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AUSTRALIAN PACKAGING CONSUMPTION & RECYCLING DATA 2018-19

EXECUTIVE SUMMARY

APCO
AUSTRALIAN PACKAGING COVENANT ORGANISATION

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APCO and the contributing authors have prepared this report with a high-level of care and thoroughness and recommend that it is read in full. This report is based on generally accepted practices and standards at the time it was prepared. It is prepared in accordance with the scope of work and for the purpose outlined in the project brief. The method adopted, and sources of information used are outlined in this report, except where provided on a confidential basis. This report has been prepared for use by the APCO, and only other third parties who have been authorised by APCO. APCO and the contributing authors are not liable for any loss or damage that may be occasioned directly or indirectly using, or reliance on, the contents of this publication. This report does not purport to give legal or financial advice. No other warranty, expressed or implied, is made as to the professional advice included in this report.

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We acknowledge and thank the packaging manufacturing and reprocessing companies around Australia that took the time to respond to our information request for this project. The completion of this study was only possible because of your valuable and expert contributions.

Authors
Report prepared by Envisage Works, IndustryEdge, Randell Environmental Consulting and Sustainable Resource Use on behalf of the Australian Packaging Covenant Organisation.

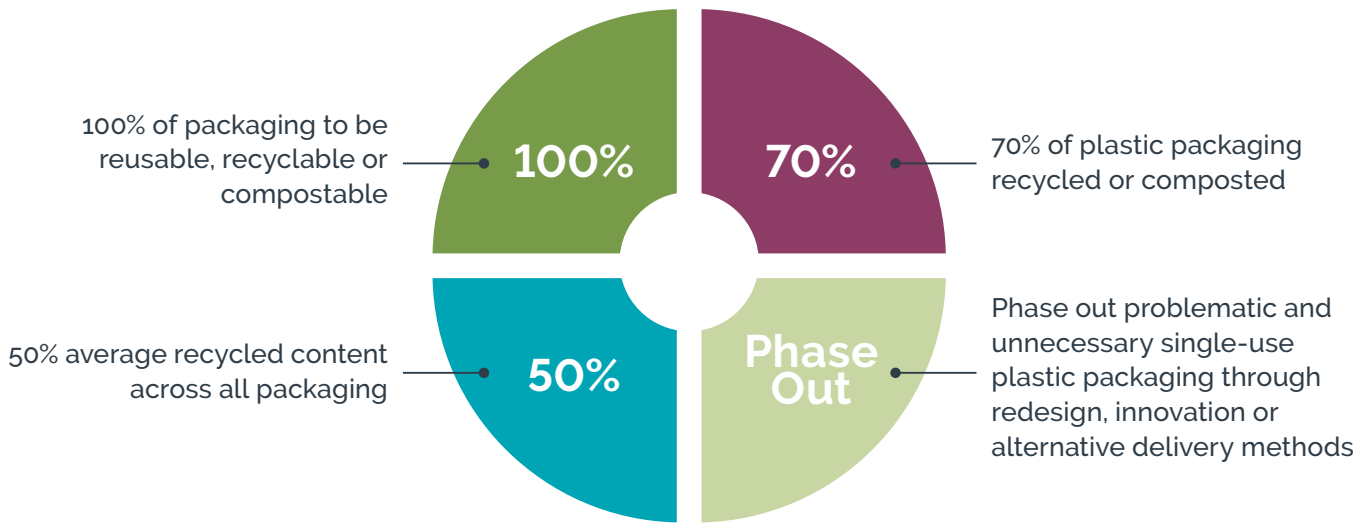
Contents

Background

In 2018, all levels of Australian government, including representatives from local, state and territory and federal governments, came together with industry to launch Australia's 2025 National Packaging Targets (2025 Targets), providing a clear mandate to deliver a new sustainable pathway for packaging in Australia.

This report provides packaging consumption and recovery data for Australia for financial year 2018–19, to inform the measurement of progress towards the 2025 Targets.

The data in this report is also intended to support strategic planning across the life cycle of packaging – design, manufacturing, use, disposal and end-of-life – to improve sustainability.



Australia's 2025 National Packaging Targets

Packaging consumption

Total packaging placed on market (POM) in Australia in 2018–19 is estimated at 5.92 million tonnes. POM means that the packaging has been made available to the end-consumer (including business users). It includes locally manufactured and imported packaging (filled or unfilled).

Of the 5.92 million tonnes of packaging POM in 2018–19, over half was paper & paperboard packaging (55.1%), followed by glass packaging (21.7%), plastic packaging (16.9%), metal packaging (4.2%), and single-use wood packaging (2.1%)[1].

Estimates for packaging POM by material group are provided in Table E-1 and Figure E-1. The accuracy range estimates for each of the material groups are also provided as error bars in Figure E-1.

Table E-1 *Packaging POM in 2018–19, by material group*

MATERIAL GROUP	TOTAL POM (TONNES)	TOTAL POM (%)	ACCURACY RANGE (±%)
Paper and paperboard	3 262 000	55.1%	7%
Glass	1 283 000	21.7%	12%
Plastic	1 000 000	16.9%	20%
Metal	246 000	4.2%	17%
Wood	124 000	2.1%	35%
Total	**5 916 000**	**100.0%**	**11%**

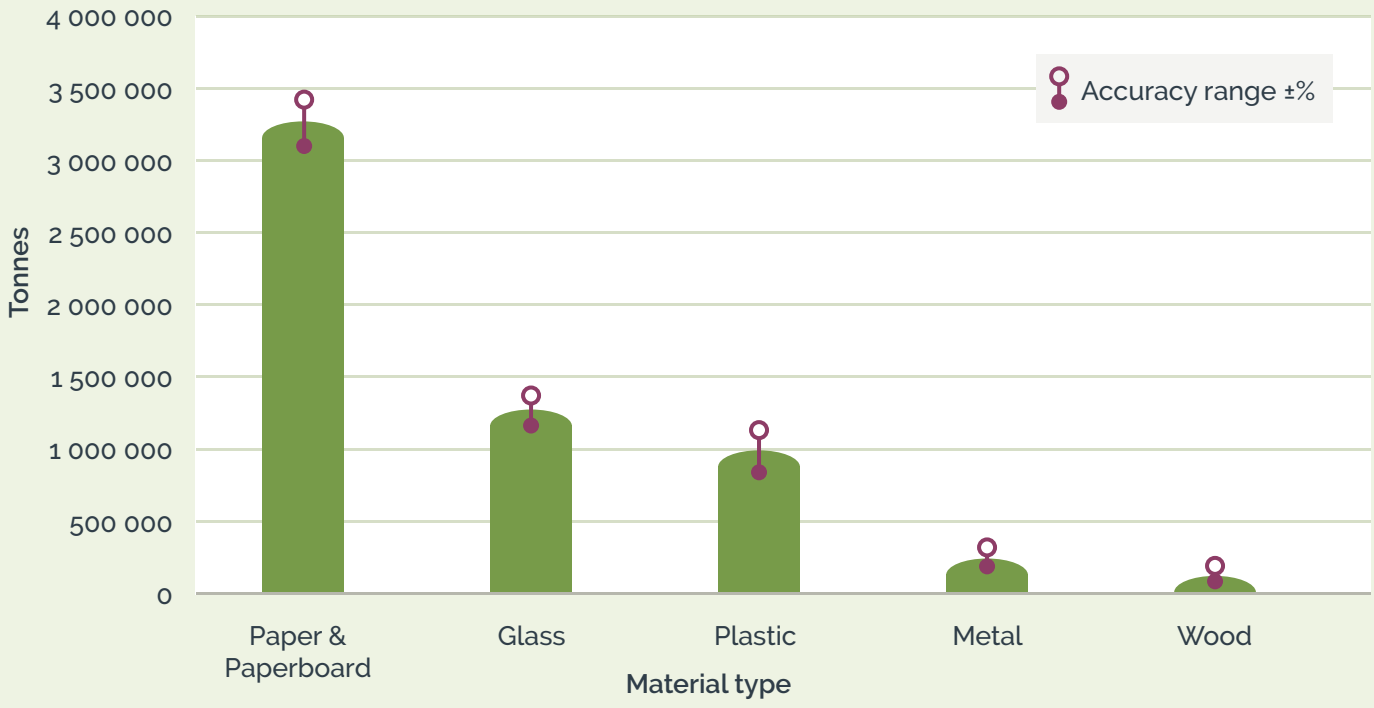


Figure E-1 *– Packaging POM in 2018–19, by material group (tonnes)*

1 For the first time this year single-use wood packaging is included in the scope of the dataset.

Table E-2 compares POM data by material group for 2017–18 and 2018–19. This year, single-use wood packaging (estimated at 124 kilotonnes (kt) is included in the scope of the dataset for the first time, along with some additional types of business-to-business (B2B) steel packaging (20 kt). Excluding these quantities, packaging POM was 5.77 million tonnes, which was a 5.9% increase on the 2017–18 packaging POM estimate of 5.45 million tonnes.

There was strong growth in paper & paperboard packaging consumption between 2017–18 and 2018–19 due to many factors, including above average growth of corrugated cardboard used in the business-to-consumer (B2C) sector, and significant growth in the amount of kraft paper used as void fill within boxes for transporting goods. Over the 12-month period, the proportion of plastic packaging fell from around 20% to 17% of total packaging POM.

***Table E-2** Packaging POM in 2017–18 and 2018–19, by material group*

MATERIAL GROUP	2017–18 POM (TONNES)	2018–19 POM (TONNES)	CHANGE (%)
Paper and paperboard	2 901 000	3 262 000	12%
Glass	1 273 000	1 283 000	1%
Plastic	1 067 000	1 000 000	-6%
Metal	213 000	246 000	16%
Wood	NR[a]	124 000	NR[a]
Total	**5 453 000**	**5 916 000**	**8%**

a) NR – Not reported.

Overall packaging recovery

Total Australian post-consumer packaging recovery in 2018–19 is estimated at 2.98 million tonnes (±14%).

Of the packaging recovered in 2018–19, over two thirds was paper & paperboard packaging (68.6%), followed by glass packaging (19.2%), plastic packaging (6.1%), metal packaging (4.6%), and wood packaging (1.5%).

Estimates for post-consumer packaging recovery by material group are provided in Table E-3 and Figure E-2. The estimates include post-consumer packaging collected through municipal, commercial and industrial (C&I), and container deposit scheme (CDS) collection services.

Table E-3 *Post-consumer packaging recovery in 2018–19, by material group*

MATERIAL GROUP	RECOVERY		ACCURACY RANGE
	(TONNES)	(%)[a]	(±%)
Paper and paperboard	2 045 000	68.6%	13%
Glass	574 000	19.2%	16%
Plastic	182 000	6.1%	14%
Metal	137 000	4.6%	12%
Wood	44 000	1.5%	50%
Total	**2 982 000**	**100.0%**	**14%**

a) Percent contribution to the total amount of packaging recovered, and not the recovery rate.

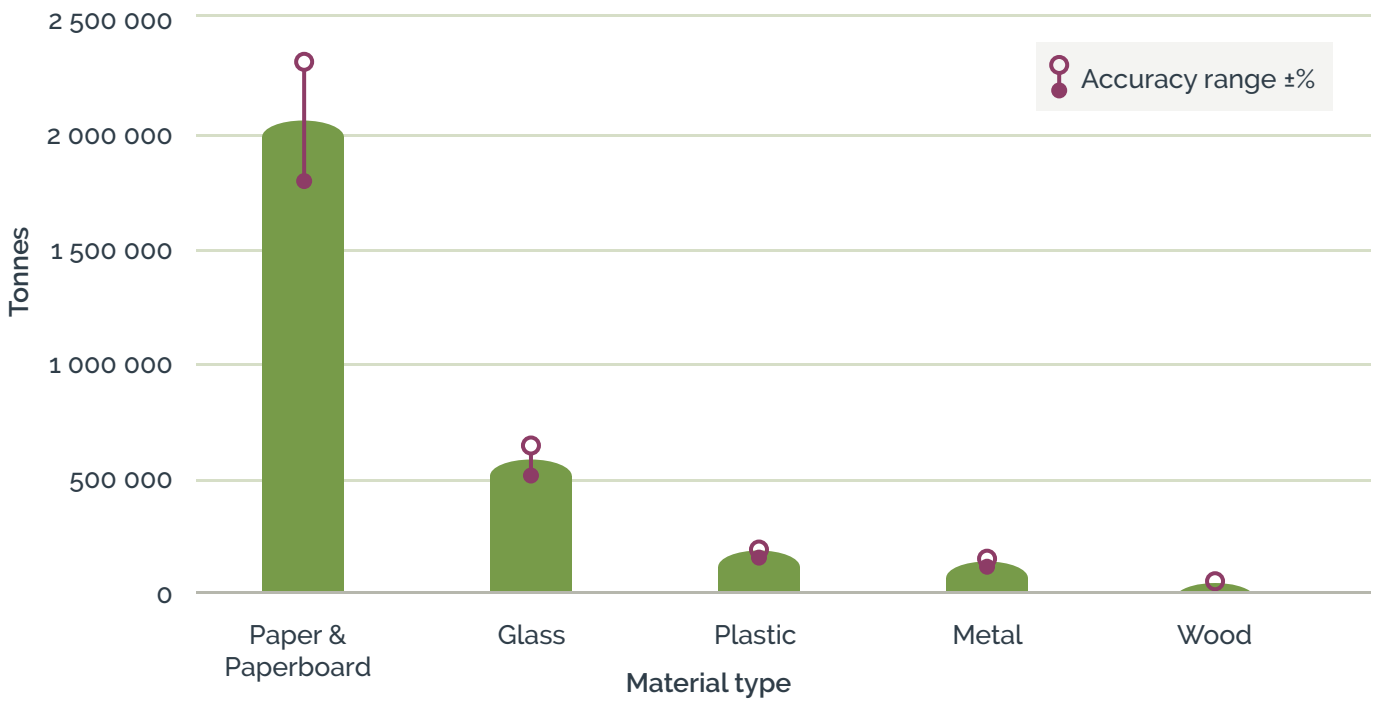


Figure E-2 *– Post-consumer packaging recovery by material group in 2018–19 (tonnes)*

Table E-4 compares recovery data by material group for 2017–18 and 2018–19. For the first time this year single-use wood packaging recovery is included (an estimated 44 kt), along with some additional types of B2B steel packaging (17 kt). Excluding these quantities, packaging recovery was 2.92 million tonnes, which was a 9.3% increase on the 2017–18 packaging POM estimate of 2.67 million tonnes.

Table E-4 *Post-consumer packaging recovery in 2017–18 and 2018–19, by material group*

MATERIAL GROUP	2017–18 RECOVERY (TONNES)	2018–19 RECOVERY (TONNES)	CHANGE (%)
Paper and paperboard	1 817 000	2 045 000	13%
Glass	582 000	574 000	-1%
Plastic	173 000	182 000	5%
Metal	102 000	137 000	35%
Wood	NR[a]	44 000	NR[a]
Total	**2 673 000**	**2 982 000**	**12%**

a) NR – Not reported.

Packaging recovery rates

Packaging recovery rates are shown in Table E-5 and Figure E-3.

The Australian post-consumer packaging recovery rate in 2018–19 is estimated at 50%. This is based on the recovery of each material group divided by the related amount of packaging POM.

Paper & paperboard had the highest recovery rate at 63%, followed by metal packaging at 56%, glass packaging at 45%, wood packaging at 36%, and plastic packaging at 18%.

***Table E-5** – Post-consumer packaging recovery rates in 2018–19, by material group*

MATERIAL GROUP	POM (TONNES)	RECOVERY (TONNES)	RECOVERY RATE (%)
Paper & paperboard	3 262 000	2 045 000	63%
Glass	1 283 000	574 000	45%
Plastic	1 000 000	182 000	18%
Metal	246 000	137 000	56%
Wood	124 000	44 000	36%
Total	**5 916 000**	**2 982 000**	**50%**

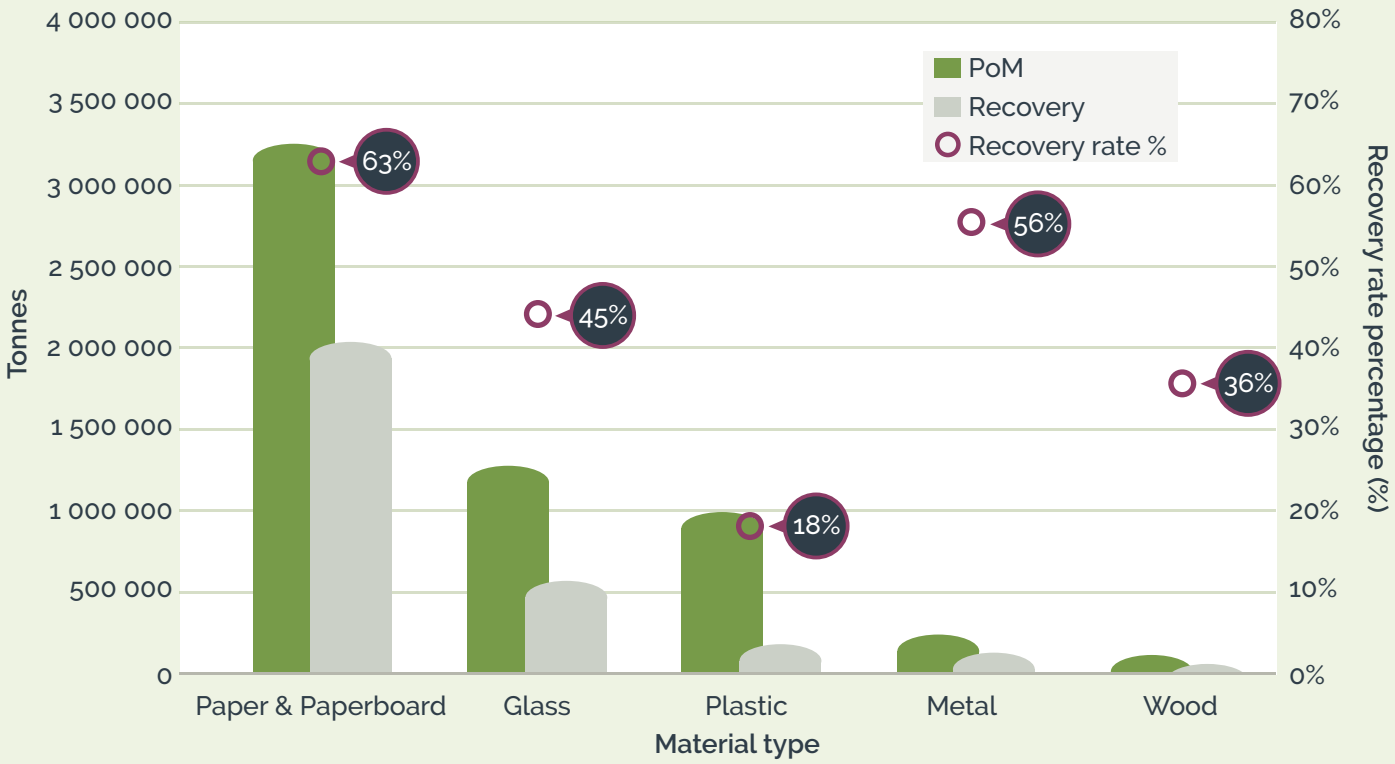


***Figure E-3** – Post-consumer packaging recovery rates in 2018–19, by material group*

Table E-6 and Figure E-4 compare recovery rates by material group for 2017–18 and 2018–19. There was a marked increase in the metal packaging recovery rate, underpinned by increasing aluminium beverage recovery due to expansion of CDS collection services in NSW and Queensland in 2018–19.

The increase in scope for the survey in 2018-19 (single-use wood packaging and additional B2B steel packaging) had a negligible impact on the overall recovery rate calculation.

***Table E-6** – Post-consumer packaging recovery rates in 2017–18 and 2018–19, by material group*

MATERIAL GROUP	2017–18 RECOVERY RATE (%)	2018–19 RECOVERY RATE (%)
Paper & paperboard	63%	63%
Glass	46%	45%
Plastic	16%	18%
Metal	48%	56%
Wood	NR[a]	36%
Total	**49%**	**50%**

a) NR – Not reported.

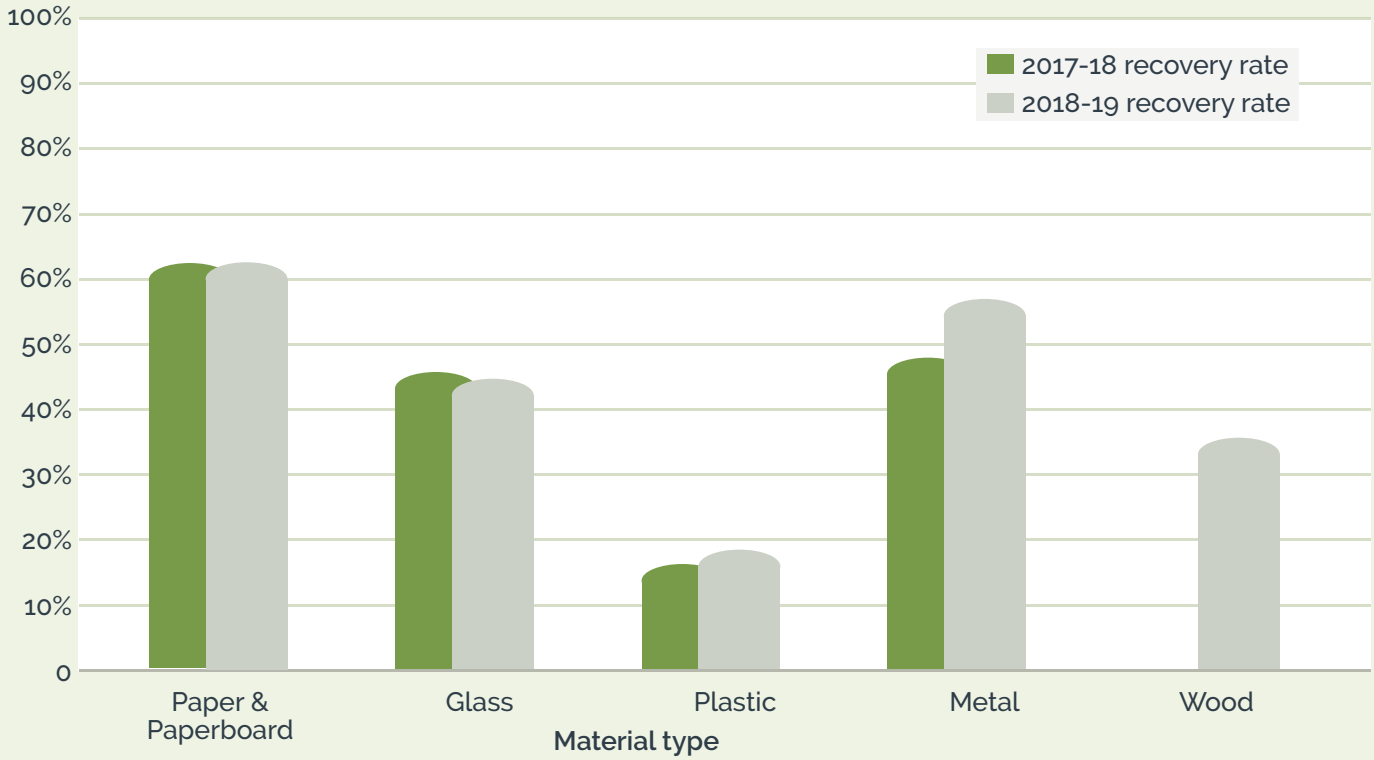


***Figure E-4** – Comparison of post-consumer packaging recovery rates in 2017–18 and 2018–19, by material group (tonnes)*

Packaging recycled content

Estimates of the recycled content in packaging POM in 2018–19, by material group, are provided in Table E-7 and Figure E-5. The post-consumer recycled (PCR) content across all packaging was 2.2 million tonnes, or 38% of total packaging POM. The pre-consumer recycled content was 0.7 million tonnes (12%), and nearly 3.0 million tonnes (50%) was sourced from virgin (primary) feedstocks.

***Table E-7** – Packaging POM in 2018–19, by material group and recycled content*

MATERIAL GROUP	POST-CONSUMER SOURCE		PRE-CONSUMER SOURCE		VIRGIN SOURCE		TOTAL
	(TONNES)	%	(TONNES)	%	(TONNES)	%	(TONNES)
Paper & paperboard	1 667 000	51%	554 000	17%	1 041 000	32%	3 262 000
Glass	474 000	37%	84 000	7%	724 000	56%	1 283 000
Plastic	37 000	4%	29 000	3%	934 000	93%	1 000 000
Metal	59 000	24%	73 000	30%	114 000	46%	246 000
Wood	0	0%	0	0%	124 000	100%	124 000
Total	**2 237 000**	**38%**	**741 000**	**12%**	**2 939 000**	**50%**	**5 916 000**

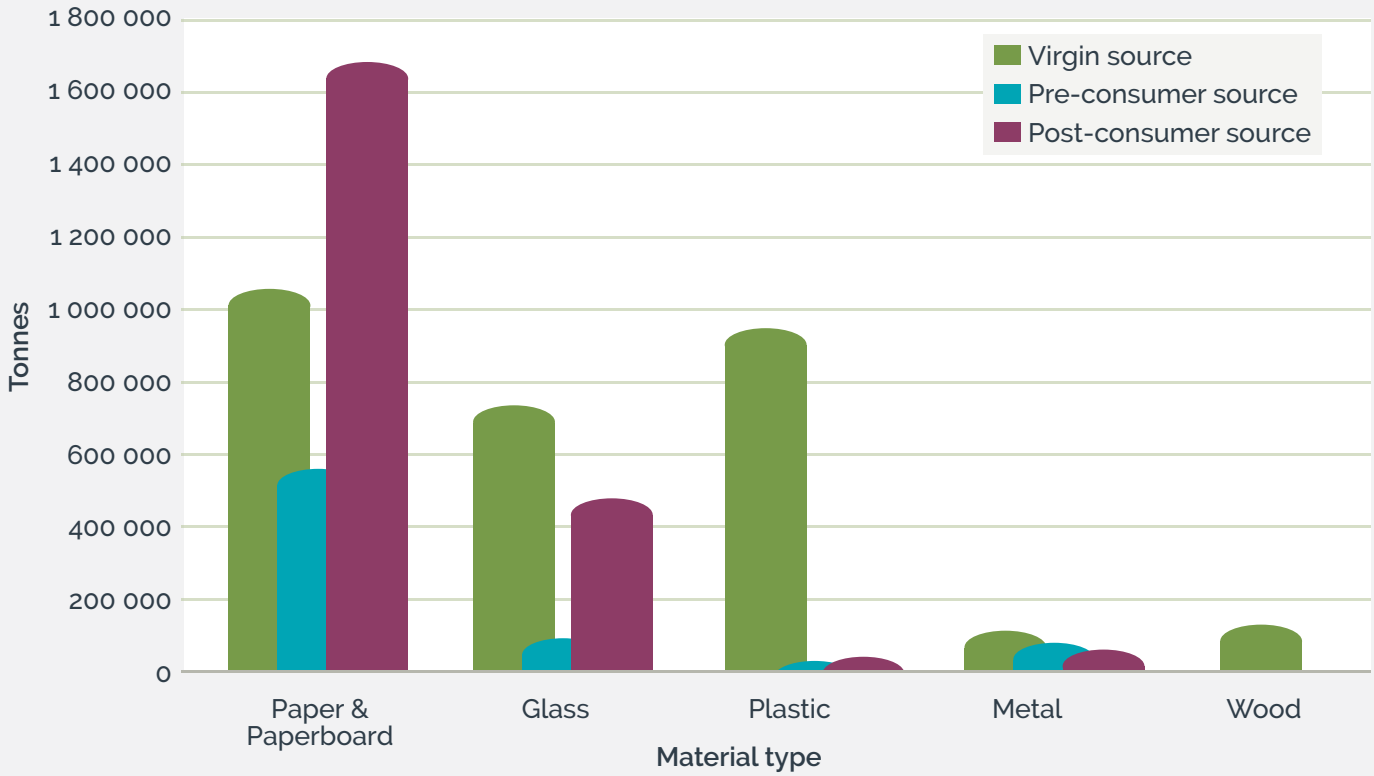


***Figure E-5** – Recycled content in packaging POM by material group (tonnes)*

Table E-8 compares the PCR content of packaging by material group in 2017–18 and 2018–19. The total quantity of PCR material in packaging increased by an estimated 322 kt (17%).

***Table E-8** – Packaging PCR content in 2017–18 and 2018–19, as a percentage of packaging POM, by material group*

MATERIAL GROUP	2017–18		2018–19	
	(TONNES)	(%)	(TONNES)	(%)
Paper & paperboard	1 421 000	49%	1 667 000	51%
Glass	407 000	32%	474 000	37%
Plastic	23 000	2%	37 000	4%
Metal	64 000	30%	59 000	24%
Wood	NR[a]	NR[a]	0	0%
Total	**1 915 000**	**35%**	**2 237 000**	**38%**

a) NR – Not reported.

There was modest growth reported in PCR content of paper & paperboard packaging between 2017–18 and 2018–19, but more significant growth in the PCR content of glass. This may be due to an increase in the quantity and quality of supply following the implementation and growing maturity of CDS in the ACT, NSW and Queensland.

In relation to plastics, there was some new reprocessing capacity commissioned in 2018–19 for reprocessing post-consumer plastic packaging back into packaging. In addition, there was an increased quantity of PCR resins imported into Australia by plastic packaging manufacturers, attributed to a lack of local supply of suitable quality PCR resin to meet local demand.

Packaging recyclability

Estimates of packaging recyclability by recyclability classification and material group are provided in Table E-9 and Figure E-6. Throughout the report the term 'Packaging recyclability' includes both recyclable and compostable packaging.

The method for determining packaging material recyclability uses scores based on the Packaging Recyclability Evaluation Portal (PREP) assessment framework.

It is estimated that 5.3 million tonnes (89%) of packaging POM in 2018–19 has good recyclability. This is dominated by paper & paperboard (of which 91% has good recyclability) and glass (of which 100% has good recyclability). Almost all (99%) of metal packaging is classified as having good recyclability, while only 66% of plastic packaging is classified as having good recyclability.

Around 0.5 million tonnes (9%) of packaging is classified as having poor recyclability or not being recyclable. Around half of this is plastic packaging, with the remaining half mostly paper & paperboard packaging.

The 'unknown' classification includes packaging for which the packaging material or format are unknown, which makes it difficult to determine recyclability.

Table E-10 compares the quantities of packaging with a 'good recyclability' classification in 2017–18 and 2018–19.

***Table E-9** – Recyclable packaging POM in 2018–19, by recyclability classification*

MATERIAL GROUP	GOOD RECYCLABILITY (TONNES)	POOR RECYCLABILITY (TONNES)	NOT RECYCLABLE (TONNES)	UNKNOWN (TONNES)	TOTAL (TONNES)
Paper & paperboard	2 962 000	232 000	42 000	27 000	**3 262 000**
Glass	1 283 000	0	0	0	**1 283 000**
Plastic	663 000	196 000	55 000	87 000	**1 000 000**
Metal	243 000	3 000	0	0	**246 000**
Wood	121 000	0	1 000	2 000	**124 000**
Total (tonnes)	**5 273 000**	**431 000**	**97 000**	**116 000**	**5 916 000**
Total (%)	**89%**	**7%**	**2%**	**2%**	**100%**

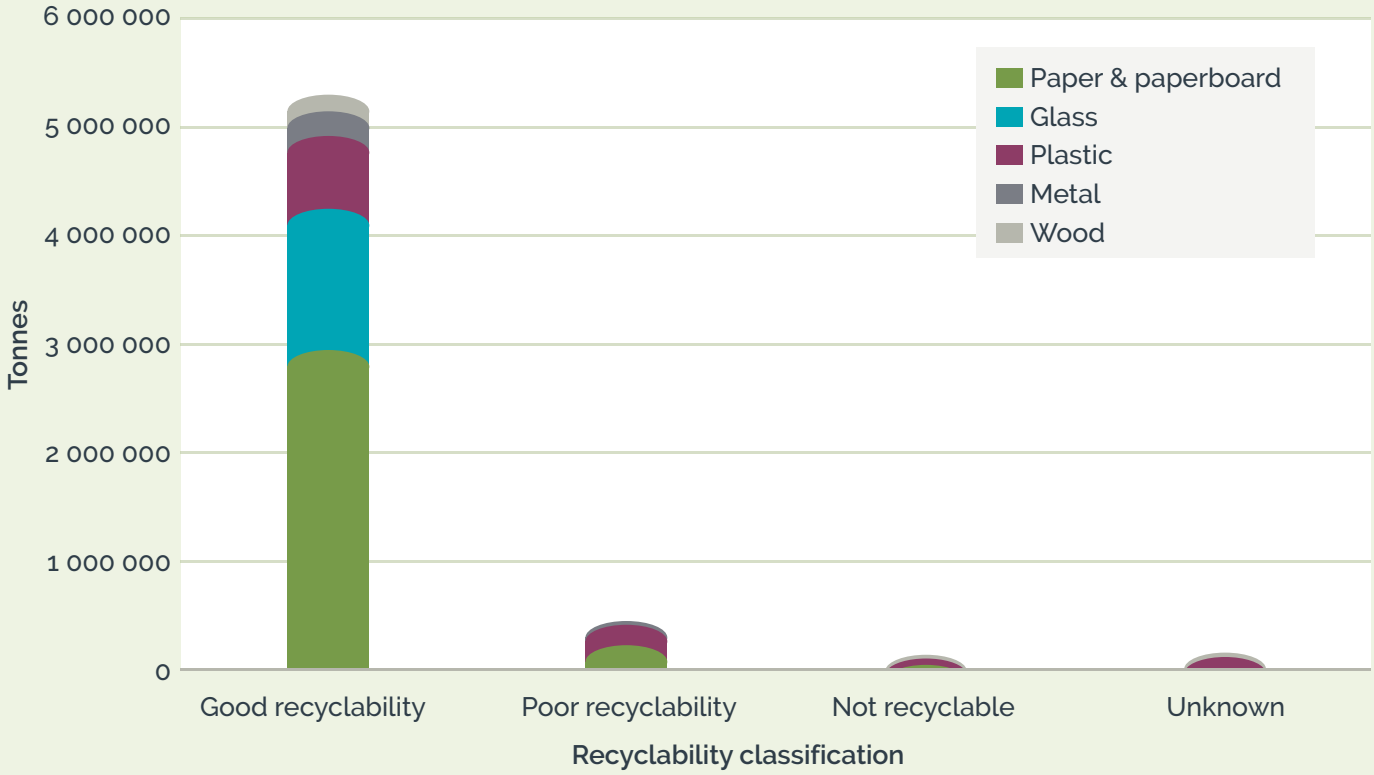


***Figure E-6** – Recyclable packaging POM in 2018–19 (tonnes)*

***Table E-10** – Packaging with a 'good recyclability' classification in 2017–18 and 2018–19, by material group*

MATERIAL GROUP	2017–18		2018–19	
	(TONNES)	(% OF POM)	(TONNES)	(% OF POM)
Paper & paperboard	2 682 000	92%	2 962 000	91%
Glass	1 273 000	100%	1 283 000	100%
Plastic	627 000	59%	663 000	66%
Metal	201 000	95%	243 000	99%
Wood	NR[a]	NR[a]	121 000	98%
Total	**4 783 000**	**88%**	**5 273 000**	**89%**

a) NR – Not reported.

Packaging in landfill

A total of 2.9 million tonnes of post-consumer packaging were disposed to landfill in 2018-19, which was 50% of packaging POM. The lost value of this material is estimated at $520 million, at a weighted average value of $176/tonne. This is the potential value of the packaging if it had been sorted and recycled rather than disposed to landfill.

Recycling also helps to reduce greenhouse gas (GHG) emissions. Table E-11 presents indicative estimates of the reduction in GHG emissions if all landfilled packaging had been recycled in 2018–19.

The national reduction that could have been achieved is estimated at nearly 2 million tonnes of CO_2 emissions, at a weighted average of 0.7 tonnes CO_2 /tonne diverted to recycling. This would be equivalent to removing 470 000 cars from the road.

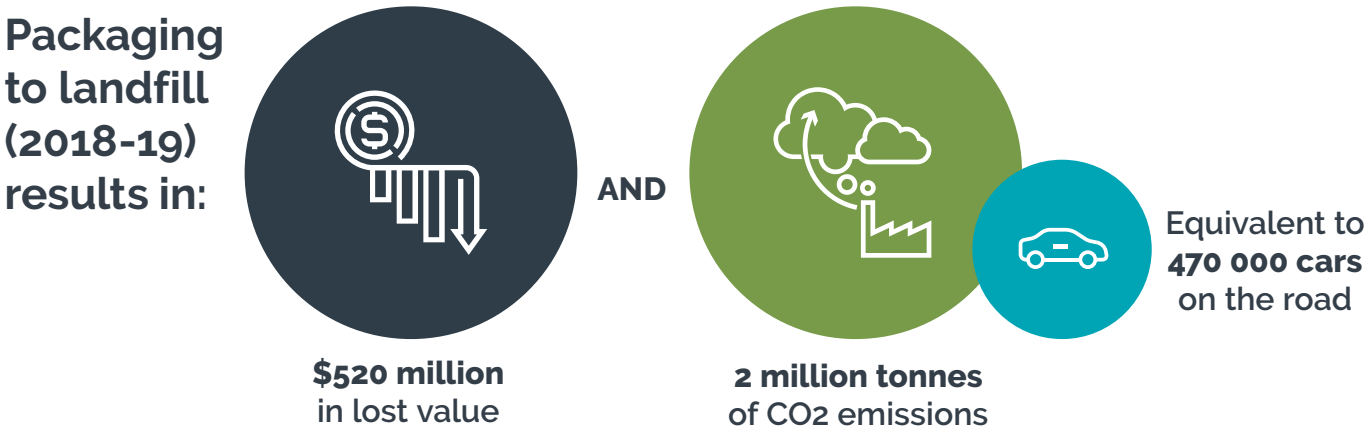


***Table E-11** – Indicative GHG emissions that could be reduced through diverting landfilled packaging to recycling (based on 2018-19 tonnages, by material group)*

MATERIAL GROUP	LANDFILL (TONNES)	EMISSION FACTOR (t CO2-e /t)	AVOIDED EMISSIONS (t CO2-e)
Paper & paperboard	1 218 000	0.169	205 790
Glass	709 000	0.528	374 470
Plastic	818 000	0.704	576 380
Metal	109 000	6.281	686 300
Wood	80 000	1.350	107 560
Total	**2 934 000**	**0.665**	**1 950 490**

Packaging reuse

For the first time this year material flows associated with selected reusable packaging systems have been quantified. This is a pilot exercise to develop the method for incorporating reusable packaging flows into the core consumption and recovery dataset in the future.

Five established reusable packaging systems in Australia were selected for this pilot quantification:

- **Kegs** – Beer kegs only.
- **Pallets** – Reusable timber and plastic pallets only, including display pallets; single use pallets are excluded.
- **Milk crates** – Non-collapsible plastic crates; limited to dairy product applications only.
- **Returnable plastic crates (RPCs)** – Collapsible plastic crates; limited to major supermarket systems only (i.e. ALDI, Coles and Woolworths).
- **Reusable shopping bags** – Reusable non-woven polypropylene (PP) bags and reusable low-density polyethylene bags (supermarket type).

These five reusable packaging systems enabled the avoidance of an estimated 1.7 million tonnes of single-use packaging in 2018-19. Approximately 89% of the avoided single-use packaging consumption benefit is provided by reusable pallets and beer kegs. The net theoretical reduction in packaging use was 1.6 million tonnes, as there was 0.1 million tonnes of reusable packaging PoM in 2018–19.

Progress towards the 2025 National Packaging Targets

Figure E-7 summarises the progress towards the 2025 National Packaging Targets for 2017–18 and 2018–19.

Refer to the *2017-18 Packaging Consumption and Recycling Data report* for more details on the 2017-18 results.

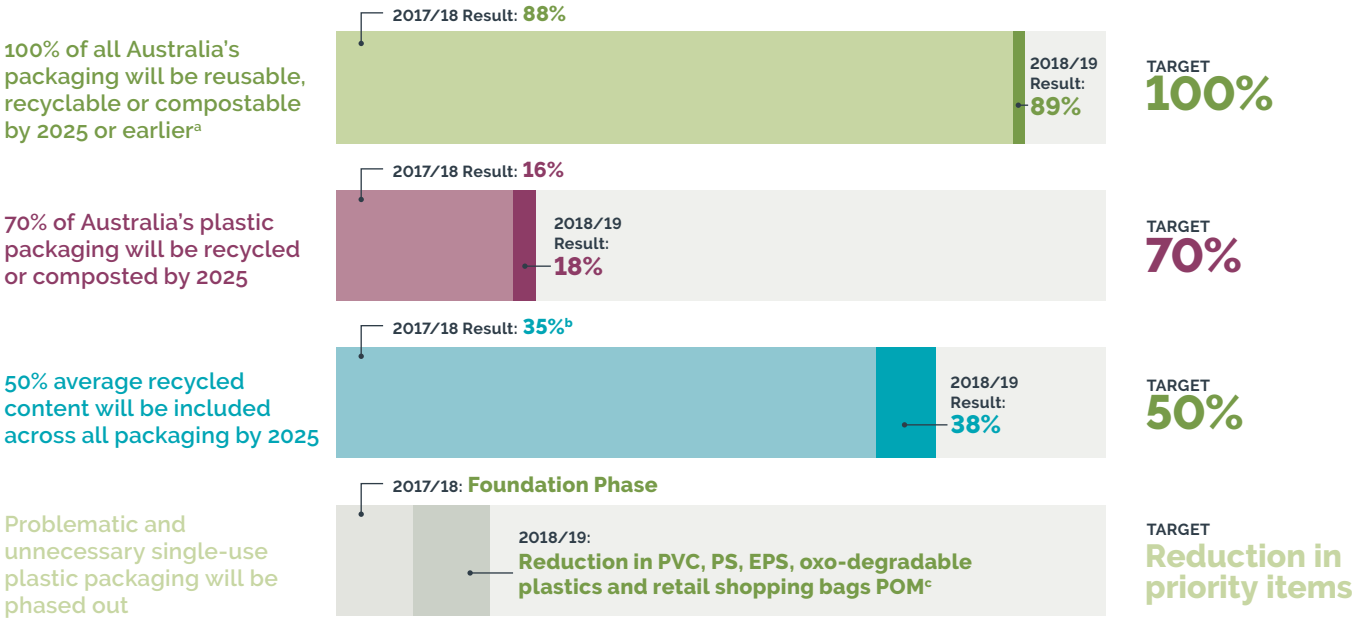


***Figure E-7** – Summary of the National Packaging Targets and progress to 2018–19*

a) Reusable packaging flows are not included in this data.
b) Post-consumer recycled content only. Does not include manufacturing scrap (pre-consumer) recycled content.
c) These estimates are subject to a relatively large accuracy range and significant changes in year-on-year reporting.

Project method

Consumption quantification

Locally manufactured Australian packaging consumption was determined through national surveys of packaging manufacturers and importers. Data was estimated for all significant survey non-respondents based on publicly available data or through consultation with others in the industry.

Imported and exported new packaging was determined through analysis of Australian Harmonized Tariff Item Statistical Code (HTISC) data.

Recovery quantification

Australian packaging recovery was determined through national surveys of packaging reprocessors, with recovery data estimated for all significant survey non-respondents.

Exported scrap packaging was determined through analysis of Australian Harmonized Export Commodity Classification (AHECC) data, and surveys of reprocessors and exporters.

Recovery is measured at the out-going gate of the secondary processing facility for the used packaging. This is the point at which the processed material is typically 'input ready' for the manufacture of new packaging or other products. Examples of secondary processing facilities include paper mills, glass beneficiation facilities, plastics flaking and washing facilities, and metal smelting facilities.

The overseas processing losses associated with the export of sorted but unprocessed materials have been estimated based on the losses reported by local operators of secondary processing facilities.

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