

**Critical Assessment of
*Independent Review of Container Deposit Legislation in
New South Wales,***

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Report commissioned by
Beverage Industry Environment Council
on behalf of the
Packaging Industry Sector
and prepared by



30 April 2002

Foreword

This report has been commissioned by the Beverage Industry Environment Council (BIEC) on behalf of the Packaging Industry Sector and prepared by Access Economics.

Container Deposit Legislation (CDL) is one of a number of options that might be introduced to improve recycling rates for a variety of containers. Higher recycling rates for a variety of products can be desirable for resource conservation and environmental reasons.

Access Economics sees no *a priori* reason why governments should not seek to increase recycling rates, using cost-effective measures, wherever feasible. Whether or not CDL should be included amongst such measures is a matter for empirical evaluation. Any empirical evaluation should include an assessment of alternatives, to ensure that the most cost-effective way of improving recycling is adopted.

This report is *not* primarily about evaluating the merits of CDL for New South Wales.

Rather, it presents the assessment of Access Economics, recognised Australia-wide and internationally as a credible and independent economic analyst, of the analytical merits of the November 2001 report prepared for the Hon. Bob Debus, MP, Minister for the Environment, by Dr. Stuart White, Director, Institute for Sustainable Futures, University of Technology, Sydney, and entitled *Independent Review of Container Deposit Legislation in New South Wales*.

Access Economics acknowledges the assistance of Russ Martin of the Centre for Environmental Solutions, Peter Shmigel and Leanne Philpott of Nolan-ITU, Tim Grant of the Centre for Design RMIT, and others in the provision of data and other information. That said, the analysis, conclusions and policy recommendations presented in this report are those of Access Economics.

Access Economics

Canberra

30 April 2002

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SUMMARY FOR MINISTERS

This report has been commissioned by the Beverage Industry Environment Council (BIEC) on behalf of the Packaging Industry Sector and prepared by Access Economics.

It presents a critical evaluation of the report prepared for the Hon. Bob Debus, MP, Minister for the Environment, by Dr Stuart White, Director, Institute for Sustainable Futures (ISF), University of Technology, Sydney, entitled *Independent Review of Container Deposit Legislation in New South Wales* and dated November 2001 (the White report). It does not purport to evaluate the merits of CDL in NSW *per se*.

ACCESS ECONOMICS' CONCLUSIONS

Access Economics' assessment of the White report can be summarised very briefly as follows. In our opinion:

- It has failed adequately to respond to a common-sense interpretation of what we understand to be the Terms of Reference for the report.
- There are basic and serious questions about the limited primary research undertaken by the Institute for Sustainable Futures as part of the analysis.
- There is evidence that the use of other available research has been selective.
- The analysis is demonstrably partial rather than comprehensive.
- The internal logic and analysis has significant gaps and defects.
- Many of the numerical results are presented in a non-transparent way.

IMPLICATIONS FOR GOVERNMENT POLICY IN NSW

The policy implications are clear.

- Whatever the merits of CDL for NSW, the White report cannot be regarded as having demonstrated them in a comprehensive, credible, balanced or transparent way.
- We suggest that any decision by the NSW Government to change what we understand to be current policy in relation to CDL on the basis of the White report would be premature at best, and potentially very bad policy at worst.
- A more rigorous analysis, with particular attention to a cost-benefit ranking of alternative approaches, focussed on those areas and for those products where the need to increase recycling rates is greatest, should be undertaken before any policy change is made in relation to CDL.
- This analysis should be undertaken by people with recognised skills and credibility in the field.

SUMMARY OF REASONS IN SUPPORT

The reasons for these findings can be summarised as follows:

- Increased recycling may well be a very desirable policy objective to be pursued by governments in NSW, and Australia more generally. CDL is one – but only one – possible option for producing this outcome.

- Cost-benefit analysis could and should be used to answer the question: ‘How *best* can governments increase recycling rates?’ Answering this question requires a cost-benefit ranking of all feasible alternatives. Only if some variant of CDL tops this cost-benefit ranking can the answer to this question be: ‘CDL’.
- The terms of reference for the White report would have allowed such a ranking to be established.
- However, the White report does not ask this question in any comprehensive way, and its cost-benefit analysis does not include a ranking of alternative ways of increasing recycling rates.
- In this fundamental sense, the White report has not answered the appropriate question.
- In restricting the scope of the cost-benefit analysis in the report, White makes a number of limiting assumptions (e.g., ignoring the additional costs of consumers’ time and the potentially large transition costs likely to be faced by local councils in the quantitative results) that clearly bias the cost-benefit results in favour of CDL’s absolute net cost-benefit.
- The recycling rates for containers used as the basis for assessing the costs and benefits of the various CDL scenarios are backed by a superficial discussion of international experience of deposit and return systems and are little more than guesswork.
- The primary research undertaken by White himself concentrates on a telephone survey of consumers and a ‘Citizens’ Forum’.
- The telephone survey results in support of CDL were based on limited information (some of which was not included in the White report and therefore could not be assessed by us) but nevertheless showed declining support as information about the costs of CDL was introduced. Even so, the results were based on offering interviewees a CDL/no CDL choice only. Offering a wider choice of options – such as extensions to kerbside recycling, including in public places – may well have changed results even more dramatically.
- The outcomes of the so-called ‘Citizens’ Forum’ may well have been influenced by biased and/or limited information about feasible alternatives. In any case its recommendations, in large measure, are either impractical and/or uncosted, despite the fact that at least some of them will entail additional costs over and above those likely to be generated by CDL itself.

Although Access Economics has not set out to assess the merits of CDL, we note that beverage containers make up around 4% of the domestic waste stream.¹ In turn, the domestic waste stream makes up around one-third of the total waste stream in Australia. This means that, in total, beverage containers constitute around 1.5% of the total waste stream in Australia. Container Deposit Legislation, at best, would address about 1.5% of the total waste stream.

As to our own views on the merits of CDL in NSW, we remain of an open mind.

However, we note the views of the Industry Commission Inquiry into Recycling:

‘Deposit schemes work best when the costs of improper disposal are high and cheaper alternatives are ineffective. The Commission has not found a convincing case for compulsory deposit schemes in the Australian context for any products reviewed in this report.’

[*Recycling in Australia* Volume I, February, 1991, page 11.]

As to the first sentence, we couldn’t have put it better ourselves.

¹ Beverage Industry Environment Council (1998), *Recycling and Garbage Bin Audit*, BIEC: Melbourne.

FULL REPORT

1. INTRODUCTION

Dr. Stuart White, Director, Institute for Sustainable Futures (ISF), was commissioned by the Hon Bob Debus, Minister for the Environment in the NSW Government, to prepare a report on container deposit legislation (CDL) for NSW some 19-20 months ago.

That report (hereafter the White report) was apparently finalised in November 2001. It was released in March 2002.

1.1 FOCUS OF REPORT AND CONTEXT

This report by Access Economics has been commissioned by the Beverage Industry Environment Council (BIEC) on behalf of the Packaging Industry Sector.

The focus of this report is *not* a definitive assessment of the merits of CDL for NSW. Rather, it is to conduct a critical assessment of the analysis in the White report against a number of criteria that Access Economics considers to be basic benchmarks for good policy-relevant advice.

At the outset, Access Economics emphasises the following premises:

- There are economic and environmental benefits from improving recycling rates in a number of areas, and government policy is, and properly should be, to encourage that outcome.
- CDL is one – but only one – possible initiative that could be used to promote this policy objective by governments. Historically, CDL is used for this purpose in some parts of the world, including South Australia. Other measures, however, are more common.
- If rigorous cost-benefit analysis could demonstrate the net benefits of CDL as a substitute to, or complement for, existing recycling measures, *and* be shown to be more cost-effective than alternative ways of achieving similar outcomes, then this would be a powerful case for recommending such a policy change to the NSW Government. There may even be a case for applying CDL Australia-wide.
- But this is an empirical question. Answering it must have regard for what measures are already in place to facilitate recycling, and the economics of how these would be affected by the introduction of CDL either (a) as an additional measure, or (b) as a substitute measure. The answers must be credible, transparent and replicable.

Our analysis will proceed from acceptance of all of these premises.

1.2 STRUCTURE OF THIS REPORT

The remainder of this report is organised as follows:

- Section 2 presents some general observations about the desirability of recycling and the economic constraints within which, realistically, that must be undertaken.
- Section 3 presents what we understand to be the Terms of Reference for the White report.
- Section 4 sets out criteria that Access Economics considers appropriate benchmarks against which to assess the White report.
- Section 5 summarises Access Economics' views about whether or not the White report meets the criteria set out in Section 4 using specific illustrations from the White report analysis.
- Section 6 sets our overall conclusions.
- Section 7 briefly summarises the policy implications we draw from our analysis.

2. IMPROVED RECYCLING AND MEASURES TO ACHIEVE IT: GENERAL COMMENTS

2.1 THE CASE FOR IMPROVED RECYCLING: THE ECONOMIC BENEFITS

There are good reasons why recycling a range of products is desirable.

In some cases, economic efficiency and environmental considerations combine to provide strong incentives to recycle. For example:

- Recycling aluminium cans makes good sense because of the high energy inputs needed to refine aluminium, generating both direct cost savings and environmental benefits.
- Recycling containers used to sell highly-toxic chemicals is desirable in order to ensure proper disposal of residues for environmental reasons.

Resource depletion and population/congestion pressures add their own impetus to recycling as landfill and other disposal options become both environmentally and economically more costly.

2.2 THE CASE FOR IMPROVED RECYCLING: THE POLICY IMPERATIVE

These reasons, combined with growing community concern about environmental issues and willingness to participate in recycling programs, have understandably led to governments responding by adopting policies that encourage recycling.

These responses appear in policy positions adopted by Commonwealth, State & Territory, and local governments. There is a significant degree of bipartisan support for such policies.

Recycling is increasingly like motherhood. Everybody supports it as a matter of principle.

2.3 RECYCLING IS NOT COSTLESS: THE NEED TO CHOOSE THE MOST COST-EFFECTIVE OPTION

But *effecting* recycling is not something that is done in a vacuum.

Practical recycling measures *themselves* use scarce resources: labour, capital equipment, land and property. These resources are obtainable at a price – they are not free. The cost-benefit calculus used to evaluate proposals for improved recycling must allow – comprehensively – for the relevant costs as well as the benefits. It would be poor public policy to pursue ever-higher rates of recycling as an end in itself and without regard to the society-wide costs.

In reasonably competitive markets, the costs as well as the benefits of improved recycling – however it is effected – ultimately get shifted to the final consumers of the products involved.

Cash-strapped local councils ultimately have to fund kerbside recycling in large part from local rates. To the extent that they earn income from recycling, that is a cost to the businesses using the recycled materials. The price of the recycled materials will reflect that cost (plus a margin). That price will be passed back to the final consumers of the recycled product again.

The same goes for CDL. Any net costs of CDL will initially be borne by businesses, but in competitive markets that cost must be passed on to consumers. Any costs of CDL in terms of impacts on other recycling measures will also be passed on to consumers (via increased local rates for example).

There's no free lunch here. It is the *net* benefit of recycling to the community that is the appropriate policy target.

2.4 RANKING ALTERNATIVE MEASURES FOR RECYCLING IS FUNDAMENTAL FOR GOOD POLICY

Because recycling is not costless, and because the resources required are scarce and can be used for a variety of purposes, policy to improve recycling is a classic exercise in maximising the efficiency of resource use. This is obvious: minimising waste is *itself* an efficient resource use exercise.

'What is the *best* way to improve recycling?' is the appropriate question for the purposes of White's analysis.

The answer requires a cost-benefit ranking of possible approaches. For the answer to the question to be 'CDL', it must be clearly demonstrated that a form of CDL ranks highest amongst the feasible possibilities.

3. THE TERMS OF REFERENCE FOR THE WHITE REPORT

According to the ISF documentation, the terms of reference for the White report are as follows:

The Review aims to:

- *Assess Container Deposit Legislation's (CDL's) environmental, economic and social costs and benefits to the community and industry, including:*
 - *its potential absolute and relative contribution to waste reduction;*
 - *its potential contribution to litter reduction;*
 - *likely infrastructure needs in support of the CDL system;*
 - *the estimated infrastructure establishment and operation costs;*
 - *the potential financial impact on the beverage industry;*
 - *the community's willingness to pay;*
 - *its potential impact on kerbside recycling.*

Additional considerations

- *describe and analyse different potential models for implementation of CDL in NSW;*
- *identify the potential role of supermarkets, council facilities and existing waste or recycling facilities as points of collection;*
- *determine the relationship between CDL and broader Extended Producer Responsibility (EPR);*
- *examine how CDL could impact on or be impacted by other waste minimisation initiatives, including the National Packaging Covenant.*

[See, for example, *Independent Review of Container Deposit Legislation in New South Wales, Final Report, Volume II, Section 1.1.2, page 2.*]

These terms of reference are sensible:

- They seem comprehensive enough.
- The costs as well as the benefits of various CDL models are clearly within-scope for the review.
- The impact on existing recycling measures and policies are also clearly within-scope.

In short, Access Economics considers that the review terms of reference, interpreted in a common-sense way, provide a sound basis for a credible, rigorous evaluation of the net benefits of CDL for NSW. There is no real deficiency or direction in their detail that could be argued has effectively prevented a sound analysis of the relevant issues. Moreover, they can be reasonably interpreted to allow a thorough comparison of the net benefits of CDL and other approaches to improving recycling rates.

That is, they provide scope to assess whether a form of CDL is the answer to the question: 'What is the *best* way to improve recycling?'

4. CRITERIA USED TO EVALUATE THE WHITE REPORT

In critically evaluating the White report, a framework is needed to systematise the analysis.

For purposes of this report, Access Economics has decided to assess the White report against the following benchmarks:

- Has the White report responded adequately to the terms of reference, including the 'additional considerations' cited in the ISF documentation?
- If primary research has been used as part of the review, was it credible research?
- If the work of others has been cited in support of the findings in the White report, was it used accurately? Was all relevant work, known to be in existence by White, used? If not, has White demonstrated defects in such work such as to justify its exclusion? In short, has the work of others been used in a balanced and accurate way?
- Is the analysis in the White report comprehensive?
- In the analysis rigorous? If there are gaps, are these acknowledged explicitly, or are they left implicit?
- Are the results of modelling work, especially numerical results, transparent and replicable by others?

Access Economics considers these benchmarks to be unexceptional. They are basic tests of good research and analysis in response to *any* research or review brief.

5. DOES THE WHITE REPORT MEET THE CRITERIA? WHITE REPORT HIGHLIGHTS

5.1 STRUCTURE OF WHITE REPORT AND GENERAL ANALYSIS OF CONTENTS

5.1.1 *Volume I: Extended Producer Responsibility (EPR)*

Volume I of the White report deals with the concept of extended producer responsibility (EPR), and cites a substantial range of material prepared by others in support of the concept. There appears to have been no critical evaluation of the material cited: rather it seems to have been amassed, somewhat unsystematically and uncritically, to support the authors' views about this concept.

For purposes of this report, the following is a summary of Access Economics' views about EPR:

- Access Economics accepts that the concept of EPR can be valid and useful.
- EPR can be pursued using a variety of measures, not just CDL.
- An appropriately discriminating and differentiated approach to the application of EPR, rather than blanket application to all products, is sensible: appropriate arrangements in relation to motor vehicles, toxic waste, and 'techno trash', for example, are likely to be very different from those relating to fast-food containers, etc.
- In competitive markets (and even markets where producers possess market power):
 - EPR may require *producers* to do more to minimise waste and recycle products;
 - but the net cost of doing so ultimately will be passed on to producers' *customers*. While this might be obvious when producers have market power, it also hold true in competitive markets where profit margins are kept just enough to keep producers viable.
- For this reason, EPR and ICC – increased customer cost – go hand-in-hand, *unless* it can be demonstrated that EPR is (net) costless to the producer. But increased EPR cannot be costless to producers, because it requires use of scarce resources in its implementation.
- The only case where consumers will not face increased costs to the same extent is where they can switch demand to substitute products not facing the costs associated with EPR. But even in this case, demand-switching effects may still entail some 'deadweight' costs affecting both consumers and producers, because consumer and producer surpluses are reduced.
- This is not to suggest that there is no case for EPR. It is simply to note that the costs as well as the benefits of EPR need to be made transparent, and their ultimate incidence recognised, up-front.

The last point is important for policy-relevant advice. It is also important that consumers understand it, too:

- There appears to be a tendency in some quarters to describe EPR as something that somehow shifts the costs of increased recycling away from governments (at whatever level) and onto business, with consumers and society enjoying the (gross) benefits. Under either a shared responsibility model or an EPR model, consumers will pay, either as taxpayers/ratepayers, or as product consumers via increased product prices.
- Effective increases in EPR may well increase recycling activity by business, but with the net costs thereof borne by consumers themselves. To the extent that increased EPR reduces costs (net) to government – and this is contentious in the case of CDL – then these savings may be passed on to consumers (who after all previously incurred the costs avoided, via local rates, charges or taxes anyway).
- *But the net cost of EPR is ultimately a cost largely if not wholly borne by consumers, passed on by business.*
- In evaluating consumer/society ('stakeholders' in White's report) support for CDL proposals – see comments on Volume III below – it is therefore crucial that those whose opinions are canvassed are made fully aware of this reality. If they are not fully aware of it, and assume that EPR is somehow costless to them, and paid by others (business), then there will be real questions about the validity of any evidence of their support for CDL.

5.1.2 Volume II: Cost-Benefit Analysis

Report Structure, Aims of Review and Terms of Reference

The report structure set out in sub-section 1.1.1 on page 1 of Volume II of the White report looks suitably comprehensive and consistent with the terms of reference. The presentation of the terms of reference in sub-section 1.1.2, with references to specific sub-sections later in the report, Volume II, covering each of the specific remits, also leaves the impression that Volume II of the White report is structured to ensure a thorough, professional response to the terms of reference.

However, the promise of the structure in section 1 of Volume II is sometimes disappointed in the delivery later in the same Volume. Although the report includes detailed descriptions of its methodology and sources, there is little discussion of the reasons for some of the assumptions made and their impact or veracity relative to alternatives. A casual reader is left with the impression of a careful and reasonable approach to the estimates, but with no means of verifying that impression for themselves.

For example, in response to the seventh bullet point in the terms of reference, sub-section 1.1.2 indicates that the potential impact of CDL on kerbside recycling is covered in sub-section 3.6.1 (see pages 150-156 in Volume II). Alternatives to CDL are covered in section 5 (see pages 209-216 in Volume II).

Some comments on sub-section 3.6.1 and section 5 are set out here by way of illustration of these disappointments.

Sub-section 3.6.1

This sub-section of the White report is introduced, quite properly, in Access Economics' view, as follows:

*This section provides background information, analysis and conclusions regarding one of the **most significant and contested areas** of the Independent Review, that is, the potential impact of the implementation of container deposit legislation on the system of kerbside recycling that is in place in NSW.*

[Volume II, page 150. Emphasis added.]

The acknowledged importance of this issue notwithstanding, it seems to have been completely ignored in section 5 of the White report (see below) even though the issue itself draws attention to the possibility of *reinforcing and extending* kerbside recycling as a more compatible alternative to the status quo than CDL.

The sub-section then – properly – notes a specific limitation to the analysis that also draws attention to extending kerbside recycling as an alternative option to CDL:

*Determining the impact of CDL on kerbside (sic) is made difficult by the fact that most places in the world where CDL has been introduced have done so at a time prior to the introduction or expansion of kerbside recycling. Therefore, empirical results are not available for the situation which would apply in the case of NSW where, if CDL were introduced, it would be following the establishment **of one of Australia's oldest and best performing kerbside recycling systems.***

[Volume II, page 150. Emphasis added.]

Accepting this restriction, it would seem obvious that recommending a course of action without much by way of precedent globally might be done very cautiously. Real-world experience might be telling us something about how CDL and established kerbside recycling systems do – or don't – interact.

But there is no evidence of caution, or qualification, or even hints of uncertainty, in the remainder of this sub-section:

- After a seven bullet-point summary of the costs and benefits of CDL to local councils, the White report jumps straight to the modelling results in sub-section 3.6.1.1. This bullet point summary *inter alia*:
 - Cites as benefits to local councils reduced collection costs due to a reduction in used container material collected.
 - Cites as benefits to local councils reduced sorting costs at recovery material recycling sites.

- Notes the reduction in the value of recyclable materials collected at the kerbside (implicitly as a cost to local councils).
- A benefit from the deposit value associated with deposit bearing containers placed in kerbside recycling.

There is no reference to council contracts with businesses currently providing kerbside collection services, and how these might be affected, in this seven bullet point list. These are mentioned later, however – but not in such a way as to influence the numerical results in the tables and figures (Table 3.6-1 on page 151, Figure 3.6-1 on page 152, Table 3.6-3 on page 153, and Figure 3.6-2 and Table 3.6-3 on page 154, of Volume II of the White report).

- The results reported in sub-section 3.6.1.1 are claimed to reflect an approach that mirrors the approach in the 2001 study by Nolan-ITU/SKM entitled *Independent Assessment of Kerbside Recycling in Australia*.²
- The quantitative results are shown as net cost increases/decreases relative to (a) a landfill-only scenario, and (b) relative to the current kerbside recycling system.
- More comments on the quantitative results shown on pages 151-154 appear later in this report. At this stage we note that:
 - Comparisons of net cost-benefit relative to a landfill-only scenario is something of a straw man.
 - Comparisons of net cost-benefit relative to recycling under current kerbside arrangements is more realistic *but is still a partial approach*.
 - The required analysis is to compare the net cost-benefit outcomes of (a) adding CDL to the existing recycling system (various options), and (b) alternative approaches to increasing recycling *including the extension of kerbside recycling itself*.

This comparison is absent from the White report. Ironically, by incorporating results from another report which ‘mirrors’ the White report approach, and is cited by White himself – that is, the 2001 Nolan-ITU/SKM report – something like such a comparison could have been made.

On page 153 of Volume II, White draws attention to the contractual arrangements that a council has with the kerbside contractor and MRF operator. In brief, he notes that:

- The cost-benefit outcomes ‘*will depend*’ on these contractual arrangements, and ‘*... there will be a delay in a council accruing the modelled benefits, depending on the timing of the introduction of CDL and of contract conditions and timing.*’

There is no reference, even here, to the point that CDL could actually increase council costs from the implementation date, as well as delaying the receipt of the claimed benefit to councils. This important, and potentially long-period transition, is ignored. This is another illustration of bias in favour of CDL in the White report.

On pages 155, sub-section 3.6.1.3, White refers to South Australian kerbside recycling experience. He cites research by Matthew Warren in this respect.³ This work noted that:

- Deposits divert material away from kerbside recycling.
- They change the behaviour of individuals to recycling, possibly encouraging them to place a premium on recycling materials which have a deposit. As a result they may switch recycling behaviour towards refund containers. Others may be disposed in the waste stream.

White rejects the suggestion that paper recycling might be reduced in NSW as a result of CDL, citing evidence shown in Figure 3.6-3 and assertions about more recent developments (unquantified). Interestingly:

² Nolan-ITU & Sinclair Knight Merz *Independent Assessment of Kerbside Recycling in Australia* 2001, prepared for the National Packaging Covenant Council.

³ Warren, in *Impacts of Container Deposit Legislation on New South Wales Recycling and Litter Management Programs*, December 2000, prepared by C4ES, Sydney.

- While the chart is not completely clear, it does suggest that there is less recycling of paper and cardboard in South Australia than in NSW. It is not clear whether this is an absolute or relative measure. However the accompanying text, on page 155 of Volume II, includes the statements that:

'For all materials except paper and cardboard, South Australia recycles a greater proportion than NSW.'

[Volume II, page 155.]

'It is difficult to sustain the notion that the introduction of CDL in NSW would reduce the level of paper recycling in circumstances where the frequency and convenience of recycling services for paper were maintained. In the Televote Survey, participants were asked whether they believed their recycling behaviour would change in relation to non-deposit materials if CDL were introduced. 97 per cent of respondents stated that it would not.'

[Volume II, page 156.]

- Access Economics simply notes that (a), the first of these statements appears empirically consistent with the Warren hypothesis, (b) no other quantitative evidence apart from Figure 3.6-3 is presented in section 3.6.1 to provide a contrary view, and (c) White's assertions that *it won't happen in NSW* appear to be just that – assertions.
- As to the Televote Survey result, White's own report, at Appendix E, Volume III, page 6, draws attention to the apparent conflict between this result and the other result suggesting that 36% of respondents felt that non-deposit items would not be recycled. This contradiction is not mentioned on page 156.

Section 5

The 'boundaries and limitations' (to adopt White's terminology from pages 9-10 of Volume II) of section 5 are as follows:

- The analysis is limited to *regulatory* alternatives, a more limited range than implied by the title of section 5 itself.
- The analysis is not based on primary research in the NSW context, is based on published *international* literature, and is general in nature.
- Section 5 does not attempt to '*... address in detail the feasibility or relative merit of these alternative mechanisms in the NSW context.*' (page 209).
- The preamble to this section, having ruled out of the analysis non-regulatory alternatives and conclusions based on primary research in NSW, or Australian research, then pre-judges what limited and very general analysis that remains by stating that:

*It is important to point out that the CDL Review **considers** that a best-practice deposit-refund system would be more likely to achieve high container recovery rates in NSW than **any** of the other mechanisms **discussed in this section** that do not lead to a deposit-refund system. This is the case regardless of whether the best practice deposit-refund system is established by legislation (ie, CDL) or by industry as a means of achieving recovery targets.*

[Volume II, page 209, emphasis added.]

Given these restrictions and apparent bias in favour of CDL, or at least container deposit systems plus the threat of CDL, Access Economics saw little point in reading the rest of section 5 – but did so. The main points made – apart from regular reminders that none of the limited alternatives to CDL was considered a competitive alternative by the CDL Review – are as follows:

- The alternatives covered include market incentives, voluntary agreements, and direct regulation including enforcement and compliance penalties.

- Discussions of each in some cases tend to blur the distinction between alternatives to CDL and CDL itself, (or voluntary container deposit systems as a substitute for CDL).
- There is a reference to the use of economic instruments in section 5.1.1.2. We cannot find section 5.1.1.2. in our copies of the White report. There is also a reference back to section 2.4 and appendix C. As to section 2.4 in Volume II, it notes the trend away from refillables in Australia, the United States (not Canada) and the UK, and the reversal of a similar trend using economic instruments in Europe.
- Environmental taxes of the same magnitude as that in a deposit-refund system, in White's view, won't work as well as a deposit refund system because the signal to return the container is absent.
- Advance Disposal Fees (ADF) were given sympathetic treatment to some extent, but the discussion still ended with the familiar support for CDL as the superior option.
- Subsidies were given short shrift as being in violation of the polluter pays principle.
- Self-regulation was ruled out because it '*... does not appear relevant to NSW at present.*' Access Economics wonders what the Industry Waste Reduction Plans (IWRPs) – however effective or otherwise – are there for in that case. Deposit-return systems based on self-regulation are considered by White as unlikely to eventuate.
- Finally, section 5 concludes that the only alternatives are either (a) CDL, or (b) inducing industry to create a best-practice deposit-refund system, with (c) the threat of CDL held over industry if they fail in relation to (b).

Nowhere in section 5, which ostensibly deals with alternatives to CDL, is extension of kerbside recycling, or Australian studies covering this alternative, even mentioned.

Access Economics concludes that section 5, like much of the White report, is a biased, even blinkered, advocacy of CDL, or at least the threat of CDL, to force business (and ultimately consumers) to increase recycling.

Boundaries and Limitations

Section 1.3, pages 9-10, of Volume II deal with what White entitles *Boundaries and Limitations* of the report analysis of costs and benefits. Comments on each of the sub-sections follow:

- Sub-section 1.3.1 asserts that it is not possible to consider all life cycle impacts across all impact categories in any single analysis. That suggests that using other, complementary, analyses is an important element of research for any truly comprehensive independent review.
- Sub-section 1.3.2 notes that benefits associated with improved visual amenity as a result of increased recycling rates/reduced landfill have not been quantified and are not included in the analysis. This seems a reasonable approach for two reasons. First, quantification is inherently difficult because subjective valuations are involved. Second, if recycling is improved, and *however* that is achieved, these benefits will be garnered to a greater or lesser extent. They are not peculiar to CDL. In a 'rough justice' sense, such benefits might be regarded as broadly similar across different recycling approaches of similar effectiveness, and they therefore should not affect rankings between approaches very much, if at all.
- Sub-section 1.3.3 notes that valuations of the incremental cost of consumers' time (for which valuations have been produced) were not included in the formal cost-benefit analysis. The justification given is '*... because it does not account for the fact that many consumers are willing to pay (by donating time) for improved recycling outcomes and participate in the CDL system for reasons other than financial motivation.*' (Volume II, page 9). This reasoning is inadequate, to say the least. As the White report itself notes in Volume III (see our comments in sub-section 5.1.3 below), the inconvenience associated with container deposit systems was one of the major reasons cited by those participating in the Televote survey who opposed such a system. But that's not the main objection to this omission. We are talking about a formal cost-benefit analysis here. Whether or not people want the benefits, or are prepared, or not prepared, to incur the costs, is irrelevant. Scarce resources, including time, are involved. Formal cost-benefit analysis should include *all* costs and *all* benefits, or, as the best approximation thereto, all costs and benefits for which quantitative estimates can reasonably be produced. People pay for beverages. Does that mean cost-benefit analysis of consumer surplus associated with drinking beverages should ignore their cost because people are prepared to buy them? This omission, unlike the visual amenity omission noted above, is directly and specifically relevant to

an assessment of the merits of CDL itself. It loads the dice unreasonably in favour of CDL. It is an explicit, and unjustifiable, element of bias in the White report. The exclusion of the time cost of compliance is especially surprising given that it is included in the distributional analysis and is of the same order of magnitude as the environmental benefits of CDL. This point is discussed in more detail in Section 5.2.1.

- Sub-section 1.3.4 notes that the analysis did not cover sensitivity to changes in the product mix. Data limitations, especially having regard for the fact that CDL has not existed in NSW, make this understandable. However, it should be noted that limited application of CDL to some containers could well induce both consumption and substitution effects to products/containers not subject to CDL because of production and consumption cost differences. These may reduce the effectiveness of a selective CDL approach, as is contemplated by the White report, thereby reducing the quantum of benefits. This has not been allowed for in the analysis. As in the case of valuation of consumers' time, this is an issue specific to the CDL proposal. Its exclusion biases the cost-benefit result in favour of CDL.
- Sub-section 1.3.5 notes that an annualised cost approach, rather than a net present value approach, has been used to assess the financial costs and benefits over a twenty-year time frame. The rationale for this approach was that '*the use of net present value was not believed to be appropriate given the level of uncertainty surrounding the actual timing and pace of implementation and uptake of any potential CDL system.*' (Volume II, page 10). This reasoning is unfathomable. Why can't White assume some introduction date and a transition scenario(s) for purposes of the analysis? This approach effectively obfuscates in relation to the very real and substantial *transition costs* associated with the introduction of *mandatory* CD systems. It is also symptomatic of a lack of appreciation of the distinction between short- and long-run effects that appears elsewhere in the report. There will be sizeable up-front capital costs (tacitly admitted by White on page 9) incurred by those required to accept the relevant containers, depending on the system adopted. Depending on the system adopted, retailers, producers, local governments, state governments and other businesses will be affected. These costs will affect local and state government budgets and businesses (including small businesses). They will be passed on to consumers via higher taxes, rates and prices. There will be increased operating costs, as well as losses to local government. Current contracts let by local governments to run the existing recycling systems will remain in force, but much of the valuable recyclable waste stream will be removed. Local governments and contractors will come under financial pressure. The benefits will take time to show up. This is another explicit element of bias that loads the analytical dice in favour of CDL by only looking at some very long-term 'steady state' situation, rather than properly assessing the (costly) transition thereto.
- Sub-section 1.3.6 notes that market distortion effects have not been taken into account. On this, see our comments in relation to sub-section 1.3.4 above. Again, the justification for this omission is inadequate:
 - The first element of the 'justification' is that, allowing for the total costs to society, the current price of products sold in containers is asserted to be below the economic optimum (inclusive of external effects). This may be true. But so what? The issue here is how consumers at the margin respond to (changes leading to) differential pricing of substitute products. If market failure existed before CDL, partial application of CDL may well mean partial, or little, or no, success in reducing the problem after CDL. This 'justification' is irrelevant.
 - The second element of the 'justification' is that the increase in costs resulting from the introduction of a CDL system is less than the economic value of the externalities associated with containers that are landfilled rather than recycled. See Access Economics' response to the first 'justification'.
 - Again, this omission loads the cost-benefit dice in favour of CDL, and is specific to the introduction of CDL. It adds to the bias in the analysis in favour of CDL.
- Sub-section 1.3.7 notes that impacts of increased return rates on the market for recyclables have not been investigated thoroughly. The excuse given is that '*... preliminary research (published reports and stakeholder interviews) suggested that the capacity of both the market and infrastructure, particularly for glass, would be sufficient for the increased volumes involved.*' (Volume II, page 10). This assumes that recycle will or can always be used in the place of virgin materials, regardless of their relative prices. It is an extension of the assumption that recycle and virgin materials will be equally priced inputs to container manufacture. This

assumption is inconsistent with practical examples of different manufacturing processes necessarily treating recycle and virgin materials differently, and having different costs as a consequence. In relation to the comment on glass, it is noted that the Nolan report on kerbside recycling was considered worthy of reference.⁴ Is this a case of very selective use of sources? More importantly, is this market absorption analysis omission appropriate? Shouldn't a thorough independent review cover off on this matter more comprehensively? Even if, as White asserts, there is no market absorption problem for glass – and this seems at least worthy of closer examination – what about other materials, such as paper-based products? If there is an absorption problem, then the landfill benefits and the recycling benefits might, at best, take longer to emerge, or, at worst, be more limited in scale. This omission from the analysis, again, loads the dice in favour of CDL. It is another possible element of bias in the White report.

In short, all of the 'boundaries and limitations' imposed by White in section 1.3 of Volume II on the cost-benefit analysis – with *one* exception which is likely to be roughly neutral in terms of ranking alternative approaches – bias his cost-benefit outcomes in favour of CDL. The only 'plus' is that he has made these particular elements of bias explicit and transparent.

5.1.3 Volume III: Consultation and Social Research

Volume III of the White report contains the results of a Televote survey and a 'Citizens' Jury' (later renamed a 'Citizens' Forum') undertaken to evaluate opinion about CDL in NSW.

Televote Survey

The main details of the Televote survey are as follows:

- The survey involved 400 randomly-selected NSW citizens in a two-stage questionnaire on CDL.
- The first stage sought reactions to the possible introduction of CDL before providing information about various matters associated therewith.
- The second stage was a follow-up telephone survey where those surveyed had received and read some information on CDL, allowing them to respond on a more informed basis to questions about the merits of CDL.

Volume III of the White report (see page 22) indicates that the details of the Televote questionnaires and the Televote Background Information are contained in Appendix F.

- Both of the questionnaires are at Appendix F.
- The Televote Background Information is not at Appendix F, either in the copy of the White report we received from BIEC, or in the version sent to us by White himself. In Appendix E (page 3) it is indicated that this is an 8-page document. There is a confusing reference to the Televote Background Information being at Appendix 6. We assume this is a typographical error, given the alphabetical listing of the appendices.

As to questionnaire #1, the CDL-related question that was asked included the following information only:

- The interviewer expressed interest in the person's opinion about whether or not a container deposit *system* should be introduced in NSW.
- The basic idea of a container deposit was explained as a cost-neutral (timing aside) refundable charge to the consumer, redeemable on return of the container.
- The fact that SA has such a system for some drink containers was noted.
- The interviewee was told that existing recycling collection systems would still operate in parallel '*to collect containers without deposits and other recyclable material*'.
- The interviewee was then asked whether they agreed/disagreed/did not know whether a container deposit system should be introduced in NSW.

⁴ Footnote 3 on page 10, Volume II of the White report cites the Nolan-ITU/SKM study (2000 pF8).

- The final two questions sought reasons from those agreeing and those disagreeing.

The following observations on these questions occur to us:

- There is no reference to legislation when the container deposit system is discussed.
- The interviewee is not advised that there will be a net cost from CDL.
- The interviewee is given the impression that the proposal can operate in parallel with existing recycling systems without adversely affecting them, even though some of the most recyclable and valuable elements will be removed from the existing system.

As to questionnaire #2, the CDL-specific questions included the following elements:

- The preliminary questions include asking the interviewee if he/she received the information sent to them about CDL ('legislation' was specifically mentioned in this preliminary question).
- Having read the material the interviewee was then asked whether he/she agreed/disagreed/did not know whether a container deposit system should be introduced in NSW.
- The next two questions sought reasons from those agreeing and those disagreeing.
- The next question sought interviewees' opinions on which containers (if any) should have a deposit.
- The following questions in part 3 sought responses about what an appropriate level of deposit might be, and what level would encourage returns to claim the refund by the interviewee.
- The questions in parts 4, 5, 6, 7, 8 covered more detailed aspects, including:
 - willingness to pay the cost of running a container deposit system;
 - likely behavioural responses to the introduction of such a system;
 - likely remaining use of existing recycling systems;
 - willingness to pay for the extra costs – if any – from running the existing system (the question is agnostic about whether costs would rise or fall rather than indicating that they are likely to rise);
 - retail behaviour (preference to shop at outlets depending on whether, and the way in which, they offered deposit refunds);
 - consumption of containers.

The following observations on these questions occur to us:

- Apart from the reference in the preliminary question, there is still no reference to legislation when the container deposit system is discussed in detail (1.1, 1.2, 1.3, 2.1)
- But the greater level of detail in the follow-up questions does at least flag the idea that CDL would possibly entail two sets of extra costs faced by the consumer: the cost of running the system, and possibly a higher cost to run existing systems operating in parallel. (The cost of the consumers' time is not explicitly flagged, but answers opposing the idea include inconvenience, which is presumably picking up this aspect.)
- In this respect the second questionnaire is much more informative and realistic than the first.

As to the Televote Background Information paper, we cannot comment. It is not clear whether that paper covered the cost side of CDL, or whether interviewees were exposed to questions 4.1 and 6.2 'cold' or after they had a chance to read about these matters.

We note the White report finding that:

- With no information on CDL issues, and guided only by the material in the first questionnaire, 71% of those interviewed supported the introduction of CDL in NSW.
 - Strictly speaking, 71% supported introduction of some sort of container deposit *system*, in varying degrees, in NSW – the questionnaire did not refer to legislation.

- With some information – which we have not been able to evaluate – the White report finds that support for CDL in NSW dropped to 59%.
 - Strictly speaking, 59% supported introduction of some sort of container deposit *system* in varying degrees, in NSW. Whether they supported *legislation* at best is unclear.

Access Economics believes that the change in the results is entirely understandable.

As soon as consumers know that there is a cost to them from the proposal, they are less willing to accept it. This is another manifestation of the ‘nimby’ syndrome and is consistent with some of the ‘free rider’/‘market failure’ aspects relevant to recycling and environmental issues. Whether the proportionate response in favour of CDL would drop even further – perhaps below a majority – if interviewees were exposed to the full complexities and possible cost downsides is not clear. But the reported drop associated with greater information is suggestive.

There are at least two other findings from the Televote survey of interest to Access Economics:

- As shown in Figure 7.2-2 on page 24 of Volume III of the White report:
 - inconvenience (presumably reflecting time costs)
 - money
 - the existing recycling systemdominate the reasons for opposing a container deposit system in NSW.
- As shown in Figure 7.2-5 on page 29 of Volume III of the White report:
 - after the introduction of CDL most respondents would place containers in a recycling bin whether at home or away from home.

These findings about consumers’ opinions undermine the decision by White (see Volume II, page 9) to ignore the cost of consumers’ time, ‘... because it does not account for the fact that many consumers are willing to pay (by donating time) ...’. They also strongly suggest that alternative means of increasing recycling, such as greater use of recycling bins in public places as well as for residential kerbside collection, should be investigated as an alternative to CDL to establish which is likely to generate the better cost-benefit outcome.

Access Economics is left wondering how the results would have looked if the surveys offered the interviewees a *choice* between alternative options for increased recycling. This choice might have included a reasonably full-information set of questions about extended kerbside recycling – including in public places – as a *possible alternative to CDL*.

There may well have been even more consumer support for that alternative option – and even less support for CDL.

Citizen’s Jury/Citizen’s Forum

The final panel involved in this activity was 11 persons. As the White report notes, the Citizens’ Forum ‘... was not intended to be a statistically representative sample of the (sic) NSW since the sample size is too small’.

Quite so.

The White report found that:

- After three days of deliberation, the citizens unanimously agreed that CDL should be introduced in NSW within a framework of a series of recommendations.

As to the information provided – presumably akin to the judge’s instructions to the jury about what is relevant and what is not – the White report notes that presentations were made by the NSW EPA, SA EPA and Frank Ackerman from Tufts University. White himself was involved in defining key questions.

(Was White, in fact, the ‘independent consultant’ to whom reference is made in section 8.2.1 on page 34? Nobody else seems to have been named as filling that role. We note from Volume III, Appendix L, section 4.6, page 14, that White was ranked as the most influential information source by the panellists.)

One document referred to as an information source (footnote 23, page 38, Volume III) is by Nolan ITU Pty. Ltd & Sinclair Knight Merz.⁵ The footnote reference includes this as a 'document referred to'.

It is not clear from Volume III whether all Forum *members* actually reviewed that document or whether it was merely cited by one of those involved in giving presentations to the Forum or framing the key questions. However, the comments in Volume III, Appendix L, section 4.6, pages 13-14, indicate that this report was tabled, but was 'scanned' by two panellists only, who then 'shared' this information with 'some' of the others. The rest of the discussion on page 13 indicates that its analysis was not reviewed in detail, first-hand, by most of the panellists. There is some evidence that attempts to obtain more information from industry were opposed and restricted. (We leave readers of this report to review Appendix L, pages 13-14, and form their own conclusions about this.)

Given its findings (see above), one might have expected that it would have induced some waverers in favour of extended kerbside recycling, including in public places, rather than CDL. After all, as White notes on page 33 of Volume III, the Citizens' Forum was not intended to be a 'winner take all' process.

The recommendations of the Forum will not be canvassed in detail here. However, Access Economics notes that:

- The cost of the requirements of recommendation #1: Easy Access are not specified, nor is it indicated who would pay them.
- The practical difficulties of implementing recommendation #2 are serious, as anybody familiar with the vital distinction between formal and actual incidence of taxation or charges or other costs/prices would know. The *additional* cost of sheltering low income earners is not specified, nor is it indicated who would pay this additional cost.
- The findings in recommendation #6: Cost-benefit analysis appear to be a statement about the absolute results. Whether or not they are accurate, there is no reference to the relative merits of CDL compared with alternative initiatives.
- Recommendation #7 completely glosses over the real problems that would arise from CDL for the viability of the existing recycling systems in NSW with the blithe, but impractical, instruction that '*... CDL be introduced to work with existing recycling systems such as kerbside collection.*' How is that possible when CDL is designed to extract the most profitable recycling elements from the existing systems?

Access Economics concludes that the theatre of the Citizens' Forum is:

- Not representative of community opinion – a point acknowledged in the White report itself.
- At best, is not a balanced assessment process.
- At worst, is possibly a biased process not based on full information.
- And in any event has produced a set of recommendations that are either uncostered, or impractical.

The findings of the Citizens' Forum are no basis at all for sound policy advice on CDL.

5.2 MORE DETAILED COMMENTS ON COST-BENEFIT ANALYSIS IN VOLUME II OF WHITE REPORT

5.2.1 Scenario Description and Container/Material Flow

The cost-benefit analysis (CBA) modelling in the White report is not supported by solid estimates of the flows of containers following the introduction of the various CDL options. If the flow estimates are not reliable, then all estimates based on them will be flawed, including the Simplified Life Cycle Analysis (SLCA) environmental benefits that are crucial to demonstrating the net benefits of additional recycling. That is, despite the credibility of the SLCA modelling, the results will be meaningless unless based on credible estimates of container flows – garbage in, garbage out.

⁵ *Independent Assessment of Kerbside Recycling in Australia* Nolan ITU Pty. Ltd & Sinclair Knight Merz, Sydney 2000. The footnote at page 38 of Volume III dates this as a year 2000 report. It is actually a January 2001 report. We assume that this is a reference to an earlier draft version.

The White report notes that, for the seven CDL scenarios:

'The return rates and used container material flows achieved under each option have been predicted through a combination of empirical results and theoretical understanding of market and consumer behaviour under CDL.'

[Volume II, page 86.]

It is impossible using the material in the White report to determine (and therefore for anyone to reproduce) the methodology used to obtain the return rates and container flows. While the values of material flows used are reported in detail in Appendix E to Volume II, the explanation of the methodology used to 'predict' them does not give any greater detail than the statement above.

The discussion of the estimation of the container flows under the seven CDL scenarios is set out in Volume II, Section 3.2.3.5. Several 'key determinants of recycling behaviour under CDL systems' are listed. The list is comprehensive, and reflects the factors discussed in the literature summary of Volume II, Section 2.6. Nevertheless, the White report argues that 'only the effect of the level of deposit can be quantitatively examined', although it also claims that 'The effects of level of convenience and material type may be partially controlled by grouping data according to these features.'

In comparing the levels of beverage containers in the litter stream, the White report notes (Volume II, Table 2.5-5) that Victoria has a lower percentage of beverage items in the litter stream than South Australia (although the proportion of containers that would be subject to CDL is higher in Victoria than South Australia). The White report then cautions against extrapolating litter statistics between States 'due to differences in demographics, consumption patterns, anti-litter laws, packaging regulation and climate'. It then lists a number of factors, including population distribution and density and public education activities that might account for the difference between the return rates in NSW, SA and Victoria. The role and effectiveness of such activities as alternatives to introducing CDL have not been assessed elsewhere in the White report and have not been allowed for in determining the likely level and direction of container flows in NSW once CDL is introduced, or the extent to which they have been corrected for in assuming foreign and South Australian rates of return will apply.

The potential importance of public education campaigns in reducing litter (or at least the presence of recyclables in the litter stream) reinforces the emphasis in the White report (Volume II, Section 2.5.7.2) on non-financial determinants of the level and composition of litter. Again, however, the report does not consider the obvious possibility of seeking to improve recycling rates through this avenue.

The White report presents six simple plots (Figures 3.2-1 to 3.2-6) of unsourced data relating international experience of different \$A levels of container deposits against recovery rates. The six data sets are one each for three material types (aluminum, glass and PET) under either:

- a collection centre CDL system; or
- a point of sale CDL system.

Although unsourced, the data are presumably drawn from the summary of international experience in earlier Sections. Those data suffer from being sampled at a variety of points in time and converted to Australian dollars at exchange rates chosen at an apparently arbitrary point in time.

No formal relationship appears to have been estimated between the level of deposit and the recovery rates based on the data presented in the plots. In any event, attempting to do so solely on the basis of the data plotted would seriously mis-specify the true relationship, given that many of the factors acknowledged as key determinants are not represented. If those data, or proxies to them, were available, estimating the relationship would require using some form of multivariate regression analysis and formal statistical testing rather than simple partial charting of the data.

The recovery rates 'predicted' by the White report analysis, also plotted in Figures 3.2-1 to 3.2-6, bear no obvious relationship to the values drawn from international experience. They appear to be scattered at random levels at the chosen deposit rates (5, 10 and 20 cents for the collection centre systems and 10 and 20 cents for the point of sale systems). The discussion on page 87 of Volume II, makes it clear that the predicted recovery rates were largely determined by assumption and 'judgement', rather than as the product of any replicable or quantitative method.

We can only conclude that the recovery rates assumed to apply under CDL that form the basis of the rest of the analysis of the White report are little more than guesses, only loosely related to South Australian or international experience and with no replicable allowance for the impact of key non-financial factors.

The CDL recovery rates are then combined with container flow estimates, also drawn from South Australian and international experience. Again, the methodology outlined in the White report (Volume II, Section 3.2.3) seems to be little more than weakly informed guesswork. The report mentions the use of 'mass balance equations' to 'integrate the information about consumption and disposal patterns in NSW and interstate and international case studies', but these equations are not specified (or mentioned) anywhere else in any Volume of the report.

The principal benefit of CDL, higher recycling rates, is therefore not analysed in the White report, only assumed. We can only conclude that the CBA based on these assumptions is of little practical use and represents an ungrounded hypothetical exercise unrelated to the impact introducing CDL may actually generate.

What determines an 'optimal' container deposit? If 10 cents gives improved recovery rates, why not 20 cents or \$1? Conversely, what says lowering the rate to 5 cents (or even 1 or 2 cents) would not achieve the same outcomes? As noted above, the White report bases its choice of preferred deposit on the results of international comparisons (converted with exchange rates at arbitrary points in time) and the results of its telephone surveys (asking people at what level of deposit they would be inclined to return containers, or at least to remove them from the waste stream) (Volume II, Section 4.7) and the Citizens' Forum process. There is no formal assessment of the relative costs and benefits of different levels of deposit.

Consequently, there appears to be no bounds on the net benefits associated with increased deposits under each of the two approaches to CDL in the White report, and no reason not to apply the deposit at much higher levels. This inference comes from not properly accounting for the time and other costs of redeeming deposits, the impact of the deposit on the demand for beverages in CDL liable containers, and subsequent effects on the flows of containers into the waste or recycling streams. Without appropriate allowance for the feedback from these costs there is nothing to dampen the apparently greater incentive to recycle created by a higher level of the deposit. Instead, the net benefits reported by White reflect only the increased recycling rates assumed (but not proven) to accompany higher levels of the container deposit.

5.2.2 *Whole of Society Cost-Benefit Analysis*

The White report (Volume II, Section 3.3.1) uses the Australian Waste Recycling and Cost Model (WRCM)⁶ to estimate the impact of the assumed container flows under CDL on the cost of operating existing garbage and kerbside collection schemes. It suggests (Volume II, Section 3.3.1.4) that introducing CDL reduces the cost of existing and projected kerbside recycling programs. We have not had access to a copy of the model and are unable to assess in detail the estimates generated for the White report. Nevertheless, we have a number of reasons to query the results reported.

In the absence of contrary external evidence, we accept that this model is an appropriate tool for assessing these costs, although it is not clear that the inputs used are particularly robust. There is also potential bias in the analysis because the estimates for NSW as a whole have been derived using a single representative set of input data, including highly aggregated flow assumptions and no allowance for cross-council variations in distances travelled or frequency of service. Given the variety of kerbside collection services, this averaging is not necessarily appropriate. It would have been better to have estimated a number of alternative representative types of kerbside services (possibly following the taxonomy in Table 2.7-1) and weighted the impacts by the services' individual shares of total costs. If not available from the Nolan-ITU/SKM study, the necessary data could have been collected simultaneously with the Council litter survey undertaken as part of the White report original research.

The White report use of the WRCM suggests that introduction of CDL is expected to reduce the costs of garbage and kerbside collection schemes, due primarily to lower collection and sorting costs materials resulting from lower flows

⁶ The citation of the WRCM in Volume II of the White report is: CRC for Waste Management and Pollution Control (1997), *Australian Waste and Recycling Cost Model(WRCM)*. This publication is not listed on the CRC's website. Although the model is now distributed by the CRC, it was not initially developed by them.

of materials into the collection stream. The suggested impact on collection costs seems reasonable (reduced trip numbers, smaller volumes, long-run capital savings), and we are inclined to agree, in principle, that these costs savings could arise *in the long-run*. Nevertheless, we have doubts about the magnitudes of savings based on the assumed levels of material flows and the failure to properly consider the short-run effects and costs of implementing a CDL scheme.

The distinction between long- and short-run effects is important because of the strong network economies evident in garbage and kerbside recycling collection schemes. A substantial part of the costs are associated with establishing the schemes at a particular scale. This will include factors such as the number of collections per month, the size and types of crates or bins, the types of trucks and whether they use manual or automatic lifting. Once established, these factors cannot be changed quickly or in small increments. Only discrete changes in the scheme are possible and need careful coordination. They may also require additional capital expenditure.

Consequently, it may be impossible to realise the projected 'savings' from scaling back garbage and kerbside collections, or possible only at significant additional cost. In this respect the White report makes a mistake of which economists are commonly accused – assuming that it is possible to move quickly and costlessly to more efficient ways of doing things. The timing problem is mentioned in the discussion of the distributional effects of CDL on kerbside recycling and local government, but no adjustment is made to allow for it.

The strong network economies of scale also lead us to question the likelihood that the cost savings will be large enough to offset the loss of collected materials. The Nolan-ITU/SKM study is also based on the WRCM and notes⁷ that increased kerbside yields decrease system costs because of increased collection and sorting economies. The costs of existing kerbside programs are largely fixed (excluding labour which could be varied by reducing employment), except in the very long term, and reductions in kerbside yield would only reduce their viability without generating any corresponding reduction in variable costs. The Centre for Environmental Solutions similarly argues⁸ the importance of container volumes to the viability of kerbside schemes, and notes⁹ that 'No CDL programs have been established in the U.S. or Australia where robust kerbside programs were already established'.

Introducing CDL reduces kerbside yield and the effect of this (redeemed deposits aside) in the White report is *improved* productivity, rather than the opposite. It is not clear why the conclusions of the White report should conflict with those in the Nolan-ITU/SKM study. If they do, is increased employment the reason? Importantly, despite the fact that the White report claims to use the same model it does not resolve the inconsistency in these results.

Although the White report CBA is notionally undertaken on a 'whole of society' basis and leaves distributional effects for separate discussion, it is not enough to estimate the impact of CDL on the costs of garbage and kerbside collections without considering whether they will remain viable. It is noted (Volume II, page 99) that 'the CDL Review assumed kerbside recycling services would be maintained essentially in their current form'. This assumption will not be valid if the introduction of CDL means existing kerbside collections are no longer financially viable.

The effect on kerbside recycling and local government of introducing CDL is discussed in Section 3.6.1 of Volume II. This effect is estimated by offsetting the cost savings claimed to follow from reduced container flows with the loss of recyclable (non-CDL) materials from the waste stream and the additional revenue from claiming unredeemed deposits. The White report claims net benefits to councils of between \$21.7 million and \$49.5 million per annum in aggregate, mostly due to revenue from unredeemed deposits of between \$10.9 million and \$36.3 million per annum. We have doubts about these estimates given the weakness of the container recovery rate and flow assumptions on which they are based. Moreover, the White report does not appear to have factored in the additional costs of sorting and storage required to handle the deposit bearing containers, and does not make it clear whether these have been subtracted from the estimates of redeemed deposit revenues. This is a methodological problem that adds to the unreliability of the estimates.

⁷ Nolan-ITU & Sinclair Knight Metz, *op cit*, Volume 1, page XI.

⁸ *Impacts of Container Deposit Legislation on New South Wales Recycling and Litter Management Programs*, prepared by the Centre for Environmental Solutions (C4ES) for the Beverage Industry Environment Council, December 2000, Section 3.5.

⁹ C4ES (2000), *op cit*, page 39.

5.2.3 Summary of Cost-Benefit Analysis in White Report

The White report acknowledges that the financial costs and benefits of both CDL and kerbside recycling are relatively minor factors in determining the rate and efficiency of residential recycling, and that other costs, such as the convenience of the scheme and the time needed to wash, sort and return containers, is more important. Despite this it explicitly excludes the valuation of consumers' time from its CBA. It does so by claiming (Volume II, Section 1.3.3) 'that consumers are willing to pay (by donating time) for improved recycling and participate in the CDL for reasons other than financial motivation'.

While there may be offsetting and hard to measure benefits from participation in CDL, as noted earlier that should not preclude including an estimate of the time cost in the analysis, especially as that cost may differ between the different means of achieving the same levels of improved recycling. That is, unless the White report is claiming that CDL is intrinsically desirable, the absolute time cost is important to the assessment of the net benefits of alternative approaches to CDL and the relative time costs of different approaches to recycling and waste reduction targets may also influence their ranking against CDL.

The exclusion of the time cost of compliance is especially surprising given that it is actually quantified in the White report, is included in the distributional analysis (Volume II, Section 3.6.4.3) and is of the same order of magnitude as the environmental benefits of CDL. Indeed, the estimates of the time costs of compliance for the three scenarios considered (current kerbside and two CDL alternatives) far outweigh the estimated (absolute) environmental benefits of increased recycling. As shown in Table 5-1, once White's own estimates of the value of time costs are factored into the CBA, Scenario 4a (CDL Intermediate 5 cents) shows marginally greater costs (by \$13 million per annum) than the current kerbside scenario, and Scenario 5b (CDL POS 20 cents) is somewhat more cost-effective but with net benefits less than one-half of those claimed by White. Given the imprecision of many of the other estimates contributing to the overall CBA assessment, this difference cannot be treated as conclusively favouring CDL over the current kerbside system – let alone other possible alternatives. The advantage of CDL options over a kerbside scheme achieving the Industry Waste Reduction Plan (IWRP) 2003 recycling targets (Scenario 3b) may be even smaller, if not reversed.

TABLE 5-1: TOTAL NET COSTS OF WHITE REPORT SCENARIOS ADJUSTED FOR TIME COSTS OF COMPLIANCE*

Scenario	Description	Net financial costs (\$m/a)	Relative environmental impact (\$m/a)	Total net costs (\$m/a)	Economic value of unpaid labour (\$m/a)	Labour adjusted total net costs (\$m/a)	Labour adjusted total net costs c.f. Kerbside 3a (\$m/a)
White report Analysis					Adjusting for White's labour cost estimates		
3a	Current Kerbside	41	-60	-19	285	266	0
4a	CDL intermediate 5¢	72	-167	-95	374	279	13
5b	CDL POS 20¢	87	-207	-120	335	215	-51

Sources: White report, Tables 3.5-3, 3.5-4 and 3.6-10.

* Net benefits appear as a negative value. Economic value of unpaid labour estimates are as provided by White.

Failure to consider the importance of the time costs of compliance also means that the White report ignores an important feature of consumers' existing recycling efforts – that consumers already balance the value of time and other costs of undertaking voluntary recycling (through kerbside schemes or elsewhere) against the unmeasurable, 'psychic' benefits they receive from doing so. Shifting that balance to generate greater effort and higher levels of materials recovery requires a change in the marginal costs or benefits of recycling – either increasing the 'feelgood' or financial rewards (for instance through CDL) or decreasing the effort required to recycle additional material (perhaps by improving the quality and convenience of kerbside collections or making non-residential recycling easier). Working on schemes that reduce the time cost of recycling may be a far more effective method of increasing

recycling rates than direct financial incentives. Determining whether this is the case means estimates of those compliance costs need to be included in any cost-benefit analysis of alternatives to the status quo.

The estimates of relative environmental impact used in the White report (Volume II, Section 3.4.2) were derived from estimates by the Centre for Design at RMIT of flows of enviro-toxins associated with the assumed container flows generated by each Scenario together with estimates of their per unit dollar values of these environmental costs. These latter estimates were drawn from the Nolan-ITU/SKM study, albeit against the acknowledged¹⁰ and explicit caveats in that study warning against their applicability to other circumstances. We understand that the methodology used to estimate the environmental benefits of increased recycling is widely accepted internationally and accept that it is appropriate. Nevertheless, we would question reliability of the flow assumptions on which the RMIT work was based. That point aside, the importance of the environmental benefits of additional recycling for both the net returns from CDL and the relative merits of the alternative CDL scenarios suggests to us that more work is required to improve the reliability of the estimates of this part of the CBA.

It is also important to note that most of the environmental benefits arise from the fact that additional materials are assumed to be recycled under CDL, and not out of any particular feature of the CDL scheme itself. Most of these environmental benefits arise from reduced environmental costs associated with production of containers from virgin materials, rather than from landfill. It might be possible to generate similar, if not larger, benefits from any other scheme, such as expanded kerbside collections, that also increases recycling rates.

5.2.4 *Distributional Analysis*

There is no reason to exclude small businesses from any CDL scheme. If the objective is to address litter and waste disposal problems, the nature of the waste generated through these sources is indistinguishable from other sources and should not be treated differently. Arguments about differential impact on small retailers are irrelevant since these are a natural consequence of imposing on these firms the costs of the waste problem their customers generate. Any other argument is essentially advocating shifting the cost burden onto larger firms purely as a distributional device. It cannot be supported as an independent or impartial viewpoint.

The White report goes beyond excluding small retailers from undertaking collection and deposit redemption, suggesting instead (Volume II, Section 3.6.3.8) that any CDL scheme ensure that they are guaranteed a handling margin on returned containers so that 'container collection would become a potential source of revenue for small retailers, rather than an additional cost'. There is no efficiency case made for this subsidy, and it is based solely on a distributional bias to insulate small retailers from the impact of a CDL scheme. The extra costs of that addition to the CDL system will ultimately be borne by consumers.

5.3 **ADEQUATE RESPONSE TO THE TERMS OF REFERENCE**

The White report is not an adequate response to the Review's terms of reference. In brief:

- It does not ask the right question in any comprehensive way.
- It does not do justice to an assessment of alternatives to CDL.
- It sets up the cost-benefit analysis in Volume II using limiting assumptions that bias the absolute numerical results in favour of CDL.

5.4 **USE OF CREDIBLE PRIMARY RESEARCH**

The primary research undertaken by White is not credible:

- The Televote survey is based on limited information.
- Some of the information provided to interviewees has not been included as part of Volume III of the report, despite the claim that it is attached as part of Appendix F.

¹⁰ White report, Volume II, page 139.

- Interviewees were given a CDL/no CDL choice, rather than being asked their opinions about a number of alternative ways of increasing recycling.
- Nevertheless, the survey results show significant drops in support for CDL when interviewees are aware they would be likely to incur additional costs, and there is some evidence that interviewees favour use of recycling bins.
- The so-called Citizen's Forum was not a transparent process. It is not clear on what instructions the 11-member panel came to its conclusions. There may be grounds to be concerned that the instructions were biased.
- In any case, the 'Citizen's Forum' recommendations, in many cases, are either impractical and/or uncosted, even though they entail further additional costs over and above CDL itself.

5.5 BALANCED USE OF OTHER AVAILABLE RESEARCH

The White report has not used the research available in other published reports, cited in the White report itself, in a balanced and accurate way.

This applies to reports prepared, for example, by C4ES and Nolan-ITU.¹¹

5.6 COMPREHENSIVENESS OF ANALYSIS

The White report is not comprehensive:

- In some cases the lack of comprehensiveness is explicit (eg, the limitations spelled out on pages 9-10 of Volume II). The failure to allow for the cost of consumers' time, and the transition costs likely to be faced by local councils and business, are two important examples.
- In some cases, the omissions are more implicit (eg, the failure to look at non-regulatory alternatives to CDL in section 5 of Volume II).

5.7 ANALYTICAL RIGOUR

The White report is not a model of analytical rigour. There numerous examples of arguments that are simply not logical. The rationale 'justifying' the omission of the cost of consumers' time in complying with CDL is but one example.

5.8 TRANSPARENCY OF ANALYSIS/RESULTS

The White report is not a good example of transparent analysis.

Some of the material in Volume II, (eg, section 3.2.3.5 in Volume II) plus the descriptions relating to the processes involved in the so-called 'Citizen's Forum', are not transparent.

The Televote Background Information is not included in the White report at Appendix F, despite statements that it is included there.

¹¹ BIEC *Impacts of Container Deposit Legislation on New South Wales Recycling and Litter Management Programs* December 2000, prepared by C4ES, Sydney; BIEC *Non-residential Beverage Container Recovery Feasibility Study*, prepared by C4ES in association with Community Change Pty Ltd, Sydney 2001; and *Independent Assessment of Kerbside Recycling in Australia* Nolan ITU Pty. Ltd & Sinclair Knight Merz, Sydney 2001.

6. ACCESS ECONOMICS' CONCLUSIONS

6.1 RESPONSES TO WHITE'S CHALLENGES TO ACCESS ECONOMICS

In a public presentation of his report in Sydney, 26 March 2002, to the Waste Management Association of Australia, we understand that White issued several challenges specifically to Access Economics. The first three were in relation to his second-last presentation slide entitled *Remaining questions ...*, and were, specifically as follows:

- The first was to demonstrate, 'Without a deposit and refund system, how can we collect the remaining 1.7 billion containers per year?'
- The second was to show, 'If a deposit and refund system does not make sense, then why are we paying for kerbside recycling?'
- The third was 'Would the voluntary introduction by the beverage and retail industry of a deposit and refund system represent a welcome demonstration of corporate social responsibility?'
- In addition, later, White indicated that he doubted that Access Economics would be able to get into the detail of the Waste Recycling Cost Model (WRCM). By implication, Access Economics would therefore be unable to cast doubt on the White report results.¹²

Access Economics' responses to these challenges are in two parts.

First, responding specifically to the four points noted above:

- As to his first 'challenge', as noted earlier (sub-section 5.1.2 above), on the basis of section 1.3 in Volume II alone, White's cost-benefit analysis is biased in favour of CDL. The selectivity of the analysis in section 3.6.1 and section 5 of the White report also indicates bias, as noted in sub-section 5.1.2 above. Also, as noted earlier, there are other completed studies, at least three of which¹³ were known by White, that give a different impression about the costs and benefits of alternatives to CDL, and these suggest that alternatives to CDL, such as extensions to existing kerbside recycling, could be cost-effective. These reports may challenge the validity of White's results. But their conclusions have not been covered in the White report even though:
 - White had copies of these reports;
 - the White report did not explain the defects in the analysis in these reports that would justify him not including references to them, or their conclusions.

We find it especially inappropriate that White should challenge *anybody* to demonstrate how to improve recycling rates (let alone achieve the specific quantitative outcome nominated) without a deposit and refund system, when he has produced such a manifestly inadequate and biased report on the matter himself.

- The second of White's 'challenges' is a *non sequitur*. For it to make any sense at all would require kerbside recycling and CDL to be strongly complementary services, if not joint products. But the reality is that kerbside recycling and CDL are closer to being strong substitutes or competitors than complements. Both systems would be competing for the most valuable recyclables. Given this reality, the economics of avoiding duplication or under-utilisation of existing recycling systems (ie, resource waste), plus at least some evidence about consumer preferences, militate in favour of having *either* kerbside recycling *or* CDL, *but not both*.
- The third 'challenge' is spurious. Unless it can be demonstrated that a deposit and refund system tops a well-designed benefit-cost ranking, why should *governments*, let alone industry, support such a system? Corporate social responsibility – including to encourage resource conservation and waste minimisation – may

¹² Based on notes taken of White's comments during his presentation on 26 March 2002 by Russ Martin, C4ES.

¹³ BIEC *Impacts of Container Deposit Legislation on New South Wales Recycling and Litter Management Programs* December 2000, prepared by C4ES, Sydney; BIEC *Non-residential Beverage Container Recovery Feasibility Study*, prepared by C4ES in association with Community Change Pty Ltd, Sydney 2001; and *Independent Assessment of Kerbside Recycling in Australia* Nolan ITU Pty. Ltd & Sinclair Knight Merz, Sydney 2001.

well require businesses to *oppose* a deposit and refund system which, if relatively cost-ineffective, could increase local council costs (read ratepayers' rate increases), and business costs (read higher consumer prices), and consumer costs (read higher time taken in recycling), in return for economic benefits that fall short of those that might flow from alternative approaches using the same resource costs to implement.

- The final assertion, from a professional 'independent' analyst employed by an academic institution, is extraordinary. White appears prepared to rest on the belief that others (or at least Access Economics) cannot objectively scrutinise the analysis, and therefore he cannot be proven wrong. This is not an appropriate standard for professional, rigorous research, let alone the basis for policy changes affecting every single member of the NSW community.

The second part of Access Economics' response to White's challenges, with respect, is to remind White where the onus of responsibility properly lies in this matter:

- It is incumbent on White to demonstrate, rigorously and conclusively, that his finding in favour of CDL is superior to all other options for increasing recycling.
- That demonstration must include a comprehensive evaluation of alternative approaches, and/or a proper assessment of other relevant, published, and available work, especially where that work might suggest that alternatives to CDL may be superior on cost-benefit grounds.
- His work should be transparent and available for thorough peer review.

These are not impossible or unreasonable demands – they are the standard requirements for any Ph.D thesis, and standard practice for research in institutions such as the Institute of Technology, Sydney.

They are the more important where the policy and legislative changes proposed by White will directly affect the entire population of NSW.

Based upon our reading of his report, we consider that these responsibilities are yet to be discharged by White.

6.2 A SUMMARY EVALUATION OF THE WHITE REPORT

In a number of important respects, Access Economics judges the White report to have failed each of the criteria set out in section 4 above.

The reasons for these findings can be summarised as follows:

- Increased recycling may well be a very desirable policy objective to be pursued by governments in NSW, and Australia more generally. CDL is one – but only one – possible option for producing this outcome.
- Cost-benefit analysis could and should be used to answer the question: 'How *best* can governments increase recycling rates?' Answering this question requires a cost-benefit ranking of all feasible alternatives. Only if some variant of CDL tops this benefit-cost ranking can the answer to this question be: 'CDL'.
- The terms of reference for the White report would have allowed such a ranking to be established.
- However, the White report does not ask this question in any comprehensive way, and its cost-benefit analysis does not include a ranking of alternative ways of increasing recycling rates.
- In this fundamental sense, the White report has not answered the appropriate question.
- In restricting the scope of the cost-benefit analysis in the report, White also makes a number of limiting assumptions (e.g., ignoring the additional costs of consumers' time and the potentially large transition costs likely to be faced by local councils in the quantitative results) that clearly bias the cost-benefit results in favour of CDL's absolute net cost-benefit.
- The recycling rates for containers used as the basis for assessing the costs and benefits of the various CDL scenarios are backed by a superficial discussion of international experience of CDL deposits and returns and are little more than guesswork.

- The primary research undertaken by White and the ISF concentrates on a telephone survey of consumers and a 'Citizens' Forum'.
- The telephone survey results in support of CDL were based on limited information (some of which was not included in the White report and therefore could not be assessed by us) but nevertheless showed declining support as information about the costs of CDL was introduced. Even so, the results were based on offering interviewees a CDL/no CDL choice only. Offering a wider choice of options – such as extensions to kerbside recycling, including in public places – may well have changed the results even more dramatically.
- The outcomes of the so-called 'Citizens' Forum' may well have been influenced by biased and/or limited information about feasible alternatives.
- In any case the 'Citizen's Forum' recommendations, in large measure, are either impractical and/or uncoded, despite the fact that at least some of them will entail additional costs over and above those likely to be generated by CDL itself.

In short, the White report has not done what was required. In our opinion:

- **It has failed adequately to respond to a common-sense interpretation of what we understand to be the Terms of Reference for the report.**
- **There are basic and serious questions about the limited primary research undertaken by the Institute for Sustainable Futures as part of the analysis.**
- **There is evidence that the use of other available research has been selective.**
- **The analysis is demonstrably partial rather than comprehensive.**
- **The internal logic and analysis has significant gaps and defects.**
- **Many of the numerical results are presented in a non-transparent way.**

7. POLICY IMPLICATIONS: HAS THE CASE BEEN MADE FOR CDL IN NSW?

The policy implications of our analysis are clear.

They can be summarised in four points.

- **Whatever the merits of CDL for NSW, the White report cannot be regarded, in any sense, as having demonstrated them in a comprehensive, credible, balanced or transparent way.**
- **We suggest that any decision by the NSW Government to change what we understand to be current policy in relation to CDL on the basis of the White report would be premature at best, and potentially very bad policy at worst.**
- **A more rigorous analysis, with particular attention to a cost-benefit ranking of alternative approaches, focussed on those areas and for those products where the need to increase recycling rates is greatest, should be undertaken before any policy change is made in relation to CDL.**
- **This analysis should be undertaken by people with recognised skills and credibility in the field.**

Although Access Economics has not set out to assess the merits of CDL, we note that beverage containers make up around 4% of the domestic waste stream.¹⁴ In turn, the domestic waste stream makes up around one-third of the total waste stream in Australia. This means that, in total, beverage containers constitute around 1.5% of the total waste stream in Australia. Container Deposit Legislation, at best, would address about 1.5% of the total waste stream.

As to our own views of the merits of CDL in NSW, we remain of an open mind.

However, we note the views of the Industry Commission Inquiry into Recycling:

'Deposit schemes work best when the costs of improper disposal are high and cheaper alternatives are ineffective. The Commission has not found a convincing case for compulsory deposit schemes in the Australian context for any products reviewed in this report.'

[*Recycling in Australia* Volume I, February, 1991, page 11.]

As to the first sentence, we couldn't have put it better ourselves.

¹⁴ Beverage Industry Environment Council (1998), *Recycling and Garbage Bin Audit*, BIEC: Melbourne.