25 years (3% sensitivity)

Options	Option 1	Option 2	Option 3	Option 4
NPV	**$7 831 879**	**-$2 458 000 000**	**$15 663 758**	**$59 000 000**

13 Table 4.4 Net Present Value (NPV) of key market costs and benefits over 10 years (discounted 7%)

Options	Option 1	Option 2	Option 3	Option 4
Costs	$9 508 446	NA	$19 016 892	NA
Market Benefits	$11 997 875	NA	$23 995 750	NA
NPV	**$2 489 429**	**NA**	**$4 978 858**	**NA**

14 Table 4.5 Net Present Value (NPV) of key market costs and benefits over 10 years (10% sensitivity)

Options	Option 1	Option 2	Option 3	Option 4
Costs	$8 260 358	NA	$16 520 716	NA
Market Benefits	$10 398 445	NA	$20 796 891	NA
NPV	**$2 138 087**	**NA**	**$4 276 175**	**NA**

15 Table 4.6 Net Present Value (NPV) of key market costs and benefits over 10 years (3% sensitivity)

Options	Option 1	Option 2	Option 3	Option 4
Costs	$11 662 942	NA	$23 325 885	NA
Market Benefits	$14 762 877	NA	$29 525 754	NA
NPV	**$3 099 934**	**NA**	**$6,199,869**	**NA**

Due to the unique nature of NT transportation distances and population dispersal, the following tables' present additional sensitivity testing for Option Three, including:

- sensitivity testing at a 2% return rate increase pa to 58% over 10 and 25 year periods; and
- sensitivity testing at a flat 34% return rate over 10 and 25 year periods.

Further sensitivity testing at 3% and 10% has been applied to these two models.

16 Table 4.7 Net Present Value (NPV) of key market costs and benefits at a 2% return rate increase pa to 58% over 10 years (3% and 10% sensitivity)

	Discounted (7%)	Sensitivity (3%)	Sensitivity (10%)
Costs	$15 481 469	$18 724 448	$13 590 458
Benefits	$18 744 614	$22 691 276	$16 444 602
NPV	**$3 263 145**	**$3 966 829**	**$2 854 144**

17 Table 4.8 Net Present Value (NPV) of key market costs and benefits at a 2% return rate increase pa to 58% over 25 years (3% and 10% sensitivity)

	Discounted (7%)	Sensitivity (3%)	Sensitivity (10%)
Costs	$27 379 162	$41 626 527	$21 106 763
Benefits	$33 768 553	$51 627 949	$25 931 612
NPV	**$6 389 391**	**$10 001 423**	**$4 824 849**

18Table 4.9 Net Present Value (NPV) of key market costs and benefits at a flat 34% return rate over 10 years (3% and 10% sensitivity)

	Discounted (7%)	Sensitivity (3%)	Sensitivity (10%)
Costs	$12 333 828	$14 914 926	$10 825 031
Benefits	$14 069 448	$17 033 024	$12 337 136
NPV	**$1 735 620**	**$2 118 098**	**$1 512 105**

19Table 4.10 Net Present Value (NPV) of key market costs and benefits at a flat 34% return rate over 25 years (3% and 10% sensitivity)

	Discounted (7%)	Sensitivity (3%)	Sensitivity (10%)
Costs	$20 168 928	$29 947 051	$15 787 496
Benefits	$23 059 251	$34 280518	$18 030 947
NPV	**$2 890 323**	**$4 333 467**	**$2 243 451**

4.1.3. Costs

Households, businesses (beverage manufacturers and importers / exporters), the waste management industry (including CDS coordinators and collection depots) and governments are assumed to incur certain costs associated with the options. The following provides a summary of these costs.

Scheme design and implementation costs incurred by government include the following:

- designing and implementing the regulation and making regulatory amendments;
- communicating the operation of the scheme to households and businesses; and

- administering the regulation on an ongoing basis, including costs related to compliance and enforcement.

Scheme operation and compliance costs incurred by industry include:

- reporting requirements;
- establishing industry-run organisations responsible for the operation of the scheme;
- establishing infrastructure; and
- operating costs.

Household Participation Costs are the costs resulting from the time it takes to accumulate packaging and transport it by vehicle to collection infrastructure points. These are listed below:

- vehicle operating costs (VOC) incurred by households to transport packaging to collection infrastructure;
- in-vehicle travel time (IVT) of households to transport packaging to collection infrastructure by vehicle;
- accumulation time is the value of time of households to physically transfer beverage containers to accumulation points such as kerbside recycling bins. This includes time to sort containers from the general waste stream, walk to the accumulation point and transfer the items; and
- Container deposit redemption time is the value of time of households to walk from their vehicle to the container collection infrastructure and conduct the transaction.

Table 4.11 provides a summary of all costs for all of the considered options.

20 Table 4.11: Summary of costs for all options over 25 years (discounted 7%)

Options	Option 1	Option 2	Option 3	Option 4
Scheme design and implementation	$1 823 297	$11 000 000	$3 646 594	$3 000 000
Scheme operation and compliance	$13 568 795	$4 383 000 000	$27 137 590	$16 000 000
Household participation costs	$1 393,100	$447 000 000	$2 786 200	$83 000 000
Business participation costs	$405 177	$7 000 000	$810 354	$2 000 000
Collection , transport, processing at material recycling facility	NA	NA	NA	$135 000 000
Litigation	$93 458	NA	$186 916	NA
Total Costs discounted	**$17 283 828**	**$4 848 000 000**	**$34 567 655**	**$257 000 000**

4.1.4. Market Benefits

The following **market benefits** for each option were included in the analysis:

Avoided kerbside costs include avoided costs and are therefore benefits, relating to pre-existing kerbside recycling arrangements. This is chiefly the costs to:

- transport materials from collection infrastructure to existing recovery/recycling facilities;
- sort/process material delivered to existing recovery/recycling facilities; and
- landfill residual material that may be rejected due to contamination.

Market value of resources is the financial market value of recovered resources that are diverted from landfill or the litter stream, including premiums for segregated and cleaner material streams;

Avoided regulatory costs are the potential gains from a national approach, as opposed to the state/territory based approach. This includes planning and administration.

Avoided operating costs of landfill are the avoided direct costs associated with operating landfills due to diverting material from landfill, including the opportunity cost of land, and other ongoing costs;

Avoided costs of litter clean up are the avoided direct costs to the government for the range of services they provide that contribute to litter prevention including municipal litter services, street sweeping and litter clean up services.

Avoided landfill externalities are the external costs that landfill of packaging imposes on third parties such as greenhouse gases and leachate.

Environmental benefits of recycling are the value of decreased environmental impacts from the avoidance of the production of virgin container material.

Table 4.12 summarises the market benefits for all the considered options.

21 Table 4.12: Summary of benefits for all options over 25 years (discounted 7%)

Options	Option 1	Option 2	Option 3	Option 4
Avoided kerbside costs	$6 299 800	$2 723 000 000	$12 599,600	
Market value of resources	$2 057 246	$463 000 000	$4 114 492	$152 000 000
Avoided regulatory costs		$35 000 000		$35 000 000
Avoided landfill operating costs	$1 323 214	$62 000 000	$2 646 427	$31 000 000
Avoided litter clean-up costs	$1 242 072	$114 000 000	$2,484 145	$56 000 000
Avoided landfill externalities		$36 000 000		$ 30 000 000
Environmental benefits	$11 300 451		$22 600 901	
Total Benefits Discounted	$22 222 782	$3 433 000 000	$44 445 564	$304 000 000

4.2. Individual Option Analyses

4.2.1. Background

Table 4.13 summarises the market costs and benefits for the NT CDS after its first twelve months of operation.

22 Table 4.13: Cost and benefit analysis for NT CDS after first 12 months operation

Description of Costs / Benefits	Value
Costs	
Scheme design and implementation	$315 000
Scheme operation and compliance	$1 875 924
Household participation costs	$192 600
Business participation costs	$70 000
Litigation costs	$200 000
Total costs	$2 653 524
Benefits	
Avoided kerbside costs	$870 965
Market value of resources	$ 284 420
Avoided landfill operating costs	$182 938
Avoided litter clean up	$171 720
Environmental benefits	$1 562 319
Total Benefits	**$3 072 362**
Net Present Value	**$418 838**

NT CDS Performance to Date

Return Rate

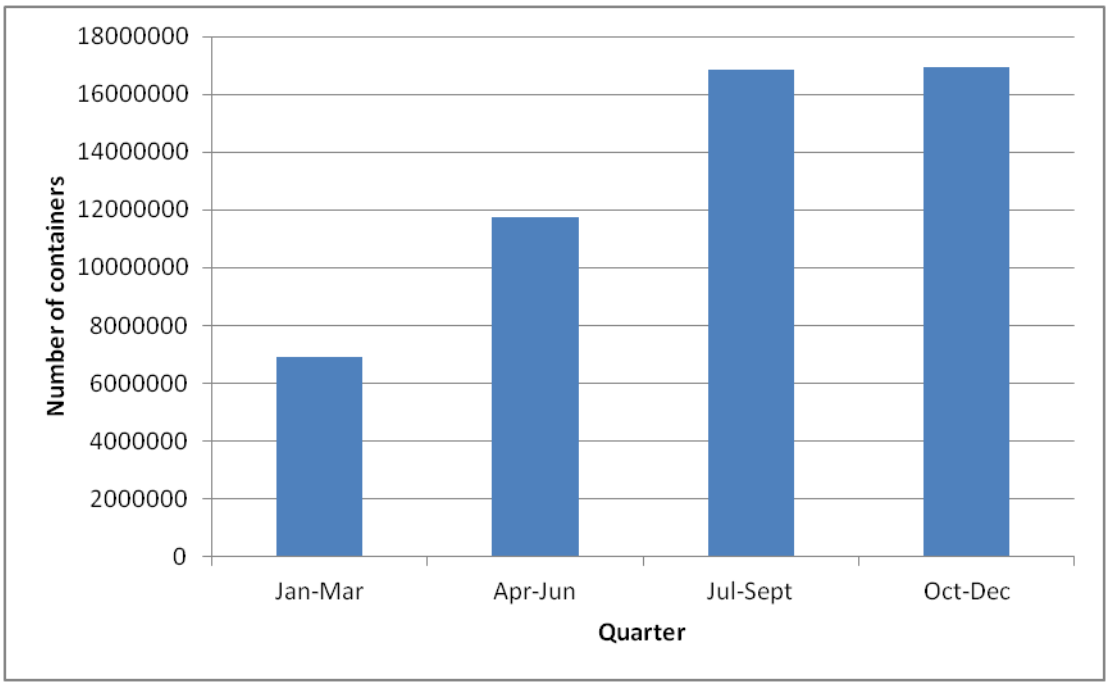
Of the 155 204 413 approved containers sold into the NT during the first year of the CDS's operation, a total of 52 481 684 containers were returned to CDS Coordinators[12]. These consisted of:

- 26 931 023 aluminium cans;

- 14 835 843 glass containers;
- 7 907 576 PET containers;
- 681 411 HDPE containers;
- 2 035 519 liquid paper board containers; and
- 90 312 other containers, including other plastics and steel.

This equates to a return rate of 33.82 per cent across all material types for the first 12 months, all of which have been recycled/re-used. The return of these containers equates to over $5.25 million in deposits that have been paid out to families, schools, community organisations and commercial operators in the Northern Territory. As Figure 4.1 shows the NT CDS has sustained a steady improvement in return rates.

23 Figure 4.1: NT CDS containers returned to CDS Coordinators in 2012



Recycling Rate

As Table 4.14 suggests, the NT CDS has, to date, led to a very significant rise in the beverage container recycling rate in the NT. In its first year of operation the NT CDS has seen beverage container recycling increase by some 2 472 tonnes. This figure is an increase over and above container recycling already undertaken by way of kerbside recycling before the scheme was introduced. To date 100% of this material has been recycled, although there is potential in the future for some reuse of materials to occur. This increase represents a 173.4 per cent increase in beverage container recycling in the NT since the scheme's introduction.

24 Table 4.14: Tonnes of beverage containers recycled pre and post CDS

Materials	Beverage containers recycled pre NT CDS (tonnes)	Beverage containers recycled from NT CDS (tonnes)	Beverage container recycling increase (tonnes)
Paper etc	0	0	0
Glass	1 244	3 101	1 857
HDPE		34	34
PET	74	271	197
Aluminium	107	403	296
LPB	data unavailable	84	84
Other		4	4
TOTAL	**1 425**	**3 897**	**2 472**

Market Costs

Scheme Design and Implementation Costs for the NT CDS are approximately $ per annum. This encompasses staff costs for administration and legislative complian

Scheme Operational Costs and Compliance Costs are passed from b manufacturers and imposed on the NT consumer. The jurisdictional breakdown f companies is as follows:

- 56 NSW
- 47 Vic
- 29 SA
- 10 Qld
- 9 WA
- 1 NT
- 1 USA
- 0 NZ

The use of operational cost estimates derived from the hypothetical Packaging Impacts CRIS estimates have been maintained. This has been done despite the beverage industry calling for a non hypothetical costing based on 'accurate cost data' derived from operation of the NT CDS to date. This is because ascertaining accurate data in terms of operation costs is problematic. Consultation undertaken with collection depots indicates that some collection depots believe their costs are not reflected in the handling fee paid to them, while others are satisfied they are and anticipate their costs will reduce significantly in the medium to long term if issues surrounding the number of splits and sorts in the CDS are resolved.

Consultation indicates there has been a wide disparity in the amount of capital investment made by collection depots to date. This is partly a reflection of there being new stakeholders

entering into collection depot operations and on the other hand seasoned operators who appreciate the need for sophisticated plant and technologies in order to obtain efficiencies. Clearly the level of investment made affects the operational costs incurred in processing containers. Over the medium term, investment as a proportion of overall costs is likely to diminish rapidly.

Importantly, no alternative estimations of operational cost were provided by the manufacturing industry or its representatives. This was the case despite requests expressly made in the consultation RIS for such estimates in the context of an acknowledgment that the Packaging Impacts CRIS model is hypothetical. Further requests to industry representatives around their estimate of operational costs were subsequently made. Responses were not received. This lack of response is taken as confirmation that securing non-hypothetical 'accurate cost data' that definitively determines the cost of a mature NT scheme is in fact problematic.

The cost nominated here is an indicative estimate only, based on and consistent with, the assumptions used in the Packaging Impacts CRIS for Option 4A[16].

The Option 4A model adopted the conventional approach to estimating the cost of CDS arrangements whereby estimates are made of the various cost elements on a per container basis. Consistent with current practice for estimating costs for CDS arrangements in Australia, there was no separation of capital and operating costs. Instead one unit cost is used and is fully inclusive of both capital and operating costs. The model contains the following elements:

- service areas – such as the cost to consolidate containers, the cost of transport, the cost of Reverse Vending Machines (RVM) etc;
- localities for services – such as kerbside, RVM sites, regional depots and rural and remote depots etc; and
- unit costs – the cost per container for delivery of the relevant service at the designated locality, as a fully inclusive capital and operating cost.

In the Option 4A model, detailed supporting estimates were provided for the distribution of containers throughout the system covering the number of containers likely to present for re-aggregation at each of the localities where services are provided. Using these data, the

[16] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. Appendix C, pp 99-108.

Option 4A model estimated the cost to deliver CDS services at each of the localities and to aggregate the containers to centralised locations for reprocessing.

The value adopted for Option 4A was 4.5 cents/container and 6 cents/container in rural and remote locations. This information has been used for this document's Option One and Three. Co-ordination across the system was 0.4 cents/container, baling and transport from collection depots, RVMs and rural and remote collection points to hubs (urban and rural) was 0.72 cents/container, and rural and remote transport from hubs to reprocesses was estimated at $106.30 per tonne. These estimates are based on the economic costs of the CDS infrastructure (i.e. include capital and operating costs) and exclude the payment of financial incentives to rural and remote infrastructure operators.

These costs are consistent with the 4 cents/container handling cost used in the *Beverage Container Investigation*[17]. The above handling costs are in line with the 4.25 cents/container depot handling fee estimate proposed in a 2009 report[18]. The SA Environment Protection Authority estimates South Australian costs to be at 4.25 cents/container[19]. A CDS in the NT requires development of more infrastructure and therefore NT costs are estimated to be higher than the SA scheme's costs.

The cost of changing beverage container labels as per the legislative requirements does not represent a cost significant enough to register. A two year transitional period from the current SA labeling has been granted under the Act. The beverage industry can therefore make the change at a time when other labeling changes are already scheduled. Administrative costs associated with management of deposits and handling fees collected and paid to CDS coordinators and administrative costs associated with reporting on NT sales to CDS coordinators will represent a negligible increase on administration costs already borne for this purpose in relation to the SA CDS.

Considering all these factors, annual operation and compliance costs for the NT CDS after 12 months of operation are estimated at approximately $1 875 924 per annum. This estimate is essentially an adjustment of the Packaging Impacts CRIS Option 4A estimate, in line with NT's proportion of national population.

[17] BDA Group/Wright Corporate Strategy, 2010. *Beverage container investigation revised final report,* report prepared for the EPHC Beverage Container Working Group, Canberra.

[18] Stefan Gabrynowicz, EPA SA April 2009. *Economic Costs and Benefits of SA's Container Deposit System.* The 4.25 cents/container is the depot handling fee estimate Gabrynowicz proposed. An estimated 4.66 cents/container was also proposed as all-up gross cost covering handling fee, admin, transport, super-collector costs.

[19] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. p 53

It should be noted that beverage prices will increase by 10c to cover the NT CDS's redeemable deposit. Beverage manufacturers have also made it clear that they will increase beverage prices to cover their handling fees. However, the 10c deposit paid by consumers to beverage manufacturers when purchasing a beverage is then transferred by beverage manufacturers to depots. Depots in turn pay the 10c deposit back to consumers in exchange for their returned beverage container.

Household Participation Costs are estimated at $192 600. This is an adjustment of the Packaging Impacts CRIS Option 4A estimate, in line with NT's proportion of national population. Key assumptions in the Packaging Impacts CRIS analysis centre on vehicle operating costs, in-vehicle travel time, accumulation time and container deposit redemption time.

Urban sprawl and congestion common to south-eastern jurisdictions is not a reality in the NT. While it is acknowledged that travel in the NT between major settlements and remote locations involve great distances and costs, travel within urban areas, where the majority of the population resides, is exceptionally convenient. Similarly, travel within remote settlements is also exceptionally convenient. Furthermore, the establishment of RVMs in the NT is beginning to allow incorporation of redemption of containers into existing shopping trips.

Market Benefits

Market Value of Resources The NT CDS generates resources that can be sold into the recycling market. The quality is high due to low contamination. Table 4.15 shows that at in the first year of the CDS's operation, an additional 2 4722 tonnes of beverage containers were diverted from landfill. As set out in Table 4.15, at a 33.8 per cent return rate, the total value of this collected material in the first year of the NT CDS's operation is estimated to have been $284 420.

25 Table 4.15: Market value of NT CDS recycling over and above existing kerbside

Material	NT CDS recycling increase at a 33.8% return rate (tonnes)	Estimated sales value net of transport costs ($/tonne)	Total value of collected material at a 33.8% return rate ($)
Glass	1 857	20	37 140
PET	197	400	78 800
HDPE	34	1300	44 200
Aluminium	296	400	118 400

Material	NT CDS recycling increase at a 33.8% return rate (tonnes)	Estimated sales value net of transport costs ($/tonne)	Total value of collected material at a 33.8% return rate ($)
LPB	84	70	5 880
Other	4		
TOTAL	**2 472**	n/a	**$284 420**

Avoided Landfill Operating Costs As noted in Table 4.15, in its first year of operation the NT CDS has seen beverage container recycling increase by 2 472 tonnes at a 33.8 per cent return rate. The vast majority of landfills in the NT are small with poor controls. There are approximately 230 such landfills in the NT, as well as five medium sized landfills. Table 4.16 sets out average operating costs for landfills per tonne[20].

26 Table 4.16: Operating costs of landfill ($/tonne)

Landfill size	Best practice controls	Poor controls
Small	$100	$74
Medium	$60	$44
Large	$40	$30

With operating costs of $74 per tonne this amounts to a landfill operating cost saving of $182 938 for the NT CDS's first year of operation.

Avoided Litter-Clean-Up Costs The NT CDS is complemented by an NT plastic bag ban, also legislated under the EP (BC&PB) Act which came into force on 1 September 2011. The two arms of the EP (BC&PB) Act work in tandem. The legislative package enables the removal of high visibility litter. Table 4.17 demonstrates the success of the ban.

27 Table 4.17: Keep Australia Beautiful (KAB) Annual Results Tabulations: plastic bags 2011-12

	November 2011	May 2012
Supermarket type lightweight, carry	56	18
Heavy, glossy typically branded	4	4

[20] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. Appendix C, p 80.

While there has been no increase in heavy duty bag litter since the ban, there has been a 67 per cent decrease in lightweight bag litter.

Different litter items have a different affect on amenity not registered by either volume or item number counts cited in Keep Australia Beautiful (KAB) *Annual Results Tabulations*. For example: the May 2012 total volume of heavy glossy typically branded carrier bags and drinking straws register the same volume each (0.3 litres). Yet one material type, the heavy glossy typically branded carrier bag, clearly has a greater impact on amenity than the other (due to its bulk) or even on a larger incidence of littering of the other[21].

Analysis of KAB data immediately before and during the NT CDS operation shows a reduction in beverage container litter in the NT in the first 12 months of the schemes operation.

Table 4.18 displays beverage container litter recorded in KAB beverage container litter by item found in the two surveys immediately before the NT CDS was introduced (May and November 2011) with the first survey after the NT CDS was introduced (May 2012):

28 Table 4.18: Beverage container litter by item

Littered Material (Covered by NT CDS)	May 2011	November 2011	May 2012
Glass beverage containers	51	42	36
Aluminium beverage containers	107	102	89
LPB beverage containers	108	36	22
Plastic beverage containers	67	110	30
Total beverage containers	**333**	**290**	**177**

These data show a pattern of reduced beverage container litter across a variety of sites and materials. In May 2012 there was 39 per cent less beverage container litter than found in November 2011 and 47 per cent less beverage container litter from the May 2011 period.

The CDS has had an impact on other items. The KAB *Annual Results Tabulations* results show an even greater reduction of 52 percent in beverage related items (i.e. lids, straws and can holders) from November 2011 to May 2012. It is also notable that every beverage related item shows consistent improvement. Table 4.19 compares the KAB *Annual Results Tabulations* data before and after the introduction of the NT CDS.

[21] McGregor Tan Research 2012. Keep Australia Beautiful Annual Results Tabulations May 2012, Canberra. P 82.

29 Table 4.19: KAB annual results tabulations 2011-12 data for beverage-related litter

Waste Material	November 2011	May 2012
Metal bottle tops	257	245
Plastic can holders (6 ring)	2	0
Plastic bottle tops	229	176
Straws	133	30
TOTAL	**621**	**451**

Annual levels of litter as represented by the KAB *Annual Report* are volatile. As discussed above, cigarette butts skew the figures. Table 4.20[22] shows that the total litter count for the NT increased from May 2011 to May 2012, but at a lower rate than the increase in cigarette butts found in the litter stream:

30 Table 4.20: KA total litter and cigarette butt litter

	May 2011	November 2011	May 2012
Total litter	3796	5322	6046
Cigarette butts	1683	2421	3400

This highlights that while overall litter measured in the NT increased between the November 2011 to May 2012 study period by an estimated 724 items, all this increase is attributable to the growth in cigarette butt litter. Cigarette butt litter increased by 979 items. The rest of the litter stream actually reduced by 255 items over this time period.

Table 4.21 demonstrates that between November 2011 and May 2012 beverage container volume reduced by 90.5 litres, reducing the total litter volume by 15.9 per cent.

31 Table 4.21: KAB beverage container litter covered by NT CDS volume (in litres)

Material	November 2011	May 2012	Litter Reduction
Glass beverage containers	24.3	19.1	5.2
Aluminium beverage containers	45.7	40.3	5.4
LPB beverage containers	25.5	20.2	5.3
Plastic beverage containers	99.41	24.81	74.6
TOTAL	**194.91**	**104.41**	**90.5**

[22] McGregor Tan Research 2012. *Keep Australia Beautiful Annual Results Tabulations May 2012*, Canberra. p 82.

TOTAL OF ALL LITTER	**571.46**	**320.03**	**251.43**

It is reasonable to assume that a reduction of the total litter volume by 15.9 per cent will result in a commensurate decrease in litter clean up costs.

To determine the impact of this reduction one must first establish the current cost of litter clean up in the NT. In the absence of data and the fact that some councils contract out litter clean up, the following estimates of litter clean-up employment are set out in Table 4.22.

Three quarters of the Northern Territory's population reside in its five regional centres. Table 4.18 estimates the impact of CDS litter reduction on litter clean-up employment costs.

32 Table 4.22: NT CDS impact on litter clean-up employment costs in the NT

	Estimated full time litter clean up jobs	Salaries at $45,000 per annum	Full time NT Gov, NT Litter Act enforcement	Salaries at $90,000 per annum
Darwin/Palmerston	4	180 000	4	$360 000
Nhulunbuy	.5	22 500	.5	$45 000
Katherine	1	45 000	1	$90 000
Tennant Creek	.5	22 500	.5	$45 000
Alice Springs	2	90 000	2	$180 000
Total	8	$360 000	8	$720 000
Total savings per annum[23]	1.272	$57 240	1.272	$114 480
TOTAL SALARY COSTS				**$171 720**

Lightweight plastic bags have now been almost removed from the litter stream with no subsequent rise in heavy duty carry bags. This would increase the litter reduction rate beyond the 15.9 per cent reduction resulting from the NT CDS.

Cost reductions to litter clean-up costs during the first 12 months of the NT CDS's operation are estimated to be $171 720.

Environmental Benefit of Recycling As noted in Table 4.10 an additional 2 472 tonnes of beverage containers were diverted from landfill in the first year of the NT CDS's operation.

[23] Calculated from a 15.9% reduction in litter per annum derived from a 33.8% return rate.

Table 4.23 incorporates estimates of the environmental benefits of recycling various materials (in terms of dollars per tonne)[24]. These estimates are both conservative and likely to be further under priced given they were produced in 2001. The data includes greenhouse gas output, embodied energy, embodied water and waste benefits from recycling as opposed to the use of virgin materials. The environmental benefit value of LPB is not included. Table 4.19's estimates for PET and HDPE redemption by the NT CDS have been calculated on the basis of the proportions for these of the scheme's operation as cited in the NT CDS Quarterly Reports[25]. In summary, Table 4.19 reflects the environmental benefits that were accrued in the first 12 months of the NT CDS's operation, with an estimated value of some $1 562 319.

33 Table 4.23: Environmental benefit of recycling increase generated by the NT CDS

Material	Recycled material impact ($/tonne)	Virgin material impact ($/tonne)	Recycling benefit ($/tonne)	NT CDS recycling increase at a 33.8% return	Recycling benefit value at a 33.8% return rate ($)
Glass	84	248	163	1 857	302 691
PET	300	2096	1796	197	353 812
HDPE	333	413	80	34	2 720
Aluminium	163	3214	3051	296	903 096
LPB	unknown	unknown	unknown	84	Unknown
Other				4	
TOTAL				2 472	**$1 562 319**

Avoided kerbside costs CDS operating costs are offset to a certain extent by avoided cost of collection, transport and recycling as a result of beverage containers being diverted away from existing recycling systems.

NEPC data shows 39 339 residences of Darwin and Palmerston are charged an average of $106.73 per annum per residence for the cost of kerbside. The actual cost to the council is estimated to be $82 per residence[26]. This makes the combined cost incurred by the Darwin

[24] White et al, *Independent Review of Container deposit Legislation in NSW, Final Report, Vol 2*, Institute for Sustainable Futures, University of Technology, Sydney. p 140.

[25] Northern Territory Government 2013. *Container Deposit Scheme Quarterly Report,* Northern Territory Government, Darwin.

[26] National Environmental Protection Council, 2011. *Annual Report 2010 – 2011.* Australian Government, Canberra, pp 240-2

and Palmerston city councils to operate kerbside services to be approximately $3 225 798 annually.

As Table 4.24 indicates, prior to the implementation of the NT CDS, beverage containers made up approximately 27 per cent of material collected annually by kerbside in the NT. A commensurate 27 per cent reduction in the combined cost incurred by the Darwin and Palmerston city councils to operate kerbside services amounts to $870 965 per annum.

While a significant proportion of beverage containers will be directed away from kerbside recycling, those that remain can then enter the CDS by the operators of kerbside services, 'subsidising' the cost of their collection. In this way it is anticipated that the two systems will successfully operate in tandem.

34 Table 4.24: CDS proportion of NT kerbside collection

Materials	Kerbside Recycling pre NT CDS[27], (tonnes)	Estimated CDS material proportion of kerbside (tonnes)
Paper etc	3 376	0
Glass	1 574	1 244
Plastic	248	74
Aluminium	107	107
LPB	0	0
TOTAL	**5 305**	**1 425**
CDS material proportion of kerbside		**27%**

It should be noted that this estimate is significantly less than the national Packaging Impacts CRIS estimate for national savings to kerbside costs adjusted commensurate with NT population (approximately $27 million for the NT over 25 years). The estimate used reflects the under developed nature of kerbside in the NT.

Any displacement of kerbside with CDS redemption will result in significantly greater recycling efficiencies. Table 4.25[28] shows how kerbside contamination results in a significant proportion of kerbside waste recovery not being recycled.

[27] National Environmental Protection Council, 2011. *Annual Report 2010 – 2011.* Australian Government, Canberra

[28] Hyder Consulting, Australian Beverage Packaging, Consumption, Recovery and Recycling Quantification Study 2008.

35 Table 4.25: Beverage container consumption, recovery and recycling

	Consumption (tonnes)	Recover (tonnes)	Recovery (%)	Recyclate (tonnes)	Recycling (%)
At-home	674 469	515 457	76.4%	392 173	58.1%
Away-from-home	248 326	54 365	21.9%	44 121	17.8%

(Note: estimates based on 2005/06 and 2006/07 data)

The average participation rate among residents of Darwin and Palmerston in kerbside is 80 per cent[29].

4.2.2. Option One – the Status Quo

Option One projects the NT CDS's achievements in its first 12 months over a 25 year analysis period. Option 1 incorporates the uncertainty surrounding the future of the NT CDS that results from a legal challenge to the scheme by members of the beverage industry and an appeal process.

Table 4.26 projects the market costs and benefits of the NT CDS's operation to date, as set out in Table 4.9 above, over a 25 year period with an increasing return rate.

36 Table 4.26: Cost benefit results for NT CDS after 25 years (discounted)

Description of Costs / Benefits	Value
Costs	
Scheme design and implementation	$1 823 297
Scheme operation and compliance	$13 568 795
Household participation costs	$1 393 100
Business participation costs	$405 177
Litigation	$93 458
TOTAL	**$17 283 828**

[29] National Environmental Protection Council, 2011. *Annual Report 2010 – 2011.* Australian Government, Canberra.

Description of Costs / Benefits	Value
Market Benefits	
Avoided kerbside costs	**$6 299 800**
Market value of resources	**$2 057 246**
Avoided regulatory Costs	
Avoided landfill operating costs	$1 323 214
Avoided litter clean up	$1 242 072
Avoided landfill externalities	
Environmental benefits	$11 300 451
TOTAL	$22 222 782
Net Present Value	**$4 938 955**

4.2.3. Option Two – National Packaging Recovery Scheme

Option Two constitutes a nationally harmonised approach. It links directly to the national process currently being undertaken to investigate options for regulating the impacts of packaging, including an option of a national container deposit scheme. This process is set out in the national Packaging Impacts CRIS[1]. Option Two sets out the costs and the benefits that result for the NT from a CDS option analysed in the Packaging Impacts Consultation Regulation Impact Statement (Packaging Impacts CRIS).

The Packaging Impacts CRIS

The Packaging Impacts CRIS explored a number of measures that have the potential to increase packaging resource recovery rates and decrease packaging litter. The objectives were to:

- reduce packaging waste and increase packaging resource recovery;
- reduce the need to landfill recyclable packaging materials;
- reduce the negative amenity, health and environmental impacts of packaging waste and litter in line with community expectations; and

[1] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra.

- promote a consistent national approach to regulating packaging.

Options considered were:

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

The key results of the Packaging Impacts CRIS's cost benefit analysis are displayed in Table 4.27 to Table 4.29[30].[31]. A summary of key assumptions and estimates are shown in Figure 4.2[32], and a summary of key factors driving the results are shown in Table 4.30[33].

Results show that:

- all options result in an overall increase in recycling by 2035;
- Option 2(a) is the only option that has a positive Net Present Value (NPV);
- all other options were assessed in the cost benefit analysis as having negative NPVs and benefit costs ratios (BCR) lower than one. This suggests that for these options, the market costs are greater than the benefits;

[30] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. Attachment C, p 3.

[31] Standing Council on Environment and Water 2011. *Packaging Impacts Consultation Regulation Impact Statement*. Canberra. p 42.

[32] Ibid p 2.

[33] Ibid p 3.

- Options 1 and 2 (b) involved relatively low costs and benefits and result in small net costs to the economy, whereas Options 2(c) and 3 involve higher costs and benefits and result in larger net costs; and

- Options 4(a) and 4(b) were the highest cost options. While these options have high resource recovery benefits, due to a price premium from materials collected through a CDS, these benefits are lower than the overall higher costs.

37 Table 4.27: Packaging Impacts CRIS's results of Cost Benefit Analysis (CBA); excluding non-use values ($2011; $ millions; discounted) for all options

	Option 1	Option 2(A)	Option 2(B)	Option 2(C)	Option 3	Option 4(A)	Option 4(B)
Costs	311	258	554	984	981	2 125	2 471
Benefits	262	304	53	786	786	710	710
NPV	-49	46	-51	-198	-195	-1 415[34]	-1 761
SCR	0.84	1.18	0.91	0.80	0.80	0.33	0.29

38 Table 4.28: Packaging Impacts CRIS's incremental costs; annual and present values over 25 year analysis period ($ millions) for all options

	Option 1	Option 2(A)	Option 2(B)	Option 2(C)	Option 3	Option 4(A)	Option 4(B)
Scheme design and implementation	$4	$3	$6	$6	$6	$11	$11
Scheme operation and compliance	$87	$16	$183	$348	$345	$4 383	$4 720
Avoided kerbside costs	$117	$135	$176	$319	$319	-$2 723[35]	-$2 723
Household participation costs	$83	$83	$152	$250	$250	$447	$457

[34] $1 414 000 000 appears in the *Pack Imp CRIS*. However, this appears to be a mistake.

[35] As this number is a negative, it has been attributed to a benefit in our calculations, however it does not impact NPV.

	Option 1	Option 2(A)	Option 2(B)	Option 2(C)	Option 3	Option 4(A)	Option 4(B)
Business participation costs	$20	$20	$37	$61	$61	$7	$7
TOTAL COSTS	$311	$258	$554	$984	$981	$2 125	$2 471

39 Table 4.29: Packaging Impacts CRIS's incremental benefits; annual and present values over 25 year analysis period ($ millions) for all options

	Option 1	Option 2(A)	Option 2(B)	Option 2(C)	Option 3	Option 4(A)	Option 4(B)
Market value of resources	$148	$153	$275	$449	$449	$463	$463
Avoided regulatory costs	$0	$35	$35	$35	$35	$35	$35
Avoided landfill operating costs	$29	$31	$55	$91	$91	$62	$62
Litter clean up	$54	$56	$102	$168	$168	$114	$114
Avoided landfill externalities	$31	$30	$36	$43	$43	$36	$36
TOTAL BENEFITS	$262	$304	$503	$786	$786	$710[36]	$710

40 Table 4.30: Summary of key factors driving the results of the CBA

Option	Costs ($2011,PV, millions)	Benefits ($2011, PV, millions)	2035 packaging recycling quantity (million tonnes)	2035 litter quality (tonnes)	2035 landfill quantity (tonnes)
Option 1	$311	$262	4.22	30 300	965 000
Option 2A	$258	$304	4.20	31 000	977 000
Option 2B	$554	$503	4.26	28 900	915 000

[36] Total benefits are $3 433 in our calculations it includes $2 723 for collection, transport, process at MRF. Does not impact NPV.

Option 2C	$984	$786	4.50	21 700	689 000
Option 3	$981	$786	4.50	21 700	589 000
Option 4A	$2 125	$710	4.50	28 400	867 000
Option 4B	$2 471	$710	4.31	28 400	867 000

A study of households' willingness to pay for increased packaging recycling was undertaken in 2010 to quantify non-market values such as environmental benefits or a feeling of civic duty. In Table 4.31, the willingness to pay values for increased recycling are applied across the options being assessed, using the point estimate and lower and upper 95% confidence interval limits. The figures below were presented alongside the CBA results to allow for these non-market aspects to be taken into consideration in assessing the overall costs and benefits of the options.

41 Table 4.31: Summary of Willingness to Pay for Increased Recycling; total benefits ($ Millions) resulting from projected increase in recycling

	Option 1	Option 2 (A)	Option 2 (B)	Option 2 (C)	Option 3	Option 4 (A)	Option 4 (B)
Lower estimate	$234	$233	$422	$689	$689	$465	$465
Point estimate	$296	$295	$534	$871	$871	$588	$588
Upper estimate	$403	$402	$727	$1 186	$1 186	$801	$801

Table 4.32 presents the cost benefit analysis for Option 4A. Table 4.33 presents the non market benefits for the Packaging Impacts CRIS's Boomerang Alliance CDS option.

42 Table 4.32: Market costs and benefits of the operation of a Boomerang Alliance CDS over a 25 year analysis period

Description of Costs / Benefits	Boomerang Alliance CDS national values
Costs	
Scheme design and implementation	$11 000 000
Scheme operation and compliance	$4 383 000 000
Household participation costs	$447 000 000
Business participation costs	$7 000 000

Description of Costs / Benefits	Boomerang Alliance CDS national values
Total costs	**$4 848 000 000**
Market Benefits	
Avoided kerbside costs	$2 723 000 000
Market value of resources	$463 000 000
Avoided regulatory cost	$35 000 000
Avoided landfill operating costs	$62 000 000
Avoided litter clean-up costs	$114 000 000
Avoided landfill externalities	$36 000 000
Total market benefits	**$3 433 000 000**
Net Present Value	**-$1 415 000 000**

43 Table 4.33: Non-market benefits of the operation of a Boomerang Alliance CDS over a 25 year analysis period

Description	Boomerang Alliance CDS national values (point estimate)
Willingness to pay calculation	$588 000 000
Total non-market benefits	$588 000 000

The above analysis results in a Net Present Value of –$1 415 000 000 over 25 years (discounted). At the same time it projects non-market amenity benefits valued at $588 000 000 over the same period in the NT.

4.2.4. Option Three – Permanent Exemption from the MRA and TTMRA is Granted

Option three anticipates that if the future of the NT CDS is secured by way of permanent exemption from the MRA and TTMRA, it will in due course achieve an 80 per cent return rate and its optimal net present value.

The rate at which the NT CDS reaches an 80 per cent return rate has been based on the Hawaii CDS scheme as that scheme is recent, remote and well documented. The rate of increase in the Hawaii scheme transferred to the NT CDS, which achieved a 33.82 return

rate in its first year, is displayed at Figure 4.3[37]. The performance of the SA CDS has also been considered. Only five years of SA data were available. The below projected return rate is consistent with the available data from SA.

44 Figure 4.3: NT CDS projected return-rate over 25 years, based on the Hawai'i CDS

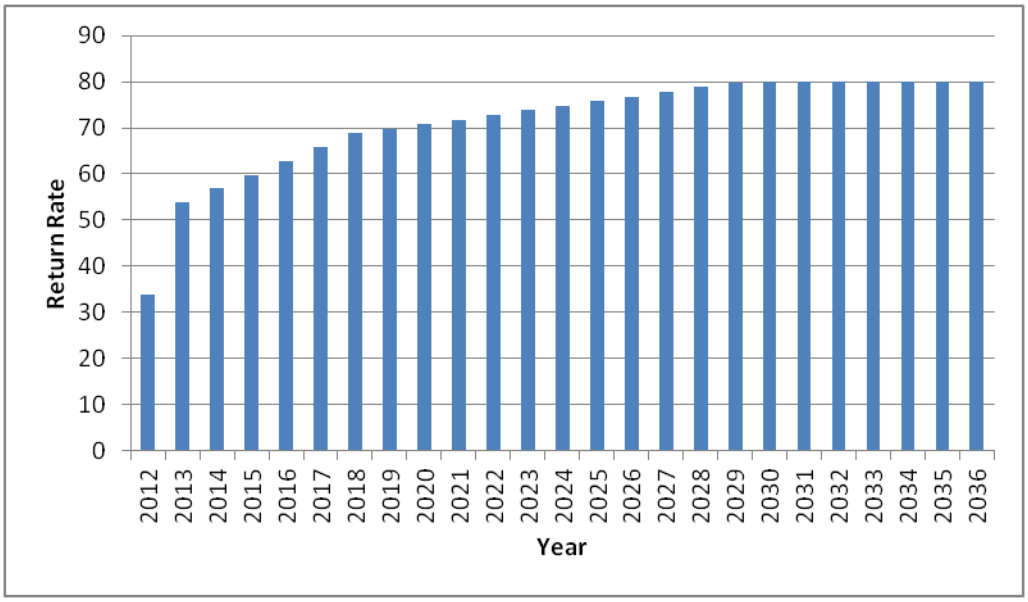


Table 4.34 projects the market costs and benefits of the NT CDS over a 25 year period with an increasing return rate as outlined above in Table 4.3.

45 Table 4.34: Option Three: cost benefit results after 25 years based upon return rate in Figure 4.3 (discounted at 7%)

Description of Costs / Benefits	Value
Costs	
Scheme design and implementation	$3 646 594
Scheme operation and compliance	$27 137 590
Household participation costs	$2 786 200
Business participation costs	$810 354
Litigation	$186 916
TOTAL	$34 567 655
Benefits	
Avoided kerbside costs	$12 599 600
Market value of resources	$4 114 492
Avoided regulatory costs	

[37] The rate of increase in the return rate for the Hawai'i CDS is available at: http://hawaii.gov/health/about/pr/2011/11-044.pdf and http://www.hi5deposit.com/health/about/pr/2006/06-36.pdf

Description of Costs / Benefits	Value
Avoided landfill operating costs	$2 646 427
Avoided litter clean up	$2 484 145
Avoided landfill externalities	
Environmental benefits	$22 ,600 901
TOTAL	**$44 445 564**
Net Present Value	**$9 877 909**

4.2.5. Option Four – Other Less Trade-restrictive Approaches

Option Four considers the impacts of the NT signing the Australian Packaging Covenant (APC). The NT Government is the only jurisdiction that is not a signatory to the Covenant. The NT Government has not previously signed the APC due to concerns regarding:

- a lack of focus on litter reduction;
- whether equitable benefits would be received across the NT; and
- that becoming a signatory could have prevented the NT from introducing alternative regulatory mechanisms such as a CDS and plastic bag ban.

Option Two of the Packaging Impacts CRIS considers a co-regulatory packaging stewardship arrangement under the *Product Stewardship Act 2011* (the Act). Option Two is based around the continuation of the APC and has three sub-options; under each; the current APC and National Environment Protection Measure (NEPM) arrangement would transition under the co-regulatory provisions of the Act. It would require the Commonwealth Government to develop regulations under the Act specifying the liable parties and setting the minimum outcomes and operational requirements for approved co-regulatory arrangements (which liable parties are obliged to adhere to under the Act). The administrators of approved arrangements would have flexibility regarding how requirements and outcomes are achieved.

Option 2A does not take into account the unique barriers the NT faces in terms of increasing its recycling rates such as a:

- small population relative to a large land mass;
- dispersed, remote population;
- significantly undeveloped recycling industry; and

- limited kerbside collection services (Darwin and Palmerston only).

It was these considerations that lead to the NT's decision not to become party to the APC.

Table 4.35 presents a cost benefit analysis for the Packaging Impact CRIS Option 2A: co-regulatory stewardship. Table 4.36 presents the non market benefits for the Packaging Impacts CRIS Option Two A: co-regulatory stewardship.

46 Table 4.35: Market costs and benefits of the operation of co-regulatory Stewardship over a 25 year analysis period

Description of Market Costs / Benefits	**NT signs the APC**
Costs	
Scheme design and implementation	$3 000 000
Scheme operation and compliance	$16 000 000
Avoided kerbside costs	$135 000 000
Household participation costs	$83 000 000
Business participation costs	$20 000 000
Total Costs	**$257 000 000**[38]
Benefits	
Market value of resources	$152 000 000
Avoided regulatory cost	$35 000 000
Avoided landfill operating costs	$31 000 000
Avoided litter clean-up costs	$56 000 000
Avoided landfill externalities	$30 000 000
Total Benefits	**$304 000 000**
Net Present Value	**$47 000 000**

47 Table 4.36: Non-market benefits of the operation of co-regulatory Stewardship over a 25 year analysis period

	SCEW Option 1A values
Non-market benefits	
Willingness to pay calculation	$295 000 000
Total non-market benefits	**$295 000 000**

[38] $258 000 000 appears in the *Pack Imp CRIS*. However, this appears to be a mistake.

4.2.6. National Impacts

Table 4.37 qualitatively identifies the primary parties to which costs and benefits quantified as part of this cost benefit analysis are likely to accrue in the first instance. Table 4.37 demonstrates that only scheme operation and compliance costs have a national impact.

48 Table 4.37: Costs and benefits of NT CDS

	Option 1	Option 2	Option 3	Option 4
Scheme design and implementation	NT Government	NT Government	NT Government	NT Government
Scheme operation and compliance	National beverage industry	National beverage industry	National beverage industry	National beverage industry
Business participation costs	NT households	NT households	NT households	NT households
Household participation costs	NT businesses	NT businesses	NT businesses	NT businesses
Market value of resources	NT recyclers	NT recyclers	NT recyclers	NT recyclers
Avoided Kerbside costs	NT local govt / NT recyclers	NT local govt / NT recyclers	NT local govt / NT recyclers	NT local govt / NT recyclers
Avoided regulatory costs	NA	State governments	NA	State governments
Avoided landfill operating costs	NT local govt	NT local govt	NT local govt	NT local govt
Avoided litter clean up costs	NT local govt/ NT Government	NT local govt/ NT Government	NT local govt/ NT Government	NT local govt/ NT Government
Avoided landfill externalities costs	NT local govt	NT local govt	NT local govt	NT local govt

Table 4.38 indicates the value of scheme operation and compliance costs for each option and for each Australian jurisdiction. The Table is indicative only, as the NT Government is not party to data on individual beverage company's market share. Market share data was

expressly requested of beverage companies but not supplied by them. The national impacts have therefore been distributed according to the number of beverage companies found in each state. This distribution appears to be consistent with the location of major beverage companies. The distribution of major companies is estimated to be as follows: 25% of market share to Coca Cola Amatil (NSW), 15% to CUB (VIC), 10% to Schweppes (VIC).

It should be noted that the major beverage companies have openly increased their prices in the Northern Territory to cover the costs of the NT CDS. Therefore, scheme operation and compliance costs for Options One and Three are ultimately passed onto NT consumers.

49 Table 4.38 Total scheme operation and compliance costs borne by beverage industry nationally ($, discounted; over 25 years)

	Number of beverage companies	% of beverage companies in state	Option 1	Option 2	Option 3	Option 4
Total operation & compliance			$13 568 795	$43 830 000	$27 137 590	$160 000
NSW	56	37	$4 999 030	$16 147 895	$9 998 060	$58 947
VIC	47	31	$4 195 614	$13 552 697	$8 391 229	$49 474
SA	29	19	$2 588 783	$8 362 303	$5 177 567	$30 526
QLD	10	7	$892 684	$2 883 553	$1 785 368	$10 526
WA	9	6	$803 416	$2 595 197	$1 606 831	$9 474
NT	1	1	$89 268	$288 355	$178 537	$1 053
ACT	0	0	0	0	0	0
TOTAL	152	100	**$13 568 795**		**$27 137 590**	

5. Consultation

5.1. Consultation Regulation Impact Statement

The Northern Territory Consultation Regulation Impact Statement (NT CRIS) was released on 1 November 2012 for a four week consultation period, inviting submissions from all interested parties by 3 December 2012.

The NT CRIS outlined the issue of resource recovery in the NT and discussed the introduction of a CDS to combat these issues. The NT CRIS examined the following four options:

1. allowing the temporary exemption to expire;
2. replacing the NT CDS with a national CDS;
3. seeking approval from the relevant Ministerial Council for a permanent exemption from the *Mutual Recognition Act* and *Trans Tasman Mutual Recognition Act*; and
4. replacing the NT CDS with a less trade-restrictive alternative.

5.2. Submissions

A total of 16 submissions were received in response to the CRIS. These are summarised in Table 5.1.

50 Table 5.1: Summary of Submissions

	Organisation	Description	Type of body	Preferred option (or alternative)
1	Australian Beverages Council	Represents the $7 billion non-alcoholic beverage industry.	Industry body representing beverage manufacturers	None of the options canvassed nominated as preferred. Requested more data. Favoured NT signing of the Australian Packaging Covenant (APC). Stated that 'Should the Act be found to be unlawful then industry would desist in complying with the requirements of any voluntary scheme.
2	Australian Food and Groceries Council	National organisation representing Australia's food, drink and grocery manufacturing industry. Membership comprises more than 150 companies, subsidiaries and associates.	Industry body representing food and beverage manufacturers	None of the options canvassed nominated as preferred. Requested more data. Favoured NT signing of the APC. Believes the Act is in 'substantive conflict' with the MRA provisions.

	Organisation	Description	Type of body	Preferred option (or alternative)
3	Hoteliers Association of NT	Territory hospitality industry association representing 230 members, associates and sponsors ranging from small country establishments to 5 star hotels as well as complimentary businesses.	Industry body representing beverage retailers	None of the options canvassed nominated as preferred. Requested more data. Favoured NT signing of the APC.
4	Liquor Stores Association NT	Represents Retail Liquor Stores across the Northern Territory.	Industry body representing beverage retailers	None of the options canvassed nominated as preferred. Requested more data. Favoured NT signing of the APC.
5	National Packaging Covenant Industry Association	Peak industry body for packaging representing the interests of industry signatories to the Australian Packaging Covenant.	Industry body representing food and beverage manufacturers	None of the options canvassed nominated as preferred. Requested more data. Favoured NT signing of the APC.
6	Coca-Cola Amitil	Major manufacturer of non-alcoholic beverages.	Major beverage manufacturer	None of the options canvassed nominated as preferred. Requested more data. Favoured NT signing of the APC. States, 'should the scheme to be found unlawful then industry would not voluntarily comply with the scheme'.
7	Palmerston City Council	The City of Palmerston is 'dedicated to reducing waste and providing quality services'. Palmerston has twice weekly domestic waste collection and fortnightly kerbside recycling collection.	Local government	Supported NT CDS in general. None of the options canvassed nominated as preferred. Will support option 3 if selected as 'decision' if a number of refinements to the scheme's operation are introduced.
8	Local Government Association NT	The peak body representing the interests of, and providing a voice for, the 11 shire and 5 municipal councils in the Northern Territory.	Local government	Supported Option 3, permanent exemption of NT CDS from MRA/TTMRA.
9	CONFIDENTIAL [Revive Recycling]	Private company		Endorses Option 3
10	Envirobank	Scheme co-ordinator and depot operator, an NT privately owned company whose long-term objective is 'to change the face of public place recycling in concert with the Northern Territory Deposit scheme'.	Collection Depot	None of the options canvassed nominated as preferred. Its management 'commend the NT Government on the introduction of the scheme, and expect that the scheme will continue to flourish'.

	Organisation	Description	Type of body	Preferred option (or alternative)
11	CONFIDENTIAL [Keep Australia Beautiful]	A non government, not for profit organisation		Supports the NT signing the APC.
12	Boomerang Alliance	The Boomerang Alliance is made up of Australia's 21 leading environment groups. It is committed to promoting recycling and waste elimination.	Waste peak body	Supports Option 3, permanent exemption of NT CDS from MRA/TTMRA.
13	Clean Up Australia	Runs Clean-up Australia Day, the largest community-based environmental event in Australia. Aims to work with communities to clean up and conserve the environment.	Waste peak body	None of the options canvassed nominated as preferred. Supports a container refund scheme for NT 'and the thousands of tourists who visit the region each year'.
14	Rapid Creek Landcare Group	Landcare group working to conserve local urban ecosystem.	Environmental NGO	Supports NT CDS in general.
15	Gerry Woods, MLA NT	Independent member of the NT Legislative Assembly	Private party	Supports Option 3, permanent exemption of NT CDS from MRA/TTMRA.
16	Cohalan Enterprises	Individual / business. Nature of business not stated.	Private party	None of the options canvassed nominated as preferred.

5.3. Summary of stakeholder comments and responses by Northern Territory Government

In developing this summary, the NT Government has identified and responded to the key issues raised by each group of stakeholders. Consequently, not all issues are responded to for each group of stakeholders.

5.3.1. Beverage Industry

Six submissions represented the views of the beverage industry. These were from:

- Australian Beverages Council;
- Australian Food and Groceries Council (AFGC);
- Coca-Cola Amatil;
- Hoteliers Association NT;
- Liquor Stores Association NT; and
- National Packaging Covenant Industry Association (NPCI).

Preferred Option None of the submissions nominated any of the given options as a preference. All expressed the view that recycling and litter reduction in the NT would be best served by the NT signing the Australian Packaging Covenant (APC) rather than a container deposit scheme. Some suggested a 'report a litterer' type scheme be introduced in which members of the public might report littering to authorities (as is the case in Victoria, for example).

Response *A costing for the NT signing the APC and a costing for a modified NT Litter Act has been added to Option 4.*

Data Supplied & Reliance on Packaging Impacts CRIS All submissions representing manufacturers expressed the view that not enough data were supplied in each option's cost benefit analysis. It was argued that the NT scheme has been in operation for 11 months so 'accurate cost data is available' and should be used rather than extrapolating from theoretical national data contained in the Packaging Impacts CRIS. The NPCIA argued that Option 1 consists of another three sub options and that these should be scoped and modelled separately. The Australian Beverage Council criticized use of the Territory's proportion of the national population as the basis for the use of Packaging Impacts CRIS data and that doing so fails to take into account the additional costs embedded within the Territory's geographical expanse. The AFGC felt Packaging Impacts CRIS figures inflate the value for recycled glass and the amount of steel used in beverage containers.

Response *Further costings have been added to Options 1, 2 and 4. Option 1 has been modified.*

The use of the Packaging Impacts CRIS *based estimate of operational costs has been maintained in some places. Any estimate of the operational cost of running the NT CDS over a 25 year term will necessarily be 'hypothetical'. Definitive, 'accurate cost data' pertaining to the long term operational cost of the current NT CDS are not available. Only averaged handling fees paid by coordinators in 2012 are known. These:*

- *may not approximate real costs;*
- *are very unlikely to indicate costs over the long term; and*
- *do not include profits earned by coordinators.*

Further consultation undertaken with collection depots indicates that costs are a matter of contention. Some collection depots believe their costs are not reflected in the handling fee paid to them, while others are satisfied they are and anticipate their costs will reduce significantly in the medium to long term.

Handling fees are likely to change in time as the scheme matures, as has been the South Australian and international experience. Inefficiencies undoubtedly exist in the current scheme. The great advantage of a market-operated scheme such as the NT CDS is that market forces are available to drive efficiencies in the medium to longer term.

Further consultation indicates there has been a wide disparity in the amount of capital investment made by collection depots to date. This is partly a reflection of there being new stakeholders entering into collection depot operations and on the other hand seasoned operators who appreciate the need for sophisticated plant and technologies in order to obtain efficiencies. The level of investment made affects the operational costs incurred in processing containers. Over the medium term, investment as a proportion of overall costs is likely to diminish rapidly.

Garry Bull noted in representing Marine Stores to the Senate Inquiry into Container Deposit Schemes in South Australia & the Northern Territory that the scheme has only just begun and can be expected to mature in time:

> "The process by which Marine Stores determines its costs and fee structure for customers is similar to South Australia, with some significant extra factors. These include the need for investment in new infrastructure in the Northern Territory (normally undertaken by the collectors themselves, but in the Northern Territory requiring subsidy by Marine Stores to enable the collectors to remain viable), the lack of maturity in the system and the fact that it is only ten months old and will take time to establish a 'business as usual' level."[39]

Return rates also affect costs. While the return rate is impressively high given the scheme's infancy, it is still below the 80 per cent redemption rate international and SA schemes demonstrate the scheme has the potential to achieve.

Importantly, no alternative estimations of operational cost were provided by the manufacturing industry or its representatives. This was the case despite requests expressly made in the consultation RIS for such estimates in the context of an acknowledgment that the Packaging Impacts CRIS model is hypothetical. Further requests to industry representatives around their estimate of operational costs were subsequently made. Responses were not received. This lack of response is taken as confirmation that securing non-hypothetical 'accurate cost data' that definitively determine the cost of a mature NT scheme is in fact problematic.

[39] Garry Bull. 2012. *Senate Inquiry into Container Deposit Schemes in South Australia & the Northern Territory*. Australian Government. Canberra.

In terms of the value of resources, other submissions from the waste management sector expressed the view that values were in fact too low. The DRIS now contains higher estimates than did the Consultation RIS.

Contravention of MRA/TTMRA Three industry submissions stated that they believed the Act to be in contravention of the MRA and TTMRA. They also expressed the view that if this was legally determined to be the case, the beverage industry would not comply with a voluntary scheme.

Response *The NT government is currently involved in a legal case on this matter.*

Kerbside Issues The AFGC, NPIC and the ABC requested that further analysis be undertaken on the cost impact of the introduction of the NT CDS on kerbside recycling (e.g. existing local government contracts and Materials Recycling Facility operations) and drop off services provided by local governments in Darwin and Palmerston.

Response *New figures for avoided kerbside costs have been added. These are significantly lower than those in the Consultation RIS.*

Benefit to NT Tourism Sector The ABC, NPCI and AFGC asserted that there is no economic analysis to base an allotment of a benefit of 0.1% of tourism's value to the NT economy.

Response *This figure has been removed.*

No Evidence of Positive Impact of NT CDS on Littering The NPCI questioned the claim that there is a high uptake of CDS in the NT based on the limited amount of quarterly reports available.

Response *Data obtained so soon after the scheme's operation will have limitations. Since the consultation RIS was released two new quarterly reports have been published. This shows a continuing upward trend in returns. The Decision RIS incorporates this new data.*

Analysis of KAB Annual Results Tabulations data immediately before and during the NT CDS operation show a dramatic reduction in beverage container littering (39%). This analysis has been added to the Decision RIS.

Use of Willingness to Pay Data The AFGC argued that the use of national data on consumer willingness-to-pay may not accurately reflect the willingness to pay of Territorians; and that the NT CRIS contained a double counting of benefits, given a value was attributed to both the benefits to the NT tourism sector, and environment and amenity from willingness-

to-pay figures. The NPCIA also requested that willingness to pay data be displayed separately from market costs and benefits. The NPCIA also objected to the use of the upper estimate.

Response *The DRIS maintains that the NT CDS generates an environmental benefit over and above the market value of recycled resources. Willingness-to-pay data are used cautiously and is indicative only. It is not unreasonable to assume that Territorians, as members of the national community, have an outlook* ***approximate*** *to that of the national community. Indeed it should be noted that the Territory has a large transitory component to its population and is therefore likely to be more representative of 'national' outlook than any other single jurisdiction. Willingness to pay data is now used minimally in the overall assessment.*

Use of Keep Australia Beautiful Litter Index Data The AFGC, and ABC warned that the KAB *Annual Report* cannot be used for comparative purposes between states and territories or adjusted for population densities.

Response *Use of these data in this fashion has been removed. The problem of litter and resource recovery in the NT is now discussed in its own right. The following considerations suggest the NT has an issue with resource recovery and characteristics that have the* ***potential*** *to increase littering:*

- *a high proportion of its population is not serviced by kerbside;*
- *the NT has a higher than national average consumption of alcohol;*
- *the NT 'lifestyle' involves a high proportion of outdoor consumption of beverages;*
- *the NT climate induces a more frequent resort to beverages as a means of rehydration.*

5.3.2. Local Government

Two submissions represented the views of local government. These were from:

- Local Government Association of the NT (LGANT)
- Palmerston City Council (PCC)

Preferred Option LGANT supports immediate implementation of Option 3 (the Act gaining exemption from the MRA and TTMRA). LGANT also felt this option was compatible with Option 2 (a national CDS) and also expressed the view that all alternatives explored in Option 4 (less trade restrictive alternatives) were in fact already being undertaken in the NT by local government, the Northern Territory Government and non-government stakeholders

and that these should continue into the future alongside the CDS. LGANT supports the principle that those who create waste should take full responsibility for that waste. In the case of industry, LGANT supports the imposition of legislation, regulations and incentive schemes which will 'compel industry to accept cradle to grave responsibility for the products, waste and litter it produces, at both the production and post consumer stages'. PCC did not nominate a preferred option. However, PCC 'supports the CDL' and suggests a number of means by which the scheme's sustainability might be supported in the event of Option 3 being decided on.

Response *Option 4 now explores alternatives not currently underway in the Territory.*

Data Supplied LGANT acknowledging that quantitative "market" information may not be available. LGANT felt qualitative "non-market" indications of costs and benefits should be supplied for each option. LGANT was not in a position to provide an estimation of the cost of operating an NT CDS.

Response *Further indicative costings have been added to Options 1, 2 and 4.*

Willingness to Pay Data LGANT cautioned against placing too much faith in its use, stating 'willingness to pay is often quite different to a community's actual willingness to part with money'.

Response *The DRIS maintains that the NT CDS generates an environmental benefit over and above the market value of recycled resources. Willingness-to-pay data is used minimally.*

Landfill Costs LGANT suggests there has been no clearly reported reduction in landfill operating costs by any council since the introduction of the scheme.

Response *Given the scheme's infancy, conclusions as to benefits arising from landfill operating cost savings are not yet able to be drawn. It is expected that more precise evidence will not be available for some time yet.*

Kerbside Issues LGANT noted that where kerbside recycling does exist there has been no reported negative impact or significant reduction in volume reported to LGNT as a result of the implementation of the CDS. LGANT also noted that individual councils may have incorporated clauses relating to CDS into recycling contracts and this may be impacted if any changes to the CDS come as a result of beverage industry non-compliance with the scheme. Conversely PCC reported in its submission that Waste and Recycle contractors are calling for a variation in their contracts to counter losses they are experiencing due to CDS.

PCC reports that, 'this is a serious matter impacting the relationship between Council and Contractor'. New contracts will have the CDS loss factored in. Until then PCC would like the NT Government to consider providing compensation for any variation in contracts undertaken.

Response *Although inconclusive, this provides some indication that CDS is impacting kerbside. Figures representing savings to kerbside presented in the NT CDS Consultation RIS have been reviewed and significantly lowered.*

No Evidence of Positive Impact of NT CDS on Littering PCC questioned the claim that there is a high uptake of CDS in the NT based on the limited amount of quarterly reports available.

Response *Data obtained so soon after the scheme's operation will have limitations. Since the consultation RIS was two new quarterly reports have been published. This shows a continuing upward trend in returns. The Decision RIS incorporates this new data.*

Analysis of KAB Annual Results Tabulations data immediately before and during the NT CDS operation shows a reduction in beverage container littering (39%). This analysis has been added to the Decision RIS.

5.3.3. Collection Depots

A submission from Envirobank NT and a confidential submission represented the views of collection depots.

Preferred Option Both submissions strongly endorsed Option 3. The confidential submission also supports a national CDS. The confidential submission expresses the view that the beverage industry has not complied with the CSD Principles to the point of increasing operational costs for coordinators.

Response *No evidence of cost-increasing behavior was supplied. The beverage industry is entitled to publicly oppose the NT CDS and has not acted illegally.*

Investment in the Scheme Both submissions document very significant investment in the NT CDS to date as well as attendant job creation and community development benefits. In the case of Envirobank, investment in plant and equipment has amounted to over $1.2 million.

Response *Secondary benefits cannot be included in a RIS's cost benefit analysis.*

Market Value of Resources The confidential submission asserts material values are significantly higher than were outlined in the NT CRIS. It argued that material values are closer to $700 000 per annum, of which more than half is additional value (as compared with the recycling rate prior to the introduction of the CDS). If average redemption rates over the next 25 years double from 2012 rates (a conservative assumption, given international CDS redemption rates and the increases in redemption rate even with minimal current infrastructure), then annual material value would be in excess of $1.4 million, and the non-discounted value over 25 years would be over $35 million, of which approx 75% would be additional value (over the pre-existing material value generated by NT's kerbside systems).

Response *The DRIS now incorporates this estimate.*

Avoided Litter Clean Up The confidential submission claimed the avoided costs of litter clean up were too low. At $1 140 000 over 25 years, annual cost savings come in at around $45 000 per annum or the cost of just one full-time worker.

Response *The DRIS has adjusted this estimate.*

Costs The confidential submission claimed the Packaging Impacts CRIS model overestimates costs. With a well designed system (using barcode data as its basis and not requiring physical brand sorting), automated RVM-based depots can profitably operate at costs well below those modelled in the CRIS, and these handling fees will cover both the investment in the infrastructure and operating costs. The reason that NT handling fees need to be higher than SA's is not because of the investment in infrastructure, but because of the poor design of the current system in which multiple industry-owned coordinators require multiple brand splits on top of the usual material splits, and do not accept RVM data (as used around the world in CDS markets).

Response *The DRIS cannot assume these reforms will take place.*

Scheme Inefficiencies and Cost The confidential submission argues that operational costs are inflated by the NT CDS's regulations. Costs can be significantly reduced by a number of outlined legislative reforms.

Response *The NT Government is currently preparing a range of reforms that aim to reduce the operational cost of the scheme.*

Household Participation Costs The confidential submission asserts that the participation costs nominated in Option 3 may be accurate over the long term if the scheme is made to operate more efficiently through more redemption points and less sorting of brands. At

current access levels, this estimate is likely to be very low considering the travel time (e.g. 20-30 mins) required in Darwin / Palmerston alone to go to specific locations, somewhat distant from residential areas, and the additional queuing time due to there being just two redemption points that handle the full range of containers.

Response *The DRIS has not increased the CRIS estimate of household participation costs. Over 25 years, problems will be solved and participation costs will remain low.*

Willingness To Pay The confidential submission claimed a pro-rata figure based on NT population – which assumes the same improvement in packaging as the national average – would put this at $6.6 million per annum in the NT, or $165 million over 25 years on a non-discounted basis (as compared with the figure of just $8.5 million used in the NT CRIS). In reality, the improvement in the NT is likely to be around twice the national average since the baseline, prior to the introduction of the NT CDS, was so low and so the real Willingness to Pay would be closer to $330 million over 25 years.

Response *The DRIS has increased its estimate of Willingness-to-Pay benefits in line with this analysis.*

Further Environmental Market Benefits The confidential submission pointed out that total environmental benefits were costed at an average of 8-9 cents in the Independent review of CDS in NSW (ISF 2001) that used the RMIT led lifecycle assessment that also formed the basis of the Independent Assessment of Kerbside Recycling (Nolan-ITU 2001). This would put these benefits alone (irrespective of civic duty, or feeling of wellbeing by doing the right thing) at >$2.5 million per annum, based on just the additional material collected currently in the NT CDS. If we assume current CDS rates are doubled, the additional benefits would be in excess of $7 million per annum, or $175 million over 25 years (on a non-discounted basis, or just over half of this on a discounted basis at a discount rate of 7%).

Response *The DRIS has considered this in incorporating a new figure for environmental market benefits.*

Option 4 (Less Trade Restrictive Alternatives) The confidential submission argued against the alternatives canvassed in Option 4, stating:

”Litter abatement addresses the symptoms rather than the cause and is costly. Education campaigns have been tried over many years, and while they can be somewhat effective in the short term, their effect is soon lost. The key missing component is the economic incentive to change behaviour (present in a CDS via the deposit refund).

”The extension of kerbside (e.g. beyond residences and to other major NT centres etc.) will be expensive, particularly in the NT where small population centres limit economies of scale, and large transport distances mean unsorted materials need to be processed locally. Extension to workplace recycling may be useful but is also expensive and comes at a cost to the workplaces themselves who, over many years, have shown that they are not often willing to bear such costs (a key reason why C&I, and away-from-home recycling lags at-home recycling nationally). Moreover, these options do not address litter, or away-from-home consumption.

”Improved public place recycling suffers from the same drawbacks, as well as the consistent problem - found throughout Australia - of contamination, leading to high costs and high levels of wastage.

”Finally, residual waste disposal investment needs larger economies of scale, is not suited to remote/regional communities, does not address litter and produces lower value recyclate quality. It is a sensible approach in large population centres to recover the remaining low value material as an alternative to landfill, but not as a primary mechanism for recovery of high value material streams. Moreover, where such plants include the processing of organic waste, operators (such as Global Renewables, SITA) have supported the introduction of CDS in order to minimise glass residue in the organic streams, which can undermine their value.”

Response *The DRIS has altered Option 4 to consider only two alternatives: those requested by manufacturers. These are NT signing the APC and a ‘litterer reporting’ scheme.*

5.3.4. Environmental NGOs

Three non-confidential submissions represented the views of Environmental NGOs. These were from:

- Boomerang Alliance;
- Clean up Australia;
- Rapid Creek Landcare Group.

NT CDS’s Affect on NT Littering The Boomerang Alliance and Clean-up Australia submissions asserted, and presented evidence for, a reduction in litter resulting from the NT CDS. The Rapid Creek Landcare Group anecdotally reported a significant reduction in the amount of rubbish along Rapid Creek from the Darwin Airport to Nightcliff Beach, declaring the NT CDS to be ‘working’ (at least in its area of operation).

Boomerang analysed figures pertaining to type of item in KAB's *Annual Results Tabulations* for 2011-2012 (as opposed to the more interpretive KAB *Annual Report*). In contrast, the confidential submission referred to the KAB *Annual Report* alone to argue the NT CDS has had little affect on NT Littering rates.

Response *The confidential submission's claims based exclusively on the KAB Annual Report for 2011-12 are misleading. Though it contains some minor inaccuracies, the Boomerang Alliance analysis is more methodologically robust in terms of considering recent KAB data from the point of view of its implications for resource recovery and improved visual amenity.*

The KAB Annual Report data document a minor increase in total litter item counts and item volumes over the period of the NT CDS's operation. The report's data set includes an extensive list of lower-visual-impact items: straws, lollypop sticks, ice cream sticks, cigarette butts, bus tickets, ATM tickets, shopping dockets, bottle tops, pull rings, bread bag tags, 'metal pieces', etc. Small changes in the relative proportions of these low-visual-impact items can have a disproportional affect on total litter count. The KAB Annual Report data also include high-volume items, such as tyres, boxes, construction materials, 'illegal dumping', etc. Small changes in numbers of these items can have a disproportionally large affect on total volume. Therefore total litter volume and total item count can give a misleading picture of the affect on visual amenity and resource wastage of any given year's total litter count.

Given this, the DRIS now contains an analysis of changes in recent littering rates that focuses on beverage container litter.

Recycling Rates in NT The Boomerang Alliance submission argued that the NT CDS has given rise to a very significant rise in recycling rates in the NT. Boomerang Alliance claimed that since the NT scheme was introduced, recycling in the NT has increased by 14.5% (an 82% improvement in recycling rates). The Boomerang submission bases its claims on:

- the *second NT CDS Quarterly Report*;
- the *National Environment Protection Council Annual Report* (which documents NT 2010-11 kerbside recycling); and
- the *Australian Government National Waste Report 2010* (which documents NT recycling rates in general).

The Boomerang submission concludes:

> "While there is still a significant way to go there is much to be encouraged about regarding the performance in the first 2 quarters. Despite the limited collection network established, 'feuds'

between the various coordinators and the some significant effort by certain bottlers to undermine the scheme, results are surprisingly good:

Beverage container recycling rates for the first 2 quarters show a marked improvement rising to 25% in a wet season affected first quarter and over 31% in the second quarter (to July 2012). This represents an improvement of 14.5 percentage points (an 82% improvement in recycling rates) in less than 6 months

At the current rate of improvement the NT Government should reasonably expect beverage container recycling rates to be between 45% by the end of the first 12 month period (though the impact of the wet season on returns in the short term may have some impact)."

Response *The analysis in the DRIS maintains that this is in fact an underestimate by Boomerang Alliance. This is because the now available* third *and* fourth NT CDS Quarterly Report *show a return rate of around 34 percent over a 12 month period with a peak in the third quarter of over 33% return rate.*

GHG and Landfill Benefit Boomerang Alliance argued that the NT CDS has given rise to a very significant increase in resource recovery:

"By our calculations the increased resource recovery experienced within the first 12 months of the scheme equates to the following:

51 Table 5.2: Resource recovery rate within 12 months of CDS

	Pre Cash for Containers		Post Cash for Containers		
	Total recycling collected 2010-2011	Average per quarter	Containers Collected (April-June '12)	Containers/ tonne	Average recycling per quarter
Total Glass	1574	394	3258943	4784	684
Total Plastic	248	62	2039662	29205	70
Total Aluminium	107	27	6074339	66821	91
Total	**1929**	**483**	**11372944**	**100810**	**845**

"Using this data it is possible to ascertain the overall performance improvement in terms of resource conservation:

- 1,438 less tonnes p.a. in reduced waste to landfill
- 6,454 tonnes of greenhouse gas abatement (co2-e)".

Response *The DRIS now contains a costing of environmental benefits that includes greenhouse gas emissions. The DRIS also updates landfill savings.*

Maturation of the Scheme Boomerang Alliance argued that the scheme is progressing well towards medium-term maturity, based on data from CDS in other countries.

Response *The Boomerang Alliance analysis was noted.*

Unredeemed Deposits Boomerang argues that the cost benefit analysis should include unredeemed deposits. That these could, "underpin CD scheme costs and even leave a surplus for other programs to encourage further economic activity".

Response *This has been noted.*

Kerbside Issues Boomerang notes that the NT CDS has produced a clean stream of valued recyclate. A clean stream of valued recyclate is not generally obtained from kerbside and certainly not from public space facilities – as they are either non-existent or inevitably contamination, which reduces sales and reprocessing value (or more usually are landfilled).

Response *The point is noted.*

Scheme Inefficiencies and Cost Boomerang Alliance indicates the need for a number of legislative reforms that will reduce current NT CDS costs.

Response *The NT Government is currently considering a range of reforms that aim to increase the efficiencies of the scheme.*

5.3.5. Private Party Submissions

Two submissions represented the views of private entities. These were from:

- Gerry Woods MLA; and
- Cohalan Enterprises.

Both expressed opinions, one favouring the scheme, the other opposing it. The Submission by Cohalan Enterprises was primarily concerned with the assertion that the NT CDS had resulted in the closure of a water bottling plant. However, the plant closed before the advent of the NT CDS.

6. EVALUATION AND CONCLUSION

Based upon Net Present Value (NPV) this Decision Regulation Impact Statement (DRIS) recommends Option Four. This option represented one of two options that were considered at a national level.. In 2013 a Packaging Impacts Decision RIS will be released which will take into account the model in Option Four. A decision regarding the Packaging Impacts Decision RIS will be made and this may be the appropriate time to consider Option Four as an effective option. It is noted, however, that an alternative option to this recommendation may be appropriate.

The alternative approach highlights that Option Three may be the most viable option as it represents a continuation of the NT CDS in its current form with a permanent exemption from the MRA. As it currently stands the NT Government has received letters of in principle support for the granting of a permanent exemption from the MRA from all States and the Australian Capital Territory. The continued implementation of the CDS as described under Option Three would support the views currently held by key stakeholders to this process.

Table 6.1 summarises the key findings of this document's cost benefit analysis.

52 Table 6.1: Key market costs and benefits

Options	Option 1	Option 2	Option 3	Option 4
Costs Discounted	$17 283 828	$4 848 000 000	$34 567 655	$257 000 000
Market Benefits Discounted	$22 222 782	$3 433 000 000	$44 445 564	$304 000 000
NPV Discounted	**$4 938 955**	**–$1 415 000 000**	**$9 877 909**	**$47 000 000**

Under Option Three the currently operational NT CDS would continue to assist the NT to:

- reduce waste and efficiently reduce the negative amenity and environmental impacts of litter in line with community expectations;
- reduce high landfill costs; and
- reduce environmental costs that are significant or higher than national averages;

7. IMPLEMENTATION AND REVIEW

Implementation of agreement to grant the NT CDS permanent exemption from the operation of the MRA and TTMRA would see the scheme continuing to operate as it has been to date. A key issue is the time that it may take for the formal approval process and finalisation of relevant regulations to be completed. Communications to date with other jurisdictions around the issue strongly indicate that there will be unanimous agreement by State and Territory Heads of Governments for the NT CDS being granted permanent exemption. Given this, it is likely that the usual approval process can be significantly expedited. In the meantime the NT Government has moved to guarantee the NT CDS participants support in the lead up to the granting of permanent exemption from the MRA and TTMRA or a successful appeal from the federal Court declaration, whichever comes first.

A review of the NT CDS's operation will be undertaken within five years of the scheme's commencement. Following the first years' operation of the scheme, internal reviews of the legislation are taking place to determine where efficiencies can be gained through legislative amendments. As a legislative requirement, a review of all of the containers covered by the scheme will be undertaken at the end of 2013.

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