Chapter 3

The effectiveness of current waste management strategies

3.1 This chapter addresses the effectiveness of existing strategies to reduce, reuse or recover waste from different waste streams. It is divided into the following sections:

- existing waste policies and practices;
- the use of landfill as the primary waste management response and its economic, environmental and social impacts; and
- a number of key issues in relation to the management of the municipal, commercial and industrial (C&I) and construction and demolition (C&D) waste streams.

Existing waste management strategies

3.2 The constitutional responsibility for waste management policy lies with state jurisdictions while significant carriage is often undertaken by local government.[1] Most states and territories have waste minimisation strategies supported by both environment protection legislation and waste minimisation legislation. The overall objectives of such strategies are to protect the environment and conserve natural resources.[2]

3.3 The Productivity Commission reported that two of the prominent features of waste minimisation strategies across all jurisdictions were, first the sharing of responsibility for waste reduction between industry and the community, and second the requirement to use or consider the waste hierarchy in decision-making.[3]

3.4 Recognition of shared responsibility as a principle of waste minimisation strategies is reflected in the number and range of extended producer responsibility (EPR) initiatives undertaken across jurisdictions. For example, the New South Wales Department of Environment and Climate Change targets 17 products for specific

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1 Department of the Environment, Water, Heritage and the Arts, Commonwealth Government, *Submission 78*, p. 1. The states often pass responsibility for day-to-day waste management administration to local government.

2 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 51.

3 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 53.

industry action under its EPR Priority Statement 2005–06 including batteries and paint.[4] EPRs are further discussed in chapter 5.

3.5 South Australia's approach to waste minimisation provides an example of the integration of the waste hierarchy into state waste management policy. The South Australian Government seeks to provide policy and legislative frameworks based on the waste hierarchy which enable state and local government, industry and the community to work together 'to drive a new strategy for waste avoidance and reduction, waste reuse and recycling and waste disposal.'[5]

3.6 The objective of waste minimisation in many states and territories has given rise to zero waste or towards zero waste goals. Victoria, the Australian Capital Territory, South Australia and Western Australia all have in place zero waste or towards zero waste goals.[6] The Australian Capital Territory Government, for instance, has adopted a strategy of no waste by 2010.[7] Other jurisdictions have established targets for each waste stream. New South Wales and Victoria recovery targets to be reached by 2014 are reproduced in Table 3.1.

Table 3.1—Waste recovery targets in NSW and Victoria

Waste stream	NSW	Victoria
Municipal recovery	66 per cent	65 per cent
C&I recovery	63 per cent	80 per cent
C&D recovery	76 per cent	80 per cent

Department of Environment and Climate Change, New South Wales Government, *Submission 16*, Attachment B, p. 50.

3.7 Whilst New South Wales, Victoria, South Australia, Western Australia and the Australian Capital Territory have waste management targets underpinned by strategies and timelines to meet them, Queensland, the Northern Territory and Tasmania do not have strategies with targets at all.[8] What results according to Hyder

4 Department of Environment and Conservation, New South Wales Government, *NSW Extended Producer Responsibility Priority Statement 2005–06*, March 2006, pp 7–28, www.environment.nsw.gov.au/resources/warr/2005624_prioritystatement2005_06.pdf (accessed 12 August 2008).

5 South Australian Government, *Submission 83*, pp 1 & 9.

6 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 53.

7 Department of Territory and Municipal Services, Australian Capital Territory Government, *No Waste by 2010 – A Waste Management Strategy for Canberra,* www.tams.act.gov.au/__data/assets/pdf_file/0013/12460/nowasteby2010strategy.pdf (accessed 12 August 2008).

8 SITA Environmental Solutions, *Submission 53*, Attachments B and C.

Consulting is a 'lack of focus on the part of all players in respective waste/resource chains on what needs to be achieved and by whom.'[9]

3.8 The Productivity Commission recommended that governments should not directly or indirectly impose targets on the amount of waste diverted from landfill as part of waste management policy.[10] However, this recommendation was rejected in the government response which acknowledged that waste diversion targets:

> ...should only be included in waste management legislative, regulatory or quasi-regulatory instruments if rigorous analysis reveals that their pursuit will deliver net benefits to the community.
>
> The Commonwealth notes that aspirational, voluntary targets can be effective communication tools in drawing community attention to desirable outcomes in waste and recycling matters. Aspirational waste reduction targets, where appropriate, should be set in a sustainability context and be based on sound science.[11]

3.9 The committee agrees that there is a legitimate communication role for waste diversion targets. It also agrees that targets should be set in a sustainability context and based on rigorous analysis and sound science.

3.10 To establish realistic targets on waste reduction that are achievable, appropriate and obtainable, cost-benefit analyses that factor in environmental and social externalities need to be undertaken.

Recommendation 1

3.11 The committee recommends that state and territory governments implement waste reduction targets that are set in a sustainability context and based on rigorous analysis and sound science.

Landfill

3.12 Disposal of waste to landfill remains the primary means of waste management in Australia despite strong growth in recycling over recent years. As the following table demonstrates, of the 32.4 million tonnes of waste generated in 2002–03 in Australia, 54 per cent was landfilled and 46 per cent was recycled.

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9 Hyder Consulting, *Waste and Recycling in Australia*, Paper prepared for the Department of Environment and Heritage, Short Paper, Report no. 4, February 2006, p. 43.

10 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 157.

11 Department of the Environment, Water, Heritage and the Arts, *Government Response to Productivity Commission's Final Report on the Inquiry into Waste Generation and Resource Efficiency in Australia*, July 2007, p. 3.

Table 3.2—Waste disposal and recycling rates of key jurisdictions, 2002–03

State/Territory	Total Generated (Tonnes)	Disposed (Tonnes)	Disposal Rate (%)	Recycled (Tonnes)	Diversion Rate (%)
NSW	12,170,000	6,341,000	52	5,830,000	48
Victoria	8,609,000	4,180,000	49	4,429,000	51
Queensland	3,973,000	2,722,000	69	1,251,000	31
WA	3,522,000	2,696,000[(a)]	77	826,000	23
SA	3,433,000	1,277,000	37	2,156,000[(b)]	63
ACT	674,000	207,000	31	467,000[(c)]	69
TOTAL	32,382,000		54	14,959,000	46

(a) Total disposal figure for WA is for metropolitan Perth.
(b) Total recycling figure for SA includes meat waste, a prescribed industrial waste.
(c) The total recycling figure for the ACT includes cooking oil and fat, motor oil, salvage and reuse, and paint.
* There was no data available for Tasmania and the Northern Territory at the time Hyder Consulting published the report from which this table is derived.

Hyder Consulting, *Waste and Recycling in Australia*, Paper prepared for the Department of Environment and Heritage, Short Paper, Report no. 4, February 2006, p. 6.[12]

3.13 A more recent estimate by WCS Market Intelligence & WME Media reveals that the rate of diversion has remained constant, while the overall quantity of waste generated and hence waste going to landfill increased by about eight per cent per annum. Of the estimated 38.3 million tonnes of waste generated in Australia in 2004–05, approximately 20.7 million tonnes (or 54 per cent) was disposed of in landfill.[13]

3.14 Of the 20.7 million tonnes landfilled:

- 6.9 million tonnes or 33 per cent was municipal waste;
- 6.3 million tonnes or 30 per cent was C&I waste; and
- 7.5 million tonnes or 36 per cent was C&D waste.[14]

12 Available from www.environment.gov.au/settlements/publications/waste/pubs/waste-recycling.pdf (accessed 12 August 2008).

13 WCS Market Intelligence & WME Environment Business Media, *The Blue Book – Australian Waste Industry,* 2008, p. 58.

14 Rounding errors exist. WCS Market Intelligence & WME Environment Business Media, *The Blue Book – Australian Waste Industry*, 2008, p. 49.

3.15 Despite the country's strong dependence on landfill as a waste management strategy, there are no national aggregated data on the number of landfills or the environmental performance of landfills across Australia.[15] Moreover, there are no minimum national environmental standards in relation to landfill operations and regulatory regimes differ across jurisdictions.[16]

3.16 As noted earlier, landfill can cause environmental and social costs through gas emissions, leachate discharge, foul odours and loss of visual amenity, and the harbouring of disease-carrying pests which are not charged to the landfill operator.[17] These external costs are rarely included in the pricing structure of landfill and as a result, tend to encourage an over reliance on landfill compared to various resource recovery options. Such externalities detailed by the New South Wales Department of Environment and Climate Change include:

- GHGE of between 0.08 and 1.01 tonnes CO_2-e/tonne of municipal solid waste from methane emissions from landfill depending on gas recovery and electricity generation;
- Opportunity costs of disposing materials which could otherwise replace the use of virgin resources;[18]
- Local amenity costs which can manifest in reduced property values and enjoyment for those who live or work near the landfill;
- Pollution of groundwater and odours;
- Windblown dust and litter; and
- Intergenerational costs associated with the lifetime of the landfill and beyond as resources are no longer available for the potential use of future generations.[19]

3.17 The greatest consideration for any business in relation to waste management options is cost.[20] Thus, the effectiveness of many strategies and initiatives to influence

15 Department of the Environment, Water, Heritage & the Arts, *Submission 78*, p. 4.

16 Mr Mike Ritchie, National General Manager, SITA Environmental Solutions, *Committee Hansard*, 3 July 2008, p. 30.

17 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. xxvii.

18 A US EPA study found that use of recycled aluminium rather than virgin resources saves 15.72 tonnes CO_2-e/tonne municipal solid waste which at \$15/t CO_2 is equivalent to \$235 savings per tonne of municipal solid waste. Similarly, the saving for mixed paper is \$44 a tonne of municipal solid waste. See also the discussion on the environmental impact of waste in chapter 2.

19 Department of Environment and Climate Change, New South Wales Government, *Submission 16*, Attachment A, p. 7.

20 Qubator Pty Ltd, *Submission 12*, p. 2.

waste avoidance and recovery is hampered by the comparatively low cost of landfill disposal.[21]

3.18 Another driver of landfill over resource recovery appears to be the much higher revenues received by the waste management industry for the collection, transportation, treatment, processing and disposal of waste. Data quoted in the Productivity Commission report demonstrate that collection, transportation, treatment, processing and disposal of waste generated around 90 per cent of the total revenue in the Australian waste industry in 2002–03.[22] By comparison treatment, processing and sale of recyclables only generated around 10 per cent. This is despite the fact that the amount of waste disposed (54 per cent) was broadly comparable to the amount of material recycled (46 per cent). This imbalance demonstrates the much greater financial incentive for the waste management industry to landfill material than to recover the resources.

3.19 A 2005 Waste Management Board of Western Australia study established that the high transportation costs and low landfill fees meant that recycling was not economically viable for most parts of the state outside the Perth metropolitan region. However, the study also found that the environmental benefits of recycling outweighed any financial losses for nearly all locations in the state. Indeed, according to the Western Australian Department of Environment and Conservation, in a number of regional and remote communities, recycling provides 'significant social benefits not quantified in the economic modelling.'[23] Nonetheless, the committee acknowledges that the proposals canvassed in this report may sometimes require adaptation for smaller, regional communities or not be appropriate at all.

3.20 Hyder Consulting maintain that over the course of the last two decades, a large body of scientific evidence has been developed both in Australia and internationally that 'clearly demonstrates that the recovery of material prior to landfilling and the treatment of residual waste has significant environmental benefits.'[24] Yet, across Australia, the social and environmental benefits of recycling have largely been undervalued, if valued at all, in consideration of waste management options. In the committee's view this situation must be remedied by jurisdictions fully accounting for the external social and environmental costs and benefits of landfill versus recycling. These externalities are discussed later in this chapter.

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21 Queensland Government Environmental Protection Agency, *Submission 80*, p. 3.

22 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 43.

23 Western Australian Department of Environment and Conservation, *Submission 76*, p. 3.

24 Hyder Consulting, *Submission to the Productivity Commission Waste Generation and Resource Efficiency Inquiry*, Submission no. 147, p. 2.

Landfill levies

3.21 Evidence before the committee strongly supported the use of landfill levies as an incentive to change the behaviour of waste generators. Levies serve as a positive price signal for improved resource recovery. The principal beneficiaries of the levy would be the more efficient recyclers as the levy would be paid on residual materials that cannot be recovered. One witness put this point another way, 'removal of the levy would reward the less efficient recyclers.'[25]

3.22 According to Mr Timothy Rogers, Executive Director, Departmental Performance Management and Communication, New South Wales Department of Environment and Climate Change, the levy in New South Wales has been highly effective in driving resource recovery. He describes the levy as a 'simple market mechanism designed to support innovation in the marketplace.'[26]

3.23 Scheduled increases of $6 per tonne per annum over five years were introduced to the New South Wales Waste and Environment Levy in July 2006. Therefore, by 2010–11, the New South Wales levy is expected to reach $56 per tonne in the Sydney metropolitan area and $52 per tonne in the extended regulation area. The levy, as 'NSW's major economic instrument for waste' has assisted in driving increasing demand for new recycling technology to recover and utilise more materials and for alternative waste technologies to treat the residual portion of waste that would previously have been disposed of to landfill.[27]

3.24 Landfill levies vary considerable across the country as demonstrated below in Table 3.3.

25 Mr Mark Gorta, Manager, Waste Management, Department of the Environment and Climate Change, New South Wales Government, *Committee Hansard*, 3 July 2008, p. 9.

26 Mr Timothy Rogers, Executive Director, Departmental Performance Management and Communication, Department of Environment and Climate Change, New South Wales Government, *Committee Hansard*, 3 July 2008, p. 4.

27 Department of Environment and Climate Change, New South Wales Government, *Submission 16*, Attachment B, p. 22.

Table 3.3—Landfill levies on disposal, 2008–09

Jurisdiction	Region	Levy $ per tonne
NSW[28]	Sydney Metropolitan Area	$46.70
	Extended Regulation Area	$40.00
	State-wide	$46.70
VIC[29]	Metropolitan and Provincial – Municipal	$9.00
	Metropolitan and Provincial – Industrial	$15.00
	Rural – Municipal	$7.00
	Rural – Industrial Municipal Regional	$13.00
QLD		Nil
SA[30]	Metropolitan – Solid Waste	$24.20
	Non-Metropolitan – Solid Waste	$12.10
	State-wide – Liquid Waste	$10.10
WA[31]	Perth Metropolitan – Putrescible	$7.00
	Perth Metropolitan – Inert	$5.00 per m^3
NT		Nil
ACT[32]	Domestic Waste (up to 0.5 tonnes)	$8 to $24
	Domestic Waste (over 0.5 tonnes)	$62.00
	Commercial Waste (up to 0.25 tonnes)	$27.50
	Commercial Waste (over 0.25 tonnes)	$110.00
TAS		Nil

28 Figures are for 2008–09. Department of Environment and Climate Change, New South Wales Government, *Domestic Jurisdictional Comparison of Waste Levies*, 2008. Mr Timothy Rogers, Executive Director, Departmental Performance Management and Communication, Department of the Environment and Climate Change, New South Wales Government, *Committee Hansard*, 3 July 2008, p. 7. The figures for the Sydney metropolitan area and the extended regulation area exclude trackable liquid waste whereas the state-wide figures include trackable liquid waste.

29 WCS Market Intelligence & WME Environment Business Media, *The Blue Book – Australian Waste Industry,* 2008, p. 54. Department of Environment and Climate Change, New South Wales Government, *Domestic Jurisdictional Comparison of Waste Levies*, 2008.

30 Information compiled by Department of Environment and Climate Change, New South Wales Government, *Domestic Jurisdictional Comparison of Waste Levies*, 2008. It should be noted that information detailing levy rates is not readily available, clear or current.

31 Western Australian Department of Environment and Conservation, *Submission 76*, p. 5.

32 Australian Capital Territory Government, *2008 Guide to Waste Disposal Charges*, Effective 1 July 2008, www.tams.act.gov.au/__data/assets/pdf_file/0018/31554/2008_Brochure.pdf (accessed 24 July 2008).

3.25 WSN Environmental Solutions notes that whilst landfill levies are intended to drive alternatives to landfill, in most states such levies have been 'relatively insignificant and have failed to provide the economic drivers to either minimize waste generation or to facilitate the investment in resource recovery technologies.'[33] Moreover, in three jurisdictions, Queensland, Tasmania and the Northern Territory, there is no levy at all.

3.26 Consistent with the 'user pays' principle, the committee is of the view that landfill levies should be applied across all jurisdictions. Such levies should be calculated to include the costs of the full range of social and environmental externalities of landfills and be mindful of the impact on smaller communities. The Productivity Commission's report noted the need to tailor regulatory solutions to match the circumstances of particular landfills and address only the externalities produced by the landfill and not upstream issues. Such efforts should, however, be balanced with the need to maintain minimum environmental standards.[34] Evidence available to the committee suggests that the adoption of landfill levies across all jurisdictions will drive greater resource recovery from waste. What is unknown and requires detailed analysis is the impact of landfill levies as a price signal on the volume of waste generated across the three main waste streams and in relation to the rate of waste growth.[35]

3.27 The committee considers that the role of government in relation to landfill includes mandating the health and safety requirements of landfills. The committee took the view that, as landfill will remain a key aspect of waste management in Australia, it should be the least economically advantageous option for waste generators.

Recommendation 2

3.28 The committee recommends that landfill levies should be applied across all jurisdictions, adjusted for the impact on smaller communities, and should be calculated to include the full range of social and environmental externalities.

Hypothecation

3.29 One of the major concerns expressed by witnesses was the level of hypothecation in relation to landfill levies.[36] Hypothecation rates vary with the highest rate of 100 per cent in Victoria where the levy funds are used solely for the purposes

33 WSN Environmental Solutions, *Submission 31*, p. 4.

34 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. xxxiii.

35 WSN Environmental Solutions, *Submission 31*, p. 4.

36 Hypothecation means that the funds derived from the levies are set aside for waste management programs.

of environmental protection and to foster the environmentally sustainable use of resources and best practice in waste management.[37]

3.30 Evidence before the committee related not only to the importance of hypothecation *per se* but also of the need to invest levy revenue into resource recovery initiatives.[38] Infrastructure was highlighted throughout the inquiry as an area in need of considerable investment. Funds from the hypothecation of levy revenue could be invested into such initiatives. Moreover, one of the primary concerns raised in relation to community attitudes towards waste generation is that an 'out of mind, out of sight' attitude often prevails, given that community awareness of the waste lifecycle and waste externalities is limited. Investment of levy revenue into resource recovery is one step towards encouraging greater awareness of the fate of waste and of the consequences of waste generation.

3.31 The committee notes with interest the South Australian approach when in July 2007 it doubled the landfill levy and hypothecated the increased amount (i.e. 50 per cent of the new total) to Zero Waste South Australia, a body which 'offers a suite of financial incentives, advocacy and strategic partnerships, to facilitate the achievement of South Australia's Waste Strategy.'[39]

Recommendation 3

3.32 The committee recommends that state and territory governments pursue the hypothecation of landfill levies and their investment into resource efficiency initiatives and infrastructure to the fullest extent possible.

Resource efficiency

3.33 Whilst it is often used in the context of recycling or resource recovery, the term 'resource efficiency' is a broader concept which includes avoidance, reuse, recycling and recovery of energy from waste.

3.34 Improving Australia's resource efficiency rates is desirable due to the environmental and social benefits that can be delivered. High resource efficiency is also an indicator of a more productive economy – that is, achieving greater productive output for each unit of resource. Materials that are disposed of rather than reused or recycled are effectively abandoned potential resources.

3.35 Evidence presented to the committee strongly indicated that the optimal level of resource efficiency in Australia is far from being reached in relation to many reusable and recyclable materials.

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37 Department of Sustainability and Environment, Government of Victoria, *Towards Zero Waste Strategy*, September 2005, p. 51.

38 SITA Environmental Solutions, *Submission 53*, Attachment D.

39 South Australian Government, *Submission 83*, p. 11.

3.36 In terms of the growth of recycling in Australia, the Productivity Commission found that recycling rates have increased in recent years at a rate faster than disposal to landfill.[40] WSC Market Intelligence & WME Environment Business Media estimated that in 1999–2000, approximately 10.5 million tonnes of waste was recovered for recycling and/or reprocessing and in 2004–05, 17.6 million tonnes of waste was recovered.[41] Thus, about 46 per cent of waste was captured for recycling/reprocessing in 2004–05 compared to 37 per cent in 1999–2000.

3.37 Whilst there is variation between materials in terms of their recycling rates and despite an overall increase in recycling, more solid waste in Australia continues to be disposed to landfill (54 per cent) than is recycled (46 per cent).[42]

3.38 In 2002–03, an estimated 46 per cent of Australia's waste or approximately 15 million tonnes was recovered for recycling. Hyder Consulting estimated that in 2002–03, 30 per cent of municipal, 44 per cent of C&I and 57 per cent of C&D waste was recycled.[43] Estimates from 2005–06 suggest that the total resource recovery rate was 46 per cent of which rates across the three main waste streams were as follows:

- 35 per cent (or 3.851 million tonnes) of municipal waste;
- 50 per cent (or 6.279 million tonnes) of C&I waste; and
- 50 per cent (or 7.573 million tonnes) of C&D waste.[44]

3.39 A Hyder Consulting study estimated that in 2006, the Australian recycling industry had a turnover of $11.5 billion, contributing 1.2 per cent of GDP, and a capital investment of over $6 billion. The same year, the recycling industry employed approximately 10 900 people and indirectly an additional 27 700 people. The direct and indirect benefits of this investment and employment were estimated at $55 billion.[45]

3.40 The additional net benefits of recycling that have not translated into transaction costs primarily because of their social and environmental focus include:

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40 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 15.

41 WSC Market Intelligence & WME Environment Business Media, *The Blue Book – Australian Waste Industry*, 2008, p. 49.

42 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 15.

43 Hyder Consulting cited in Department of Environment of Environment and Heritage, Submission to Productivity Commission, *Submission 103*, Attachment A.

44 WSC Market Intelligence & WME Environment Business Media, *The Blue Book – Australian Waste Industry,* 2008, p. 49.

45 Hyder Consulting, *Australian Recycling Values – A net benefits assessment,* Final Report, prepared for the Australian Council of Recyclers Inc, 23 January 2008, p. ii.

- Environmental benefits such as greenhouse gas abatement savings, water and resource use, aquatic eco-toxicity and energy savings;[46]
- Economic benefits including annual turnover, employment and indicative multipliers; and
- Social benefits including employment, quality of life, sustainable future, economy and biodiversity.[47]

3.41 One of the key environmental benefits of recycling is greenhouse gas abatement. Submitters told the committee that there are a number of currently available technologies that can be implemented by the waste management and resource recovery sectors in Australia to deliver significant levels of greenhouse gas emission reduction (carbon abatement). The Boomerang Alliance's submission included the following options available to reduce the waste sector's carbon footprint (which contributes around 3 per cent or 16.6 Mt CO_2-e to the national total):

- abatement through improved landfill gas capture and use ('improved landfill gas flaring and recovery');
- avoiding future landfill gas emissions by stopping the disposal to landfill of waste materials with degradable organic carbon ('avoided emissions from avoided landfilling');
- saving energy by recycling high embodied energy materials ('embodied energy savings from recycling');
- using renewable fuels derived from waste ('displacing the use of fossil fuels'); and
- converting suitable waste materials to 'biochar' for land application ('developing new 'carbonising' technologies as a form of carbon capture and storage').[48]

3.42 Assuming 80 per cent of waste currently destined for landfill ca be diverted, Warnken ISE estimates annual abatement of 37.8 Mt CO_2-e, which is approximately a 7 per cent reduction on current national net GHGE. Whilst acknowledging the immediate practical challenges of achieving such additional resource recovery, Warnken ISE notes that this level of performance is technically possible with

46 As one case in point, it takes the same amount of energy to make one aluminium can from virgin material as it does to make seven aluminium containers out of recycled material. Mr Ian Kiernan, Chairman, Clean Up Australia, *Committee Hansard*, 3 July 2008, p. 62.

47 Hyder Consulting, *Australian Recycling Values – A net benefits assessment,* Final Report, prepared for the Australian Council of Recyclers Inc, 23 January 2008, p. i.

48 Warnken ISE, *Potential for Greenhouse Gas Abatement From Waste Management and Resource Recovery Activities in Australia*, Prepared for SITA Environmental Solutions, March 2007, p. i, submitted by Boomerang Alliance, *Submission 46*, Attachment F.

currently available technology.[49] Even if this high level of recovery is overly optimistic, it demonstrates the large potential for GHGE abatement from within the sector. As Australia transitions to a low carbon economy, the demand for additional abatement in this sector is likely to increase dramatically.

3.43 Evidence before the committee strongly supported the view that the link between recycling and greenhouse gas abatement must be clearly articulated within waste management policy. According to Mr Matthew Warnken, Managing Director of Crucible Carbon, the carbon abatement benefit of recycling should be recognised in any waste cost-benefit analysis:

> To date a lot of the assessment in the public arena has devalued, first of all, the quantum of carbon benefit associated with the increase in recycling and, secondly, the value that should be associated with that.[50]

3.44 Conversely, Mr Mike Ritchie, New South Wales President of the Waste Management Association of Australia argued that the forthcoming Carbon Pollution Reduction Scheme needs to send a direct and undiluted price signal to the market to recognise the greenhouse benefits of recycling:

> ...we need to recognise recycling within or beside an emissions-trading regime. At the moment, if I recycle 1,000 tonnes of Bunnings aluminium from Bunnings stores, the beneficiary of that recycling is the aluminium smelter. They are the ones, under the emissions-trading scheme, that reduce their emissions and therefore buy fewer permits. There is a market trade process which may give some benefit through me back to Bunnings, but it is a very small and very diluted signal. We need a far more direct signal to encourage people to recycle, whether that is a business owner-manager or a Bunnings general manager. We need some kind of parallel system to an emissions-trading scheme that says, 'You created the following embodied energy savings upstream and here is a certificate or some recognition of that which is tradable and has value.' At the moment that is a very indirect signal.[51]

3.45 Given the Commonwealth Government is currently considering the arrangements for a national emissions-trading scheme the committee is of the view that it is timely that the government takes recycling into account.

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49 Warnken ISE, *Potential for Greenhouse Gas Abatement From Waste Management and Resource Recovery Activities in Australia*, Prepared for SITA Environmental Solutions, March 2007, p. 10 submitted by Boomerang Alliance, *Submission 46*, Attachment F.

50 Mr Matthew Warnken, Managing Director, Crucible Carbon, *Committee Hansard*, 3 July 2008, p. 66.

51 Mr Mike Ritchie, New South Wales President, Waste Management Association of Australia, *Committee Hansard*, 3 July 2008, p. 17.

Recommendation 4

3.46 The committee recommends that the Commonwealth Government calculates options to send a direct and undiluted price signal to the market and publishes the greenhouse benefits of recycling or landfill gas reduction, capture and use as part of its deliberations on the Carbon Pollution Reduction Scheme.

3.47 The committee is mindful of the fact that the carbon abatement value should not be seen in isolation of the other environmental and social benefits of recycling, including water and energy savings. Indeed, one of the key messages throughout the inquiry from a range of stakeholders was that waste generation and management require a holistic yet multi-dimensional, rather than selective and singular, approach.

3.48 The availability and accessibility of kerbside recycling has been the primary driver behind the growth in recycling across the country.[52] Other drivers include international commodity markets and rising commodity prices for recovered materials such as metals, and landfill levies which have created incentives, particularly in the C&I and C&D sectors, to utilise alternatives to landfill.[53] Kerbside recycling, and opportunities in the C&I and C&D sectors are discussed below.

3.49 To date Australia has largely relied on encouragement and persuasion to increase rates of recycling, particularly from the household waste steam, along with the subsidising of collection services and introduction of waste disposal levies. In Europe, increased recycling is primarily achieved through legislation.[54]

Municipal waste

3.50 There are two main options for improving the level of recycling and resource efficiency from the municipal waste stream. First, there is kerbside recycling which has become widespread throughout Australia, and second there is away-from-home recycling which has a much lower uptake rate. Before discussing each of these options, the committee first makes some observations about the level of community engagement in dealing with the municipal waste stream.

Community engagement

3.51 The need for a paradigm shift in our attitudes towards waste was emphasised throughout this inquiry. Many stakeholders recognised the need to reduce our impact on the environment or face 'profound changes and consequences that will affect every aspect of our environment, our lives, our economies and our societies.'[55] Others

52 Department of the Environment, Water, Heritage and the Arts, *Submission 78*, p. 13.

53 Australian Bureau of Statistics, *Australia's Environment: Issues and Trends, Solid waste in Australia*. 2006.

54 Australian Bureau of Statistics, *Australia's Environment: Issues and Trends, Solid waste in Australia*, 2006.

55 Government of South Australia, *Submission 83*, p. 3

highlighted the waste industry's contribution to Australia's GHGE and the need to focus on carbon abatement initiatives and alternatives to landfill. Although this sentiment was strong throughout the evidence, it was particularly so within community groups in relation to municipal waste.

3.52 A number of community groups and private individuals, (many of whom voluntarily collect and recycle litter) highlighted the negative environmental and aesthetic impact of waste. Whilst the motives, perspectives and views of such stakeholders varied considerably, the common thread was the need to transform Australia from a 'throwaway society to a recycling society.'[56] In order to do so, a paradigm shift is required in which waste is viewed as a resource of positive economic, environmental or social value.

3.53 The obverse to the proposition that people throw away items that are no longer wanted or valued, because they are considered waste, is that people don't throw away items that are valuable or recognised as a resource. The transforming element which imports a value onto such items may be economic, environmental, social or a combination of all these factors.

3.54 In South Australia for example, the economic value of container deposits brought about by the state's 30 year old container deposit scheme, has contributed to a general intolerance towards litter in the environment. This view is supported by the fact that there is less rubbish collected in South Australia than any other state on a per capita basis on Clean Up Australia Day.[57] In other words, South Australians recognise the environmental and social impacts of waste and therefore the environmental and social value in its removal from the environment.

3.55 During its hearings in Adelaide the committee heard that the container deposit scheme had imbued a culture of collection and recycling. For example, Mr John Phillips OAM, Executive Director of Keep South Australia Beautiful Environmental Solutions explained to the committee:

> I think it is important to understand that we have had it for 30 years, so it is built into our culture. People understand CDL, and it is just automatic.[58]

3.56 Mr Phillips went onto explain that because the CDL scheme had provided the recycling infrastructure, that the materials returned for recycling had expanded well beyond containers:

> If you look at the recycling depot network in South Australia, their metropolitan regional consists of over 100 recycling depots. They do not just collect CDL. They get paper, cardboard and mixed plastic and they take

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56 Mr John Lawson, President, Australian Council of Recyclers Inc, *Committee Hansard*, 3 July 2008, p. 18.

57 Mr Ian Kiernan, Chairman, Clean Up Australia, *Committee Hansard*, 3 July 2008, p. 68.

58 Mr John Phillips OAM, Executive Director, Keep South Australia Beautiful Environmental Solutions, *Committee Hansard*, 30 June 2008, p. 35.

> car batteries. This morning you heard that they take metal and all those sorts of things, so that is a culture of being able to return product with a value on it...[59]

3.57 Finally, he explained some of the associated social, economic and environmental benefits that flowed from the CDL:

> Some of the economic benefits flow back into the community through the Scouts, the footy club, the netball club or whatever it is. That is their annual fundraising method. Businesses do the same. They collect their 5c deposits in the kitchen and then they have their staff Christmas party based on how much is raised during the year. So I think it is part of the culture, but there are a lot of economic benefits and social benefits that flow. It is the mechanism that allows us to be engaged with the community about other things. The average person really does not know how to wrap their mind around emissions trading or global warning. They just do not understand it. But simply by talking about litter, purchasing habits and recycling, you can engage with them on some of those complex issues in a simple way. We see that with our education centres and our school programs, whether they are about water, energy, waste or biodiversity. You can use it as a tool. I think the community need to have that sort of simplicity when it comes to understanding how they need to respond to something that is becoming more urgent every day but that they do not know how to touch.[60]

3.58 Whilst the level of community support to engage in tangible local and global efforts to reduce impacts on the environment is well demonstrated, such commitment has not been adequately harnessed. Reasons include limited infrastructure to enable more recycling and thus limited accessibility to recycling services, coupled with a lack of leadership on recycling.[61] This has led to a growing frustration on the part of community groups and private individuals engaged in the voluntary collection of litter. Ms Terrie-Anne Johnson, Chief Executive of Clean Up Australia, stated that this frustration was of 'being responsible for being the solution to the issue rather than being part of the solution to the issue.'[62] On the other hand, there is considerable frustration amongst people looking for alternatives to waste disposal.[63]

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59 Mr John Phillips OAM, Executive Director, Keep South Australia Beautiful Environmental Solutions, *Committee Hansard*, 30 June 2008, pp 35–36.

60 Mr John Phillips OAM, Executive Director, Keep South Australia Beautiful Environmental Solutions, *Committee Hansard*, 30 June 2008, p. 36.

61 Community support is reflected in recent littering behaviour studies. Whereas in the past people associated litter with aesthetics, contemporary research on littering behaviour suggests that people now identify litter with the environment and safety concerns rather than aesthetics alone. Department of Environment and Climate Change, New South Wales Government, *Litter Research,* www.environment.nsw.gov.au/warr/litterresearch.htm (accessed 30 July 2008).

62 Ms Terrie-Anne Johnson, Chief Executive, Clean Up Australia, *Committee Hansard*, 3 July 2008, p. 66.

63 Ms Alexandra Graham, GreenHome New South Wales Coordinator, Australian Conservation Foundation, *Committee Hansard*, 4 July 2008, p. 15.

3.59 The committee heard that part of the solution requires greater investment in recycling services which are convenient, accessible, supported by adequate infrastructure, and provide an incentive to engage. Mr Jeff Angel, Director of Total Environment Centre stated:

> Education strategies have been used a lot, but by themselves they are useless as they do not produce viable or accessible collection systems. It is all very well to tell people to recycle, but if they do not have easy access to facilities such as kerbside or beverage container deposit systems to put in practice their recycling aspirations then it falls apart.[64]

3.60 A container deposit scheme (CDS) is one such option highlighted throughout the inquiry as a means of providing the necessary infrastructure for drink containers specifically and other recyclable materials more broadly. Whilst the committee will await the outcomes of the EPHC investigation into container deposit legislation (CDL), it recognises that the network of collection centres established under such a scheme would also likely provide the infrastructure for the collection of other recyclable materials.

Kerbside recycling

3.61 An estimated 90 per cent of Australian households had access to kerbside recycling in 2006.[65] Of the costs involved, Boomerang Alliance indicated that:

> [K]erbside recycling (nett of the sale of recyclate) is estimated to cost $374 million p.a to local government and the estimated costs for state and local government to address litter are estimated at over $200 million p.a.[66]

3.62 Estimates suggest that kerbside recycling delivers external benefits of approximately $420 per tonne of mixed recyclables collected, almost all of which arises upstream.[67] The Productivity Commission conceded that the net external benefits of kerbside recycling vary according to the circumstances but noted that that this figure was probably inflated.[68]

3.63 The Local Government and Shires Associations of New South Wales noted the 'immense cost' of kerbside recycling services to local councils and communities.[69] The costs are primarily collection and sorting costs which are particularly high in relation to materials such as glass and containers given the problems with compaction and low density. The Western Australian Local Government Association notes that

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64 Mr Jeff Angel, Director, Total Environment Centre, *Committee Hansard,* 3 July 2008, p. 50

65 Australian Bureau of Statistics, *Environmental Issues: People's Views and Practices*, Report no. 4602.0, March 2006.

66 Boomerang Alliance, *Submission 46*, p. 9.

67 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 83.

68 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 83.

69 Local Government and Shires Associations of New South Wales, *Submission 72*, p. 3.

recycling services provided by local councils have to deal with the growing complexity of waste:

> Those local governments providing a recycling service are faced with an increasing diversity of materials used, particularly in packaging, leading to the need for more complex recycling infrastructure and greater expense in order to separate the material.[70]

3.64 One of the issues raised in relation to kerbside recycling was the lack of knowledge in the community about recyclable material. The common misperception that the triangular recycling symbol on plastic containers implies that the container can be recycled is one case in point. The plastic identification code which is a triangle with a number in it is used by the industry to identify the type of plastic, rather than whether or not it can be recycled. It does not necessarily mean that the item can be recycled in a particular council area.[71] Mr David West, National Campaign Director of the Boomerang Alliance noted the lack of community knowledge:

> As an example, if I can pop-quiz the panel: how many of you recycle your margarine containers? It is probable that your local council does not recycle that form of plastic when it goes into a kerbside bin—in fact, you are actually contaminating it…So there is a huge amount of confusion with people about what is recyclable, because every plastic has a recycling symbol on it, even if it is not commonly collected through the kerbside system.[72]

3.65 As much practical information as possible on recyclable material in each council area would assist households in determining what is recyclable in their council area.

3.66 Another practical issue raised during the inquiry in relation to kerbside recycling was the lack of consistency of wheelie bin lid colours that are used in different jurisdictions. The committee takes the view that streamlining such colours to ensure national consistency to the fullest extent possible would benefit householders when they move or travel interstate.

Glass contamination

3.67 Glass, which has a recovery rate of 50 per cent, poses a particular problem in kerbside collections because glass compaction in pressurised collection vehicles causes breakage and thus contamination of paper. This leads to more wastage and

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70 Western Australian Local Government Association, *Submission 44*, p. 2.

71 Planet Ark Environmental Foundation, *Recycling Myths: Sorting the Facts from the Fiction.* 2006, p. 17, www.planetark.com/nrw/media/NRW_RecyclingMythsReport.pdf (accessed 13 August 2008).

72 Mr David West, National Campaign Director, Boomerang Alliance, *Committee Hansard*, 2 July 2008, p. 12.

lower values for recycled paper.[73] The presence of glass in kerbside bins limits compaction rates for trucks thereby reducing productivity.[74]

3.68 As glass fines contaminate paper fibre ensuring that most paper is sent to landfill.[75] However, technology is now available which appears to be able to address the problem of sorting broken glass by colour as it enables optical sorting to minimise contamination of the waste stream. Mr Trevor Hockley, Consultant for Recyclers of South Australia informed the committee:

> You have the fact that the paper is being contaminated with glass shards from breakage—that is a problem for them and they try to use screens and whatever else to separate it—then you have glass being all together, being broken and then needing to be optically sorted, in most cases, to get colour separation and clean, on-spec streams...[76]

3.69 Glass and paper along with plastics are highly tradable commodities.[77] Glass can be endlessly recycled whereas paper gradually breaks down and can only be used a number of times.[78] The Forever Glass Group of Companies details the benefits of glass recycling including:

- Energy savings of up to 74 per cent compared to making glass from raw materials;
- A saving of 1.1 tonnes of raw materials for each tonne of crushed glass (cullet) used;
- Fuel oil saving of about 34 litres for every tonne of glass recycled;
- Recycling a glass jar saves enough energy to light a bulb for four hours.[79]

3.70 At present, paper is one of few materials that is cheaper to recycle than send to landfill.[80] Moreover, the recycling of paper has carbon abatement value as every

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73 Mr Markus Fraval, Chief Executive Officer, Revive Recycling Pty Ltd, *Committee Hansard*, 2 July 2008, p. 29.

74 Mr Mike Ritchie, National General Manager, Marketing and Communications, SITA Environmental Solutions, *Committee Hansard*, 3 July 2008, pp 33–34.

75 Mr Mike Ritchie, National General Manager, Marketing and Communications, SITA Environmental Solutions, *Committee Hansard*, 3 July 2008, p. 34.

76 Mr Trevor Hockley, Consultant, Recyclers of South Australia Inc, *Committee Hansard*, 30 June 2008, pp 44–45.

77 Mr Tony Gray, Director of Sustainability, VISY Industries Pty Ltd, *Committee Hansard*, 2 July 2008, p. 22.

78 Mr Andrew Vanstone, Group General Manager Sustainability, AMCOR Australasia, *Committee Hansard*, 2 July 2008, p. 50. Aluminium is another product that can be recycled absolutely along with some plastics.

79 Forever Glass Group of Companies, *Submission 35*, p. 4.

80 Mr Mike Ritchie, New South Wales President, Waste Management Association of Australia, *Committee Hansard*, 3 July 2008, p. 22. Other materials that are cheaper to recycle than send to landfill are aluminium, steel, cardboard and, by a small margin, plastic.

tonne of wastepaper and carton board in landfill produces an estimated 2.5 tonnes of CO_2-e emissions.[81]

3.71 Mr David West, National Campaign Director of the Boomerang Alliance describes the lost revenue resulting from glass contamination:

> We lose about 80,000 tonnes of paper, worth $120 a tonne, a year to landfill at the moment because of little tiny glass fines. You can have a technology fix for that, but that technology fix will add another $20-odd to the cost of reprocessing paper. In trying to get the cost of reprocessing glass right, we have got to a point now where it costs $370 a tonne to process glass for a product that you can sell for $70. If we do not recycle it, we cannot recover paper.[82]

3.72 Whilst there was general agreement that contamination of kerbside recycling was a problem, particularly in relation to glass, there was considerable diversity in views in relation to the extent of the problem, its implications for resource recovery, and the need of an alternative solution. According to Mr Vaughan Levitzke, Chief Executive of Zero Waste South Australia, the beverage container deposit scheme operational in South Australia has effectively taken glass out of the kerbside system ensuring that the amount of glass is considerably less, and thereby enabling greater compaction, and less contamination of paper.[83] This view was endorsed by Mr Neville Rawlings, President of Recyclers of South Australia, who stated that South Australia had an 80 per cent recovery rate for glass as a consequence of the container deposit system which, in diverting glass away from the kerbside system, had enabled the state to recover cleaner paper.[84]

3.73 However, both VISY Industries Australia and AMCOR Australasia were of the view that contamination came from multiple sources. Neither stakeholder was unable to confirm or deny any distinction between levels of contamination in South Australian paper compared to paper recovered in other jurisdictions. Whilst Mr Tony Gray, Director of Sustainability of VISY Industries Australia stated that the company would know the levels of contamination of the million tonnes of paper that it recycles in Australia, there was no elaboration on what these levels were.[85]

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81 The December 2007 technical guideline for the estimation of greenhouse emissions and energy at facilities cited by Mr Andrew Vanstone, AMCOR Australasia, *Committee Hansard*, 2 July 2008, p. 47.

82 Mr David West, National Campaign Director, Boomerang Alliance, *Committee Hansard*, 2 July 2008, p. 4.

83 Mr Vaughan Levitzke, Chief Executive, Zero Waste South Australia, *Committee Hansard*, 30 June 2008, pp 16–17.

84 Mr Neville Rawlings, President, Recyclers of South Australia Inc, *Committee Hansard*, 30 June 2008, p. 42.

85 Mr Tony Gray, Director of Sustainability, VISY Industries Australia Pty Ltd, *Committee Hansard*, 2 July 2008, p. 27.

3.74 Whilst the committee recognises that there are efforts underway to address the issue of contamination including optically sorting glass to minimise contamination of the stream,[86] consideration should be given to initiatives which remove or separate glass from the main kerbside recycling. The committee recognises that such initiatives may include a container deposit system and the separation of glass from other recyclables at the kerbside. One the one hand, the committee acknowledges the concerns of stakeholders that the removal of higher value commodities including glass from the kerbside system will impact on the viability of kerbside collection and materials recovery facilities (MRFs).[87] However, on the other hand, an alternative system has the potential to reduce paper contamination, improve the recovery of both glass and paper leading to higher returns and greenhouse gas abatement, and by enabling greater compaction rates collection of trucks, improve productivity.

Recommendation 5

3.75 The committee recommends that the Environment Protection and Heritage Council undertake a cost-benefit analysis of glass in the kerbside recycling system including economic, social and environmental externalities. Such an analysis should consider alternatives to kerbside recycling for glass, including container deposit schemes, and their potential economic, social and environmental impacts.

Away-from-home recycling

3.76 Effective recycling of materials consumed away from home is a particular challenge for those engaged in municipal recycling. These materials include refuse from food halls, shopping centres, public parks and public events. The ever-present take-away coffee cup and flavoured milk cartons are two key cases in point.[88]

3.77 Changes in consumer behaviour have resulted in a significant increase in the purchase and disposal of food and drink packaging outside of the home.[89] According to Mr Ian Kiernan, Chairman of Clean Up Australia, 50 per cent of major food and grocery items are now consumed away from home, for which there is little infrastructure to enable recovery.[90] The commercial sector does not have a sustainable economic mechanism to support of public place recycling.[91] In this regard Mr Markus Fraval, Chief Executive Officer of Revive Recycling stated:

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86 Mr Paul Hilton, General Manager, AMCOR Recycling, AMCOR Australasia, *Committee Hansard*, 2 July 2008, p. 53.

87 Mr Paul Hilton, General Manager, AMCOR Recycling, AMCOR Australasia, *Committee Hansard*, 2 July 2008, p. 53.

88 Mr John Phillips OAM, Executive Director, Keep South Australia Beautiful Environmental Solutions, *Committee Hansard*, 30 June 2008, p. 31.

89 Boomerang Alliance, *Submission 46*, p. 20.

90 Mr Ian Kiernan, Chairman, Clean Up Australia, *Committee Hansard*, 3 July 2008, p. 61.

91 Mr Jeff Angel, Director, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 58.

> Kerbside collection is very well suited to much packaging, but its flaw is that it deals only with items consumed at home. In the case of beverage containers, approximately 50 per cent are consumed away from home. Only 23 per cent of rigid containers are actually recycled at the moment through Australia's kerbside system. When you add commercial and industrial waste, a further 16 per cent, the total recovery is around 39 per cent—but only 23 per cent goes through kerbside. What that shows is that there really is a need for additional infrastructure.[92]

3.78 Widespread recognition across the industry of the need to improve away-from-home recycling has not translated into agreement on the best method to recover such resources. The second National Packaging Covenant (the Covenant) was expanded to include away-from-home recycling as a means of assisting the Covenant to reach its goals and targets.[93] According to the Packaging Council of Australia, away from home recycling is the best opportunity for a 'substantial increase in packaging recycling rates.'[94] However, views are strongly divided on the effectiveness of the Covenant as a co-regulatory arrangement partly because it has produced a lack of measurable action.[95] The Covenant is considered further in chapter 5.

3.79 Prominent in the away-from-home debate is container deposit legislation, around which extremely polarised views are held. The South Australian container deposit system (CDS) has provided an economic incentive for away-from-home recycling of beverage containers for individual consumers and the commercial sector alike which does not exist in other jurisdictions. Evidence before the committee suggests that the recycling rate of beverage containers in South Australia is currently around 70 per cent[96] compared to the national rate of approximately 41 per cent.[97]

3.80 Whilst there was no agreement on whether the Covenant is adequate, or on the usefulness of any alternative model (including the national application of the South Australian CDS), key requirements for such an initiative which are considered in greater detail in chapter 5 include:

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92 Mr Markus Fraval, Chief Executive Officer, Revive Recycling Pty Ltd, *Committee Hansard*, 2 July 2008, p. 29.

93 National Packaging Covenant Council, *The National Packaging Covenant*, 15 July 2005 to 30 June 2010, p. 10.

94 Packaging Council of Australia, *Submission 33*, Attachment C, p. 2.

95 Mr David West, National Campaign Director, Boomerang Alliance, *Committee Hansard*, 2 July 2008, p. 2.

96 Mr Peter Dolan, Director, Science and Sustainability, South Australian Environment Protection Authority, *Committee Hansard*, 30 June 2008, p. 14.

97 Mr David West, National Campaign Director, Boomerang Alliance, *Committee Hansard*, 2 July 2008, p. 5.

- An incentive to recycle (of which the strongest is economic).[98]
- Convenience or accessibility of the recycling service.[99]
- The provision of adequate infrastructure to enable accessibility.[100]
- Education and awareness campaigns to encourage ownership of the problem accompanying away-from-home recycling initiatives.[101]

3.81 The committee also heard evidence about the use of reverse vending machines (RVMs) to improve away-from-home recycling. When located at convenient public places, RVMs enable recycling to become part of a regular shopping routine with no additional transportation costs. According to evidence before the committee, RVMs offer high quality sorting cost savings. Through the compaction of recyclable materials at the point of collection, moreover, RVMs have the potential to reduce transport and logistics costs.[102] RVM data (both in terms of number of containers by material and by brand) is collected automatically. The process is described by Mr Markus Fraval, Chief Executive Officer, Revive Recycling:

> Consumers typically feed their containers into an RVM. These machines will accept aluminium, steel, plastics and glass—basically the whole range of beverage containers. They are identified by material, colour and brand. The technologies used are barcode readers, shape recognition, material recognition, colour recognition and also weight sensors. A combination of those gives a unique identification for each container that is put through—after a significant amount of programming work and database building initially. A receipt is then issued to the consumer and that receipt can then be taken to cooperating retailers or other parties and redeemed for cash. The benefit to retailers of that is that it provides a flow through of traffic into their premises.[103]

3.82 The committee sees clear scope for improvement in the rate of away-from-home recycling. Options such as a national CDL, strengthening the National Packaging Covenant and the use of RVMs should be canvassed by jurisdictions for their relative costs and benefits.

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98 Mr Markus Fraval, Revive Recycling Pty Ltd, *Committee Hansard*, 2 July 2008, p. 34; Total Environment Centre, *Submission 67*, p. 5.

99 Mr Markus Fraval, Revive Recycling Pty Ltd, *Committee Hansard*, 2 July 2008, p. 34; Mr Jeff Angel, Director, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 50.

100 Mr Ian Kiernan, Clean Up Australia, *Committee Hansard*, 3 July 2008, p. 61; Ms Alexandra Graham, GreenHome New South Wales Coordinator, Australian Conservation Foundation, *Committee Hansard*, 4 July 2008, p. 13.

101 Mr Robert Verhey, Strategy Manager Environment, Local Government and Shires Associations of New South Wales, *Committee Hansard*, 3 July 2008, p. 94.

102 Mr Markus Fraval, Chief Executive Officer, Revive Recycling Pty Ltd, *Committee Hansard*, 2 July 2008, p. 30.

103 Mr Markus Fraval, Chief Executive Officer, Revive Recycling Pty Ltd, *Committee Hansard*, 2 July 2008, p. 30.

Recommendation 6

3.83 The committee recommends that the Environment Protection and Heritage Council consider initiatives, including container deposit schemes, to improve away-from-home recycling. Such initiatives should include elements such as an incentive to recycle, convenience, adequate infrastructure and a supporting education and awareness program.

Commercial and industrial waste

3.84 As noted in chapter 2, the wide-ranging nature of commercial and industrial (C&I) waste, as well as the diversity of those who produce it, pose particular problems for its recycling.[104]

3.85 One of the key problems in capturing waste generated in the C&I sector, despite the existence of a market for many such materials, is that there is currently little economic incentive for businesses operating in commercial premises to establish suitable infrastructure for recycling. Disposal to landfill remains the cheaper and more convenient option.[105] In the case of office paper, recycling costs and a lack of infrastructure in offices, combine to make recovery difficult.[106]

3.86 A number of submitters highlighted the need to improve paper recycling rates in relation to office paper in the C&I sector.[107] SITA Environmental Solutions argue that white paper recycling rates are as low as 11 per cent because landfill is cheaper than installing separate collection transportation services.[108]

3.87 Ms Jane Castle, Resource Conservation Campaigner with the Total Environment Centre, explains why millions of tonnes of office paper are going to landfill each year:

> Because there is no economic incentive for, largely, businesses in commercial premises to separate the office paper out from other waste. At the moment it is a cost for a business to have their office paper recycled, and there is no infrastructure in offices to separate it. There are some businesses out there that are looking for those opportunities, and people are

104 Mr Timothy Rogers, Executive Director, Departmental Performance Management and Communication, Department of Environment and Climate Change, New South Wales Government, *Committee Hansard*, 3 July 2008, p. 3.

105 Mr Trevor Hockley, Consultant, Recyclers of South Australia Inc, *Committee Hansard,* 30 June 2008, p. 49.

106 Ms Jane Castle, Resource Conservation Campaigner, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 54.

107 Mr John Phillips OAM, Executive Director, Keep South Australia Beautiful Environmental Solutions, *Committee Hansard*, 30 June 2008, p. 31; Ms Jane Castle, Resource Conservation Campaigner, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 52; SITA Environmental Solutions, *Submission 53*, Attachment A.

108 SITA Environmental Solutions, *Submission 53*, Attachment A, p. 16.

> coming on board if they can get the infrastructure into their offices. And there is a market for office paper, which is largely overseas at the moment—it gets exported. The barrier is that primarily it is not a business priority.[109]

3.88 Ms Castle identified a lack incentive for businesses to get involved in recycling office paper.[110] Mr Jeff Angel, Director of Total Environment Centre recognised that the lack of infrastructure hindered recycling. He maintained that suggestions for councils to extend their kerbside collection would impose substantial cost on councils because kerbside collections are not operating at a profit. Small businesses would incur increasing rate levies for waste collection. Mr Angel explained that the importance of business presenting to the public as environmentally responsible would provide the incentive to get involved in reprocessing and recycling:

> [T]he pressure is on business—big, small and medium—to have a good environmental reputation. The whole issue of carbon footprints and people trying to present themselves as having a good green reputation is coming to the fore. When you talk to businesses about addressing their carbon footprint, one of the core issues is how they handle waste.[111]

3.89 SITA Environmental Solutions argue that white office paper recycling rates can only be improved when there is:

- an increase in the cost of the alternative landfill disposal,
- recycling rebates payable on tonnes recovered,
- regulations requiring office paper recycling, and
- government purchasing requirements positively biased in favour of recycled office paper.[112]

3.90 The National Packaging Covenant (the Covenant) recycling target for paper and cardboard is 70–80 per cent by 2010.[113] According to the National Packaging Covenant Council, however, from 2003 to 2005, the recycling rate increased from 64 to 66 per cent.[114] If this gradual rate of increase is maintained the Covenant is likely to just achieve the lower end of its paper and cardboard target.

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109 Ms Jane Castle, Resource Conservation Campaigner, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 54.

110 Ms Jane Castle, Resource Conservation Campaigner, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 54.

111 Mr Jeff Angel, Director, Total Environment Centre, *Committee Hansard*, 3 July 2008, p. 55.

112 SITA Environmental Solutions, *Submission 53*, Attachment A, p. 16.

113 National Packaging Covenant Council, *Annual Report 2005–06*, p. 14.

114 National Packaging Covenant Council, *Annual Report 2005–06*, p. 14.

3.91 AMCOR Australasia notes that whilst paper recycling has increased across all waste streams, most of the increase has come through the kerbside system.[115] The Covenant is currently undergoing a mid-term review to consider progress towards objectives and goals. The results of the review are expected to be presented by the National Packaging Covenant Council to the EPHC at its next meeting in November 2008.[116]

3.92 The committee recognises, that while its recommendation to introduce landfill levies across all jurisdictions may provide some incentive to recycle office paper, other complementary incentives may also be required. In this regard, the committee encourages the ongoing review of the Covenant and its respective National Environment Protection Measure (NEPM), recognising that reaching the target of 70–80 per cent recycling is likely to require a reduction in office paper disposal to landfill.

Construction and demolition waste

3.93 The observations of Qubator Pty Ltd affirmed the view that the most powerful motive for recycling C&D waste is the generator's desire to reduce the cost of disposal:

> The cost of dumping waste is therefore a critical factor in determining whether or not waste will be used, irrespective of the fact that it can be used.[117]

3.94 This dynamic was clear in New South Wales where the landfill levy is substantial:

> ...construction waste has a high recovery rate, driven largely by the waste levy, the weight of the material and the ease of recycling it.[118]

3.95 According to Qubator, corporate policy may prevent waste from being reused or recycled and where this is the case, it is generally to avoid the possibility of litigation in the event that 'something goes wrong'.[119] Such policies may well reflect industry standards. In relation to product standards, the Productivity Commission recommended that jurisdictions responsible for specifying the use of materials for production (including building and construction materials) should review all product standards that 'unjustifiably frustrate the use of recycled products and/or call for the

115 AMCOR Australasia, *Submission 57*, p. 3.

116 Environment Protection and Heritage Council, *Communiqué*, 17 April 2008, p. 3

117 Qubator Pty Ltd, *Submission 12*, p. 2.

118 Mr Timothy Rogers, Executive Director, Departmental Performance Management and Communication, Department of Environment and Climate Change, New South Wales Government, *Committee Hansard*, 3 July 2008, p. 3.

119 Qubator Pty Ltd, *Submission 12*, p. 3.

use of virgin materials.'[120] The Commonwealth responded with agreement that performance-based standards for materials are generally preferable and recognition that examination of mandatory standards in the building and food packaging industries to determine whether such standards are appropriate had merit.[121]

3.96 The committee notes the Productivity Commission recommendation and the Commonwealth's response and encourages jurisdictions to review their mandatory standards to enable the recycling of materials wherever possible rather than the use of virgin materials.

Pricing externalities

3.97 Evidence before the committee suggested that many of the zero and limited waste to landfill targets of various jurisdictions are not going to be reached. One of the primary reasons for this is the fact that price and regulatory signals indicate that landfill is still the most economically attractive means of waste management.[122] As Hyder Consulting observed, with the exception of businesses subject to, or engaged in, negotiations with jurisdictions about their extended producer responsibilities and those signatories of the National Packaging Covenant, 'there is virtually no reason for business to improve their resource recovery performance.'[123]

3.98 The primary policy instruments available to government in relation to waste management are pricing signals, or regulation, or a combination of both by way of regulatory signals.[124] Pricing signals such as a landfill levy and other market based instruments (including an advanced disposal fee) are one mechanism designed to capture the societal and environmental cost of waste management. The objective ought to be to set price signals at a level which serves as an incentive for producers, users, and end-of-life managers to take full account of the external impacts of waste management practices. The lack of cost-benefit analysis, which takes the full costs of GHGE and other environmental and social externalities into account, has meant that landfill remains the major waste management option in Australia.

3.99 There are obvious difficulties in quantifying the societal and environmental impacts of current landfill practices. For example, how is it possible to determine the

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120 Productivity Commission, *Waste Management*, Report no. 38, October 2006, Recommendation 12.5, p. 366.

121 Department of the Environment, Water, Heritage and the Arts, *Government Response to Productivity Commission's Final Report on the Inquiry into Waste Generation and Resource Efficiency in Australia*, July 2007, p. 9.

122 Mr Mike Ritchie, New South Wales President, Waste Management Association of Australia, *Committee Hansard,* 3 July 2008, p. 17.

123 Hyder Consulting, *Waste and Recycling in Australia*, Paper prepared for the Department of Environment and Heritage, Short Paper, Report no. 4, February 2006, p. 43.

124 Mr Mike Ritchie, New South Wales President, Waste Management Association of Australia, *Committee Hansard*, 3 July 2008, p. 17.

social and environmental cost of a waterway contaminated by landfill leachate? According to the New South Wales Department of Environment and Climate Change, recent cost-benefit analyses have tended to overestimate compliance costs of recycling and waste reuse whilst underestimating their environmental and social benefits.[125] Submitters raised the Productivity Commission's *Waste Management* report with the committee as an issue of major concern given its low pricing assumptions in relation to the cost of carbon. The Productivity Commission assumed that the external cost of greenhouse gas emissions was between $5 and $20 per tonne of carbon dioxide emissions (CO_2-e) [126] which several witnesses indicated is towards the lower end of expected carbon permit prices.[127]

3.100 Another issue is the inclusion of an 'inconvenience cost' in economic assessments of environmental and recycling infrastructure. The issue is whether separating waste into recyclables and non-recyclables by the end-user is inconvenient and should be costed accordingly.[128]

3.101 The Productivity Commission held the view that waste generators must consider the financial costs of waste disposal and recycling, the value of time and effort taken to manage their waste, and any preference for recycling or reuse that arise which all amount to private cost rather than social benefit.[129] Other stakeholders such as the Total Environment Centre submitted that such an approach gives more weight to alleged business and convenience costs over the real environmental, resource and social costs from waste.[130] The convenience factor is discussed in more detail in chapter 4.

Recommendation 7

3.102 The committee recommends that waste management policy must be grounded in rigorous cost-benefit analysis which encompass economic, environmental and social externalities.

125 Department of Environment and Climate Change, New South Wales Government, *Submission 16*, Attachment A, p. 7.

126 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 430.

127 For example, the Garnaut Climate Change Review Draft Report examines a range of permit prices between $10 and $40 (June 2008, p. 208). The Australian Government's Carbon Pollution Reduction Scheme Green Paper uses $20 as an example (July 2008, p. 281).

128 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 62

129 Productivity Commission, *Waste Management*, Report no. 38, October 2006, p. 62.

130 Total Environment Centre, *Submission 67*, p. 5.