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Summary

Market overview

In 2018–19 there was around 580,000 tonnes of recycling collected from Victorian kerbsides for recycling, and it is estimated that 195,000 tonnes would have been collected in the July–October 2019 period. Typically 15–20 per cent of this goes to landfill after sorting at material recovery facilities (MRFs). However, this has jumped to around 40% of recyclables collected at the kerbside during the first four months of 2019–20.

Losses to landfill increased across August–October by approximately 15,000 tonnes per month, due to the closure of the SKM Recycling sorting facilities, resulting in the direct disposal of kerbside recycling to landfill. In addition, significant quantities of stockpiled materials, an estimated 50–60,000 tonnes of paper, plastics and glass, have also been disposed of to landfill across September–November. Note that this disposal of previously stockpiled materials is not included in Figure 1 below.

Figure 1 – Flows of kerbside collection materials in Victoria collected during July–October 2019

There remains an estimated 200,000–300,000 tonnes of kerbside recyclables in metro storage (including glass). The eventual fate of this material is unclear, but a reasonable proportion is likely destined for landfill disposal at some point in the future.
Victoria has a relatively heavy reliance on the export of recyclable materials. In October 2019 Victoria’s exports were:

- 46% of national scrap paper & paperboard (40,000 tonnes of 87,000 tonnes). Up from 38% in September and 42% in August 2019.
- 49% per cent of national scrap plastic (5,000 tonnes of 10,000 tonnes). Up from 40% in September and 42% in August 2019.

The exports include material sourced through commercial and industrial collections (not only municipal kerbside collected materials). However, the data above illustrate the strong dependency of Victorian scrap markets on export markets, and the continuing need for additional local remanufacturing capacity and demand in Victoria.

See this month's special topic piece in Section 3.2 for a more detailed examination of Victoria's recovered paper export dependency.

**Kerbside recycling markets: November developments**

**Market-wide**

**Development 1** – Cleanaway purchased SKM Recycling in early October. The SKM Laverton MRF resumed operations in mid-October. The Coolaroo MRF reopened in late November. It is understood that the Geelong MRF (formerly SKM) will not be reopened by Cleanaway.

**Development 2** – The three months across September–November saw 50,000–60,000 tonnes of stored recyclables disposed to landfill. This was done to return former SKM Recycling MRFs to operations, or to reduce the fire hazard associated with stockpiled glass at the Glass Recovery Services (GRS) facility in Coolaroo.

**Development 3** – Direct kerbside to landfill disposal due to the closure of SKM Recycling halved in mid-October due to the Cleanaway (formerly SKM) Laverton material recovery facility (MRF) resuming operations, and has significantly reduced again with the resumption of operations of the Cleanaway (formerly SKM) MRF in Coolaroo in late-November. The closure of SKM Recycling resulted in around 60% of the material previously sorted by SKM going to landfill (around 15,000 tonnes/month to landfill) across August, September, and into October (the other 40% was diverted to other sorting facilities).

**Development 4** – October exports of Victorian kerbside materials were flat from September, and remain at the lowest levels for many years.

**Paper & paperboard**

**Development 5** – Sharp reductions in demand and prices for recovered paper have been recorded in export markets, as paper and paperboard demand stalls.

**Development 6** – Collectors have advised that some higher quality recovered paper (sourced from the Commercial & Industrial stream) has been diverted to landfill because there is no market (export or domestic) for the material.

**Glass packaging**

**Development 7** – The sustained closure of Glass Recovery Services (GRS) since August 2019 is resulting in significant shortfall in infrastructure to prepare kerbside glass for packaging use, both from storage and new collections.

**Development 8** — The EPA has been taking action to improve the safety of the GRS glass stockpile in Coolaroo since the end of October. This has included removing material from the stockpile, with some sent to Repurpose It for recycling, and some highly contaminated material sent directly to landfill.
Development 9 – Over October and November increased quantities of kerbside glass, both from storage and new collections, are going into road-base and asphalt construction applications. The quantities are possibly in the order of 400–700 tonnes per day.

**Plastic packaging**

Development 10 – Export markets for MRF sorted baled PET (1) and HDPE (2) plastic packaging appear to have steadied in October following solid volume falls across August and into September.

Development 11 – Internationally traded prices for PET (1) packaging steadied in November after falls over the previous quarter, and reported prices for HDPE (2) packaging improved.

Development 12 – Exports to Indonesia have crashed since July, however Malaysian exports have grown fairly strongly over the same period, but not sufficiently to make up for the Indonesian falls.

**Metal packaging**

No developments to mention.
Overview of kerbside recovery and the challenges

The following table summarises kerbside material flows and the market challenges. Note that the data is now for the four month period of July–October 2019. In last month’s bulletin the data was for the 2018–19 (full year) financial year.

Table 1 – Market snapshot for July–October 2019–20

<table>
<thead>
<tr>
<th>MRF outputs</th>
<th>Sorted quantity (t)</th>
<th>Proportion</th>
<th>Destination(s)</th>
<th>Approx. $ per tonne (end-November 2019)</th>
<th>The market challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper &amp; paperboard</td>
<td>80,000</td>
<td>33%</td>
<td>40,000 tonnes export (20% drop on 2018–19) 38,000 t to local processing or storage</td>
<td>-$0 for mixed paper &amp; paperboard $100 newsprint &amp; magazine $115 old corrug. paperboard $75 for boxboard</td>
<td>The international markets for unsorted kerbside paper have collapsed (the material has no value), and Australian reprocessors can’t take any more of this material. The price for OCC has fallen sharply since August 2019.</td>
</tr>
<tr>
<td>Glass packaging</td>
<td>30,000</td>
<td>12%</td>
<td>2,000 tonnes export (25% drop on 2018–19) 23,000 t to local processing or storage</td>
<td>-$30/tonne for mixed glass to beneficiation Approx. $75/tonne for source separated glass</td>
<td>Most Victorian glass packaging is sorted into a single ‘mixed glass’ product. This has been a low-value product for many years, with limited demand.</td>
</tr>
<tr>
<td>Plastic packaging</td>
<td>12,000</td>
<td>4%</td>
<td>8,000 tonnes export (10% drop on 2018–19) 3,000 t to local processing or storage</td>
<td>$300 for PET (1) $650 for HDPE (2) $60 for mixed (1–7) -$20 for mixed (3–7)</td>
<td>Markets for clean PET and HDPE are good, but around a third of plastics are sorted into a ‘mixed plastic’ product. The international markets for mixed plastics have collapsed.</td>
</tr>
<tr>
<td>Metal packaging</td>
<td>4,000</td>
<td>2%</td>
<td>100% to export</td>
<td>$100 for steel cans $1050 for aluminium</td>
<td>Markets for aluminium and steel packaging are fairly steady.</td>
</tr>
<tr>
<td>Contamination and sorting losses</td>
<td>120,000b</td>
<td>49%</td>
<td>All to landfill</td>
<td>-$130 gate fee for landfill</td>
<td>Typically around 15–20% of material going into MRFs is sent to landfill. This is made up of unrecyclable contaminants (sorting loses), lost recyclables (mostly glass). Landfilling has jumped significantly in 2019–20 due to some clearance of stockpiles.</td>
</tr>
</tbody>
</table>

Total ~245,000

a) Data are generally for part year 2019–20 (July–October), except as otherwise identified. Derived by Envisage Works from 2019-20 ABS data, extrapolated 2017-18 SV (2019), and industry consultation.
b) Includes an estimated 50–60,000 tonnes of compliance related disposal to landfill in 2019–20, which includes disposal of stored materials collected prior to 2019–20.
d) Prices are indicative typical spot price values and can be highly variable on a day-to-day basis.
1. Introduction

1.1 About this bulletin

This is number 9 of 12 monthly bulletins that Sustainability Victoria (SV) and the Waste Management and Resource Recovery Association of Australia (WMRR) are providing to the community, industry and government with an overview of the kerbside recycling markets in Victoria.

This work was commissioned by the Victorian Government to inform strategic investment and decision making by the waste and resource recovery sector.

These bulletins provide an up-to-date picture of the health of the markets, the ongoing challenges and opportunities, and action taken to improve the resilience and recovery performance of kerbside recycling.

The bulletins are a synthesis of monthly updates of ABS export data and published market reports, and more in-depth quarterly updates informed by extensive consultation with industry, government and community stakeholders.

Each bulletin includes a monthly update that includes:

- market overview and current developments
- export data and receiving country updates
- commodity price tracking
- kerbside quantity flow approximations
- market developments and activity updates.

This bulletin #9 includes updates related to ABS export data to the end of October 2019, and pricing updates to the end of November 2019.

A deeper look at two special topics is provided. The special topics explored in Section 3 for this month are:

- Sustainable packaging design.

Please contact SV (Kelly Wickham at kelly.wickham@sustainability.vic.gov.au) if you have any comments or questions.

Who is this bulletin for?

This bulletin is for anyone with an interest in kerbside recycling in Victoria. It presents a holistic overview of material flows and related markets, through generation, sorting, reprocessing, re-manufacturing and end-product markets.

**Bulletin #1** presents details of the stakeholders involved in kerbside recycling, and the roles that they can play in shifting kerbside recycling and markets to a more resilient and sustainable.

The glossary for all the terms used in the bulletin is available [here](#).
Structure of the bulletin

This bulletin has seven sections:

- **Market summary** – An overview of kerbside material flows, $ values, and the key issues, opportunities and activities.

- **Introductory section** (this section) – A more detailed and integrated overview of kerbside material markets across all material types (paper & paperboard, glass packaging, plastic packaging and metal packaging).

- **Material specific sections** – Four sections on each material groups (paper & paperboard, glass packaging, plastic packaging and metal packaging). Each section provides: an overview of the material markets; the latest available information on prices, demand and supply; commentary on the key product end-markets for recovered materials; export and/or interstate market activity; and a summary of market risks, opportunities and developments.

- **Special topic areas** – A deeper look at a couple of special topic areas each month.

History and context

Around half the world's kerbside packaging was received by China until the end of 2017. While the current recycling market shocks may be the most significant, across even the past decade there have been downturns in the recycled materials market caused by the:

- Global Financial Crisis (GFC) in 2009.

- New Chinese regulations in 2011 aimed at reducing the imports of highly contaminated scrap materials.

- Aggressive enforcement in 2013 by the Chinese of the 2011 regulations, through a campaign known as ‘Operation Green Fence’.

A key aspect of the export restrictions is a maximum contamination threshold of 0.5 per cent for imported bales of scrap mixed paper & paperboard and mixed plastics. This threshold is very low and MRFs internationally, including Victorian MRFs, are not capable of meeting the 0.5 per cent contamination threshold.

See bulletin #1 for a more detailed outline of the history and context of the issues explored in these bulletins. All the bulletins are available here.

1.2 Overview of kerbside recycling flows

Victorian collection of material from kerbside collection and sorting systems has been steady over the past three years at around 600,000 tonnes per year. After operating losses of 100,000 tonnes of contaminant material and unrecovered recyclables, an estimated 500,000 tonnes are available for reprocessing in a typical year. Paper grades and glass account for 85 per cent or more of this processed material by weight.

Not all of the 500,000 tonnes of sorted recyclables are necessarily then processed further into materials ready for the manufacture of new products, and since 2016–17 significant quantities of sorted recyclables have been placed into storage due to poor markets or operational problems.

Figure 1.2.1 provides estimates of annual MRF outputs, excluding material placed into storage by MRF operators. Note that 2019–20 data is part-year data for the four months across July–October 2019 only.
Table 1.2.1 – Victorian MRF outputs by material category, including stockpiled material estimates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper &amp; paperboard</td>
<td>330 000</td>
<td>280 000</td>
<td>250 000</td>
<td>290 000</td>
<td>80 000</td>
</tr>
<tr>
<td>Glass</td>
<td>100 000</td>
<td>110 000</td>
<td>30 000</td>
<td>30 000</td>
<td>30 000</td>
</tr>
<tr>
<td>Plastic</td>
<td>50 000</td>
<td>40 000</td>
<td>40 000</td>
<td>40 000</td>
<td>10 000</td>
</tr>
<tr>
<td>Metal</td>
<td>20 000</td>
<td>10 000</td>
<td>20 000</td>
<td>10 000</td>
<td>4 000</td>
</tr>
<tr>
<td>Storage</td>
<td>0</td>
<td>50 000</td>
<td>110 000</td>
<td>90 000</td>
<td>-49 000</td>
</tr>
<tr>
<td>Landfill^a</td>
<td>100 000</td>
<td>100 000</td>
<td>140 000</td>
<td>120 000</td>
<td>120 000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>600 000</strong></td>
<td><strong>590 000</strong></td>
<td><strong>590 000</strong></td>
<td><strong>580 000</strong></td>
<td><strong>195 000</strong></td>
</tr>
</tbody>
</table>

Source: SV (2017; 2018; 2019) and industry consultation.

a) Includes an estimated 30–40,000 tonnes of fire-related losses in July 2017, 20,000 tonnes of licence compliance related disposal in March 2019, and 50–60,000 tonnes of operational and safety related disposal in 2019–20.

Figure 1.2.2 presents indicative monthly data on the destinations of Victorian MRF outputs. Exports of kerbside materials fell in 2017 and then more sharply in 2018, with some steadying of exports, albeit at a much lower level, across January–June 2019. However, exports have fallen since July and are now at the lowest level since the beginning of 2015.
There appears to have been only a weak response by the local reprocessing sector in taking up previously exported material since the beginning of 2018, with some new capacity builds. This new capacity, primarily in glass (to construction) and plastics reprocessing, should start to have a significant impact on Victorian recovery rates during the 2020 calendar year.

However, with the closure of the three SKM MRFs in Coolaroo, Laverton and Geelong (from late July 2019), it is estimated that around 15,000 tonnes/month of kerbside recyclables were sent to landfill (around 60% of the 28,000 tonnes/month that SKM was receiving) across August, September and into October 2019. The other 40% was diverted to other MRFs.

Cleanaway purchased SKM Recycling in early October, and the Cleanaway (formerly SKM) Laverton MRF resumed operations from mid-October. The Coolaroo MRF reopened in late November. It is understood that Cleanaway will not be reopening the Geelong MRF.

Figure 1.2.2 – Destination of Victorian MRF outputs from kerbside sources (tonnes/month)

Note 1: Data in the table above have been estimated based on publicly available sources, with totals verified through consultation.
Note 2: Historical total monthly MRF outputs have been approximated to enable comparison with monthly ABS customs export data. ‘Local reprocessing’, ‘Landfill’ and ‘Storage change’ estimates are indicative only.
Note 3: The ‘Storage change’ plot is an estimation of the change in material stored or stockpiled in that month.
Note 4: Storage includes estimates of both sorted and baled materials, and unsorted (but baled) materials. It excludes longer-term stored materials from before January 2015, which is most significantly legacy glass storage.
Note 5: Landfill estimates include MRF licence compliance related disposal to landfill, and fire related losses to atmosphere. Landfill data presented are an approximation based on annual waste to landfill rates.

Source: ABS (2019) and Envisage Works.

SKM MRF site clean-ups occurred across September and October, which resulted in possibly 20,000–40,000 tonnes going to landfill to enable facilities to start operating.

In addition, EPA Victoria been taking action to improve the safety of the GRS glass stockpile in Coolaroo since the end of October. This has included removing around 10,000–20,000 tonnes of material from the stockpile, with some sent to Repurpose It for recycling, and some highly contaminated material sent directly to landfill.
Legacy SKM storage of unsorted and sorted kerbside material (primarily now in third party owned warehouses), and stockpiled glass at the GRS facility in Coolaroo, is reported to be approximately 200,000 tonnes (including glass). There are no updates from August on the fate of material in warehouse storage.

1.3 Market risks, opportunities and activities

Reduction in export market outlets has not yet been matched by an expansion of domestic reprocessing and remanufacturing activity, or local demand for the recovered materials.

This is a particular issue for Victoria given its heavy reliance on exporting kerbside materials. In October Victoria made up an estimated 43% of Australian exports of scrap materials that might have a kerbside source, up from the 37% in September and 41% in August.

Prices for all grades of recovered paper and paperboard continue to deteriorate, with OCC prices in particular falling heavily in November.

As raised in previous bulletins the storage of kerbside materials represents a significant risk to the companies holding these materials. This now includes at least five warehouse space providers to SKM Recycling.

In November there were no noteworthy changes to import conditions/restrictions with our major scrap material trading partners. However, there continues to be a high risk over the medium and longer term of overseas scrap markets tightening further, rather than restrictions loosening.

![Figure 1.3.1 – Victorian recovered kerbside materials commodity values ($/tonne)](image)

Source: Industry consultation and published sources. Prices are at the out-going MRF gate and to end-August 2019. Prices are indicative only.
Table 1.3.1 provides pricing on selected virgin material commodities that are (generally) competing with recycled material. It is important to note that the kerbside material commodity values presented in Figure 1.3.1 are estimated prices at the out-going MRF gate, and prior to any secondary processing (along with the associated processing costs).

Table 1.3.1 – Virgin material commodity values end November 2019 ($/tonne)

<table>
<thead>
<tr>
<th>Material category</th>
<th>Value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fibre – Bleached softwood kraft (BSK) pulp</td>
<td>$800–$850</td>
<td>BSK and BHK pulps are not directly competing with recycled fibre in the Australian market. Values provided to give some context on virgin pulp prices.</td>
</tr>
<tr>
<td>Fibre – Bleached hardwood kraft (BHK) pulp</td>
<td>$700–$750</td>
<td></td>
</tr>
<tr>
<td>Glass – Virgin material inputs</td>
<td>$550–$650</td>
<td>Estimate based on typical flint glass composition.</td>
</tr>
<tr>
<td>Plastic – PET (1) virgin resin</td>
<td>$1,350–$1,450</td>
<td>-</td>
</tr>
<tr>
<td>Plastic – HDPE (2) virgin resin</td>
<td>$1,700–$1,800</td>
<td>-</td>
</tr>
<tr>
<td>Plastic – PVC (3) virgin resin</td>
<td>$1,000–$1,200</td>
<td>Unplasticised PVC.</td>
</tr>
<tr>
<td>Plastic – LDPE (4) virgin resin</td>
<td>$1,700–$1,800</td>
<td>-</td>
</tr>
<tr>
<td>Plastic – PP (5) virgin resin</td>
<td>$1,600–$1,700</td>
<td>-</td>
</tr>
<tr>
<td>Plastic – PS (6) virgin resin</td>
<td>$1,900–$2,000</td>
<td>-</td>
</tr>
<tr>
<td>Steel</td>
<td>$350–$400</td>
<td>London Metal Exchange (LME) scrap steel price</td>
</tr>
<tr>
<td>Aluminium</td>
<td>$1,700–$1,800</td>
<td>LME aluminium alloy</td>
</tr>
</tbody>
</table>

To contextualise the differences between the recovered and virgin commodity prices, provided in the following table is an indicative analysis of cost of recycling PET bottles to flake and high-quality food contact grade PET pellets.

Table 1.3.2 – Indicative costs for recycling PET bottles

<table>
<thead>
<tr>
<th>Cost component</th>
<th>Cost ($/tonne of product)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase cost</td>
<td>$500</td>
<td>Sorted PET bottles (1.3 tonnes to produce 1.0 tonne of PET pellets).</td>
</tr>
<tr>
<td>Transport</td>
<td>$40</td>
<td>Transport from the MRF to the reprocessing facility. Assumed around 100 km. Includes handling.</td>
</tr>
<tr>
<td>Sorting, chipping and hot washing (flake production)</td>
<td>$300–$400</td>
<td>Opex and capex estimate. Includes float separation, rinsing and drying.</td>
</tr>
<tr>
<td>Decontamination, extrusion and pelletising (pellets production)</td>
<td>$400–$500</td>
<td>Opex and capex estimate. Assumed suitable for food-grade applications or fibre spinning.</td>
</tr>
<tr>
<td>Landfill cost</td>
<td>$40</td>
<td>Disposal of residual processing wastes (~20% of incoming material).</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,300–$1,500</strong></td>
<td>**Approximate production cost.**a</td>
</tr>
</tbody>
</table>

a) Co-product processing cost or sale value (e.g. recovered HDPE bottle caps) is not considered.

As can be seen from the table above the value proposition for the recycling of PET bottles back into a virgin PET resin competing product is not obviously a good one, especially with virgin PET resin at some of its lowest prices over the last decade (currently around ~AUD1400). It’s important to keep in mind that the production pathways of primary (virgin) PET resin and (equivalent) recyclate-based resin are almost completely different, and there is no inherent reason for the recyclate-based resin to be cheaper.
In addition, plastics manufacturers sometimes report that recycled plastics have to be around 10–20 per cent cheaper than virgin resin to justify the additional purchasing, handling, processing and quality assurance costs.

Similarly, in the following tables are indicative analyses of the cost of recycling MRF sorted glass packaging back into cullet ready for new glass packaging manufacturing, and paper & cardboard back into new papers for fibre-based packaging production.

The value propositions for using recycled glass and fibre back into packaging are typically better than for PET.

Table 1.3.3 – Indicative costs for recycling glass packaging

<table>
<thead>
<tr>
<th>Cost component</th>
<th>Cost ($/tonne of product)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase cost</td>
<td>-$50</td>
<td>Unsorted kerbside glass at the ingoing MRF gate. Assumed typical gate fee for councils.</td>
</tr>
<tr>
<td>MRF sorting cost</td>
<td>$100–$150</td>
<td>Approximate MRF cost for sorting 1.5 tonnes of glass, with assumed 20% lost to landfill at the MRF level.</td>
</tr>
<tr>
<td>Transport</td>
<td>$20</td>
<td>Transport from the MRF to the benefici nation facility of 1.2 tonnes. Assumed around 50 km return.</td>
</tr>
<tr>
<td>Beneficiation</td>
<td>$150–$200</td>
<td>Approximate cost for sorting/colour separation of MRF sorted mixed glass, with assumed 15% lost to landfill.</td>
</tr>
<tr>
<td>Transport</td>
<td>$20</td>
<td>Transport from benefici nation facility to the glass bottle manufacturer of 1.0 tonnes. Assumed 50 km return.</td>
</tr>
<tr>
<td>Landfill cost</td>
<td>$100</td>
<td>Disposal of both sorting and processing wastes (~35% of collected glass).</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$340–$440</strong></td>
<td>Approximate production cost.</td>
</tr>
</tbody>
</table>

a) Note that the cost excludes the kerbside collection cost.

Table 1.3.4 – Indicative costs for recycling fibre-based packaging (based on mixed kerbside paper & cardboard)

<table>
<thead>
<tr>
<th>Cost component</th>
<th>Cost ($/tonne of product)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase cost</td>
<td>-$50</td>
<td>Unsorted kerbside paper &amp; cardboard at the ingoing MRF gate of 1.4 tonnes. Assumed typical gate fee for councils.</td>
</tr>
<tr>
<td>MRF sorting cost</td>
<td>$100–$150</td>
<td>Approximate MRF cost for sorting 1.4 tonnes of mixed paper &amp; paperboard with assumed 10% lost to landfill at the MRF level.</td>
</tr>
<tr>
<td>Transport</td>
<td>$20</td>
<td>Transport from the MRF to the paper mill of 1.25 tonnes. Assumed around 50 km return.</td>
</tr>
<tr>
<td>Stock preparation and board production</td>
<td>$300–$350</td>
<td>Approximate cost for pulping and paper production, with assumed 20% lost to landfill.</td>
</tr>
<tr>
<td>Reel handling, storage &amp; delivery to box plant</td>
<td>$130</td>
<td>Transport from paper mill to box forming facility of 1.0 tonnes.</td>
</tr>
<tr>
<td>Landfill cost</td>
<td>$80</td>
<td>Disposal of both sorting and processing wastes (~30% of collected paper &amp; paperboard).</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$580–$680</strong></td>
<td>Approximate production cost.</td>
</tr>
</tbody>
</table>

a) Note that the cost excludes the kerbside collection cost.
1.4 Export market review

A summary of Victorian exports since January 2015 is provided in this section. In October 2019 Indonesia, China and Malaysia were the three main export destinations for Victorian recovered kerbside materials.

Exports across the first four months of the 2019–20 financial year are an estimated 54,000 tonnes, which are tracking somewhat below the full year 2018–19 exports of 176,000 tonnes.

Figure 1.4.1 – Victorian recovered kerbside materials, to export country (t/month)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>47 000</td>
<td>25 000</td>
<td>44 000</td>
<td>46 000</td>
<td>10 000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>3 000</td>
<td>5 000</td>
<td>25 000</td>
<td>15 000</td>
<td>8 000</td>
</tr>
<tr>
<td>China</td>
<td>234 000</td>
<td>200 000</td>
<td>78 000</td>
<td>51 000</td>
<td>14 000</td>
</tr>
<tr>
<td>Thailand</td>
<td>6 000</td>
<td>9 000</td>
<td>19 000</td>
<td>12 000</td>
<td>6 000</td>
</tr>
<tr>
<td>India</td>
<td>14 000</td>
<td>13 000</td>
<td>16 000</td>
<td>17 000</td>
<td>5 000</td>
</tr>
<tr>
<td>Vietnam</td>
<td>8 000</td>
<td>6 000</td>
<td>10 000</td>
<td>14 000</td>
<td>3 000</td>
</tr>
<tr>
<td>All other</td>
<td>12 000</td>
<td>14 000</td>
<td>16 000</td>
<td>21 000</td>
<td>8 000</td>
</tr>
<tr>
<td>Total</td>
<td>324 000</td>
<td>272 000</td>
<td>208 000</td>
<td>176 000</td>
<td>54 000</td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works
a) Countries ranked by average of last three months of exports.
b) Partial year across July 2019 to October 2019.
Table 1.4.2 – Most recent monthly change in Victorian recovered kerbside materials, to export country (tonnes/month)

<table>
<thead>
<tr>
<th>Country</th>
<th>September 2019 (tonnes)</th>
<th>October 2019 (tonnes)</th>
<th>% change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>2 200</td>
<td>2 200</td>
<td>0%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>2 000</td>
<td>2 600</td>
<td>30%</td>
</tr>
<tr>
<td>China</td>
<td>3 000</td>
<td>2 600</td>
<td>-13%</td>
</tr>
<tr>
<td>Thailand</td>
<td>1 700</td>
<td>1 600</td>
<td>-6%</td>
</tr>
<tr>
<td>India</td>
<td>1 100</td>
<td>800</td>
<td>-27%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>800</td>
<td>1 000</td>
<td>25%</td>
</tr>
<tr>
<td>All other</td>
<td>1 800</td>
<td>1 600</td>
<td>-11%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12 600</strong></td>
<td><strong>12 400</strong></td>
<td><strong>-2%</strong></td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

1.5 Overview of status of countries with scrap import restrictions

Provided here is an overview of the status (as of November 2019) of countries that receive major kerbside related scrap exports from Australia (there are no changes from bulletin #8):

- **Bangladesh** – No identified changes in import conditions. There have been no specific import restrictions identified for paper and paperboard, and the identified requirement for scrap plastics imports is that they do not contain any toxic or radioactive substances.

- **China (restrictions on scrap plastic, paper, metals, and other types of scrap)** – No change to the import restrictions which began in March 2018 and became more extensive at the end of 2018. Extension of bans foreshadowed for the end of 2019.

- **India (restrictions on scrap plastics)** – India announced bans in March 2019 prohibiting scrap ‘solid plastic’ from being imported into the country, including in special economic zones. Exports of kerbside plastics from Victoria to India are negligible, so this will not reduce exports. However, India is less likely to start importing significant quantities of scrap plastics.

- **Indonesia (new inspection regime)** – It was reported in early bulletins that as of 1 April 2019 all (100 per cent) scrap paper imports into Indonesia will be inspected at ports (up from around 10 per cent previously). However, in practice, it appears so far that inspection rates are somewhat elevated, rather than covering all imports. The contamination threshold (impurity limit) is 0.5 per cent, which is the same as China. Indonesia has sent some kerbside materials back to Australia, but the specific material type and quantity is not yet known.

- **Malaysia (restrictions on scrap plastics)** – Restrictions implemented from July 2018, with a significant impact on scrap plastics imports. Many import permits revoked following these restrictions coming into force. In May 2019, reports circulated in the media regarding further import restrictions for waste plastics. The Malaysian Environment Minister noted that plastics will be returned to their country of origin. Malaysia has sent some kerbside materials back to Australia, but the specific material type and quantity is not yet known.

- **Taiwan (restrictions on scrap paper and plastics)** – Restrictions implemented from October 2018, with only old corrugated paperboard (OCC) and other higher quality grades accepted. There are also restrictions on scrap plastics. Little material from Victoria has been shipped to Taiwan.
• **Thailand (restrictions on scrap plastics)** – Restrictions implemented from August 2018, to escalate over the next two years, with tighter controls on e-waste imports also foreshadowed. Low quality plastic waste imports may be banned from 2021.

• **Vietnam (restrictions scrap plastic, paper, metals and other types of scrap)** – Restrictions implemented from around August 2018, with further tightening of scrap imports from late February 2019. Low quality plastic waste imports may be banned from 2025.

2. **Resource markets**

2.1 **Kerbside recovered paper & paperboard (~27 kt/month)**

**Market developments this month**

**Development 1** – Sharp reductions in demand and prices for recovered paper have been recorded in export markets, as paper and paperboard demand stalls.

**Development 2** – Softer export markets have resulted in an even greater excess of material, including but not limited to kerbside recovered materials.

**Development 3** – Collectors have advised that some higher quality recovered paper (sourced from the Commercial & Industrial stream) has been diverted to landfill because there is no market (export or domestic) for the material.

**Material overview and market summary**

Prices for all grades of recovered paper and paperboard continue to deteriorate, falling to perilous levels for some grades. Chinese industrial production has further slowed, partly a result of the trade war and partly due to the slowdown that occurs after the Christmas rush and typically ends only after the Lunar New Year.

As a reference point, virgin fibre pulp prices were essentially stable in November, with none of the international analysts and commentators expecting any significant movements in prices until late January, when Chinese industrial production typically turns back up.

The combination of softer demand and lower export prices has impacted the domestic and local market for recovered paper significantly. The surplus of recovered paper supplies has been exacerbated by export constraints.

Reprocessors (including the integrated collectors) are taking all of the material they can, however, they can only produce as much recycled paper and paperboard as the market will consume. Whether domestically or internationally, markets for all merchandised goods are suppressed currently. This applies to packaging materials, including the ubiquitous corrugated boxes into which the majority of recovered paper is absorbed.

Within Australia, a decline in the market for corrugated boxes over the last year (around 5%) (IndustryEdge, 2019) appears to have been driven more by the drought reducing food production for export markets than by external factors. However, the local manufacturers of corrugated boxes (who are the major reprocessors of recovered paper) are significant exporters of recycled paperboard for corrugated box production. Suppression of export market demand for packaging materials has also contributed to the reduction in production.

As a consequence, their own demand for recovered paper has reduced. The downturn in global industrial production means therefore that they both reprocess and export less recovered paper themselves.
The end results of this current situation have included reportedly high-quality recovered paper derived from the Commercial & Industrial stream being sent to landfill because there is no market for the material. The reported volume was approximately 2,000 tonnes. It follows that if the best quality material is unable to find a buyer, a larger volume of lesser quality material must also be finding its way to landfill.

Uncertainty persists as to when the downturn in global industrial production and the related impact on demand for recovered paper will revert to normal over time. It should be noted that over time, the material imbalance created by a fall in demand for fibre will be self-correcting. That is, if there are less boxes produced, there will be less recovered paper available at some point in the future.

Currently, the local recovered paper supply chain is operating under the dual constraints of established changes in quality expectations from export customers and the local impact of reduced demand for packaging materials. The latter will eventually end.

Figure 2.1.1 – Destination of Victorian MRF outputs (tonnes/month) – Kerbside paper & paperboard

Note 1: Historical total monthly MRF outputs have been approximated in Figure 2.1.1 to enable comparison with monthly ABS customs export data. The overall trends are the key aspect of the figure.

Note 2: The combined ‘Local reprocessing or storage’ estimate is indicative only, and these fates will be presented separately if this level of data becomes available. Landfill excludes disposal from storage and is an approximation based on annual waste to landfill rates.

Source: ABS (2019) and Envisage Works

It is important to note that the jump in disposal to landfill in the previous figure to end-October 2019 is driven by the shutdown of the SKM (now Cleanaway) MRFs across August–November 2019. This deteriorating market conditions outlined earlier in this section will impact flows to export, local reprocessing and landfill across November and December, data which is not yet available.

**Prices, demand and supply**

The supply-side for kerbside collected mixed recovered paper has reached the point of continual distress for some market participants. Movements of material for market-related end-uses are negligible. With contamination rates regularly exceeding 20% in some instances, landfill volumes are rising.
Lower prices for recovered paper are now impacting local markets, as anticipated would occur in the preceding Bulletin. Industry expectation that higher quality material would be ‘exempt’ from the slumping demand and lower prices scenario have not eventuated, at least at the margin. As set out above, good quality fibre is now, in some instances being sent to landfill.

Spot prices in local markets do not appear to exist for supplies of Old Corrugated Cartons (OCC), or at least, not in sufficient volumes to have been detectable in the primary market.

**Key end-markets and related specifications**

There are as no new end-markets for kerbside recovered paper. Recovered paper markets more widely operate to seasonal and cyclical demand factors, and factors related to the general health of the Australian economy. This is particularly the case for packaging grades of paper and paperboard.

In the preceding Bulletin, it was reported that:

“Unless secondary sorting of MRF mixed paper & paperboard (to multiple higher quality grades) meets the requirements of a local or international market, it will not find an end market.”

An update to this is that local markets are absorbing all of the recovered paper they require for reprocessing. It appears that even for the higher quality material, there is no spot market, a situation compounded by export markets slumping as set out above.

Specification is not currently the over-arching issue. The immediate issue has become failing demand for fibre, even when it meets the specification requirements.

**Export and interstate market review**

Across September and October, kerbside related exports from Victoria fell and have remained below 10,000 tonnes. In October total recovered paper exports from Victoria totalled 40,000 tonnes (kerbside plus all other sources). This result was up on September by 4,000 tonnes, probably most of which was C&I related recovered paper.

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**Figure 2.1.2 – Victorian recovered kerbside paper & paperboard, to export country (tonnes/month)**

Source: ABS (2019) and Envisage Works
Table 2.1.1 – Annual Victorian recovered kerbside paper & paperboard, to export country (tonnes/yr)

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>45 000</td>
<td>22 000</td>
<td>35 000</td>
<td>32 000</td>
<td>7 000</td>
</tr>
<tr>
<td>China</td>
<td>204 000</td>
<td>173 000</td>
<td>69 000</td>
<td>49 000</td>
<td>13 000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1 000</td>
<td>2 000</td>
<td>11 000</td>
<td>7 000</td>
<td>3 000</td>
</tr>
<tr>
<td>Thailand</td>
<td>2 000</td>
<td>4 000</td>
<td>14 000</td>
<td>11 000</td>
<td>6 000</td>
</tr>
<tr>
<td>India</td>
<td>8 000</td>
<td>10 000</td>
<td>10 000</td>
<td>14 000</td>
<td>5 000</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2 000</td>
<td>3 000</td>
<td>7 000</td>
<td>13 000</td>
<td>2 000</td>
</tr>
<tr>
<td>All other</td>
<td>3 000</td>
<td>5 000</td>
<td>7 000</td>
<td>7 000</td>
<td>3 000</td>
</tr>
<tr>
<td>Total</td>
<td>265 000</td>
<td>219 000</td>
<td>153 000</td>
<td>133 000</td>
<td>39 000</td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

a) Countries ranked by average of last three months of exports.
b) Partial year across July 2019 to October 2019.

Table 2.1.2 – Most recent monthly change in Victorian recovered paper & paperboard, to export country (tonnes/month)

<table>
<thead>
<tr>
<th>Country</th>
<th>September 2019 (tonnes)</th>
<th>October 2019 (tonnes)</th>
<th>% change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>1 700</td>
<td>2 100</td>
<td>24%</td>
</tr>
<tr>
<td>China</td>
<td>2 800</td>
<td>2 300</td>
<td>-18%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>900</td>
<td>1 400</td>
<td>56%</td>
</tr>
<tr>
<td>Thailand</td>
<td>1 600</td>
<td>1 500</td>
<td>-6%</td>
</tr>
<tr>
<td>India</td>
<td>1 000</td>
<td>700</td>
<td>-30%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>700</td>
<td>900</td>
<td>29%</td>
</tr>
<tr>
<td>All other</td>
<td>800</td>
<td>700</td>
<td>-13%</td>
</tr>
<tr>
<td>Total</td>
<td>9 500</td>
<td>9 600</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

Market risks, opportunities and activities

Commercial and financial risks for the recovered paper sector have increased in the last month. Some collectors are bound to contracts requiring them to ‘take or pay’ for recovered paper, at ‘pre-crisis’ prices. If they are unable to sell the material, they cannot recoup their costs. Few business can or will sustain that situation long.

Landfill volumes are increasing, mainly because generally soft markets are being met with kerbside supply that is contaminated more extensively, rather than less. Even the best prices for kerbside recovered material do not cover the costs of sorting and handling.
2.2 Kerbside recovered glass packaging (~10 kt/month)

Market developments this month

Development 1 – The ongoing closure of Glass Recovery Services (GRS) since August 2019 is resulting in significant shortfall in infrastructure to prepare kerbside glass for packaging use, both from storage and new collections.

Development 2 — The EPA has been taking action to improve the safety of the GRS glass stockpile in Coolaroo since the end of October. This has included removing material from the stockpile, with some sent to Repurpose It for recycling, and some highly contaminated material sent directly to landfill.

Development 3 – Some kerbside glass was exported from Victoria (and other jurisdictions) to Bangladesh and Malaysia across July–October 2019. This was around 1,000 tonnes of Victorian glass to each country across the four months in total.

Development 4 – Increased quantities of kerbside glass, both from storage and new collections, are going into road-base and asphalt construction applications since October 2019. The quantities are possibly in the order of 400–700 tonnes per day (~10,000 tonnes/month).

Material overview and market summary

For detailed sector overview and information see bulletin #1.

Victorian glass packaging consumption was likely to have been around 250,000–300,000 tonnes in 2018–19. The total national demand for recycled glass back into packaging at present is around 350,000–400,000 tonnes, with Victorian demand of 80,000–120,000 tonnes.

Sorted glass from MRFs that is to be recycled back into packaging is then required to be sent to one of six beneficiation plants nationally (three located in Victoria). With the Glass Recovery Services (GRS) beneficiation facility not receiving glass since August 2019, the capacity at the remaining two beneficiation plants is not sufficient to supply the cullet required for glass packaging production.

The ongoing closure of GRS is resulting in significantly increased quantities of recovered glass from the Cleanaway (formerly SKM) MRFs in Laverton and Coolaroo going to the Alex Fraser glass recycling plant in Laverton for crushing into road base and asphalt construction applications as a sand product. The quantities are possibly in the order of 400–700 tonnes per day at the current time. The Alex Fraser Laverton facility is reported to be capable of processing 800 tonnes per day into asphalt and other construction applications.

There are at least two other sites in Melbourne providing glass material into road products. One of these is the Repurpose It site in Epping.

The demand for this packaging glass based sand replacement product is high as it competes well on price and quality with quarried sand.

The charge applied for glass into road construction facilities means these are not competing directly with glass back into packaging. Alex Fraser have stated they are not interested in taking glass that is of a quality for use in glass packaging production.

With the constrained Victorian beneficiation situation there is also interstate transfers now occurring of cullet to meet Victorian furnace needs. It will not be possible to achieve increased recycled content in glass packaging until beneficiation capacity increases in Melbourne and Sydney.

There remains a large stockpile of glass at the closed GRS plant in Coolaroo of approximately 150,000–200,000 tonnes. The stockpile of glass at GRS is a concern both to safety and a viable recycling outcome. There is a current ban on recycled glass entering the GRS site.
The EPA stepped into managing site safety under its environmental protection powers from late October 2019, and so far has removed an estimated 1,500 truckloads of material from the site (possibly around 10,000–20,000 tonnes). This has been done to address hot spots in the stockpiles and to improve access for emergency services vehicles. Some of the material has been assessed as heavily contaminated and landfilled. Other material which is predominantly glass, has gone for recycling by Repurpose It in Epping. Efforts are being made to maximise the diversion of removed material for recycling.

The losses of glass in collection and sorting has motivated several councils to consider collecting glass packaging at kerbside in a separate container. This also improves the quality of paper and cardboard by removing small glass fragments from the recycled fibre.

The City of Yarra has operated a trial collection from 1,000 households with strong resident compliance in sorting glass separate. The material is going to the new MRF operated by APR in Truganina, which is configured to sort a glass free commingled stream. At least three other metropolitan and three regional councils are now actively trialling or introducing the separate collections. Hobsons Bay Council recycling is going to APR for sorting without glass.

Over the last 12 months or more there has been some intermittent export of glass cullet from Victoria to Malaysia and Bangladesh. It is possible that this glass has been sorted (beneficiated), but this isn't confirmed. The fate of the glass is unknown, but if it has been beneficiated then is probably being used to manufacture new glass packaging.

Victorian Government recently completed an extensive cost benefit analysis on a range of potential changes to kerbside systems, including separate glass collection. Recent engagement between government and key stakeholders has broadly supported glass separate collection.

The recent Parliamentary Inquiry into Recycling and Waste Management recommended that the Victorian Government provide funding and support for all Victorian councils state-wide to introduce a separate bin for municipal glass recycling. It was also recommended that the Victorian Government conduct a study of the costs and benefits associated with the introduction of a separate municipal glass recycling bin.
Figure 2.2.1 – Destination of Victorian MRF outputs (tonnes/month) – Kerbside glass

Note 1: Historical total monthly MRF outputs have been approximated in Figure 2.2.1 to enable comparison with monthly ABS customs export data. The overall trends are the key aspect of the figure.

Note 2: The combined ‘Local reprocessing or storage’ estimate is indicative only, and these fates will be presented separately if this level of data becomes available. Landfill excludes disposal from storage and is an approximation based on annual waste to landfill rates.

Source: ABS (2019) and Envisage Works

**Prices, demand and supply**

Gate fee rates for MRFs sending material for beneficiation can vary, based on quality and quantities. Gate fees of $0 /tonne (EXW MRF) to -$30 /tonne (EXW MRF) are reported, if the glass is going to beneficiation. Prices are even lower if the glass is going into other applications (such as construction).

Delivered MRF sorted mixed glass destined for road base or asphalt production incurs a gate fee that is greater than the fee into beneficiation, but less than a landfill gate fee. On average it is expected to be around -$80 per tonne (so a cost to the MRF operators).

There is a small amount of separated glass going directly from pubs and clubs to beneficiation. This material is cleaner and generates a gate price of approximately $70 per tonne.

Following beneficiation O-I then receives the glass cullet from beneficiation plants in most major cities nationally, including Melbourne at its Spotswood facility. The price paid by O-I to these facilities has remained largely unchanged in recent years. However, the specific price paid varies based on a number of factors such as:

- Transport costs.
- The beneficiation costs of removing contaminants.
- The beneficiation costs of colour sorting.
- Demand for each cullet colour in different jurisdictions.
- Price of virgin materials.

EXW MRF means that the sale price is an estimate at the outgoing gate of the MRF.
The cost of beneficiation is estimated at around $150–$200 per tonne but is dependent on the source and processing requirement of the incoming glass.

Cullet makes up 37 per cent of the input to O-I glass manufacture in Victoria. Higher cullet input reduces energy use and furnace wear, and increased cullet use provides savings compared with the use of virgin materials. O-I report they are targeting 50–60 per cent cullet composition, and can technically accept an even higher ratio, particularly for amber and green glass production.

**Key end-markets and related specifications**

Beyond taking used glass packaging back into packaging production, there are a range of other secondary markets that can be used, but these do not offer a high market price. These include glass into asphalt, road base material and sand for construction, abrasives, and filter media.

Table 2.2.1 provides indicative estimates (by glass colour) of MRF recovery and losses in October 2019. The large glass losses in October are driven by direct disposal of kerbside recycling to landfill and hot-spot management of the GRS facility in Coolaroo.

<table>
<thead>
<tr>
<th>Material type</th>
<th>Quantity (tonnes/mth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass – Amber</td>
<td>1,700</td>
</tr>
<tr>
<td>Glass – Flint</td>
<td>2,700</td>
</tr>
<tr>
<td>Glass – Green</td>
<td>1,300</td>
</tr>
<tr>
<td>Glass losses</td>
<td>16,700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>22,400</strong></td>
</tr>
</tbody>
</table>

Source: Envisage Works, SV (2019) and industry consultation

Note that while separate glass colours are reported in the previous table almost all of glass in Victorian is sorted by MRFs into a single mixed glass product, which is then colour sorted and beneficiated for new packaging manufacturing or sent to construction applications.

**Export and interstate market review**

Over the last couple of months, due to the restricted beneficiation capacity in Victoria, O-I has been importing beneficiated glass from other jurisdictions to make up shortfalls in local beneficiated glass supply.

There has been some export of Victorian kerbside glass packaging to Malaysia and Bangladesh across July–October 2019, which was around 1,000–2,000 tonnes to each country over the four month period (compared with 13,000 tonnes of exports in 2018–19).

Glass cullet is generally not exported due to its low value and significant weight relative to shipping costs. It is not anticipated that significant export markets will eventuate, particularly given the foreshadowed federal ban on glass cullet exports from 1 July 2020.

**Market risks, opportunities and activities**

The closure and transfer of ownership of SKM sorting facilities to Cleanaway, has now resulted in the sorted packaging glass being sent to Alex Fraser for use as a sand substitute in asphalt.
It is understood that at least one of the other beneficiation plant operators in Victoria has begun operating extra shifts to beneficiate the glass sorted from diverted kerbside commingled recyclables.

The risks to glass recycling relate to the fact that there is significantly more glass in supply than there is beneficiation capacity and demand back into packaging. The two Australian glass packaging manufacturers do not require all the local and imported glass packaging for beer, wine and food that is potentially available. Other end-markets for the glass, such as the construction sector, are needed, even though this results in the glass being down-cycled into construction materials.

There is around 1.2–1.3 million tonnes of glass packaging consumption in Australia. Around 1.2 million tonnes is manufactured locally, of which around 0.2 million tonnes is subsequently exported, but an additional 0.2–0.3 million tonnes of packaging glass is imported. It is estimated that 350,000 tonnes of the local manufacturing material requirement is met from recycled glass cullet.

The commingling of glass with other recyclable materials and contaminants results in low quality glass from kerbside-sourced glass and also affects the value and markets for recovered paper and plastics.

The experience of other States and Territories suggests that glass packaging returned through container deposit schemes is cleaner and has a higher demand and value compared with glass from MRFs. This material still requires beneficiation for contaminant control, sizing and colour sorting, and at this stage is not all being returned to glass packaging.

All mainland states other than Victoria will have container deposit schemes (CDS) implemented by 2020, and there continues to be a risk that this will undermine demand for kerbside glass from Victoria once these schemes are implemented. However, even all of this CDS glass in other jurisdictions is not being purchased by the glass packaging manufacturers in Australia, leading to stockpiles of CDS glass from time to time.

### 2.3 Kerbside recovered plastic packaging (~4 kt/month)

**Market developments this month**

**Development 1** – Export markets for MRF sorted baled PET (1) and HDPE (2) plastic packaging appear to have steadied in October following solid volume falls across August and September.

**Development 2** – Internationally traded prices for PET (1) packaging steadied in November after falls over the previous quarter, and reported prices for HDPE (2) packaging improved.

**Development 3** – Exports to Indonesia have crashed since July, however Malaysian exports have grown fairly strongly over the same period, but not sufficiently to make up for the Indonesian falls.

**Material overview and market summary**

For detailed sector overview and information see [bulletin #1](#).

During 2018–19, around 200,000 tonnes of consumer plastics packaging was used in Victoria, but much of this is not suitable for kerbside recycling (e.g. flexible packaging formats). This packaging is both produced here and also imported from overseas. A large proportion of the resin used in local packaging manufacture is also imported. For example, there is no local production of virgin PET resin at all.

Plastics collected through kerbside collections are generally sent to MRFs and sorted from commingled recycling into either a single mixed plastics grade (1–7 plastic-polymer mix), or more commonly three grades, which are PET, HDPE and the residual mixed plastics grade (a 3–7 plastic-polymer mix, but with some residual quantities of PET and HDPE still present).
Baled PET and HDPE packaging is processed and remanufactured locally, and also exported to a wide range of countries. The main overseas destinations in October 2019 were Malaysia (64%) and China (15%). In July 2019 Indonesia made up 41% of exports (total July exports of 2,700 tonnes), but exports in October were negligible.

Figure 2.3.1 provides data on the change in exports of kerbside recovered plastic packaging since the beginning of 2015. There was a fall in exports of around 40–50 per cent across 2018, most of which would have been mixed plastic bales. A significant proportion of this material has been diverted into storage, where much of it probably still remains. In addition, across September and October large quantities of stored recyclables at the SKM MRF facilities in Laverton and Coolaroo have been disposed of to landfill, including large quantities of plastic packaging.

Figure 2.3.1 – Destination of Victorian MRF outputs (tonnes/month) – Kerbside plastic packaging

Note 1: Historical total monthly MRF outputs have been approximated in the figure above to enable comparison with monthly ABS customs export data. The overall trends are the key aspect of the figure.

Note 2: The combined ‘Local reprocessing or storage’ estimate is indicative only, and these fates will be presented separately if this level of data becomes available. Landfill excludes disposal from storage and is an approximation based on annual waste to landfill rates.

Source: ABS (2019) and Envisage Works

**Prices, demand and supply**

There are reasonably strong local and export markets for clean PET bales that are collected and sorted to specification. However, internationally reported traded spot prices have fallen from $400 /tonne (EXW MRF) in June 2019 to around $300 /tonne in October. Prices appear to have held fairly steady at this lower level across October and November.

The price of recycled resin is linked to the price for virgin resin. In the case of PET, the virgin price generally increased across 2018, in part due to China utilising more of this material as it received less imported recylcate. However, virgin prices did see some significant falls starting in October 2018 and continuing into early 2019. PET resin prices have since steadied, but with some minor falls apparent since June 2019.

---

2 EXW MRF means that the sale price is an estimate at the outgoing gate of the MRF.
The situation is better for HDPE, with markets and pricing for washed and flaked/pelletised material remaining strong. Prices have improved somewhat over the September to November period from $500 /tonne to around the $600–$650 /tonne level. Virgin resin prices have been fairly steady since the first quarter of 2018 at around $1,700–$1,800 /tonne.

The market for mixed plastic packaging bales continues to be very poor at $0 /tonne or less, assuming it can be sold.

**Key end-markets and related specifications**

Exported plastics packaging has specifications relating mostly to contamination levels. The positive sorting of PET and HDPE that is undertaken at MRFs allows the baled material to generally meet these specifications without major difficulty or manual sorting input.

Previously plastics packaging has been overwhelmingly exported to China, until the latest round of restrictions. Over the last quarter Malaysia has been the largest destination for Victoria kerbside plastics (overtaking Indonesia in the previous quarter). China is currently the second largest destination of scrap plastics exported from Victoria, after Malaysia.

Table 2.3.1 provides indicative estimates (by product stream) of MRF recovery and losses in October 2019 of plastic packaging. The large plastic packaging losses in October are driven by direct disposal of kerbside recycling to landfill. This landfilling activity reduced significantly across November.

<table>
<thead>
<tr>
<th>Material type</th>
<th>Quantity (tonnes/mth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plastic – PET (1)</td>
<td>700</td>
</tr>
<tr>
<td>Plastic – HDPE (2)</td>
<td>800</td>
</tr>
<tr>
<td>Plastic – Mixed (3–7)</td>
<td>700</td>
</tr>
<tr>
<td>Plastic losses</td>
<td>2,700</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,900</strong></td>
</tr>
</tbody>
</table>

Source: Envisage Works, SV (2019) and industry consultation

**Export and interstate market review**

Plastic packaging exports from Australia compete in receiving countries with plastics from the US, Europe and many other countries. It is destined for wherever the demand requires material for production. Generally, demand and pricing will increase or decrease based on worldwide supply and demand conditions.

Scrap plastic imports into Indonesia fell markedly in August and September to effectively negligible receivals in October. Imports into Malaysia appear to be increasing.

China, as a traditionally large export market destination, effectively ceased the acceptance of all scrap plastics relative to its early demand. India, Malaysia, Thailand and Vietnam have also all introduced import restrictions or bans on the imports of scrap plastics.

Exports of kerbside recovered mixed plastic packaging have dropped dramatically over the past few years (see Table 2.3.2).

The falls since the 2016–17 year were driven entirely by lost sales to China, with exports to Indonesia and Malaysia taking up some of this material.
Figure 2.3.2 – Victorian recovered kerbside plastic packaging, export country (t/month)

Source: ABS (2019) and Envisage Works

Table 2.3.2 – Annual Victorian recovered kerbside plastics, to export country (tonnes/yr)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>1 900</td>
<td>1 500</td>
<td>11 300</td>
<td>6 800</td>
<td>3 400</td>
</tr>
<tr>
<td>China</td>
<td>29 600</td>
<td>27 200</td>
<td>8 200</td>
<td>1 600</td>
<td>1 000</td>
</tr>
<tr>
<td>Vietnam</td>
<td>3 600</td>
<td>3 100</td>
<td>3 000</td>
<td>1 000</td>
<td>200</td>
</tr>
<tr>
<td>Thailand</td>
<td>3 100</td>
<td>3 200</td>
<td>4 400</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2 100</td>
<td>2 000</td>
<td>7 200</td>
<td>13 800</td>
<td>2 300</td>
</tr>
<tr>
<td>All other</td>
<td>1 500</td>
<td>1 100</td>
<td>1 500</td>
<td>4 700</td>
<td>4 900</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41 800</strong></td>
<td><strong>38 100</strong></td>
<td><strong>35 600</strong></td>
<td><strong>28 100</strong></td>
<td><strong>12 000</strong></td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

a) Countries ranked by average of last three months of exports.
b) Partial year across July 2019 to October 2019.
Table 2.3.3 – Most recent monthly change in Victorian recovered plastics, to export country (tonnes/month)

<table>
<thead>
<tr>
<th>Country</th>
<th>August 2019 (tonnes)</th>
<th>September 2019 (tonnes)</th>
<th>% change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>900</td>
<td>1 100</td>
<td>22%</td>
</tr>
<tr>
<td>China</td>
<td>300</td>
<td>300</td>
<td>0%</td>
</tr>
<tr>
<td>Vietnam</td>
<td>0</td>
<td>100</td>
<td>100%</td>
</tr>
<tr>
<td>Thailand</td>
<td>100</td>
<td>100</td>
<td>0%</td>
</tr>
<tr>
<td>Indonesia</td>
<td>100</td>
<td>100</td>
<td>0%</td>
</tr>
<tr>
<td>All other</td>
<td>300</td>
<td>200</td>
<td>-33%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1 700</strong></td>
<td><strong>1 900</strong></td>
<td><strong>12%</strong></td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

Market risks, opportunities and activities

Plastic packaging related market risks for MRF operators and plastics reprocessors have not materially changed over the last couple of months. There continues to be significant demand for high-quality PET and HDPE packaging recyclate for remanufacturing into many applications, included packaging, here in Australia. In addition, strong export markets exist for high-quality sorted and washed flake and pellets. However, a significant shortfall exists in suitable reprocessing capacity locally. Markets for mixed polymer and low value scrap plastic packaging continue to be under-developed.

There exists a significant opportunity to increase the use of mixed polymer scrap plastics into built environment applications such as bitumen substitute in asphalt, and this is a developing area to watch, and a potential large sink for mixed polymer scrap plastics.

Several plastic recyclers are geared to take mixed kerbside plastics and make a mixed polymer product suitable for applications such as posts, seating and boardwalks. The ability of these recyclers to accept mixed plastics is limited by demand for the finished products. While they have expanded the market in recent years, the failure to get strong growth in major purchases from customers such as road authorities, parks agencies and local councils restricts production levels.

Some recyclers have indicated that they have capacity to handle double the current volumes if larger end markets could be assured. They are advocating more supportive procurement practices from governments at all levels and major industries as a key to more local processing of kerbside materials.

At a global level, most mixed plastics were sent to countries with low labour costs and the ability to sort mixed material into different polymers. Chinese and other import restrictions have substantially curtailed this. Some of this material is being transferred to other low labour cost centres but there is likely to be a shortfall in demand for this material for the foreseeable future.

The key to resolving the market challenges for mixed plastic packaging is a combination of:

- Better packaging design to specify more recyclable polymers (e.g. PET) and to ensure that all components, such as labels, caps and adhesives, are compatible in the recycling system.
- More diligent sorting of the recycled material by automated and manual means. This could be achieved, for example, by upgrading polymer sorting equipment to positively identify and sort additional polymer types, such as; LDPE, polypropylene and polystyrene packaging, and additionally, to improve the current positive polymer sorting
of PET and HDPE to increase sorting recovery rates. This would reduce the amount of mixed, low value plastic product being generated.

- Drive recycled content plastic products market pull-through with more supportive procurement practices from governments at all levels and major businesses, particularly those with a product stewardship exposure.

As strong markets exist for clean and sorted PET, HDPE, LDPE and PP, the use of these plastics in consumer packaging, without other polymer additives, would see more packaging sorted and sold at high prices. At the sorting level, all facilities should be equipped to detect and sort these polymers with automated equipment. Some newer MRFs are so equipped, and these capabilities could be expanded.

### 2.4 Kerbside recovered metal packaging (~1 kt/month)

**Market developments this month**

**Development 1** – Tin-plated steel packaging prices fell across October and into November. They are now at the lowest level seen since 2016, with an estimated typical spot price of less than $100 /tonne (MRF EXW).

**Development 2** – Scrap aluminium can packaging prices were steady in November, after seeing modest falls in October, with an estimated typical spot price of $1,000–$1,100 /tonne (MRF EXW).

**Development 3** – Export quantities for metals have been fairly steady across 2019.

**Material overview and market summary**

For detailed sector overview and information see [bulletin #1](#).

Steel and aluminium cans, mostly recovered through kerbside recycling collections from households, account for only a small fraction of overall metals recovery from Victoria.

MRFs are well equipped to separate these materials from household collections into marketable grades of recyclate, which although small in volume (around 3–4 per cent of the average household recycling bin) represent a valuable source of revenue for MRFs.

Recovered steel packaging is considered a low-value form of steel scrap, but it still saleable into overseas markets, sometimes by blending it into a mixed grade steel scrap (e.g. ‘black iron’). It is not purchased by local smelter operators in any volume.

Aluminium beverage cans have been a key component of kerbside recycling systems since their beginning. CDS in other states and territories have reduced the amount of aluminium cans coming back through kerbside collections by as much as 25%, having an impact on MRF revenue.

There is no longer any tin-plated steel sheet or aluminium can sheet produced in Australia, with all of it imported.

The baled steel and aluminium packaging is sent to a fairly wide range of countries, with the main destinations being South Korea, Taiwan and Malaysia in 2019–20 (year to date). Almost all recovered metal packaging is sold into export markets, with no Victorian tin-plated steel or aluminium packaging identified as being reprocessed in Australia.

Australia’s scrap metal exports are not experiencing difficulties comparable to some other recycling streams in the wake of the Chinese National Sword restrictions. This is due in part to China not being a major destination for these materials prior to the National Sword import restrictions, and scrap metal packaging being only a very small part of scrap metal markets globally.
Figure 2.4.1 provides data on the change in exports of kerbside recovered metal packaging since the beginning of 2017. Exports have been trending somewhat downwards since the beginning of 2018, but have steadied over the last couple of months.

**Figure 2.4.1 – Destination of Victorian MRF outputs (tonnes/month) – Metal packaging**

Note 1: Historical total monthly MRF outputs have been approximated in the figure above to enable comparison with monthly ABS customs export data. The overall trends are the key aspect of the figure.

Note 2: The combined ‘Local reprocessing or storage estimate is indicative only, and these fates will be presented separately if this level of data becomes available. Landfill excludes disposal from storage and is an approximation based on annual waste to landfill rates.

Source: ABS (2019) and Envisage Works

**Prices, demand and supply**

There is now little steel or aluminium packaging scrap reprocessed in Australia. However, international markets for these commodities remain strong.

There is no significant distressed storage of steel or aluminium packaging.

There are no limits on quantity of steel or aluminium packaging into any international markets. The nature of the mechanised sorting at MRFs means there should generally be little contaminant material (apart from some product residue) and therefore minimal market concerns. That said, tin-plate steel packaging is not reprocessed in Australia, is low value, and there are reports of high levels of contamination. It is at some risk of future import restrictions by receiving countries, particularly if mixed grade scrap steel imports (e.g. black iron grades) are restricted.

The price of steel packaging is strongly linked to global steel pricing. The current price received for baled steel packaging is less than $100 /tonne (EXW MRF).

The price of shipped aluminium packaging is linked to virgin aluminium pricing. The current price received for baled aluminium beverage cans is approximately $1000–$1100 (EXW MRF).

**Key end-markets and related specifications**

Exported steel packaging has specifications relating to contamination levels and bale density. The sorting that is undertaken at MRFs allows the baled material to meet these specifications without major difficulty or manual sorting input. A similar situation exists for aluminium packaging.
Generally steel and aluminium packaging is recycled back into the respective scrap metal pools and go into durable applications such as vehicles, building materials and many other products.

Table 2.4.1 provides indicative estimates (by metal type) of MRF recovery and losses in October 2019 of metal packaging. The large metal packaging losses in October are driven by direct disposal of kerbside recycling to landfill. This landfilling activity reduced significantly across November.

<table>
<thead>
<tr>
<th>Material type</th>
<th>Quantity (tonnes/mth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel</td>
<td>600</td>
</tr>
<tr>
<td>Aluminium</td>
<td>200</td>
</tr>
<tr>
<td>Metal losses</td>
<td>500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,300</strong></td>
</tr>
</tbody>
</table>

Source: Envisage Works, SV (2019) and industry consultation

**Export and interstate market review**

The exported steel and aluminium packaging are sold into large markets with most metal coming from non-packaging sources. The material flows from all countries and is destined for wherever the demand requires material for production. Unlike some other materials, there is no way of knowing the origin of the steel or aluminium in new product. Demand and pricing can increase or decrease based on worldwide supply and demand conditions.

If a large market such as China suffered a contraction in economic activity, this could result in price reductions. The worldwide virgin steel and aluminium production capacities are also changing and a contraction or expansion in capacity will influence pricing.

Exports of kerbside recovered metal packaging have remained fairly steady over the last few years, but with a downward trend across 2018–19, and some recovery since.
Table 2.4.2 – Annual Victorian recovered kerbside metals, to export country (tonnes/yr)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>2 600</td>
<td>2 600</td>
<td>2 000</td>
<td>4 000</td>
<td>1 500</td>
</tr>
<tr>
<td>Taiwan</td>
<td>2 700</td>
<td>3 100</td>
<td>3 700</td>
<td>4 000</td>
<td>700</td>
</tr>
<tr>
<td>Thailand</td>
<td>1 400</td>
<td>1 800</td>
<td>0</td>
<td>400</td>
<td>100</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0</td>
<td>600</td>
<td>1 300</td>
<td>100</td>
<td>300</td>
</tr>
<tr>
<td>Malaysia</td>
<td>500</td>
<td>1 400</td>
<td>3 400</td>
<td>1 500</td>
<td>900</td>
</tr>
<tr>
<td>India</td>
<td>5 200</td>
<td>2 400</td>
<td>5 100</td>
<td>2 400</td>
<td>300</td>
</tr>
<tr>
<td>All other</td>
<td>5 500</td>
<td>2 700</td>
<td>2 300</td>
<td>2 000</td>
<td>800</td>
</tr>
<tr>
<td>Total</td>
<td>17 900</td>
<td>14 600</td>
<td>17 800</td>
<td>13 700</td>
<td>4 600</td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

a) Countries ranked by average of last three months of exports.
b) Partial year across July 2019 to October 2019.
Table 2.4.3 – Most recent monthly change in Victorian recovered metals, to export country (tonnes/month)

<table>
<thead>
<tr>
<th>Country</th>
<th>September 2019 (tonnes)</th>
<th>October 2019 (tonnes)</th>
<th>% change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Korea</td>
<td>400</td>
<td>400</td>
<td>0%</td>
</tr>
<tr>
<td>Taiwan</td>
<td>200</td>
<td>200</td>
<td>0%</td>
</tr>
<tr>
<td>Thailand</td>
<td>0</td>
<td>100</td>
<td>N/A</td>
</tr>
<tr>
<td>Indonesia</td>
<td>100</td>
<td>100</td>
<td>0%</td>
</tr>
<tr>
<td>Malaysia</td>
<td>200</td>
<td>100</td>
<td>-50%</td>
</tr>
<tr>
<td>India</td>
<td>100</td>
<td>100</td>
<td>0%</td>
</tr>
<tr>
<td>All other</td>
<td>200</td>
<td>100</td>
<td>-50%</td>
</tr>
<tr>
<td>Total</td>
<td><strong>1 200</strong></td>
<td><strong>1 100</strong></td>
<td><strong>-8%</strong></td>
</tr>
</tbody>
</table>

Source: ABS (2019) and Envisage Works

Market risks, opportunities and activities

The global steel and aluminium markets have both been able to consistently absorb metal packaging from kerbside systems, better than the local or global markets for any of the other packaging materials. This is primarily due to the lack of barriers in using MRF-sourced metal packaging into many steel and aluminium market outlets.

However, it is worth noting that there is no longer any reprocessing of tin-plate steel or aluminium packaging in Australia. Should import restrictions change in receiving countries, Australia is highly exposed to the ramifications.

If there was a dramatic negative shift in supply/demand at a global level, this could lead to significant price reductions for baled steel or aluminium packaging. However, there is no reason to believe that this is currently a risk.
3. Special topic areas

Each monthly bulletin examines a couple of special topic areas. These provide a deeper examination of specific issues of interest to a broad audience, while updating and building on the core information and time-series data that are integral to the bulletin each month.

This bulletin looks at:

- Sustainable packaging design.

Refer to the earlier bulletins for the special topics explored in those editions.

3.1 Sustainable packaging design

This special topic piece provides a quick overview of the key design principles and strategies that packaging designers and brand-owners can keep in mind when designing packaging or products to improve recoverability, scrap packaging value, and reduce the overall life cycle impacts. The high-level design principles and strategies are introduced, and then material specific design considerations are discussed.

The four core design principles and associated strategies are outlined in Figure 3.1.1.

![Figure 3.1.1 – Principles and strategies for sustainable packaging design](source: APCO (2013))

Some of the key design considerations for plastic packaging

Some of the key design aspects to minimise the environmental impacts of rigid and flexible plastic packaging are:

- Minimise materials
- Use recycled materials
- Minimise transport impacts
- Maximise water and energy efficiency
- Design for reuse where appropriate
- Design for recovery
- Design for litter reduction
- Inform consumers about appropriate disposal
- Minimise toxic and hazardous materials
- Use renewable or recyclable materials
- Use materials from responsible suppliers
- Lightweight as much as possible to minimise material consumption.
- Design for the effective reprocessing of the packaging. Minimise the use of multiple polymer types (use mono-materials if possible) and resin additives, and carefully consider the use of caps, seals, inks, dyes and labels. Design for ease of polymer separation during reprocessing.
- Use recycled content if possible.
- Minimise manufacturing inputs (e.g. energy and water).

**Some of the key design considerations for fibre-based packaging**

Some of the key design aspects to minimise the environmental impacts of fibre-based packaging are:

- Minimise the impacts of virgin fibre sourcing. The fibre source is generally the most significant environmental issue for paper and board packaging.
- Minimise the impacts of virgin or recovered fibre pulping and preparation. Virgin wood fibre production, in particular, can be energy, chemicals and water intensive. Fibre bleaching (for either virgin or recovered fibre) is particularly energy and chemicals intensive.
- Maximise the 'pulpability' of the recovered wood fibre. Packaging that doesn't pulp quickly enough is likely to be filtered from the pulp slurry, and be disposed to landfill or burnt for energy recovery. Avoid the use of additives or coatings that may significantly reduce the pulpability of the fibre in the packaging.

**Some of the key design considerations for glass packaging**

Some of the key design aspects to minimise the environmental impacts of glass packaging are:

- Avoid the use of dark green, dark or arctic (pale) blue, and black glass, as these coloured glass types are contaminants in the three specifications for closed-loop recycling: flint (clear), amber and green.
- The glassmaking process is significantly impacted by metals contamination. Avoid or minimise the use of very small metal components in packaging design.
- Avoid the use of metal-based inks for on-glass printing. Consider using organic coatings or overprinting to provide packaging colour and labelling.
- Avoid the use of full body shrink labels made from plastic, as they may trap pieces of broken glass after crushing.

**Minimise product losses**

Another critical life cycle aspect is that the product related environmental impacts are usually much greater than the impact of the packaging containing the product. As a rule of thumb, around 10% of the energy used in delivering a packaged food product, through to consumption, is directly due to the packaging system, but around 50% is related to the food production.

This means that incremental reductions in the environmental impacts of the packaging can be easily wiped out by a small increase in product losses. Care needs to be taken to ensure that any design change intended to improve sustainability, for example by light-weighting containers or eliminating components, does not increase product waste at any point in the supply chain.
3.2 Recovered paper exports – State of the nation tells a story

Exporting recovered paper has been big business for Australian, and particularly Victoria, for more than two decades. Total national exports of recovered paper peaked at a little more than 1.5 million tonnes in 2012-13, since then they have progressively declined, and were just 1.1 million tonnes in 2018-19, a fall of 16.0% on the prior year.

Figure 3.2.1 – Recovered paper exports by state, January 2013 to October 2019 (kt/month)

The chart provides an indication, and the table below further evidence, that Victoria is the largest exporting state for recovered paper. Moreover, it also shows that among the four larger states, Victoria continues to take the brunt of the export downturn.

Table 3.2.1 – Recovered paper exports by jurisdiction

<table>
<thead>
<tr>
<th></th>
<th>NSW</th>
<th>Vic</th>
<th>Qld</th>
<th>WA</th>
<th>SA</th>
<th>Tas</th>
<th>NT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year end 31/10/18</td>
<td>170.8</td>
<td>563.5</td>
<td>192.0</td>
<td>173.6</td>
<td>88.4</td>
<td>3.9</td>
<td>4.3</td>
<td>1,196.4</td>
</tr>
<tr>
<td>Year end 31/10/19</td>
<td>164.3</td>
<td>477.6</td>
<td>185.8</td>
<td>188.4</td>
<td>85.9</td>
<td>5.3</td>
<td>2.7</td>
<td>1,110.0</td>
</tr>
<tr>
<td>% change</td>
<td>-3.8%</td>
<td>-15.2%</td>
<td>-3.2%</td>
<td>8.5%</td>
<td>-2.8%</td>
<td>35.9%</td>
<td>-35.8%</td>
<td>-7.2%</td>
</tr>
</tbody>
</table>

Source: ABS & IndustryEdge

Exports over the year-ended October were down nationally by 7.2% compared to the previous year, and expectations are that there will be a further softening of exports when November and December export data becomes available.

Why does Victoria have higher exports of recovered paper, and why has it experienced a larger downturn in exports?
First, unlike New South Wales, Victoria has more limited reprocessing options. That is the main reason it has more material to export.

Second, Melbourne is Australia’s busiest trading port. In part, that is because there are materials that are shipped from Tasmania and South Australia, but also because of general economic activity in the state being second largest after New South Wales.

Why Victoria has experienced larger declines in recovered paper exports is more complex.

Some Victorian exporters became distressed over the last year and for a variety of reasons, ceased exporting for short periods of time. That reduced export volumes. Equally significant, coming off a high base, declining export markets and insufficient reprocessing opportunities has led to increased inventories (storage) and landfill volumes.

The decline in Victoria’s exports of recovered paper over the last year (15.2%) does not compare well with the other major states. The benchmark state for Victoria is New South Wales because of population similarities. Its decline of 3.8% on the prior year is however misleading – as much as a comparison with all of the other states will be.

It is the volume differences that count the most. Even after falling by around 86,000 tonnes compared to a year earlier, Victorian exports were more than double those from the next nearest exporting state, Western Australia. WA has no significant reprocessing of recovered paper.

Put at its simplest, Victoria is the most export exposed of any of the larger states and as a consequence has suffered the most as exports have slumped.

4. Supporting material

Please refer to the document Supporting resources – Glossary and references for a detailed glossary of the terms used throughout the bulletins, and a listing of the references and other sources drawn on in the development of the bulletins.

This document is available for download at: https://www.sustainability.vic.gov.au/Business/Investment-facilitation/Recovered-resources-market-bulletin.