

Chapter 6

Issues facing the recycling industry

6.1 The previous chapter highlighted the implications of the lack of domestic demand for recycled content, particularly given China's recent decision to ban the importation of 24 types of material.

6.2 Other reasons attributed to the challenges the recycling industry face, however, relate to the collection, sorting, and processing of materials. This chapter examines issues related to the approach taken to collecting materials as well as the infrastructure for sorting and processing. The issue of stockpiling is also discussed, as are particular issues related to specific types of recyclable material, including glass, mattresses and tyres.

Implications of collection methods for recycling

6.3 Submitters emphasised that the collection method is a major component in ensuring the high quality of recyclable products and in ensuring viable markets for recyclable materials. In particular, the quality and quantity of material collected and diverted to recycling is affected by:

- differing collection methodologies utilised in recycling programs, both within and between states; and
- policy settings.¹

6.4 The variability of recycling yields was highlighted by Re.Group, which submitted that:

Analysis of household recycling yields across all NSW Council areas, using 2011–12 data published by the NSW EPA, demonstrates the scale of variance in the quantity of material collected for recycling in this one jurisdiction. Across NSW, the average yield is about 250kg/household/year. However, there are more than 40 councils with yields above 300kg/household, and more than 10 with yields above 400kg/household/year.²

6.5 Re.Group also provided an example of the differences in the quality of recycling feedstock collected in New South Wales, measured in terms of contamination by items that are not able to be recycled at a specific facility. It submitted:

We have some council clients where 'yellow bin' recycling feedstock consistently has less than 10% contamination, and other clients where

1 Waste Management Association of Australia, *Submission 52*, p. 11.

2 Re.Group, *Submission 32*, p. 7.

contamination levels are up to 20%. Contamination management is a key factor in the cost of operating a recycling facility...³

Collection methods

6.6 In its submission, the Western Australian Local Government Association (WALGA) outlined the different types of programs which can contribute to the collection and recovery of recyclable material. These programs include the provision of multiple bins to encourage source separation of waste, organics and recycling at the household level; container deposit schemes which improve the quality of both eligible materials and what remains in kerbside programs; and product stewardship schemes such as DrumMuster and MobileMuster which promote the use of specific collection infrastructure.⁴

6.7 The committee received evidence about the collection methods in place throughout Australia. For example, the Lake Macquarie Council submitted that 'fortnightly collection of a mobile recycling bin has proven to be the most effective in terms of yield, presentation rates, ratepayer satisfaction, safety and cost effectiveness'. It stated that as a result, this model for recycling has been 'widely adopted across Australia'. The Council also noted that the addition of fortnightly garden or weekly food and garden waste kerbside collection services has also proven effective.⁵

6.8 It was particularly noted that the kerbside regimes (up to three bins) in New South Wales, Victoria, Australian Capital Territory and South Australia result in greater diversion from landfill of both household recyclables (paper, cardboard, glass, aluminium, plastics and steel) and green waste. The Waste Management Association of Australia (WMAA) explained that a number of jurisdictions also provide assistance in diverting food waste from landfill towards the green waste.⁶

6.9 The South Australian Government, which was recognised by the Australian National Waste Report 2016 as having the highest resource recovery rate in Australia, highlighted the success of its kerbside recycling collection system which diverts 47.8 per cent of kerbside collected material away from landfill. It submitted that an investment of \$7.25 million has provided householders with access to easy to use, two and three bin systems.⁷

6.10 The Northern Adelaide Waste Management Authority (NAWMA) submitted that a three bin system should be mandatory in all metropolitan areas. NAWMA also suggested that governments should not preclude or prevent collection systems that may divert more recyclables from landfill. It highlighted that in South Australia it is

3 Re.Group, *Submission 32*, p. 7.

4 Western Australian Local Government Association, *Submission 58*, pp. 3–4.

5 Lake Macquarie Council, *Submission 37*, p. 2.

6 Waste Management Association of Australia, *Submission 52*, p. 11.

7 South Australian Government, *Submission 36*, pp. 16–17.

mandated that municipal solid waste must be collected weekly while 'other jurisdictions have shown step changes in recycling rates from a weekly food and garden organics service, and fortnightly residual waste' collection.⁸

6.11 Local Government New South Wales (LGNSW) also noted that the collection methods of kerbside recycling chosen by local councils is influenced by both the market value of recyclates, and community expectations and behaviour. It noted that in New South Wales:

Some NSW councils source separate materials, such as paper and cardboard, as a higher quality recyclate has more market value. Other councils have mixed waste and recycling collections that are processed at advance waste treatment centres as diverting recyclable materials from the general waste stream has proved challenging in some communities.⁹

6.12 Container deposit schemes (CDS) can also increase the rate of container recycling and increase source separation. They also have the additional benefit of reducing litter. Under a CDS, a refund is provided for eligible empty containers that are returned to a designated collection point. The longest running CDS in Australia is in place in South Australia. Other jurisdictions with CDS in place, or where schemes are being developed, are New South Wales, Queensland, Western Australia, the Australian Capital Territory and the Northern Territory.

6.13 A number of submitters highlighted the benefits of CDS. For example, the Western Australian Local Government Association (WALGA) submitted that:

There is documented evidence that a CDS improves the quality of both eligible materials and what remains in the kerbside system. Furthermore, the provision of handling fees can encourage operators and community groups to participate in the waste management industry and develop markets for collected material.¹⁰

6.14 Implications for the glass industry associated with CDS are discussed later in this chapter.

Issues with existing approaches to kerbside collection

6.15 The Victorian Waste Management Association (VWMA) submitted that collection methods have developed to provide the simplest and most efficient mechanism for households, and have reduced manual handling exposure for the industry. It noted that 'infrastructure is now all geared to handle comingled recycling'. The VWMA concluded that 'separation at source (i.e. by the householder) requires significantly more resources and space and reduces the economics of the activity'.¹¹

8 Northern Adelaide Waste Management Authority, *Submission 39*, p. 3.

9 Local Government New South Wales, *Submission 13*, p. 3.

10 Western Australian Local Government Association, *Submission 58*, p. 4.

11 Victorian Waste Management Association, *Submission 27*, p. 3.

6.16 However, a number of submitters highlighted that the separation of materials at the source results in higher yield recycling programs. Maitland City Council submitted that 'the collection of comingled materials will always be of lower quality than the collection of source separated clean recyclables'.¹² Similarly, the Waste Management Association of Australia (WMAA) submitted that 'by source separating different waste streams, and providing accessible collection systems, there is an increased ability to recover materials which can be potentially recycled into other products'.¹³ The Western Australian Government likewise submitted that:

The State Government and the Waste Authority strongly support source separation rather than mixed waste processing as a preferred means to achieving higher recovery. Source separation generates more homogenous waste streams which are easier to recover and represent a higher value to the recycling sector.¹⁴

6.17 The South Australian Government was also supportive of source separation at the household level, and submitted that:

Source separation at the point of generation (i.e. household) generally results in a much higher quality recyclable material than a single bin system for all household wastes that relies on downstream processing technology to subsequently separate out various materials. Collection is undertaken using compaction vehicles that in the case of recyclables can result in further contamination due to glass breakage that embeds in other recyclables such as paper / cardboard.¹⁵

6.18 Mr Jeffrey Angel, Director, Total Environment Centre/Boomerang Alliance, told the committee that 'source separation in a genuine sense is the opposite to co-mingled'. Mr Angel stated:

...we do have red and yellow and green bins, where ostensibly there is some general separation. But, as we've seen in the yellow co-mingled recycling bin, that degrades the material value of the paper and metal and plastic. Not only that, but in placing it both in the bin and in the garbage truck, where things are then compressed, the glass breaks and infiltrates the paper. That also makes the paper either useless or of low value.¹⁶

6.19 Visy similarly submitted that accurate at-home segregation is 'inconsistent at best' and that the causes of this include reduced size waste bins, differing council guidelines, volumes of waste to be disposed, and the level of householder education. Visy explained that the failure to segregate materials 'may doom tonnes of other

12 Maitland City Council, *Submission 40*, p. 2.

13 Waste Management Association of Australia, *Submission 52*, p. 11.

14 Western Australian Government, *Submission 5*, p. 4.

15 South Australian Government, *Submission 36*, pp. 16–17.

16 Mr Jeffrey Angel, Total Environment Centre/Boomerang Alliance, *Committee Hansard*, 14 March 2018, p. 57.

recyclable items to waste' as contaminant items can confuse sorting machinery in MRFs or elude hand sorting, thus risking 'contaminating an entire load'.¹⁷

6.20 SKM Recycling suggested that the provision of smaller general waste bins by councils 'may also be contributing to an increase in the quantum of non-recyclable (waste) materials ending up in recycling bins'.¹⁸

6.21 The Australian Capital Territory (ACT) Government argued that 'government interventions to achieve a greater level of upstream sorting can greatly impact on the quality and quantity of materials recovered for recycling'. It highlighted that in the ACT when construction and demolition (C&D) waste is sorted onsite, virtually all of the material can be recovered and the gate fees for the sorted material at C&D MRFs can fall to under \$20 per tonne. Companies that deliver unsorted C&D waste to MRFs are charged over \$130 per tonne and only 75–85 per cent of the material is recovered.¹⁹

6.22 The ACT Government also noted that office waste, if not sorted onsite is often collected with other commercial waste such as food waste and as a result is considered contaminated and sent to landfill. The ACT Government highlighted that the cost to send such waste to landfill or to Advanced Waste Treatment (AWT) facilities for processing is much higher than sending it to facilities for sorted material. The ACT Government submitted that this demonstrates that state and territory governments can set requirements for waste management which achieve positive outcomes for recycling. It submitted that:

The ACT has been successful at increasing recycling from C&I [commercial and industrial] businesses via its Actsmart program. However, at present this only reaches around 6 percent of eligible businesses. A case may exist for further Government interventions to achieve higher adoption levels.²⁰

6.23 Kerbside collection also has particular implications for the glass recycling, which are discussed later in this chapter.

Need to educate households and provide incentives

6.24 Submitters also noted that significant community engagement and education are required to increase the quantity and quality of recycling collected. WMAA stated that:

Having a well-informed community that has easy access to collection systems such as those described above definitely assists with source

17 Visy, *Submission 43*, p. 11.

18 SKM Recycling, *Submission 50*, p. 2.

19 Australian Capital Territory Government, *Submission 20*, p. 6.

20 Australian Capital Territory Government, *Submission 20*, p. 6.

separation of waste into the respective streams, and can therefore improve the quality of what is collected and recovered. This also has the additional benefit of improving the remanufacturing process, by assisting to reduce costs associated with contamination.²¹

6.25 In addition to the need for appropriate infrastructure for the collection and processing of material to be in place, the WALGA submitted that 'the chances of recovering good, high quantity material' can be increased through the use of:

- a well-funded communication and engagement program; and
- sufficient motivation to undertake waste diversion activities—motivation can be intrinsic (value based), related to incentive (cash), or a wish to avoid a negative consequence (regulation).²²

6.26 The VWMA submitted that 'the complexity of materials and the different materials collected by council recycling can be confusing to residents, especially to renters who have less ownership of recycling than longer term residents'.²³

6.27 As previously noted, source separation is critical to ensuring that recycling processes are efficient and effective. SKM Recycling submitted that 'the presence of non-recyclable materials in SKM's feedstock reduces the efficiency of SKM's materials recovery processes'. It attributed poor kerbside sorting practices 'partly to a lack of community awareness as to what can, and what can't be recycled in the kerbside recycling bin'. SKM Recycling suggested that the Australian Government should provide funding to support community education programs to encourage sound recycling practices.²⁴

6.28 Visy also supported the implementation of 'strong education practices to promote better at-home recyclables segregation'. It stated that:

...there are householders that simply do not comply with Council recycling guidelines and those who practice "wish-cycling". Wish-cycling is the phenomenon of tossing anything and everything that could possibly, maybe, sort of be recycled into the recycling bin.²⁵

21 Waste Management Association of Australia, *Submission 52*, p. 11.

22 Western Australian Local Government Association, *Submission 58*, p. 3.

23 Victorian Waste Management Association, *Submission 27*, p. 3.

24 SKM Recycling, *Submission 50*, p. 2.

25 Visy, *Submission 43*, p. 11.

6.29 It was also argued that the ability to export recycled materials to China has resulted in a policy and education focus on the quantity rather than the quality of recycling which has led to the contamination of recycling streams. Mr Harry Wilson, President, Waste contractors and Recyclers Association of New South Wales (WCRA), told the committee that:

As an industry we pulled off the advertising and the education of the ratepayers over the last five or 10 years because of the acceptability of this product into China. I think that was a bad mistake by the whole industry. That has to come back on and we need to tell the public that some of these products aren't recyclable and get them out of the stream so that we're not handling non-acceptable items. I think we can do better in that area, and that's federally.²⁶

6.30 The Ipswich City Council noted that levels of contamination in its recycling program had increased over the past five years and attributed the increase to education programs in its jurisdiction becoming lax. Councillor Andrew Antonioli, the then Mayor of Ipswich City Council, told the committee that the council has focused, and continues to focus, on educating children in local schools, but noted that 'different age groups have different understandings of recycling, and particularly the older age group sometimes get somewhat confused'.²⁷

6.31 Councillor Antonioli also noted that the area has a diverse cultural community and 'some cultures aren't as familiar with recycling as others'. Councillor Antonioli told the committee that the council had recently released a 'bin app' which advises residents on bin collection schedules and the correct bin to utilise, but that 'the up-take rate of the app' has not been as high as the council would prefer. Councillor Antonioli acknowledged that council may have placed too much emphasis on the app and that in the future, there must be an 'advanced education scheme' implemented.²⁸

6.32 LGNSW submitted that as each council responds to the unique needs of their community, a range of practices and collection methods are utilised. This can also lead to challenges in educating householders on what items can be recycled, and the correct method for disposal.²⁹

26 Mr Harry Wilson, WCRA, *Committee Hansard*, 14 March 2018, p. 29.

27 Councillor Andrew Antonioli, Ipswich City Council, *Proof Committee Hansard*, 30 April 2018, p. 19.

28 Councillor Andrew Antonioli, Ipswich City Council, *Proof Committee Hansard*, 30 April 2018, p. 19.

29 Local Government New South Wales, *Submission 13*, p. 3.

6.33 Similarly, Mr Peter Shmigel, Australian Council of Recycling, told the committee that the level of investment in recycling varies from council to council. Mr Shmigel stated:

The reality is that from council to council you find very different levels of investment, effort in contamination reduction and in education of the community. Some rely entirely on their contractors and some do it themselves. It's a totally disparate approach in the same way that it's disparate around which bins there are. I think that a concerted effort can get you some gains right away.³⁰

6.34 The South Australian Government noted that investment in the *Recycle Right* household education program has assisted in addressing the issue of householders placing incorrect items in kerbside recycling bins.³¹ The Adelaide Hills Region Waste Management Authority (AHRWMA) also highlighted the importance of education in achieving positive outcomes in recycling, and the need for such programs to be funded. It submitted that:

Advice and understanding of what can/cannot be recycled has the ability to significantly impact consumer behaviour and decisions regarding waste – for example takeaway coffee cups. When consumers became aware that takeaway coffee cups potentially could not be recycled through kerbside recycling bins there was a quick change in behaviour to use reusable cups. This matter also raises the importance of education in the effort to reduce waste to landfill.³²

6.35 Re.Group, which operates a number of recycling facilities, and accepts feedstock from a range of local councils and commercial operators submitted that 'there are significant differences in the quantity and quality of material collected for recycling in different parts of Australia'. It attributed these differences to 'the lack of a consistent national approach to education and promotion of resource recovery activities'. Re.Group advocated for the development of a nationally consistent education program, based on existing programs which have been proven to be successful. It submitted:

Community engagement and education is a critical factor for increasing the quantity and quality of recycling collected. Given that this education is often left to individual councils or contractors, the messaging is often inconsistent and less effective than could be possible through a more coordinated national approach. There are excellent examples of recycling education programs that have been developed in specific parts of Australia,

30 Mr Peter Shmigel, Australian Council of Recycling, *Proof Committee Hansard*, 30 April 2018, p. 28.

31 South Australian Government, *Submission 36*, pp. 16–17.

32 Adelaide Hills Region Waste Management Authority, *Submission 33*, p. 4.

which could be readily replicated and rolled out across a much larger audience.³³

6.36 The City of Gold Coast (CoGC) submitted that it has been offering 'financial incentives to residential customers' to encourage the use of green waste bins to reduce the volume of green and food wastes entering landfill. It submitted that this has proven successful with up to 20 per cent of CoGC households becoming customers over four years. The CoGC also noted that 'at a future tipping point, incentives lose their impact and disincentives such as higher disposal fees have more influence, e.g. green waste disposal charge increases make a green waste collection service a more viable option. The CoGC stated that the introduction of mandatory collections will maximise the quantity of organics collected but that there will be an inevitable increase in contamination from disengaged residents.'³⁴

6.37 The South Australian Government submitted that state governments should consider implementing variable rate pricing to provide a 'more direct market based price signal and economic incentive for behavioural change towards resource recovery'. Variable rate pricing would charge householders for the disposal of waste in a similar manner to other utilities such as water and electricity. This would be in accordance with two guiding principles of environmental policy, namely the polluter pays principle and the shared responsibility concept.³⁵

6.38 The South Australian Government suggested that variable rate pricing would increase the transparency of the price differential between recycling and landfill disposal. It submitted that an effective variable rate system should be built on three pillars—identification (for waste generator accountability), measurement (of waste and/or services provided), and unit pricing (charging according to service provided). The South Australian Government suggested that such systems can take various forms. It stated:

A variable rate pricing system can take various forms such as weighing the amount of waste in collection bins or using pre-paid bags, tags or stickers or prescribed sizes of waste bins. Technical specifications depend on the specific situation in the collection area, provisions made in legislation and other waste policy. While they operate differently from one another, these systems share one defining characteristic - person/business who throws away more, pay more.³⁶

33 Re.Group, *Submission 32*, pp. 7–8.

34 City of Gold Coast, *Submission 31*, pp. 2–3.

35 South Australia Government, *Submission 36*, p. 18.

36 South Australia Government, *Submission 36*, p. 18.

Issues related to particular types of recyclates

6.39 The following sections will outline the evidence raised in relation to the collection, sorting and recycling of particular types of recyclates which pose unique challenges to the recycling industry. This includes: glass, mattresses, and tyres.

Glass

6.40 Submitters noted that the glass recycling sector is facing significant challenges including that:

- commodity prices are non-existent with some councils paying to have glass recovered;³⁷
- glass is being stockpiled as there are limited established markets for recycled glass;³⁸
- there is progressive closure of glass furnaces by glass re-manufacturers; and
- there is a decline in investment for glass manufacturing.³⁹

6.41 Glass is currently recovered through kerbside recycling and CDS. However, the committee received evidence indicating that both collection methods present issues for glass recycling.

Kerbside collection

6.42 While there are high levels of recycling of glass through kerbside systems, submitters pointed to problems with kerbside recycling. For example, Visy submitted that glass recycling has posed a challenge to the industry for a number of years. It stated:

The sorting, cleaning and re-manufacture of glass received from the kerbside recycling stream has posed serious challenges to the recycling industry over many years. Glass is a significant portion of the kerbside recycling bin, making up circa 35% of the volume. Therefore of the total 3 million tonnes per annum collected from kerbside bins, approximately 1 million tonnes is glass.⁴⁰

6.43 Owens-Illinois explained that current kerbside collections systems result in 'a significant level of small glass fragments and contaminants' that cannot be used in recycled glass manufacturing. It stated that co-mingled recycling collection combined

37 Brisbane City Council, *Submission 4*, p. 4.

38 Lake Macquarie City Council, *Submission 37*, p. 5.

39 Visy, *Submission 43*, p. 11.

40 Visy, *Submission 43*, p. 11. See also Mr Max Spedding, NWRIC, *Committee Hansard*, 20 November 2017, p. 4.

with high compaction rates breaks glass into small fragments that cannot be extracted, and contaminates other recyclable materials.⁴¹

6.44 Mr Nicholas Harford, Equilibrium, told the committee that glass products collected in kerbside recycling:

...get broken at multiple points. When the bin gets picked up it gets thrown into the truck pretty hard, depending on the style of the truck. As the truck gets fuller, most trucks compact within the truck, so that creates breakage as well. When the truck gets to the material-recovery facility the material is dumped onto a cement floor, so you get more breakage. It's usually picked up in an excavator if it hasn't been dumped straight into a loading bay of some sort, so it gets picked up and dumped again. All through these phases it gets broken. I would explain as well that over the years a lot of bottles have got lighter and thinner, which is a good thing because it uses less material and energy in its manufacture. But it breaks more easily.⁴²

6.45 In addition, Owens-Illinois explained that for operational, quality and safety reasons, glass must be colour sorted and contaminants such as metal, stone, ceramics, and a range of glass types (e.g. Pyrex glassware, drinking glasses, and medical and laboratory glass) must be removed prior to processing.⁴³

6.46 Owens-Illinois stated that despite these challenges, it has been able to maintain an average of 250,000 tonnes of post-consumer cullet, and recycle content has increased from 23 per cent to 39 per cent over the past 15 years. It attributed this success to a willingness to invest in technology to process recycled glass, and manufacture new containers with an increasing recycled content. Owens-Illinois highlighted the investment in technology such as optical sorting and x-ray technology to colour sort small particles of glass and remove contaminants. It stated that 'such technology is expensive and its commercial viability relies heavily on high volumes of glass collected through co-mingled kerbside collection'.⁴⁴

Container deposit schemes

6.47 Given the issues kerbside collection presents for glass recycling, the introduction of CDS (also referred to as container deposit legislation, or CDL) creates an alternative stream of glass collection, diverting material from kerbside collection systems. Some submitters highlighted the benefits of CDS for glass recycling, including that it reduces glass contamination of co-mingled recycling, and yields higher quality recyclates. Other submitters, however, argued that the introduction of CDS pose a number of challenges to glass recycling in Australia. This section explores these issues.

41 Owens-Illinois, *Submission 56*, p. 5.

42 Mr Nicholas Harford, Equilibrium, *Committee Hansard*, 20 November 2017, p. 17.

43 Owens-Illinois, *Submission 56*, p. 5.

44 Owens-Illinois, *Submission 56*, pp. 5–6.

6.48 The South Australian Government, which has had CDL since 1977, submitted that its scheme results in reduced glass in kerbside recycling, which has reduced glass breakage in compaction vehicles and led to higher quality recyclables.⁴⁵ The scheme has also increased the quality of recovered materials due to a greater level of separation according to container type. It submitted that there are 120 depots across the state where deposits can be redeemed.⁴⁶ Similarly, Councillor John Woodward, City of West Torrens (South Australia) submitted that:

Container Deposit Levy (CDL) in South Australia has proved effective in reducing waste, increasing recycling and importantly, creating a high quality glass for recycling. The CDL allows the glass to be sorted into different colours at source, which increases the quality and value of the material for recycling. There is a strong argument for making the CDL a national scheme and increasing the deposit to 20c per item.⁴⁷

6.49 It was submitted that in addition to improving recycling outcomes and reducing waste, container deposit schemes provide a buffer against changes in commodity prices or changes in the recycling regulatory environment. For example, Mr Ritchie, MRA Consulting, told the committee that:

...container deposit schemes are worth somewhere between \$190 and \$300 a tonne in additional revenue to that MRF-council combined entity—and, yes, there's a whole debate happening about where that is apportioned and allocated—but CDS in New South Wales at least offers a buffer to China National Sword that perhaps other states don't have. It's half as much again in terms of value to the MRFs.

6.50 Owens-Illinois told the committee that, globally, it has supported 'non-discriminatory' CDS when the scheme helps 'deliver high volumes of good quality and cost effective cullet'. Owens-Illinois emphasised that its support 'is very much market specific and our support for CDL is typically in markets that have limited recycling infrastructure and where existing recycling outcomes are poor'.⁴⁸ However, in considering the introduction of schemes in both New South Wales and Queensland, Owens-Illinois expressed a preference for a 'centralised container deposit scheme'. The benefits of a single, national approach are further discussed in Chapter 7.

6.51 The implications of new schemes being introduced in states such as New South Wales and Queensland attracted significant comment. The Local Government Association of Queensland, in considering the impact of the upcoming introduction of a CDS in Queensland in July 2018, submitted that:

45 The South Australian Government noted that glass bottles returned for deposit through its CDS are 'of high quality and are sought after by re-processors'. It stated that 'the price for recovered glass in South Australia in 2015–16 was around \$90 per tonne, compared to an average of about \$50 per tonne'. South Australia Government, *Submission 36*, p. 19.

46 South Australia Government, *Submission 36*, p. 17.

47 Councillor John Woodward, *Submission 54*, p. 1.

48 Owens-Illinois, *Submission 56*, p. 6.

The introduction of a Container Refund Scheme (CRS) in Queensland on 1 July 2018 will provide significant resource recovery opportunities and challenges across the State. In particular, CRS glass collected through a container refund point is not subject to compaction making it capable of being sorted and as such a more valuable commodity. However, comingled glass collected outside South East Queensland (SEQ) through a local government kerbside collection would have greater transport costs and would be least desirable compared with CRS and SEQ glass.⁴⁹

6.52 The Brisbane City Council submitted that glass containers in kerbside recycling bins currently represent approximately \$12.5 million in council revenue. It submitted that when the Queensland Government implements the Container Refund Scheme from 1 July 2018, it is expected that these containers will not remain in the kerbside system as 'community groups and charities will all operate as collection and refund points, thereby diverting these funds into community groups'. The Brisbane City Council also submitted that 'the cost of the scheme (external to local government) will far outweigh any benefits gained'.⁵⁰

6.53 Similarly, Visy, in considering the introduction of CDL in Queensland and New South Wales submitted that such schemes:

...may further exacerbate the glass challenges, as the unintended consequence could be that, after glass containers are removed for redemption, the glass remaining in the kerbside bin could be too poor in quality to be re-used and can only be sent to landfill.⁵¹

6.54 It was also argued that, although the roll-out of CDS will marginally increase the recovery of some recyclable materials, it may exacerbate the market failures in the glass sand and glass bottles arenas.⁵² Mr Spedding, NWRIC, also stated that if there is not a market for the glass fines⁵³ resulting from kerbside collection, then it is likely that stockpiling will occur.⁵⁴

6.55 Mr Vaughan Levitzke, Chief Executive Officer, Green Industries SA, told the committee that the implementation of new CDS in Australia has largely been driven by the community, and noted that the beverage industry has long opposed the introduction of such schemes. Mr Levitzke stated:

It's probably community pressure, but also NGOs have played a strong role, particularly in New South Wales. Also I think the beverage industry

49 Local Government Association of Queensland, *Submission 7*, p. 6.

50 Brisbane City Council, *Submission 4*, p. 4.

51 Visy, *Submission 43*, p. 11.

52 MRA Consulting, *Submission 25*, p. 10.

53 Glass fines are crushed glass resulting from the collection and sorting process.

54 Mr Max Spedding, NWRIC, *Committee Hansard*, 20 November 2017, p. 4. Issues related to the need for markets for recycled goods are discussed in Chapters 5 and 7.

probably didn't do itself a great service in terms of the way it fought container deposits over many, many years. Many of those arguments didn't hold water—no pun intended!⁵⁵

Suggestions for change

6.56 To address challenges for glass recycling associated with kerbside collection, Owens-Illinois advocated for the introduction of kerbside glass-only collection systems. Owens-Illinois considered this would achieve 'the single greatest improvement to glass recycling'. It stated that:

Current Beneficiation Facilities using feedstock from the current kerbside collection system yield between 30% to 60% glass recoveries. Glass only kerbside collections will significantly increase the glass recovery to at least 90%.⁵⁶

6.57 Owens-Illinois anticipates that the introduction of glass only collections would result in the glass delivered to cullet beneficiation plants under both kerbside collection and CDS being of similar quality. This, in turn, would 'allow for less capital intensive facilities, reducing the cost of recycling in the future'.⁵⁷

6.58 In addition to making changes to the ways in which glass is collected and processed, it was suggested that a range of other policies should also be implemented. These include:

- taxes or levies should be applied to virgin aggregates to provide a level playing field for recycled glass;⁵⁸ and
- the use of recycled products in new materials, for example, requirements to utilise a minimum proportion/amount of recycled glass in aggregate and roadbuilding materials should be mandated.⁵⁹

Mattresses

6.59 In excess of two million mattresses are sold every year. 1.6 to 1.8 million mattresses are disposed of with more than half of these going to landfill (about 900,000 cubic metres per year of landfill). Other mattresses are reused, stockpiled or

55 Mr Vaughan Levitzke, Green Industries SA, *Proof Committee Hansard*, 30 April 2018, p. 38.

56 Owens-Illinois, *Submission 56*, p. 7.

57 Owens-Illinois, *Submission 56*, p. 8.

58 Brisbane City Council, *Submission 4*, p. 4. See also Hunter Joint Organisation of Councils, *Submission 22*, p. 9.

59 Brisbane City Council, *Submission 4*, p. 4; Visy, *Submission 43*, p. 11.

illegally dumped.⁶⁰ It should be noted that with the appropriate collection and processing systems, mattresses are '(almost) fully recoverable'.⁶¹

6.60 The WMAA noted the importance of source separation and appropriate collection systems in achieving high recovery rates. It stated that 'mattresses...cannot be recovered from landfill, however where Councils create separate collection systems, the potential for these to be recycled is greatly improved'.⁶²

6.61 It was also noted that a product stewardship scheme for mattresses is currently being discussed. Councils supported the inclusions of mattresses in the scheme so that as much of the material can be recovered and to keep bulky items out of landfill.⁶³

Tyres

6.62 In 2015–16, Australia generated more than 56 million EPUs (equivalent passenger units) of end-of-life tyres, which equates to roughly two EPUs per person. By weight, this equates to around 450,000 tonnes of waste material. This waste material is:

- recycled domestically (e.g. road construction, tile adhesives) – 10 per cent;
- exported as tyre-derived fuel – 27 per cent; and
- sent to landfill, stockpiles, illegally dumped or exported, or buried in mine sites – 63 per cent.⁶⁴

6.63 Mr Robert Kelman, Executive Officer, Australian Tyre Recyclers Association (ATRA), told the committee that the greatest barrier to the sustainable use of used tyres in Australia is the export of whole baled tyres. Mr Kelman stated that:

There are three principal reasons why we believe that process is unsustainable. The first is that those tyres carry water, and the World Health Organization identified that tyres moving around the globe are the biggest cause of the transportation of mosquito borne diseases that there is, so we move dengue fever, malaria and other quite dangerous diseases around the world in tyres because they're black and contained and they sustain water—the perfect incubator for mosquito larvae. The second reason is that they go to unsustainable outcomes like dirty pyrolysis operations in Malaysia or India. The third is that it massively diminishes the ability of the industry in Australia to develop, because you can buy a baler for \$15,000, get a truck

60 TIC Group, *Submission 8*, p. 3.

61 Brisbane City Council, *Submission 4*, p. 4.

62 Waste Management Association of Australia, *Submission 52*, p. 11.

63 Brisbane City Council, *Submission 4*, p. 3.

64 Tyrecycle, *Submission 21*, p. 3.

and undercut a legitimate industry when you go to the retailers and collect their tyres. So it keeps the industry at a very low level.⁶⁵

6.64 ATRA noted the lack of regulation in relation to tyres in Queensland and WA has allowed rogue operators to undercut legitimate businesses, and to stockpile or dump waste products. ATRA went on to note that Queensland and Tasmania have large stockpiles of tyres, with Tasmania having around 1.2 million tyres in stockpiles—the largest in Australia.⁶⁶

6.65 Mr Kelman, ATRA, told the committee that:

The modus operandi, which we've seen again in Queensland, is that you lease an industrial site, pay maybe a few months in advance to an unsuspecting landlord, pile the tyres up—and we've got a couple of sites in Queensland which have over a million tyres each—and then walk away. Or, as I say, they may mysteriously somehow catch fire. And that means that you're not spending any money in shredding that material, containerising it and exporting it. My members pay about \$1,100 per 40-foot container to export tyre derived fuel, so the \$2 is the endpoint of their income. If you've got a model where you can simply stockpile those tyres, you're making quite a lot of money.⁶⁷

6.66 Mr Kelman, ATRA, also noted that eventually illegally stockpiled tyres 'have to be paid for by government to get rid of them'. Mr Kelman highlighted that the Victorian EPA was forced to fund the removal of a large stockpile of tyres in Stawell. Mr Kelman stated:

Stawell was the largest stockpile of used tyres in Australia...Stawell became a massive community issue every year. Every fire season, they allocated a crew to the site to remain in position on those really hot, dangerous days in case it did go up because of the enormity of the impact that that would have. The government eventually spent the several million dollars to contract one of my members to collect the material, process and export it and deal with that community opposition.⁶⁸

6.67 A number of submitters noted that, in an attempt to manage end-of-life tyres, a voluntary, industry-led product stewardship scheme was introduced in 2014. The scheme—Tyre Stewardship Australia (TSA) is administered by tyre importers in Australia and is supported by a levy imposed on tyre importers, vehicle manufacturers and miners of a minimum of \$0.25 per EPU imported into Australia.⁶⁹ The Australian

65 Mr Robert Kelman, Australian Tyre Recyclers Association, *Committee Hansard*, 14 March 2018, p. 57.

66 Australian Tyre Recyclers Association, *Submission 23*, p. 3. See also Mr Robert Kelman, Australian Tyre Recyclers Association *Committee Hansard*, 14 March 2018, pp. 58–59.

67 Mr Robert Kelman, ATRA, *Committee Hansard*, 14 March 2018, p. 59.

68 Mr Robert Kelman, ATRA, *Committee Hansard*, 14 March 2018, p. 60.

69 Revenue raised by the levy is used to find and promote new uses for tyre-derived products.

Competition and Consumer Commission (ACCC), which has granted authorisation for the scheme to operate,⁷⁰ has published the following summary of the purpose of the TSA and how the scheme operates:

The Scheme is an accreditation program that aims to reduce the amount of end of life tyres (EOLTs) entering the environment via landfill, illegal dumping or undesirable export, while increasing the recycling rate of EOLTs...Broadly, the Scheme requires participants to adhere to a series of general and specific commitments to ensure the environmentally sound use of EOLTs, to deal only with other accredited participants of the Scheme and to report data to TSA regularly. The Scheme also imposes a \$0.25 tyre levy on tyres that its participants import into Australia.⁷¹

6.68 Mr Harford, Equilibrium, told the committee that the bulk of tyre retailers in Australia now use a Tyre Stewardship Australia accredited member for the recycling of tyres. Mr Harford explained:

Under the Tyre Stewardship Australia scheme, 25c per equivalent passenger unit is now charged on every tyre that is sold in Australia and that goes to Tyre Stewardship Australia to do research and development. It's a coercive action, and the ACCC has acknowledged it as such, in that anyone who wants to be a member of Tyre Stewardship Australia can only use Tyre Stewardship Australia members for any of its activities. Therefore, the bulk of the retailers of tyres in Australia, passenger tyres in particular, now have to use a Tyre Stewardship accredited member for their collection and recycling. As I noted, we actually do audits for Tyre Stewardship Australia for the recyclers. So those recyclers have to meet a very high standard and they have to prove that the tyres that they collect in recycle are actually going to an environmentally responsible end market at the end of the day. It brings a greater level of accountability and transparency to those operators and reduces the chance of rogue operators in the tyre space. While it doesn't fund them directly, it does provide that kind of market force.⁷²

6.69 Tyrecycle, however, argued that the TSA has not had the desired impact on addressing illegal landfilling and dumping because of the voluntary nature of the scheme.⁷³

6.70 The committee was advised that New South Wales is addressing the problem of tyres with a tracking regime for all end-of-life tyres. Tyrecycle stated that there is minimal risk of tyres avoiding this system and being illegally disposed of.⁷⁴

70 Authorisation is required as the scheme involves conduct that might otherwise breach the *Competition and Consumer Act 2010*.

71 Australian Competition and Consumer Commission, *Determination: Application for authorisation AA1000409 lodged by Tyre Stewardship Australia in respect of the national Tyre Stewardship Scheme*, May 2018, p. 2.

72 Mr Nicholas Harford, Equilibrium, *Committee Hansard*, 20 November 2017, p. 16.

73 Tyrecycle, *Submission 21*, p. 2.

74 Tyrecycle, *Submission 21*, p. 2.

Mr Kelman, ATRA, described the New South Wales tyre regulatory regime as 'leading the way'. Mr Kelman noted that recently, a number of New South Wales retailers were fined for failing to comply with regulatory requirements.⁷⁵

6.71 Finally, Mr Spedding, NWRIC, suggested that innovative solutions could be utilised for the recycling of tyres such as a 'pyrolysis process' where tyres are heated to produce oil, carbon black and metal. The oil can then be reprocessed and used by vehicles 'within days'.⁷⁶

Stockpiling

6.72 Stockpiling, or the practice of storing large quantities of collected recyclable material was raised as an issue by a number of submitters. In particular, the environmental and health risks associated with stockpiled material were noted. Some submitters called for stockpiling to be made illegal, while others argued that stockpiling is a commercial necessity for the recycling industry and which should be managed rather than made illegal.

6.73 Mr Alex Serpo, National Secretary, NWRIC, told the committee that stockpiles are 'a major concern'. Mr Serpo noted that beyond market conditions, other causes of stockpiling include:

...rogue operators who will just collect material, like construction material, put it somewhere and then close down their company. They're what we call phoenix companies.⁷⁷

6.74 Other submitters stated that the causes of stockpiling include market forces and commercial gain, transportation and geographic distances, limited interest from recyclers to commercially service remote communities, and a lack of appropriate infrastructure available.⁷⁸ Stockpiling can also occur when councils store material prior to collection and removal offsite by appropriate recyclers.⁷⁹

6.75 Mr Max Spedding, NWRIC, noted the danger associated with stockpiling combustible material and stated that despite the implementation of safety measures such as heat sensors, spacing of stockpiles, and fire barriers between stockpiles and buildings, there have been a number of serious fires. Mr Spedding described the risk as 'high' when combustible material is stockpiled.⁸⁰

75 Mr Robert Kelman, ATRA, *Committee Hansard*, 14 March 2018, p. 59.

76 Mr Max Spedding, NWRIC, *Committee Hansard*, 20 November 2017, p. 8.

77 Mr Alex Serpo, NWRIC, *Committee Hansard*, 20 November 2017, p. 5.

78 Local Government Association of the Northern Territory, *Submission 9*, p. 4.

79 Adelaide Hills Region Waste Management Authority, *Submission 33*, p. 4.

80 Mr Max Spedding, NWRIC, *Committee Hansard*, 20 November 2017, p. 5.

6.76 Submitters commented that, although stockpiling can become problematic, there are also commercial needs which make stockpiling necessary. For example, the South Australian Government commented that in regulating stockpiling, there is a need to balance the genuine need of many businesses and local governments to undertake some degree of stockpiling (for example, for reasonably anticipated sales) against excessive stockpiling that can create environmental, abandonment or unfair competition risks.⁸¹ Mr Max Spedding, NWRIC, explained that:

The difficulty is that recycling markets are not static. They rise and fall quite dramatically. When they fall, you accumulate stock, but, when the market recovers, it needs stock to be able to supply it; otherwise, you miss out and the market's not reliable. Stockpiling is an inevitable part of recycling, so a facility needs to have enough space. If it does stockpile materials, it needs to be done in a proper manner, with the necessary security, spacing et cetera.⁸²

6.77 The Victorian Waste Management Association (VWMA) submitted that 'stockpiles are a necessary part of recycling to ensure constant supply for processing'. It explained that the 'just in time' business model does not work in the recycling industry. VWMA also noted that since the 2017 fire at the SKM Recycling facility at Coolaroo, Victoria, the Victorian EPA and fire services have enacted guidelines to prescribe storage requirements.⁸³

6.78 Similarly, LGNSW submitted that the NSW EPA sets limits on the stockpiling of waste products to prevent negative environmental consequences. It noted that there is a view amongst some of its member councils that for some inert and low risk recyclable materials, it may be desirable to allow stockpiling to account for fluctuations in the market.⁸⁴

6.79 Mr Serpo, NWRIC, told the committee that industry has proposed a number of solutions to manage stockpiling including audits, enforcement action and reporting tools. Mr Serpo stated:

In regard to stockpiles, industry has put forward a number of solutions. One of them is mass balance reporting, a regulatory tool used extensively in New South Wales and in South Australia, which basically says what goes in should come out. Also, we've asked for audits of stockpiles. But we also think enforcement is important, and that's to shut down the companies which aren't acting ethically and, in some cases, are acting illegally and just getting rid of waste in any way they can.⁸⁵

81 South Australian Government, *Submission 36*, p. 19.

82 Mr Max Spedding, NWRIC, *Committee Hansard*, 20 November 2017, p. 5.

83 Victorian Waste Management Association, *Submission 27*, pp. 3–4.

84 Local Government New South Wales, *Submission 13*, p. 4.

85 Mr Alex Serpo, NWRIC, *Committee Hansard*, 20 November 2017, p. 5.

6.80 However, ResourceCo submitted that stockpiling should be made illegal in all jurisdictions. It argued that where there is no market for a material, it should be diverted to landfill and levies paid. Operators should not be allowed to stockpile material for a 'rainy day' with no market in sight as a way of avoiding a waste levy.⁸⁶

Infrastructure for processing recyclable material

6.81 Submitters highlighted the importance of investment in infrastructure for the collection and processing of recycled material and diverting waste from landfill. This infrastructure is needed both to enable regions to participate in recycling programs and to reduce contamination rates. For example, the South Australian Government submitted that:

More than \$17 million in recycling infrastructure grants has been provided towards over 150 projects across South Australia. In metropolitan areas this has supported recycling infrastructure targeting plastics, organics, mixed waste and e-waste. Funding in regional areas has supported upgraded and new transfer stations using state-of-the-art technologies and sorting equipment....in 2002-03, South Australia was diverting approximately 61% of material from landfill. With the above investment, this has increased significantly to 81.5% in 2015-16 and total resource recovery tonnages have nearly doubled. Waste to landfill has reduced by 29% this period.⁸⁷

6.82 The Shire of Exmouth highlighted the need for infrastructure to enable recycling in regional areas. The Shire explained that 'as an isolated regional area not on a standard transport route there are challenges with being able to participate and support a recycling program'. It submitted that the cost of transporting recyclables the necessary 1200 kilometres to a recycling collection point negates any income produced by collecting the material, and therefore recycling becomes 'unsustainable'. As such, it supported initiatives which recycle and reuse material within the town but highlighted the need for funding and research into opportunities for small scale recycling initiatives that create products which can be used within the local area.⁸⁸

6.83 The Shire of Exmouth also stated that certain regional areas could be identified as 'recycling nodes' to collect and receive material from other non-metropolitan areas. It submitted:

These nodes scattered throughout the state could be areas identified as potential locations to receive and process recyclable goods outside of the metro areas. They could then be supported to build the infrastructure to take and/or process the recyclables.⁸⁹

86 Resource Co, *submission 26*, p. 5.

87 South Australia Government, *Submission 36*, p. 16.

88 Shire of Exmouth, *Submission 34*, p. 2.

89 Shire of Exmouth, *Submission 34*, p. 2.

6.84 The committee received evidence that to reduce the contamination rate of recyclable materials, investment in material recovery facilities (MRFs) is required. Reducing contamination rates reduces the amount of product being sent to landfill, supports domestic markets for product, and ensures that material meets international regulatory requirements for the export to countries such as China. Mr Stuart Garbutt, Director, Operations, Re.Group, told the committee that in order to upgrade material recovery facilities (MRFs) funding of between \$5 million and \$30 million would be required. Mr Garbutt explained:

A brand-new 10,000 to 15,000 tonne MRF is \$5 million to \$6 million; the 100,000 to 200,000 tonne MRFs are \$25 million to \$30 million. I believe the one in Melbourne is reported to be somewhere in the vicinity of \$40 million to \$50 million. I would dare say that these newer MRFs probably don't need as much capital as some of these older regional MRFs. You would be probably looking at packages of \$1 million to \$2 million in regional areas, \$3 million to \$5 million in the cities.⁹⁰

6.85 Mr Garbutt, Re.Group, also noted that upgrades are a relatively short-term project with an implementation period of between four and eight months.⁹¹

90 Mr Stuart Garbutt, Re.Group, *Proof Committee Hansard*, 30 April 2018, p. 4.

91 Mr Stuart Garbutt, Re.Group, *Proof Committee Hansard*, 30 April 2018, p. 4.

