APCO COLLECTIVE IMPACT REPORT

VERSION 1 -
NOVEMBER 2021

APCO
AUSTRALIAN PACKAGING COVENANT ORGANISATION

CONTENTS

EXECUTIVE SUMMARY

In 2017 Australian governments and industry introduced a circular economic approach for packaging through the 2017 -2022 Strategic Plan for the Australian Packaging Covenant (the Covenant). Globally, the primary strategy for achieving sustainable packaging is through the integration of a circular economic approach. It was a significant step towards a more rigorous and strategic model to deliver on the objectives of the Covenant. In consultation with governments and industry, it was determined that the execution of the circular economic approach would be delivered through the Collective Impact Framework.

Collective Impact is a collaborative framework that engages sectors and groups sharing a common interest in addressing a complex social issue in a given community. There are five key elements in the Collective Impact Framework:

Since 2017, Australia has implemented a range of initiatives to support the implementation and transition to a circular economy for packaging. Some of these changes have included:

A more ambitious agenda:

- Establishment of the 2025 National Packaging Targets (2025 Targets).
- Development of Our Packaging Future – the strategic roadmap for the delivery of the 2025 Targets.

Increased transparency and accountability:

- Implementation of the Packaging Sustainability Framework for APCO Annual Reporting.
- Annual data and consumption and material flow analysis of the system performance of the Australian packaging value chain.
- Development of the 2025 Monitoring Program.

Stronger partnerships for collective action:

- Implementation of the Collective Action Group (CAG) to oversee the delivery of the 2025 Targets.
- Collaborative partnerships with diverse stakeholders across industry including manufacturing, waste and recycling and retail stakeholders.
- The development of resources, guidelines and educational activities to support the transition to sustainable packaging for Australian industry and consumers.

A more effective recovery system:

- Implementation of the Australasian Recycling Label (ARL) Program to reduce contamination in the packaging waste stream and drive more circular design.
- Increasing investment in domestic capacity for plastic reprocessing, which is now expected to increase from around 227,000 tonnes in 2020-21 to at least 420,000 tonnes by 2025.
- Increased efficiency of the recovery system including.
  - increased collection efficiency – from 58% to 62%,
  - improved sorting efficiency – from 54% to 61%,
  - higher recovery rate – from 50% to 55%, and
  - improved local utilisation rate (reprocessing within Australia) – from 27% to 34%.

There is, however, still much to be done. An estimated 45% of packaging was disposed to landfill in 2019-20, representing a loss of resources valued at approximately $360 million.[1] An additional 1.9 million tonnes of greenhouse gas emissions could have been avoided if this material had been recycled instead of being landfilled. There are still significant gaps to achieve the 2025 Targets for recovery and recycled content (Figure E1).

Progress towards the targets

There are still significant gaps to achieve the 2025 targets for design, recovery and recycled content (Figure E1).

TARGET	Result 2017-18	Result 2018-19	Result 2019-20
100% reusable, recyclable or compostable packaging.	88%	89%	86%
70% of plastic packaging being recycled or composted.	16%	18%	16%
50% average recycled content included in packaging^ (revised from 30% in 2020).	35%	38%	39%
The phase-out of problematic and unnecessary single-use plastic packaging.	Foundation phase	Foundation phase	Development phase

Figure E1: Progress towards the 2025 Targets, 2019-20

^Data shown excludes wood packaging due to insufficient data

Losses in the packaging system

In this report, we take a deep dive into the system metrics, provide insights into some clear gaps, and show a need for alternative interventions to achieve the 2025 Targets. The next stage of this systemic change will require bold interventions in policy, production, education and engagement.

Figure E2 highlights current material losses in the packaging system, from design through to collection, sorting and reprocessing.

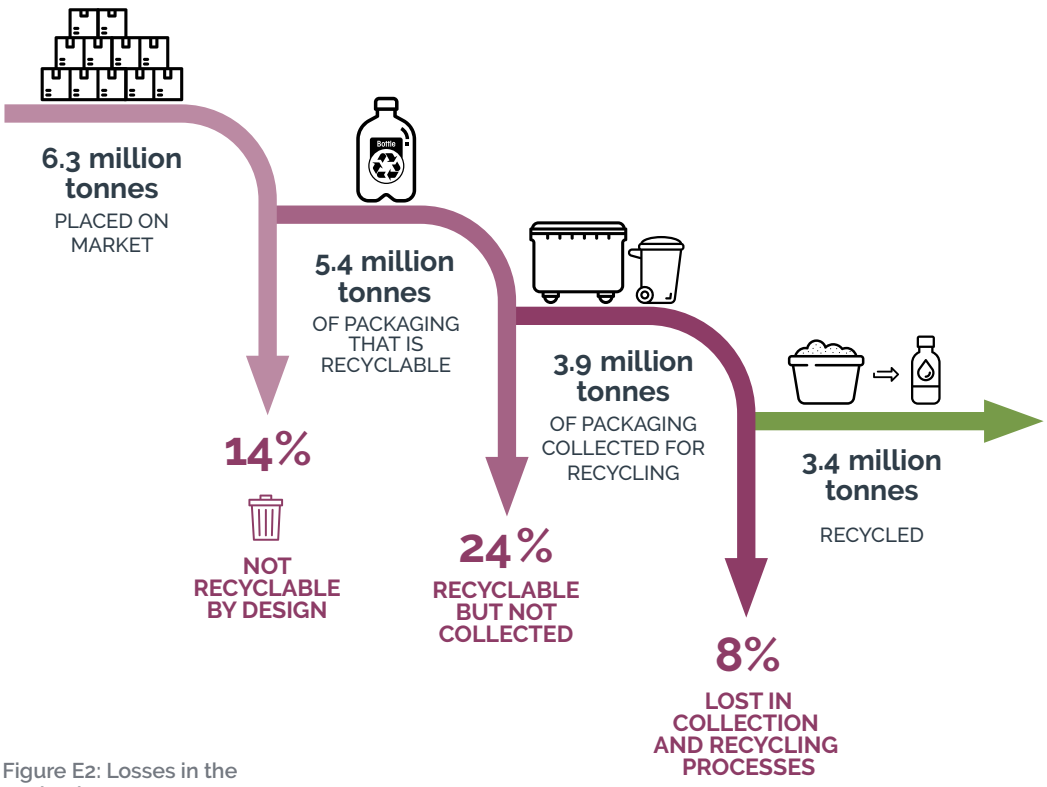
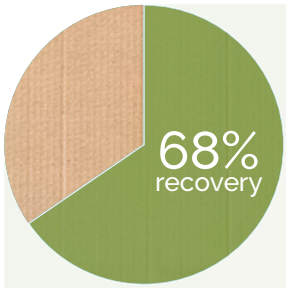


Figure E2: Losses in the packaging system 2019-20

Insights for post-consumer packaging recovery 2017-18 to 2019-20, by material group



PAPER & PAPERBOARD

3.3 million tonnes placed on market
2.3 million tonnes recovered

The **recovery rate has increased** to 68% in 2019-20 compared to 63% in the previous two years. This is largely driven by increased recycling of old corrugated cardboard (OCC) from 73% to 79% in 2019-20. High wet strength and polymer coated paperboard (cartons, cups and containers) are the most problematic to recycle.

Consumption of paper and paperboard has remained relatively stable but is expected to grow strongly over the next 4 years. This growth in consumption combined with bans on export of unprocessed paper may lead to a gap in local recycling capacity.

PLASTIC

1.1 million tonnes placed on market
179,000 tonnes recovered

The **recovery rate has remained relatively stable** over the 3-year period with no significant improvements. The impact of planned infrastructure improvements has not yet flowed through to the recovery rate statistics.

Material Flow Analysis (MFA) scenario modelling predicts a recovery rate of 36% with the current planned infrastructure and capacity improvements. PET is the only polymer expected to reach a 70% recovery rate by 2024-25.

GLASS

1.2 million tonnes placed on market
699,000 tonnes recovered

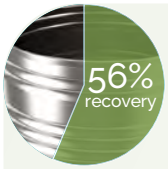
The **recovery rate increased significantly** from 45% in 2018-19 to 60% in the latest year. This is due an increase in the quantity recovered as well as a fall in consumption (-10%).

The glass recovery rate is expected to continue improving due to expansions in collection through Container Deposit Schemes and increased reprocessing capacity.

WOOD

462,000 tonnes placed on market
171,000 tonnes recovered

The recovery rate remained relatively stable, increasing from 36% in 2018-19 (the first year that data on wood packaging was collected).



METAL

248,000 tonnes placed on market
139,000 tonnes recovered

The recovery rate remained unchanged from the previous year at 56%. Aluminium beverage cans performed much better, with the recovery rate increasing from 75% in 2018-19 to 81% in 2019-20. The recovery rate for non-beverage aluminium also increased from 19% to 37% over the same period while recovery of tinplate steel fell slightly to 38%.

In addition, specific gaps for each of the 2025 Targets are identified including:

1. 100% of packaging to be reusable, recyclable or compostable

- Uncertainties about the compatibility of packaging items with current and future recovery systems, which is a barrier to change.
- Recyclable materials that are lost in the sorting system due to size (too large or too small) or format type.
- A recycling system designed to meet pre–China National Sword quality/contamination standards.

2. 70% of plastic packaging to be recycled or composted

- Loss of recyclable materials due to poor source separation by households and businesses.
- Technical and/or commercial barriers to sorting within Material Recovery Facilities (MRFs).
- Limited end markets for some materials.
- Inconsistent state definitions, policies and product scope undermining investment confidence.

3. Phase-out of problematic and unnecessary single-use plastic packaging

- Uncertainties about the availability or recyclability of alternative materials.
- Lack of fit-for-purpose alternatives for some packaging applications.
- Capital costs of new processing equipment when changing materials.

4. 50% average recycled content in packaging

- Insufficient supply of some post-consumer recycled content at the right quality, particularly for glass and food-grade plastics.

Some of the general challenges to consider in collaborating to resolve these gaps include:

1. Impacts of COVID-19 on global supply chains, domestic manufacturing and waste generation.
2. Flow on effects from the China National Sword policies to material marketplaces globally.
3. Building capacity and capability in small and medium enterprises (SMEs) to address the technical changes required for sustainable packaging.
4. Managing the alignment between infrastructure capacity improvements and timelines to develop and implement circular redesign of packaging formats.
5. Ensuring adequate focus and funding for consumer education to support uptake and appropriate participation in material recovery programs.
6. Seeking nationally consistent approaches to regulatory interventions by state, territory and federal governments.
7. Enabling equity in product stewardship initiatives to ensure accountability and participation by all stakeholders in the packaging value chain.

Call to action

The current trajectory indicates that without further intervention, not all of the 2025 Targets are achievable by 31 December 2025. This report provides a pathway to achieve the 2025 Targets through collective action, including a list of additional actions to be undertaken by APCO as well as mutually reinforcing actions required from other sectors and organisations (Tables E1, E2 and E3). The priority strategies are shown in Figure E3.

WHAT	WHO	WHEN
Provide brand owners and packaging suppliers with the knowledge and tools to design packaging for compatibility with current and likely future recovery systems.	Led by APCO, with input from the relevant industry associations and the waste & recycling sector. This needs to be supported by national standards that seek to harmonise materials accepted in kerbside collection services.	2021-2023
Build demand for recovered packaging materials to increase their value and drive investment in sorting and reprocessing.	A shared responsibility between the packaging supply chain and all levels of government.	2021-2023
Invest in new and improved infrastructure for sorting and reprocessing used packaging materials, including mechanical and advanced recycling facilities for soft plastics.	Led by the waste & recycling sector with financial support from state, territory and federal governments. Kerbside and commercial and industrial collection systems need to be supported by industry-led product stewardship schemes for packaging not covered by existing systems.	2021-2023

Figure E3: Priority strategies to achieve the 2025 Targets

APCO's role is to bring together key contributors across the value chain to collectively work towards these priority strategies. Achieving the 2025 Targets is a significant challenge for Australia that requires all the system stakeholders to be working together and at their best to be successful. Over the coming years APCO will drive collaborative action by continuing its backbone role, which will include:

- Working with government and industry to build capacity for the system change to a circular economy by monitoring the system performance and providing strategic guidance on what is working well and where policy interventions and increased investments are required.
- Providing essential monitoring of the performance and compliance of industry in working towards the system change.
- Delivering key services to support the strategic outcomes of the circular economy transition and management through programs such as the ARL Program, the ANZPAC Plastics Pact and the evolving landscape of targeted product stewardship programs that will be required to address difficult to manage packaging formats.
- Providing training and resources for Members and identifying key trends and insights that will impact performance of the packaging circular economy.

Table E1: Additional actions to achieve the 2025 Targets –

Packaging Designed for Circularity

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
1. Support SMEs in designing for recycling and encourage faster uptake of the Australasian Recycling Label (ARL)	Implement ARL Program for SMEs.	**Industry associations** - Provide additional support to SMEs. **Australian Government** - Provide financial support for the ARL Program for SMEs.
2. Support brand owner decision-making on materials and formats not currently classified as recyclable with a roadmap guiding decisions to eliminate, replace, redesign or develop take-back programs.	Seek stakeholder input and coordinate development of the roadmap.	**Waste & Recycling Industry**, and the Australian Institute of Packaging (AIP) - Provide technical input on recyclability. **Australian Government** - Provide input to the roadmap to align with the National Plastics Plan and update the plan as required to accelerate action. **Australian Government's Resource Recovery Reference Group (RRRG)** - Provide input to the roadmap to align with the proposed kerbside standard, Material Recovery Facility (MRF) standards and MRF Certification programs in development. **State and territory governments** - Provide input to align with current or planned waste and recycling policies.
3. Phase-out per- and polyfluoroalkyl substances (PFAS), particularly in compostable packaging, with a targeted industry action plan.	Seek stakeholder input and coordinate development of the action plan.	**Australian Government** - Provide financial support for the PFAS Testing program. **Packaging suppliers and AIP** - Provide technical input to the plan. **Planet Ark Environmental Foundation** - Investigate the feasibility of a verification program for 'PFAS-free' claims. **Organics recyclers and the Australian Organics Recycling Association** - Provide input on implications for recycling and end markets.
4. Update consumer advice on recycling large items (e.g., to cut down large boxes) and small items (e.g., to consolidate small items), making them 'conditionally recyclable' on the ARL through a Packaging Recyclability Evaluation Portal (PREP) update.	Seek stakeholder input and coordinate a review by the Technical Advisory Committee (TAC).	**Waste and recycling industry** - Provide input on recyclability and potential solutions for consumer action. **Australian Government's RRRG** - Provide input to align with the proposed kerbside standard, MRF standards and MRF certification programs in development. **PREP Design** - Update PREP as required. **Brand owners** - Update the ARL on-pack and other consumer advice if required.
5. Update the advice for soft plastics in PREP.	Seek stakeholder input and coordinate a review by the TAC.	**Packaging suppliers and brand owners** - Provide technical input. **PREP Design** - Update PREP As required. **Brand owners** - Update the ARL on-pack and other consumer advice if required.

Table E1 continues on the following page >

Table E1: Additional actions to achieve the 2025 Targets –

Packaging Designed for Circularity (continued)

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
6. Support state and territory governments on extending and aligning bans on problematic and unnecessary single-use plastics to additional materials.	Develop a priority list with input from the TAC. Provide advice to governments on additional items that could be considered for phase-out.	**State and territory governments** - Consider extending legislated bans to additional items or materials, taking into account the need to avoid adverse outcomes. **Australian Government** - Coordinate government policies on bans to avoid inconsistencies in definitions and scope.
7. Introduce more reuse systems to reduce consumption of single-use packaging.	Publish the industry guide - *Scaling up reusable packaging.* Educate APCO Members on design of reusable and recyclable packaging.	**Brand owners and packaging suppliers** - Consider opportunities for new business models for reusable packaging. **AIP** - Provide technical support to industry through sustainable packaging training programs.
8. Resolve recycling ambiguities for food contaminated paper packaging (reuse, paper recycling or composting).	Seek stakeholder input and coordinate a review by TAC.	**Waste and recycling industry and the Australian Local Government Association (ALGA)** - Provide input on recyclability. **Australian Government's RRRG** - Provide input to align with the proposed kerbside standard, MRF standards and MRF certification programs in development. **State and territory governments** - Provide input on regulation requirements. **PREP Design** - Update PREP if required. **Brand owners** - Update consumer advice if required.
9. Modernise sorting and reprocessing infrastructure to recover more quality material and reduce losses in the system.		**Waste and recycling industry** - Invest in new and improved infrastructure. **Australian Government and state and territory governments** - Provide financial support through the Recycling Modernisation Fund (RMF) and other funding programs.
10. Introduce eco-modulated fees in product stewardship schemes to incentivise design for recycling.	Consider the potential for eco-modulation of fees for the oil bottle and plant pot product stewardship schemes.	**Industry associations and producer responsibility organisations** - Consider the potential for eco-modulation of fees for other product stewardship currently in development.

Table E2: Additional actions to achieve the 2025 Targets –

Improved Collection and Recycling Systems

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
1. Increase the value and volume of collected materials, strengthening the system by standardising national kerbside collections. The aim should be to collect all materials for which there is a current or future end market and sort them into the highest value streams.	Facilitate improved design for recycling by facilitating uptake of the ARL Program (PREP and the ARL).	**Australian Government's RRRG** - Coordinate the development of a kerbside standard.
2. Support household recycling efforts by increasing investment in consumer education programs at a national, jurisdiction and local council level.	Coordinate marketing and communications for the ARL Program.	**Local government and the waste and recycling industry** - Increase investment in consumer education programs. **All levels of government** - Invest in a national consumer education program once the national kerbside standard has been confirmed.
3. Support consumer disposal efforts by accelerating uptake of the ARL on packaging.	Implement the ARL Program and keep it up to date.	**Brand owners and packaging suppliers** - Apply the ARL on all consumer packaging.
4. Support commercial and industrial (C&I) sector recycling efforts by improving and promoting collection, including low density polyethylene (LDPE) pallet wrap and rigid polypropylene (PP) and high density polyethylene (HDPE).	Extend the ARL Program to C&I packaging.	**Waste and recycling industry** - Provide accessible recycling collections services for the C&I sector. **Brand owners and packaging suppliers** - Design business-to-business (B2B) packaging to be recyclable. **Industry associations, brand owners and packaging suppliers** - Develop product stewardship schemes for hard-to-recycle C&I packaging.
5. Improve and promote public place and other away from home collection and recycling services.		**Local government and the waste and recycling industry** - Extend commingled recycling collection services to public places. **Brand owners and packaging suppliers** - Support collection and recycling services for packaging consumed away from home. **Local government, Planet Ark Environmental Foundation, Clean Up Australia and other communication organisations** - Promote away from home recycling.
6. Create new product stewardship programs for non-recyclable and hard-to-recycle materials and formats.	Design and implement product stewardship programs for oil bottles and plant pots.	**Brand owners, packaging suppliers, industry associations and product responsibility organisations** - Design and implement product stewardship programs for non-recyclable or hard-to-recycle items.

Table E2 continues on the following page >

Table E2: Additional actions to achieve the 2025 Targets –

Improved Collection and Recycling Systems (continued)

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
7. Introduce pay-as-you-throw (PAYT) collection systems. While this is more complex for household kerbside collection, it can be easily implemented for C&I waste. This involves skip bins being charged by weight rather than pick up.		**Waste and recycling industry** - Develop and promote PAYT collection services for the C&I sector. **Local, state and territory governments** - Consider the feasibility of PAYT collection services for municipal waste.
8. Expand the scope of container deposit scheme (CDS) around the country to include glass wine and spirit bottles.[2]	Coordinate research by the CDS National Working Group.*	**State and territory governments led by EPA South Australia** - Collaborate to align the scope of containers in CDS.
9. Maximise recovery and value of sorted materials for end markets by setting quality standards for recovered materials from MRFs.	Promote increased use of post-consumer recycled (PCR) content in packaging and other products to increase the value of recovered packaging.	**National Waste and Recycling Industry Council (NWRIC), the waste and recycling industry and recycled product manufacturers** - Develop and maintained recovered materials standards.
10. Invest in MRFs to better sort and recover materials that have end market demand now or in the near future including: • All rigid HDPE (food/non-food), PP (food/non-food) and polyethylene terephthalate (PET) packaging (bottles. non-bottle formats). • Over-large and very small paper and cardboard items. • Soft plastics.	Promote increased use of PCR content in packaging and other products to increase the value of recovered packaging.	**Waste and recycling industry** - Invest in improved sorting systems in MRFs. **Australian Government and state and territory governments** - Provide financial support through the RMF and other funding programs.

Table E2 continues on the following page >

*The CDS National Working Group comprises a representative of scheme coordinators in each jurisdiction.

Table E2: Additional actions to achieve the 2025 Targets –

Improved Collection and Recycling Systems (continued)

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
11. Support local councils and the waste & recycling industry in optimising material diversion and quality standards through new business models and contracts.		**Local government** - Review recycling contracts to facilitate the collection of high-quality materials.
12. Invest in mechanical recycling facilities, particularly for rigid HDPE & PP and flexible plastics.	Promote increased use of PCR content in packaging and other products to increase the value of recovered packaging.	**Waste and recycling industry** - Invest in improved recycling infrastructure. **Australian Government and state and territory governments** - Provide financial support through the RMF and other funding programs.
13. Create a higher value end market for recovered soft plastics and mixed plastics by investing in advanced recycling facilities.	Promote increased use of PCR content in packaging and other products to increase the value of recovered packaging.	**CSIRO** - Provide technical support. **Polymer manufacturers, packaging suppliers, brand owners and technology providers** - Invest in advanced recycling facilities in Australia. **Australian Government and state and territory governments** - Provide financial support through the RMF and other funding programs.

Table E3: Additional actions to achieve the 2025 Targets –

Expanded Markets for Used Packaging

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
1. Commit to ambitious targets to use more PCR content in packaging, either individually or through the Pledge Program.	Establish a Pledge Program for plastic packaging to stimulate market pull for quality recovered materials & supply chain collaborations across the Australian, New Zealand and Pacific Islands (ANZPAC) region.	**Brand owners and packaging suppliers** - Commit to ambitious targets for PCR content in packaging.
2. Implement the Recycled Content Label Program for packaging.	Implement and promote the Recycled Content Label. Finalise development of the traceability standard and verification program.	**Brand owners and packaging suppliers** - Adopt the Recycled Content Label where appropriate.
3. Support the packaging supply chain to manufacture recyclable and recycled packaging through financial incentives.	Provide advice to government.	**Australian Government and state and territory governments** - Provide funding support for research and development (R&D) and capital expenditure to facilitate redesigning and manufacturing packaging to be more recyclable and contain more recycled content (grants or accelerated depreciation).
4. Consider market-based mechanisms to incentivise recycled content if there is sufficient supply of food grade PCR content and industry fails to achieve the 2025 Targets through voluntary commitments, e.g., a tax on virgin materials or subsidy for recycled content.	Provide advice to government.	**Australian Government and state and territory governments** - Review overseas experience and consider policy mechanism to incentivise use of recycled content.

Table E3 continues on the following page >

Table E3: Additional actions to achieve the 2025 Targets –

Expanded Markets for Used Packaging (continued)

ACTION REQUIRED	WHAT APCO WILL DO	ACTION REQUIRED FROM OTHERS
5. Consider mandating recycled content targets for specific applications that are not constrained by supply or quality if industry fails to achieve the 2025 Targets through voluntary commitments. This could be a phased approach, starting with non-food contact applications.	Establish a Pledge Program for plastic packaging to stimulate market pull for quality recovered materials & supply chain collaborations across the ANZPAC region	**Australian Government and state and territory governments** - Review overseas experience and consider mandating recycled content targets. **AIP, Food Standards Australia New Zealand (FSANZ) and the Therapeutic Goods Authority (TGA)** - Provide input to design of the policy if mandatory targets are supported by government.
6. Implement sustainable procurement programs to buy products and packaging manufactured from recycled materials.	Support the development of an online marketplace for recycled content products.	**All levels of government, brand owners, packaging suppliers and retailers** - Increase procurement of recycled content products and packaging. **Planet Ark Environmental Foundation ACE Hub** - Develop an online marketplace for packaging with recycled content.
7. Invest in mechanical and advanced recycling facilities for plastics to recover soft plastics and mixed plastics into higher-value end markets.		**Waste and recycling industry** - Invest in improved recycling infrastructure. **Australian Government and state and territory governments** - Provide financial support through the RMF and other funding programs.

Additional actions required to achieve the 2025 Targets will form part of the stakeholder consultation for FY2022 and would be incorporated in the new iteration of the Strategic Plan for the Australian Packaging Covenant due to commence on 1 July 2022. Consultation will also consider alternatives to the 2025 Targets and the 2025 Monitoring Program.

1. INTRODUCTION

1.1. PURPOSE

The purpose of this report is to better understand progress towards achieving the 2025 National Packaging Targets (2025 Targets) and determine the need for alternative interventions to support the transition to a circular economy for packaging in Australia. The report identifies the current system performance and emerging gaps that may impact progress towards the transition to a circular economy. It summarises key information that has been published in the following detailed reports:

- Australian packaging consumption & recovery data 2019-20.
- Material flow analysis of Australian packaging 2019-20.
- Costs and incentives for a more circular packaging system.

The insights described and the gap analysis contained within this report have also been informed by annual reporting by Members of the Australian Packaging Covenant Organisation (APCO) and through consultation with:

- APCO Board.
- Federal, state and territory governments.
- APCO Collective Action Group.
- APCO National Packaging Targets Implementation Working Group.

This report is designed to facilitate discussions across the packaging value chain to explore alternative interventions or actions needed to meet the 2025 Targets and support the transition to a circular economy. It is intended this collaborative process will enable the review and co-design of the following key publications:

- Strategic Plan for the Australian Packaging Covenant 2022 to 2030.
- Updated 2025 Monitoring Program.

1.2. GLOBAL CONTEXT

1.2.1. SUSTAINABLE DEVELOPMENT GOALS

Global policy frameworks like the Sustainable Development Goals (SDGs) provide a roadmap to achieve a transition to a circular economy, and embrace diversity, inclusion, safety and equity.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, is a plan of action for people, planet and prosperity. Table 1 sets out how the circular economic approach for packaging supports progress towards specific SDGs.

Table 1: How a circular economy for packaging can support the SDGs

Sustainable Development Goals (SDGs)		Circular Economy Packaging Initiatives Supporting Progress for the SDGs
	End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Packaging reduces food waste in the supply chain and in the home
	Ensure availability and sustainable management of water and sanitation for all	Packaging reduction helps to save water in the supply chain
	Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation	Increased circularity for packaging requires new infrastructure for innovative materials, reuse and recycling
	Ensure sustainable consumption and production patterns	Circular packaging is a critical component of sustainable consumption and production
	Take urgent action to combat climate change and its impacts	Reduction and recycling help to reduce emissions in the supply chain and at end-of-life
	Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Packaging must be carefully managed at end-of-life to prevent it entering the marine environment
	Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Raw materials for paper and bioplastics for packaging must be purchased from sustainably managed forests and farms
	Strengthen the means of implementation and revitalise the global partnership for sustainable development	A circular economy requires collaboration along supply chains and with government and community sectors

A key role in our own local context is determining which goals we can effectively impact and how we can bring those policy intentions to life. Globally, the primary strategy for achieving sustainable packaging is through the integration of a circular economic approach. In 2017 Australian governments and industry introduced a circular economic approach for packaging through the 2017 -2022 Strategic Plan for the Australian Packaging Covenant (Strategic Plan).

1.2.2. CHANGES TO EXPORT MARKETS

In previous years a significant amount of recovered plastic and paper packaging was baled and exported to countries such as China for reprocessing. The China National Sword import restrictions on mixed or contaminated waste streams, and similar restrictions in other Asian countries, have limited export markets.

Material Recovery Facility (MRF) operators and other Australian exporters now need to meet much higher standards for sorting recyclable materials.

Reinforcing this trend, the Australian Government has introduced export bans that will require more local processing.[3]

1.3. AUSTRALIAN REGULATORY FRAMEWORK

APCO Members, industry, and state/territory and Federal governments all agree to comply with the obligations set out within the Australian Packaging Covenant ('the Covenant'). This co-regulatory framework recognises that all sectors and governments have both a responsibility and a role to play, working together to find the best possible solutions for packaging efficiency and sustainability in Australia.

The Australian packaging system is a complex network of private and public sector organisations involved in producing, distributing and using packaged goods, and the disposal and recovery of used packaging.

It involves almost every sector of the Australian economy and all three levels of government. Therefore, engaging all parts of the value chain across industries is crucial to create end-to-end collaboration.

The 2017-2022 iteration of the Strategic Plan was a significant step towards a more rigorous and prescriptive strategic model to deliver on the objectives of the Covenant. With this clear strategic mandate determined, the new iteration of the Covenant commenced on January 1, 2017. In consultation with governments and industry it was determined that the execution of the circular economic approach would be delivered through the Collective Impact Framework.

1.4. APPROACH TO THE REPORT

The approach to this report was to review progress towards the 2025 Targets and the transition to a circular economy for packaging through the performance lens of the Collective Impact Framework. In 2018 APCO introduced the Collective Impact Framework to improve collaboration across the value chain and to accelerate progress towards the 2025 Targets. APCO acts as the 'backbone organisation' within this framework to guide strategy development and delivery and monitor system performance.

Collective Impact is a collaboration framework that engages sectors and groups who share a common interest in addressing a complex social issue in a given community. There are five key elements in the Collective Impact Framework (Figure 1).

Figure 1: The Collective Impact Framework

For the purpose of this report the performance of the Collective Impact Framework has been reviewed by analysing progress against three phases of the collective impact maturity cycle:

- Collective impact design and implementation.
- Intermediate outcomes such as behaviour and system changes.
- Impact outcomes.*

1.5. REPORT STRUCTURE

Section 2 of this report uses the Collective Impact Framework to evaluate progress towards each of the 2025 Targets. It highlights the gaps that still need to be addressed and a pathway to the 2025 Targets through collective action in the key outcome areas defined in Our Packaging Future:

- Packaging designed for circularity.
- Improved collection and recycling systems.
- Expanded markets for used packaging.

Section 3 provides insights from the additional research undertaken by APCO to inform the proposed solutions, including a Material Flow Analysis (MFA) to explore alternative scenarios, and economic analysis of costs, barriers and potential policy interventions. It also proposes potential updates to the 2025 Targets and the 2025 Monitoring Program.

A series of case studies in Section 4 demonstrate that progress in each of the three outcome areas is already underway and gathering pace.

*This framework is based on collective impact studies including Hallie Preskill, Marcie Parkhurst and Jennifer Splanksy Juster, Guide to Elevating Collective Impact 02 – Assessing Progress and Impact and Growingcircularity maturity means moving from sustainability to business strategy - https://www.dnv.com/assurance/viewpoint/viewpoint-surveys/2021Q3/growing_circularity.html

2. COLLECTIVE IMPACT
MONITORING AND REPORTING ON PROGRESS

2.1. OVERALL PACKAGING SYSTEM PERFORMANCE

2.1.1. PACKAGING CONSUMPTION

In 2019-20 an estimated 6.3 tonnes of packaging were placed on market (POM), including both locally manufactured and imported packaging. The total quantity of packaging recovered has increased each year since 2017-18 (Figure 2). The overall recovery rate also increased from 49% in 2017-18 to 55% in 2019-20.

This represents significant progress towards a more circular packaging system.

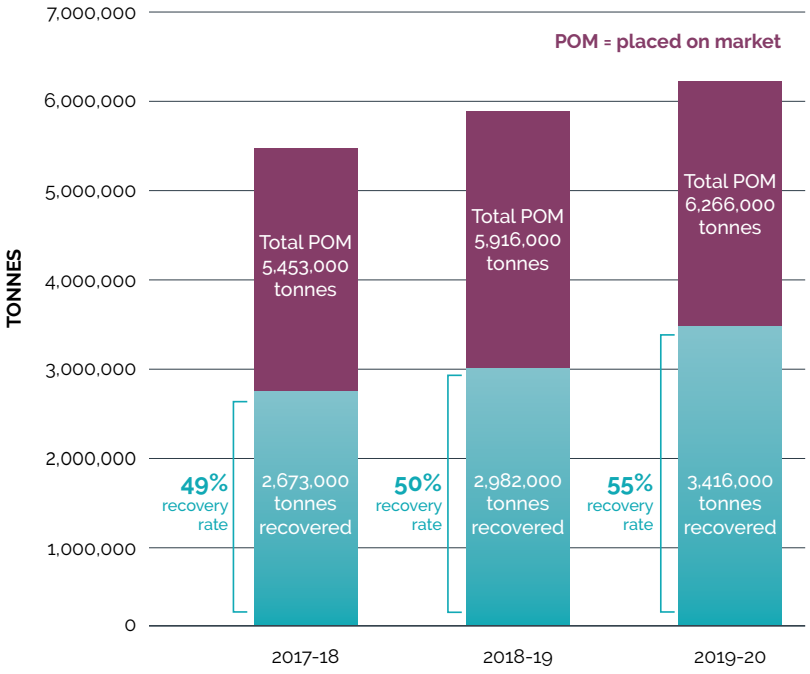


Figure 2: Packaging placed on market (POM) and recovered 2017-18 to 2019-20, tonnes and recovery rate (%)

Paper & paperboard had the highest recovery rate in 2019-20 at 68%, followed by glass packaging (60%), metal packaging (56%), wood packaging (37%), and plastic packaging (16%) (Figure 3). The plastics recovery rate fell due to an increase in consumption from 1 million tonnes in 2018-19 to 1.1 million tonnes in 2019-20, while the quantity of recovered plastic packaging was virtually unchanged.

There have been significant shifts in the material composition of packaging in 2019-20, with glass packaging placed on market falling by 127,000 tonnes (-10%) over the 12-month period and plastic packaging increasing by around the same amount (124,000 tonnes or 12%).

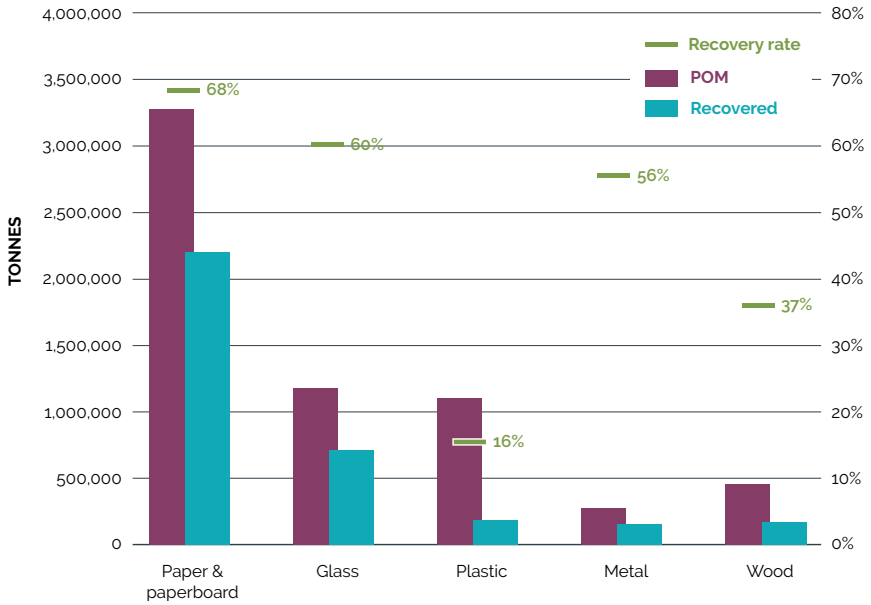


Figure 3: Post-consumer packaging recovery rates in 2019–20, by material group

2.1.2. COLLECTION AND RECYCLING EFFICIENCY

The estimated recovery rate is based on performance at a single point in the recovery chain, i.e., at the outgoing gate of the secondary material processor.* Modelling the packaging system in more detail provides further insights into performance along the recovery chain including collection, sorting and reprocessing efficiencies and losses.[4] It also highlights another aspect of performance relevant to circular economy goals, i.e., the proportion of recovered packaging reprocessed within Australia ('local utilisation').

Performance improved across all indicators in 2019-20, as shown in Figure 4, with more packaging being collected (62% compared to 58% in the previous year) and reduced losses at the sorting stage (1% compared to 4%). In addition, more of the recycled packaging is being utilised locally within Australia, increasing from 27% to 34%.**

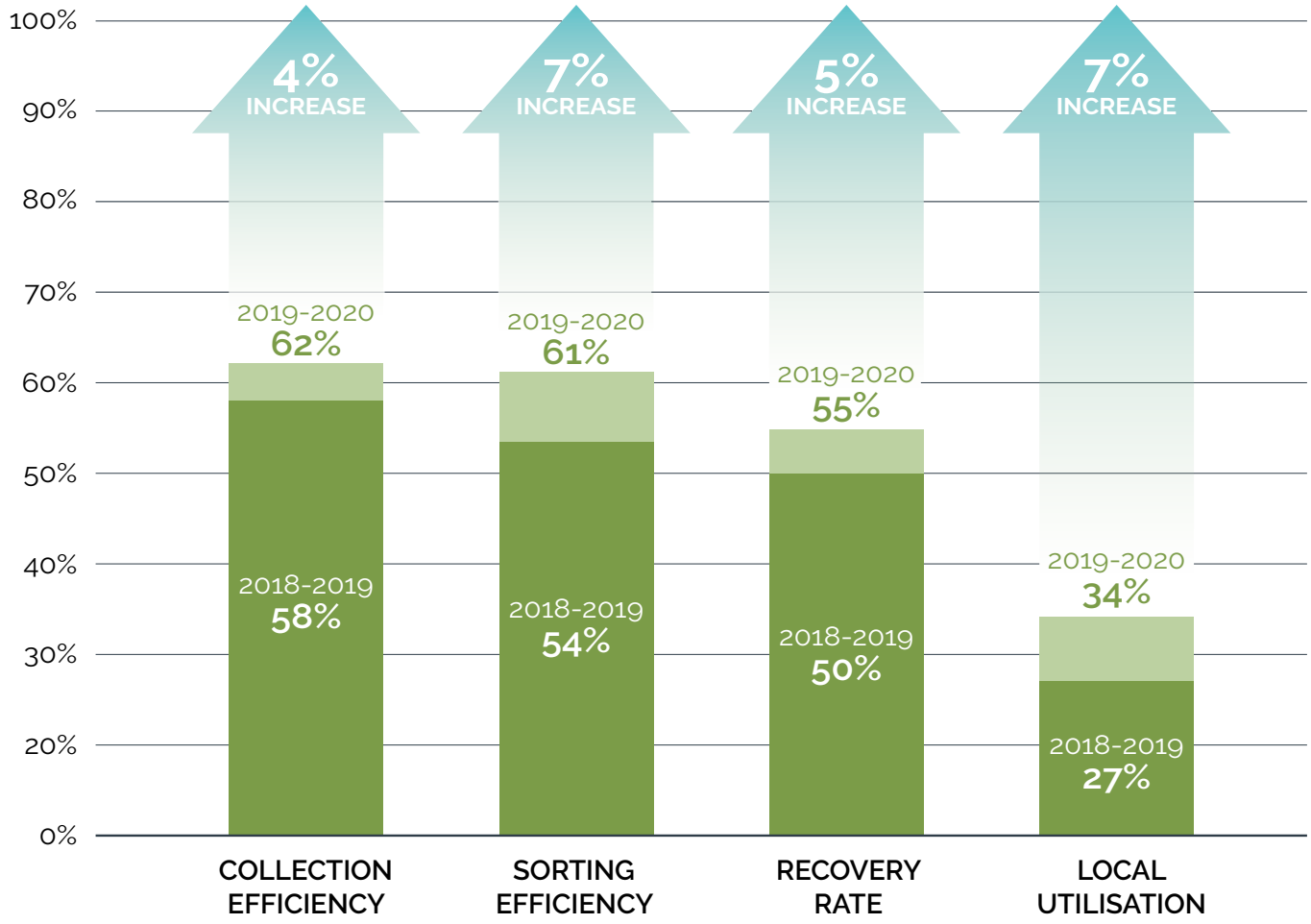


Figure 4: Performance indicators for packaging, 2018-19 and 2019-20[5]

*This is the point at which the processed material is typically 'input ready' for the manufacture of new packaging or other products. Examples include paper mills, glass beneficiation facilities, plastics flaking and metal smelting.

**Collection efficiency, sorting efficiency, recovery rate and local secondary material utilisation are defined in the Glossary.

2.2. PROGRESS TOWARDS THE 2025 TARGETS

This section of the report focuses on recovery rates for all packaging materials, progress towards each of the 2025 Targets and the individual strategies designed to support them.

2.2.1. PACKAGING DESIGNED FOR CIRCULARITY

Target: 100% of packaging is reusable, compostable or recyclable

Meeting this target will require a combination of strategies:

- Redesign of packaging to improve recyclability.
- Elimination of problematic and unnecessary single-use packaging.
- Improvements to current systems for collection, sorting and recycling to increase the range of materials and formats that can be recovered.
- Movement towards aligning kerbside systems nationally.
- Development of new product stewardships schemes to collect and recycle materials that currently go to landfill.

GAPS

In 2019-20 approximately 86% of packaging was classified as having 'good recyclability', 7% as 'poor recyclability', 4% 'not recyclable' and 3% with 'unknown recyclability'.* This represents a slight fall from 88% in 2017-18 and 89% in 2018-19, primarily due to changes in consumption patterns, the addition of wood packaging that had not been reported previously and more accurate data on plastics.** The quantity of packaging POM with good recyclability has continued to increase, from 5.3 million tonnes in 2018-19 to 5.4 million tonnes in 2019-20.

An estimated 3% of packaging POM in 2019-20 was reusable. These reusable packaging systems are estimated to have avoided the use of 2.9 million tonnes of single-use packaging.

The percentage of reusable, compostable or recyclable packaging varies by material type (Figure 5), with 100% of glass packaging, 97% of metals and 90% of paper and paperboard classified as recyclable.

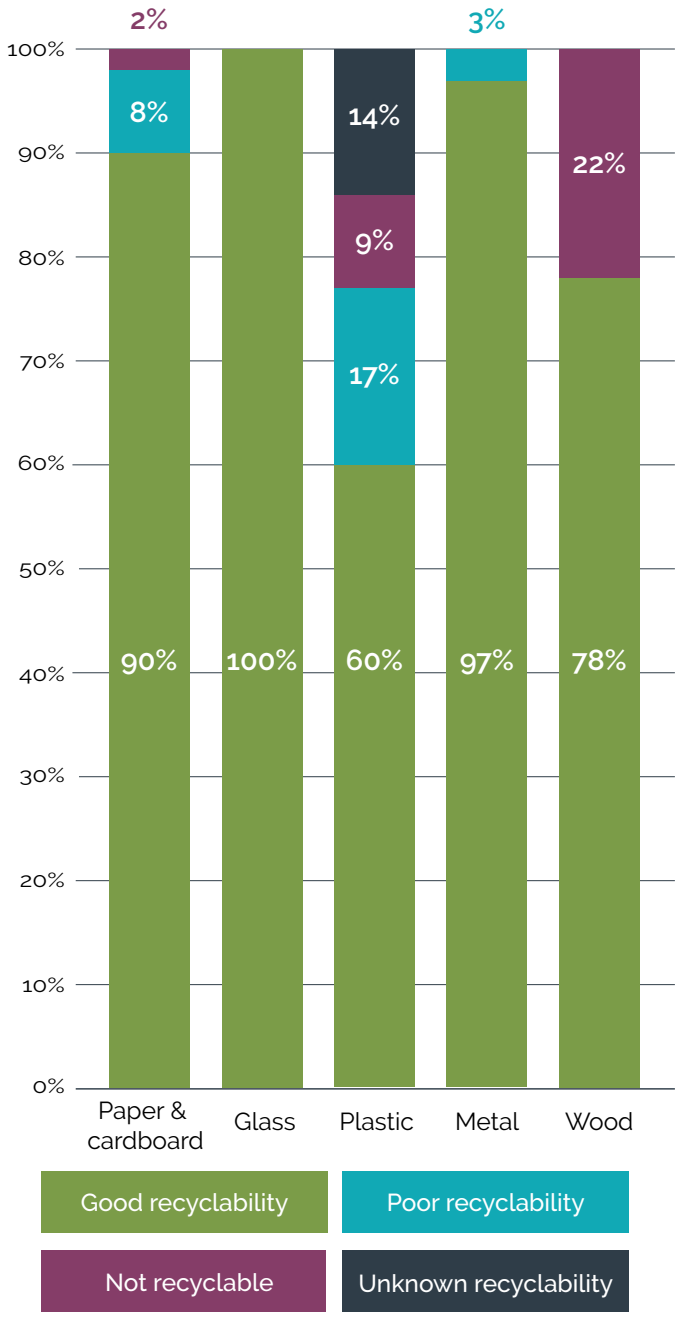


Figure 5: Recyclable or compostable packaging POM, 2019-20, by recyclability classification

*The methodology used to classify recyclability is explained in detail in Envisage Works (2021), pp. 22-23

*In 2019-20 there was a significant fall in the estimated consumption of glass, which is classified as recyclable; an increase in the quantity of plastic packaging POM, with a much larger quantity classified as 'unknown recyclability' (14%); and an increase in the quantity of wood packaging captured in this year's survey, and 22% of this is classified as not recyclable.

To provide transparency of the Our Packaging Future Collective Impact Framework, the 2025 Monitoring Program sets out a series of strategic intervention points (SIPs) and key performance indicators (KPIs) which are designed to address the materials lost in the total packaging material flow. In particular, the 2025 Monitoring Program calls for brand owners and supply chains to adopt the Sustainable Packaging Guidelines (SPGs) and apply the ARL on-pack. In June 2021, there were still some significant performance gaps towards these goals, **specifically**:

KPI 1

Compliance with the Sustainable Packaging Principles of the SPGs for all products put on the market by large Members

Measure

100% of products put on market by large Members have been reviewed against the SPGs.

Performance (June 2021)

59% of products placed on the market by large APCO Members had been reviewed against the SPGs (target 100%).

KPI 3

Coverage, uptake and consumer awareness of the ARL is optimised

Measure

100% of large APCO Members apply the ARL

85% of consumers recognise the ARL

Performance (June 2021)

61% of large APCO Members were applying the ARL (target 100%).

61-64% of consumers recognise the ARL (target 85%).

The estimated 11% of packaging with 'poor recyclability' or 'not recyclable' is linked to different challenges at collection, sorting or reprocessing that require different solutions:

1. Packaging that is **not collected**:
   - **a.** because reprocessing is difficult and therefore costly, for example, multi-material soft plastics, which require innovation in design and/or a mechanism to fund recovery,
   - **b.** because the material has a low value or is costly to collect (e.g., EPS), which require a product stewardship solution to fund recovery,
   - **c.** because low volumes and limited end markets make them uneconomical to separate at MRFs, which requires additional funding for MRFs or an alternative collection system, or
   - **d.** because it is consumed away from home, such as paper and plastic foodservice packaging, which require new collection systems.
2. Packaging that is collected through kerbside collection systems but **not always sorted** effectively:
   - **a.** because of their formats - such as PET and PP tubs, trays and punnets,
   - **b.** because of their size, either too large (e.g., very large cardboard boxes and plastic containers) or too small (e.g., clothing tags), which require investment in improved sorting systems in MRFs and/or action by consumers to consolidate small items or reduce the size of large items, or
   - **c.** because MRFs have been designed to pre-China National Sword quality/contamination standards.
3. Packaging materials and components that are collected and sorted but **lost in reprocessing**, such as high wet strength (HWS) paper and board and some polymer coated paperboard (PCPB) and caps and labels, which require either redesign to improve compatibility with current reprocessing systems or improved reprocessing technologies to recover them either during MRF sortation or during secondary processing.

Complexity and uncertainties in the recovery system often make it difficult for brand owners to decide how to proceed to ensure that all of their packaging meets the target. The barriers that need to be addressed to meet the target include:

1. **Uncertainties** about current and future recycling systems which make it more difficult for brand owners and packaging manufacturers to justify investments in new packaging equipment. These include uncertainties about:
   - whether they should design for compatibility with current systems, or future technologies that may only be a couple of years away.
   - thresholds for food contamination in material recycling and composting systems, which may inhibit recyclability.
   - misalignment between government bans on certain problematic and unnecessary single-use plastic (SUP) products and the waste hierarchy, e.g., where governments prioritise compostable packaging ahead of material recycling.*
2. **Collection infrastructure** not widely available even though there is demand for the material in end markets, e.g., EPS, PP plant pots, aluminium coffee pods.
3. **Sorting infrastructure** unable to recover recyclable materials that could be collected through kerbside, such PET tubs, trays and punnets, over-sized items and small items, which mean they are classified as non-recyclable in the Packaging Recyclability Evaluation Portal (PREP).
4. **Recycling infrastructure** not yet widely available (e.g., coffee cups and milk cartons) or unable to recover sufficient material to justify the expense of processing (e.g., PCPB, HWS and some kraft packaging).

Another challenge is to ensure that design for recycling does not increase environmental impact through increased material consumption (for example to ensure that a small item is large enough to be sorted in a MRF), increased use of compostable packaging containing Per- and polyfluoroalkyl substances (PFAS), increased food waste (for example if a more recyclable material has a shorter shelf life), increased carbon emissions or substitution of items with a good life cycle rating for others resulting in perverse Life Cycle Assessment (LCA) ratings. This could be addressed through the use of an impact indicator for packaging (see Section 3.3.1).

*For example the proposal from the WA Plan for Plastics, https://www.wa.gov.au/government/publications/wa-plan-plastics

Target: Phase out of problematic and unnecessary single-use plastic packaging

Meeting this target will require a combination of strategies:

- Voluntary initiatives by brand owners and their supply chains to identify and phase out problematic packaging.
- Regulations to ban certain types of problematic and unnecessary single use plastics (Table 2).

Table 2: Government policies on single-use plastics

Jurisdiction	Relevant regulation or consultation paper
All	The communique from the Environment Ministers Meeting on 15 April 2021 identified eight problematic and unnecessary plastic product types for industry to phase out nationally by 2025: lightweight plastic bags; plastic products misleadingly termed as 'degradable'; plastic straws; plastic utensils and stirrers; EPS consumer food containers (e.g. cups and clamshells); EPS consumer goods packaging (loose fill and moulded); and microbeads in personal health care products.
Commonwealth	The National Plastics Plan (NPP) includes actions to phase out: • Non-compostable plastic packaging products containing additive fragmentable technology that do not meet relevant compostable standards (July 2022). • EPS in loose-fill and moulded consumer packaging (July 2022), and food and beverage containers (December 2022). • PVC packaging labels (December 2022).
NSW	The NSW Plastics Action Plan was released in June 2021. This aims to phase out: • Lightweight plastic shopping bags within 6 months of passage of legislation. • Plastic straws, plastic stirrers, plastic cutlery and EPS food service items within 12 months.
QLD	Under the Waste Reduction and Recycling (Plastic Items) Amendment Act 2021 the supply of single-use plastic straws, stirrers, plates, bowls, cutlery and expanded polystyrene takeaway food containers and cups will be banned in Queensland from 1 September 2021. There is an exemption for straws and cutlery attached to shelf-ready, pre-packaged items. The ban follows release of the Tackling plastic waste - Plastic Pollution Reduction Plan (2020).
SA	Single-use and Other Plastic Products (Waste Avoidance) Act 2020 prohibits the manufacture, production, distribution, sale and supply of the following: • from 1 March 2021: single-use plastic straws, cutlery and stirrers including bioplastic alternatives, and • from 1 March 2022: oxo-degradable plastic products. There is an exemption for pre-packed and attached products.
ACT	The Plastic Reduction Act 2020 prohibits the sale, supply or distribution of the following from 1 July 2021: • Single-use plastic cutlery (including bioplastic cutlery). • Single-use plastic stirrers (including bioplastic stirrers). • EPS takeaway food and beverage containers. A second group of items are expected to be banned from 1 July 2022, including single-use straws.
VIC	Under the Environment Protection Amendment Act 2019 single-use straws, cutlery, plates, drink-stirrers, EPS food and drink containers, and cotton bud sticks will be banned from sale or supply in Victoria by February 2023.
WA	Under Western Australia's plan for plastics the following items will be phased out by 2023: plates, cutlery, stirrers, straws, thick plastic bags and polystyrene food containers. In addition, a working group will be established to determine exemptions for the ban on straws.

GAPS

There is no comprehensive data available on consumption of all materials and formats identified as problematic and unnecessary single-use plastic packaging. One of the most positive trends is the substantial reduction in consumption of single-use plastic shopping bags, from 30,700 tonnes in 2016-17 to 7,000 tonnes in 2018-19 and 200 tonnes in 2019-20, although consumption of reusable LDPE bags has increased. PVC, PS and EPS have remained relatively stable over the past few years and are projected to be consumed at very similar levels in 2024-5.[6]

For some of the targeted SUPs the phase-out is relatively straightforward and already underway, for example rigid PVC and PS are being replaced with PET or PP in many food packaging applications. It is going to take longer to find or implement solutions for other materials or applications. Several barriers need to be addressed:

- **Lack of awareness and knowledge** about SUPs and how to replace problematic materials with more sustainable alternatives, particularly amongst small to medium enterprises (SMEs) that rely on their suppliers for packaging advice.
- **Lack of functional alternatives** for some applications, such as moulded EPS for heavy and fragile electrical and electronic goods.
- **The time required to change packaging** in applications with long product cycles, such as electrical and electronic products.
- **Difficulty establishing the business case** in sectors where current packaging is considered essential for brand image (e.g., cosmetics and personal care) or where colour is part of the packaging trade mark.
- **Uncertainty about the recyclability of alternative materials**, which reduces the willingness of companies to invest if they cannot be sure that the new packaging will be recyclable now and into the future.
- **Capital expenditure may be required** for new manufacturing equipment, and this can be difficult to access internally even with a strong business case as the consumer values a product by the contents of the packaging rather than the packaging itself. The cost of changing packaging is therefore a negative return on investment (ROI) proposition in most cases.

Unintended consequences also need to be addressed, such as:

- Brand owners shifting out of SUPs into alternatives that are not recyclable or lack widespread recycling solutions, such as PCPB and compostable food service packaging and some alternative paper fibres.
- Increased plastic consumption for heavy weight shopping bags designed to be reusable but only used once, e.g., for delivery of online grocery orders.

Proposed solutions to address the gaps in the Outcome Area: Packaging Designed for Circularity

It may not be possible to reach 100% 'good recyclability' without causing higher impacts in another area, such as increased emissions or food waste. The aim should be to get as close as possible to 100% without causing environmental harm.

APCO will continue to implement its business as usual (BAU) activities to support the packaging supply chain to improve recyclability. Additional actions outside of these BAU activities are proposed here for consideration:

1. Support SMEs in designing for recycling and encourage faster uptake of the ARL.
2. Support brand owner decision-making on materials and formats not currently classified as recyclable with a roadmap guiding decisions to eliminate, replace, redesign or develop take-back programs.
3. Phase-out PFAS, particularly in compostable packaging, with a targeted industry action plan.
4. Update consumer advice on recycling large items (e.g., to cut down large boxes) and small items (e.g., to consolidate small items), making them 'conditionally recyclable' on the ARL through a PREP update.
5. Update the advice for soft plastics in PREP.
6. Support state and territory governments on extending and aligning bans on problematic and unnecessary single-use plastics to additional materials.
7. Increase reuse systems to reduce consumption of single-use packaging.
8. Resolve recycling ambiguities for food contaminated paper packaging (reuse, paper recycling or composting).
9. Modernise sorting and reprocessing infrastructure to recover more quality material and reduce losses in the system.
10. Introduce eco-modulated fees in product stewardship schemes. This means that scheme members would be charged higher fees for hard-to-recycle materials to incentivise redesign.

2.2.2. IMPROVED COLLECTION AND RECYCLING SYSTEMS

Target: 70% of plastics are recycled or composted

Achievement of this target requires action by multiple stakeholders at every stage of the packaging system including:

- Design and procurement to ensure that all plastic packaging is designed for reuse, material recycling or organics recycling (supported by the target of 100% of packaging to be designed to be reusable, recyclable or compostable by 2025).
- Availability of collection, sorting and recycling infrastructure to recovery plastic packaging.
- Source separation of recyclable plastic packaging by households and businesses.
- Procurement to provide 'market pull' for recycled materials back into packaging (supported by the target of 50% average recycled content across all packaging by 2025).

GAPS

Intermediate outcomes measured for the 2025 Monitoring Program include the development of material specifications for recovered materials and onshore infrastructure for plastics recycling. There have been positive developments over the past **12 months:**

KPI 4 **Packaging value chain participants accept material standards**

- In 2021 APCO consulted with industry and government stakeholders to develop material recovery standards for polymers.
- NWRIC is developing a comprehensive set of standards for other recovered materials.

KPI 5 **Onshore infrastructure capacity is developing to ensure packaging materials are 100% recyclable, reusable or compostable**

- Committed recycling capacity for plastics by 2025 is estimated to be 420,000 tonnes (target 900,000 tonnes).

Plastics recycling capacity is projected to increase significantly over the next few years in response to the Australian Government bans on exporting unprocessed plastics from June 2022. Significant investments in new or expanded capacity have been announced by the waste and recycling industry as well as governments through the Recycling Modernisation Fund (RMF) and other grants programs.

The recycling industry has reported that confirmed and funded capacity expansions are likely to increase capacity from around 179,000 tonnes in 2019-20 (actual recovery) to about 420,000 tonnes in 2025 (Figure 6). In addition, future funding rounds through the RMF are expected to increase capacity further.* These are, however, just an indication of future capacity - not all of the facilities will be built and other investments are likely to be announced over the next few years. The estimated growth in capacity, if achieved, would still leave a gap of approximately 440,000 tonnes to recover 70% of plastic packaging within Australia.**

In addition to industry and government investments in mechanical recycling there are several feasibility studies underway into establishing advanced recycling facilities.

*As at 13 October 2021, 198,427 tonnes of additional capacity had been approved for funding through the RMF (including some additional capacity in MRFs).

**Based on projected consumption of 1.2 million tonnes by 2024-25.

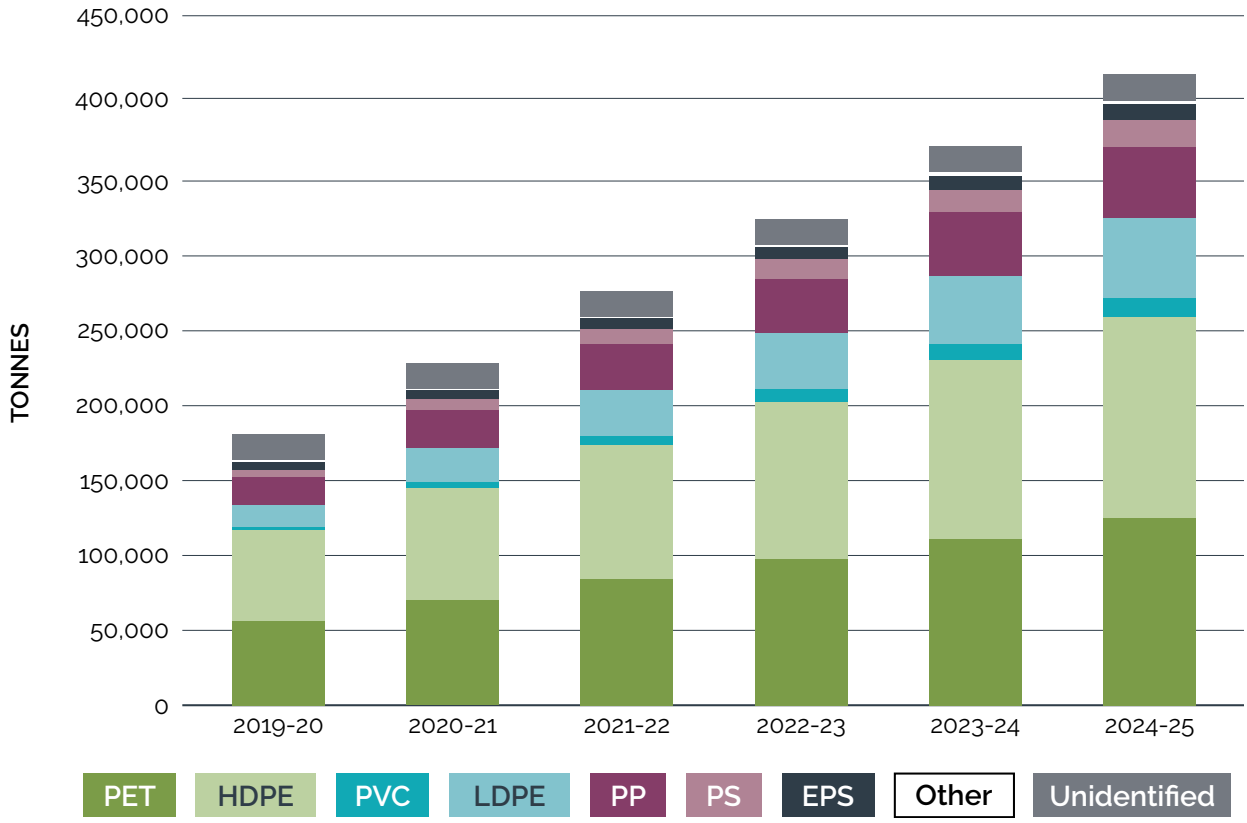


Figure 6: Projections for plastics recycling capacity within Australia by 2024-25

The estimated recovery rate for plastic packaging has remained fairly stable over the past few years, increasing from 16% to 18% in 2018-19, and then dropping to 16% in 2019-20. This is due to a slight fall in the quantity recovered (-3,000 tonnes) while consumption increased (+125,000 tonnes).

There are significant differences in polymer type recovery rates and whether rigid or flexible (Figure 7). On average 26% of rigid plastic packaging and 4% of flexible plastic packaging were recovered, virtually unchanged from the previous year. The highest recovery rate was for rigid PET (42% in both 2018-19 and 2019-20).

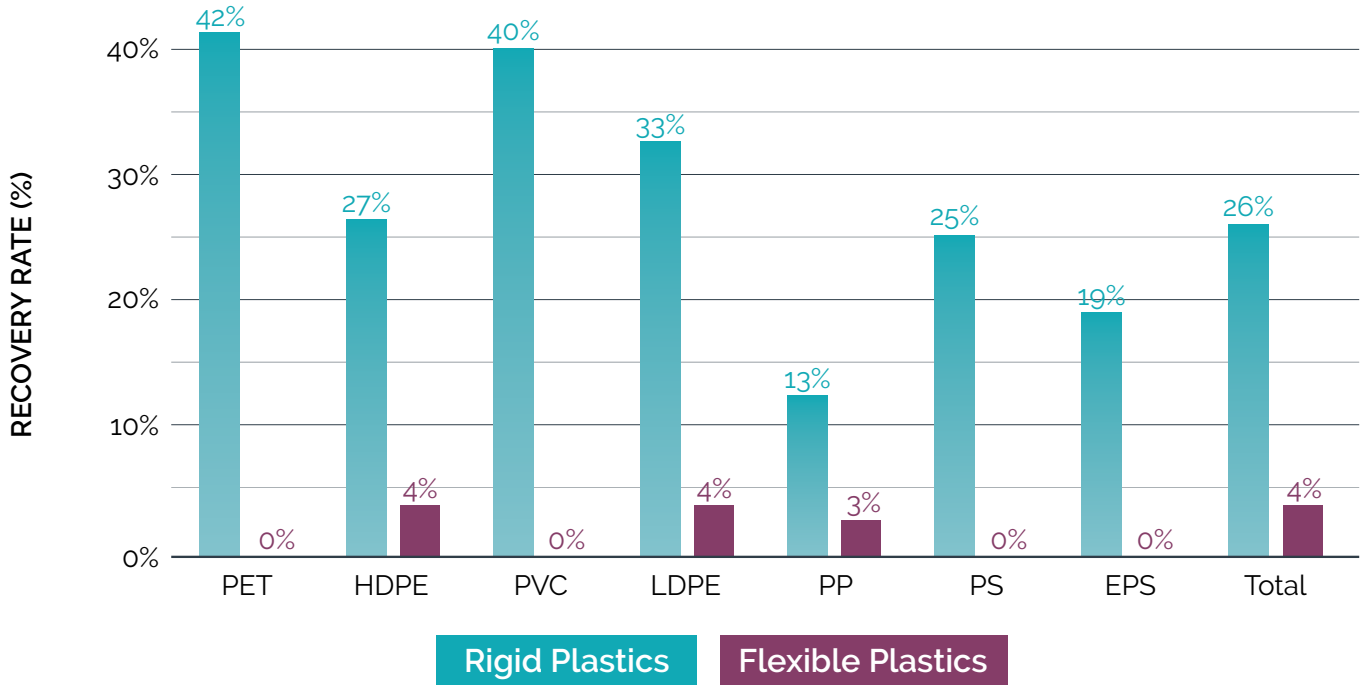


Figure 7: Recovery rates by polymer type and format (rigid vs flexible) 2019-20

Looking at quantities of plastic packaging in landfill highlights the biggest opportunities to improve the overall recovery rate. Over 900,000 tonnes of plastic packaging were disposed to landfill in 2019-20* and the largest volumes were in rigid PET, HDPE and PP (all highly recyclable) and flexible LDPE, HDPE and PP.

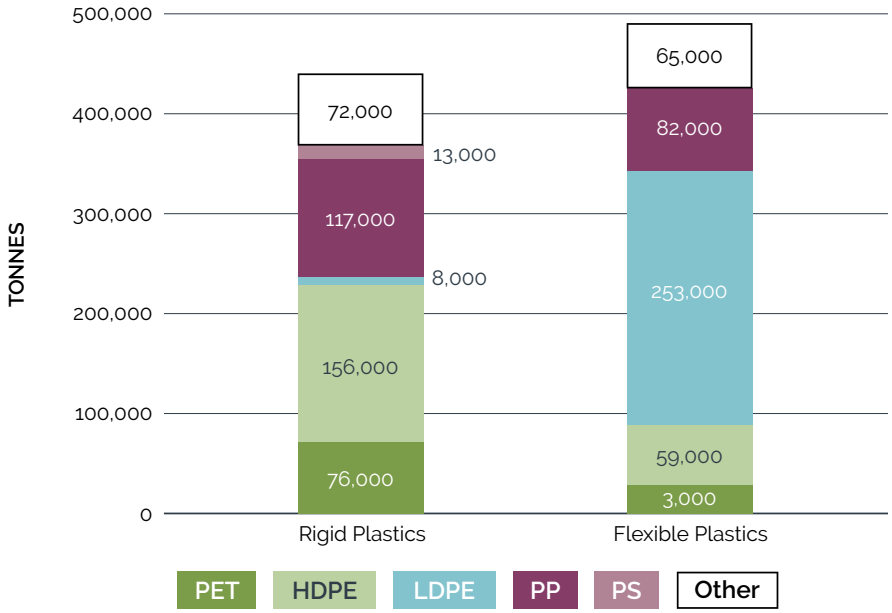


Figure 8: Plastic packaging in landfill, rigid and flexible, 2019-20

Just over 900,000 tonnes of plastic packaging were disposed to landfill in 2019-20.
Gaps and barriers in the collection and recycling systems for plastic packaging include:

1. **Poor source separation of kerbside materials** – large quantities of recyclable rigid plastics are being disposed to landfill by households and organisations (Figure 8). There are limited financial incentives for source separation, particularly for households (see Section 3.1). Other contributing factors include lack of awareness or confusion about what is recyclable and what is not, resulting in loss of recyclable materials and contamination in the recycling bin.[7]

2. **Insufficient collection of non-kerbside household materials** – these are either uneconomic to sort in a MRF or incompatible for other reasons, for example if they are too large or too small to be sorted with current technologies or have limited or low value end markets. Product stewardship schemes or economic incentives for MRFs are needed to develop and fund source separation and recovery of plastics that are not generally accepted in kerbside systems including soft plastics, plant pots, oil containers, EPS and food service packaging.

3. **Insufficient collection of commercial and industrial (C&I) packaging** - there are large quantities of clean, soft plastics generated in the C&I sector, such as pallet wrap.

4. **Inadequate sorting capacity in MRFs** – valuable materials are being lost in the sorting process (disposed to landfill) or ending up in low-value applications since they are not sorted into grades that meet market demand for feedstock, e.g., HDPE milk bottles separated from non-food HDPE, PET thermoforms as well as bottles**, rigid PP and soft plastics. Some larger MRF operators are already investing in sorting into more specific streams but these technologies need to be utilised more widely.

5. **Insufficient reprocessing capacity** - without any further interventions, projections of confirmed and funded recycling capacity by 2025 would achieve a recovery rate of only 34%, assuming that all of the planned capacity is built and that collection efficiency improves sufficiently to meet their feedstock requirements. There is likely to be sufficient capacity for PET but significant gaps for HDPE, PP and LDPE (Figure 9). The biggest gap is for soft plastics with more than 500,000 tonnes disposed to landfill.*** More of this could be recovered through mechanical recycling plants but advanced recycling facilities are also likely to be required to meet the target. In addition, some small volume, multi-material or contaminated plastics may be more suited to recovery through waste to energy facilities.

*This is estimated as the difference between the quantity recovered and the quantity POM in the same year. PVC is not included as the breakdown between rigid and flexible plastics was not recorded for confidentiality reasons. The total amount of PVC in landfill was 15,000 tonnes.

**The Circular Plastics Australia PET recycling facility in Albury will be able to sort PET thermoforms from bottles and jars to meet growing demand for recycled content in trays and punnets.

***The estimated quantity of flexible plastic packaging POM increased from 328,000 tonnes in 2018-19 to 487,000 tonnes in 2019-20. This is due to both increased consumption as well as better quality data.

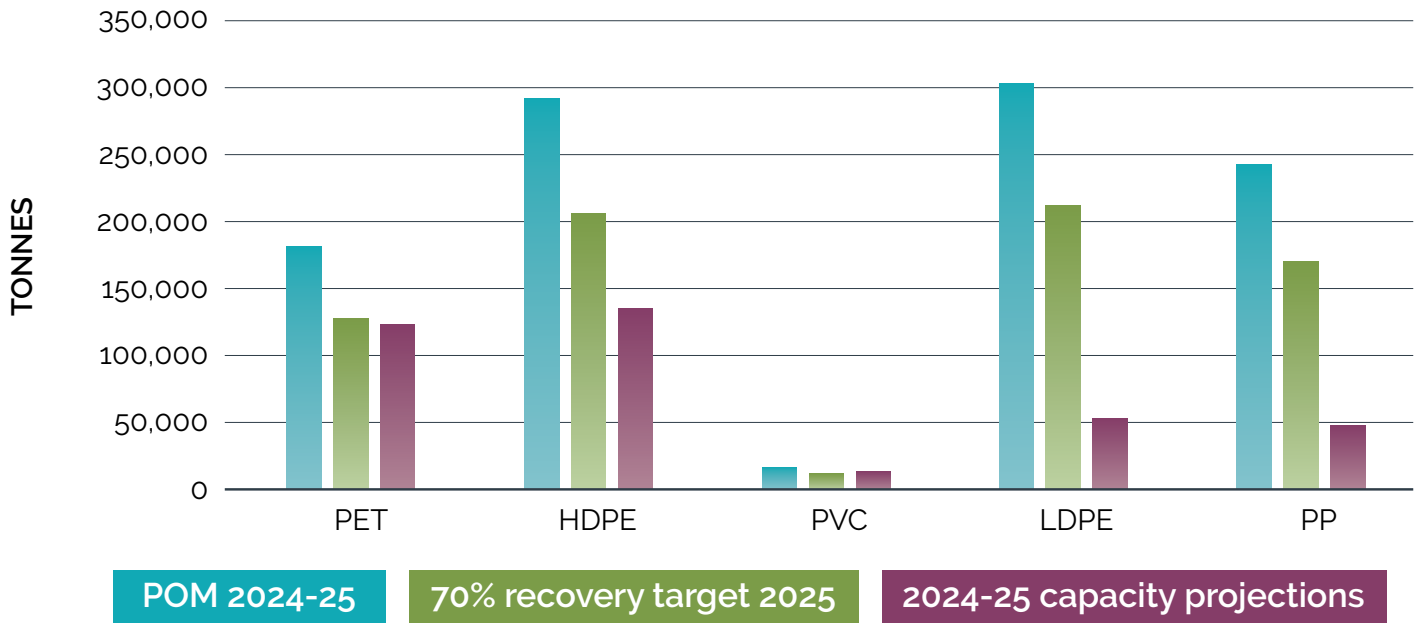


Figure 9: Projections for packaging POM, the 70% target and projected recycling capacity within Australia, 2024-25

Proposed solutions to address the gaps for Outcome Area: Improved Collection and Recycling Systems

Improved recovery of plastics needs to be addressed through urgent and coordinated action to address the barriers outlined above by improving design, collection, sorting and reprocessing. In addition, recovery systems need to include a range of technologies based on the waste hierarchy (Figure 10).

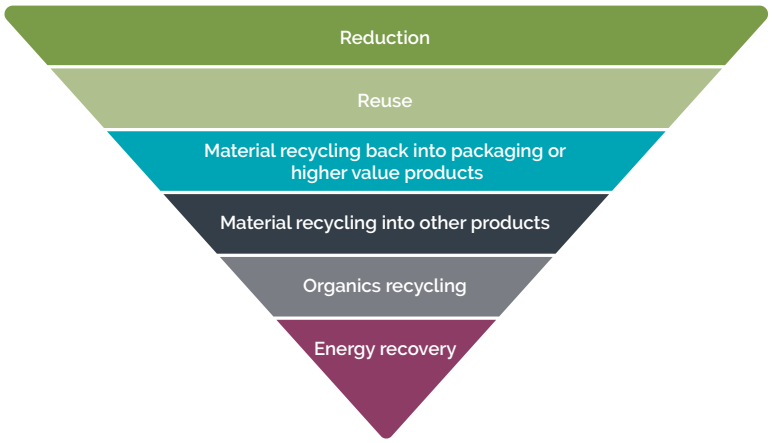


Figure 10: The waste hierarchy for packaging

Reaching the 70% recovery target will require:

- Strong end markets to provide a commercial incentive for increased collection and sorting.
- Improvements to kerbside and C&I collection services.
- New closed-loop product stewardship programs for non-recyclable formats.
- Additional reprocessing capacity to be built in several phases:
  - **Phase 1** – mechanical recycling to provide feedstock for recycled content in packaging as well as other non-packaging markets, and organics recycling facilities increasingly able to accept and manage compostable packaging.[8]
  - **Phase 2** – advanced recycling to provide feedstock for packaging manufacturing, particularly food grade.
  - **Phase 3** – waste to energy (WTE) for plastics that cannot be avoided and are incompatible with mechanical or advanced recycling.

APCO will continue to implement its BAU activities to support the packaging supply chain to improve recyclability. Additional actions outside of these BAU activities are proposed here for consideration:

1. Increase the value and volume of collected materials, strengthening the system by standardising national kerbside collections. The aim should be to collect all materials for which there is a current or future end markets and sort them into the highest value streams.
2. Support household recycling efforts by increasing investment in consumer education programs at a national, jurisdiction and local council level.
3. Support consumer disposal efforts by accelerating uptake of the ARL on packaging.
4. Support C&I sector recycling efforts by improving and promoting collection, including LDPE pallet wrap and rigid PP and HDPE.
5. Improve and promote the public place and other away from home collection and recycling services.
6. Create new product stewardship programs for non-recyclable and hard-to-recycle materials and formats.
7. Introduce pay-as-you-throw (PAYT) collection systems. While this is more complex for household kerbside collection, it can be easily implemented for C&I waste. This involves skip bins being charged by weight rather than pick up.
8. Expand the scope of container deposit schemes (CDS) around the country to include glass wine and spirit bottles.[9]
9. Maximise recovery and value of sorted materials for end markets by setting quality standards for recovered materials from MRFs.
10. Capitalise on end market demand by investing in MRFs to better sort and recover materials that have end market demand now or in the near future including:
    - all rigid HDPE (food/non-food), PP (food/non-food) and PET packaging (bottles. non-bottle formats),
    - over-large and very small paper and cardboard items, and
    - soft plastics.
11. Support local councils and the waste & recycling industry in optimising material diversion and quality standards through new business models and contracts.
12. Invest in mechanical recycling facilities, particularly for rigid HDPE & PP and flexible plastics.
13. Create a higher value end market for recovered soft plastics and mixed plastics by investing in advanced recycling facilities.

2.2.3. EXPANDED MARKETS FOR USED PACKAGING

In 2019-20 an estimated 56% of recovered packaging was reprocessed back into packaging in Australia or overseas; an increase from 52% in the previous year. The ambitious 2025 Targets for recycled content in packaging are intended to support increased circularity and more sustainable end markets for packaging within Australia.

Target: 50% average recycled content included in packaging

This target for post-consumer recycled (PCR) content in packaging is designed to increase packaging circularity, i.e., the proportion of recovered packaging that is reprocessed back into packaging. In 2020 APCO strengthened the target, increasing it from 30% to 50%, and developed material specific targets.

Examples of corporate recycled content targets:

- Coca-Cola Amatil
  7 out of 10 plastic bottles made from 100% recycled plastic by the end of 2019
- Unilever
  increase recycled plastic content in its packaging to 25% by 2025
- Visy
  up to 70% average recycled content in glass bottles and jars
- Orora
  up to 50% in glass bottles manufactured at the Gawler plant

GAPS

Intermediate outcomes being measured through the 2025 Monitoring Program include the value of packaging at end-of-life (to drive market 'pull through) and the traceability standard. These comprise some of the KPIs in the 2025 Monitoring Program:

KPI 6 — Optimise the value of materials at the end market stage

- The proposed measure is 75% of packaging has a net positive value at end-of-life. Data on this will not be available until FY22.

KPI 7 — Average recycled content in packaging is increasing year on year

- One of the measures is that a traceability protocol is developed and implemented. APCO has developed a draft traceability standard and verification scheme.
- The other measures are tracking PCR content in packaging. The average level for all packaging in 2019-20 was 39% (50% target). Performance for other materials was mixed (see Figure 12).

In addition, the annual APCO data survey asked packaging manufacturers were asked about their funded and approved plans to increase the use of PCR content over the next few years. Those that answered yes (19) indicated that they expected to use an additional 184,000 tonnes.[10]

Average recycled content in packaging increased from 38% to 39% in 2019-20.* While the 2025 Target only refers to PCR content, an additional 11% of packaging was sourced from pre-consumer recycled content (Figure 11).**

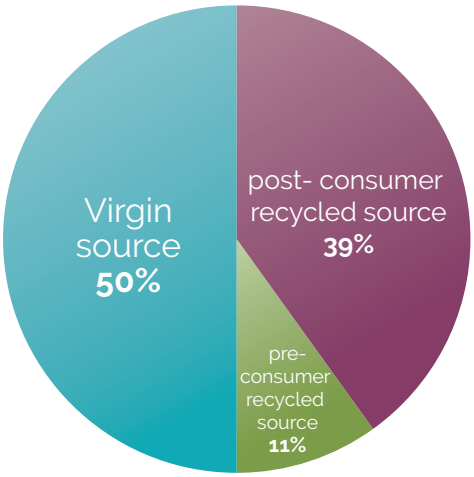


Figure 11: Packaging POM, virgin and recycled content, 2019-20 (excludes wood packaging)

PCR content also increased for paper and paperboard, from 51% to 54%. The targets for 2025 compared to performance in 2018-19 and 2019-20 are shown in Figure 12.***

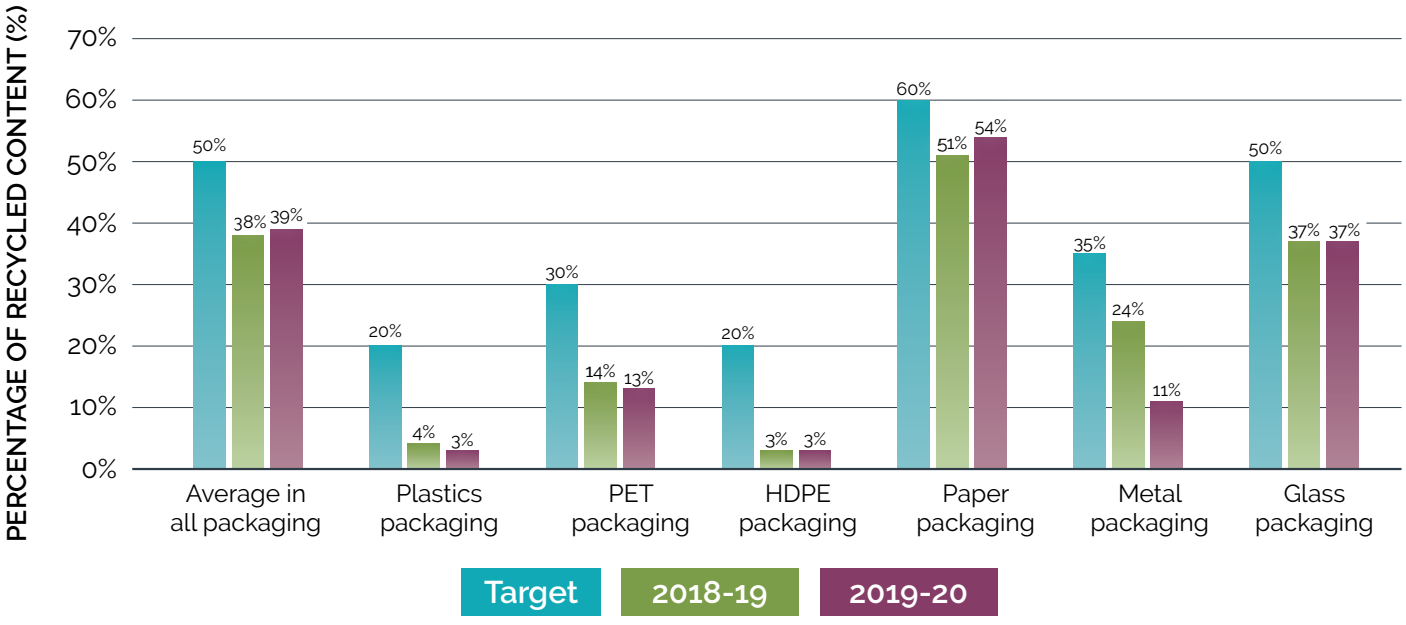


Figure 12: Post-consumer recycled content in packaging, 2018-19 and 2019-20 compared to targets

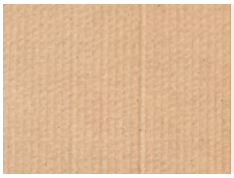
*Wood packaging is excluded due to changes in data coverage in 2019-20 and the fact that most wood packaging is recovered in the organics stream.

**This excludes internal rework, which is not defined as recycled.

***The drop in performance for metal packaging is attributed to more detailed and Australian specific survey information provided by suppliers, rather than an actual reduction over the two-year period.

Some gaps exist on both the demand and supply sides of the market. On the demand side, producers often do not have a commercial incentive to use more recycled content due to additional costs or limited benefit. There are gaps in the supply of certain recycled materials suitable for packaging manufacture.

The gaps and barriers are different for each material group (see below and Table 3):



PAPER AND PAPERBOARD packaging is closest to the target (54% compared to 60%) but an additional 500,000 tonnes of PCR material will need to be added to meet the target.

GLASS packaging is also on track to reach the target. VISY and Orora have announced plans to increase PCR content in containers to 70% and 50% respectively, but there is currently insufficient supply of quality recycled feedstock. This is being addressed through investments in new or expanded glass beneficiation capacity and the introduction of additional CDS, both of which will increase the availability of clean, colour sorted glass suitable for container manufacturing.*

METAL packaging is exported for recycling due to the lack of local capacity, and strong global demand. Most metal packaging is imported, so the potential to use locally produced recyclate is limited.

PLASTIC packaging is limited by lack of availability of recycled feedstock that meets quality requirements, particularly for food grade. There is significant new reprocessing capacity that will be built over the next couple of years for recycled PET (rPET) and recycled HDPE (rHDPE) but this may not be sufficient to meet demand for food grade resin. There is also a risk that some of this reprocessed material will continue to be exported as flake or pellets to meet strong demand in overseas markets such as the UK, where the tax on virgin materials drives demand for recycled content.** Advanced recycling facilities, while still at an early planning stage, are likely to be required meet the target for some polymers, particularly LDPE and other soft plastics.

Table 3: Projected PCR content gaps in meeting the 2025 Target

	PCR CONTENT 2019-20	2025 TARGET FOR PCR CONTENT	GAP TO REACH THE TARGET (TONNES)^
Average for all packaging	39%	50%	1,267,500
Plastic packaging	3%	20%	209,600
PET packaging	13%	30%	34,300
HDPE packaging	3%	20%	50,400
Paper packaging	54%	60%	518,600
Metal packaging	11%	35%	65,450
Glass packaging	37%	50%	193,000

^Based on projected packaging POM in 2024-25

*Grants already awarded under the RMF will increase glass reprocessing capacity by almost 600,000 tonnes, including 60,000 tonnes for MRFs and 340,000 tonnes for beneficiation. Container deposit schemes will be implemented in Victoria and Tasmania by 2023.

**From April 2022 a tax will apply to plastic packaging with less than 30% recycled content.

Proposed solutions to address the gaps for Outcome Area: Expanded Markets for Used Packaging

Meeting the target will require:

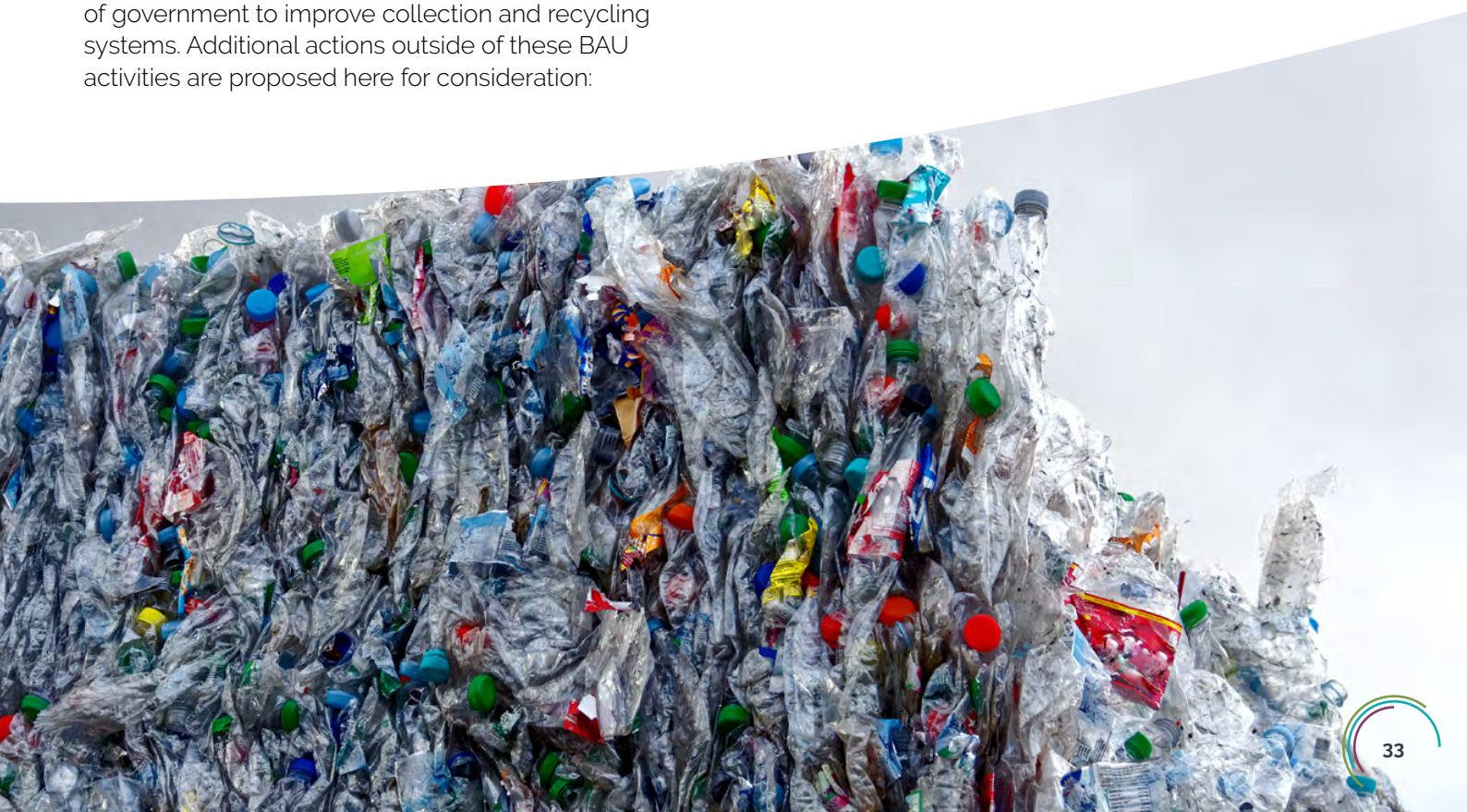
- Public commitments from brand owners and packaging companies to utilise PCR resin wherever feasible, supplemented by pre-consumer recycled content to reduce consumption of virgin material.
- Investment by packaging companies and brand owners in upgraded equipment to allow the use of more recycled content.
- Investment by the waste and recycling industry in additional mechanical processing facilities for plastics, including flaking, sorting and decontamination to produce material suitable for manufacturing back into packaging.

This is likely to occur progressively as committed and funded new facilities are built and become operational over the next few years. The 20% recycled content target for plastics will be challenging to meet due to supply constraints and the risk of quality materials being exported to overseas markets.

Non-packaging markets will continue to be needed to absorb the quantity of plastics currently being collected, as well as the increased quantities of material expected to be collected and processed to meet the 70% recovery target. Support is urgently required from governments and the packaging supply chain to buy more recycled products.

APCO will continue to implement its BAU activities to support the waste and recycling industry and all levels of government to improve collection and recycling systems. Additional actions outside of these BAU activities are proposed here for consideration:

1. Brand owners and packaging manufacturers commit to ambitious targets to use more PCR content in packaging, either individually or through the Pledge Program.
2. Implement the Recycled Content Label Program for packaging.
3. Provide funding support for R&D and capital expenditure to facilitate redesigning and manufacturing packaging to be more recyclable and contain more recycled content (grants or accelerated depreciation).
4. Consider market-based mechanisms to incentivise recycled content if there is sufficient supply of food grade PCR content and industry fails to achieve the 2025 Targets through voluntary commitments, e.g., a tax on virgin materials or subsidy for recycled content.
5. Consider mandating recycled content targets for specific applications that are not constrained by supply or quality if industry fails to achieve the 2025 Targets through voluntary commitments. This could be a phased approach, starting with non-food contact applications.
6. Implement sustainable procurement programs to buy products and packaging manufactured from recycled materials.
7. Invest in mechanical and advanced recycling facilities for plastics to recover soft plastics and mixed plastics into higher-value end markets.



3. OUR PACKAGING FUTURE

This section is in two parts.

1. The first part analyses the packaging system from two different perspectives to identify further interventions needed to meet the 2025 Targets:

- **Material Flow Analysis** - estimated the likely physical flows of packaging under different scenarios.
- **Economic Analysis** - identified financial flows within the packaging system, barriers to behaviour change and the potential costs of meeting the 2025 Targets.

2. The second part provides a pathway towards the 2025 Targets through collective action.

3.1. MATERIAL FLOW SCENARIOS

The MFA modelling included scenario analysis to investigate the potential changes in packaging flows and system performance that are likely by 2024-25, considering known system changes and possible technical and policy interventions.[11] Five scenarios were defined and modelled (described in Table 4).

Table 4: Summary of assumptions used for the 2024-25 scenario analysis

SCENARIO 1 - business-as-usual, 2024-25

Packaging POM

- POM projections for 2024-25)[12] - includes phase out of targeted materials including rigid PVC, PS/EPS, oxo-degradable polymers, lightweight HDPE shopping bags.

Reuse system

- Quantity of new reusable packaging placed on the market to remain at same proportion of POM as 2019-20.
- Composition of reuse system for plastic packaging types to remain at same proportions as the 2019-20 system.

Collection systems:

- CDS to be expanded to include Victoria & Tasmania coming online by 2023.
- Recovery projections for 2024-25.[13]
- Restrictions on baled exports in effect for packaging.
- Stranded exports to be diverted to local reprocessing.

SCENARIO 2 - CDS expanded to all glass

Assumptions consistent with BAU apart from CDS:

- CDS further expanded to include all glass packaging.
- Redemption rates of CDS eligible glass to be equal to state/national average redemption rates for glass packaging.

SCENARIO 3 - Increased collection and recovery of rigid plastics

Assumptions consistent with BAU apart from:

- CDS further expanded to include HDPE milk bottles.
- Kerbside collection - increase in rigid PP collection in line with the projected rigid HDPE recovery rate.

SCENARIO 4 - Increased separate collection of soft plastics

Assumptions consistent with BAU apart from soft plastics collection:

- Separate collection of consumer soft plastics (e.g., via REDcycle) to increase by 400% over BAU.
- Commercial collections of business-to-business (B2B) flexible LDPE to increase at a rate of 400% above BAU.

SCENARIO 5 - Meeting the 70% plastic packaging recovery target

Assumptions consistent with BAU and scenarios 3 & 4 apart from:

- Collection systems - CDS and separate collection of soft plastics capped at Scenario 3 & 4 levels, with required packaging volumes to meet expected recovery levels assumed to be from increased kerbside collection.
- Recovery - Rigid and flexible polymer recovery set such that total plastic packaging recovery achieves the 70% target. For rigid polymers, HDPE and PP are targeted (rigid PET, PVC and PS/EPS are projected to meet recovery rates under BAU). All flexible plastics are targeted.

3.1.1. BUSINESS AS USUAL TO 2024-25

Without any further interventions beyond those already underway, packaging POM is projected to increase at an average annual rate of 2.4%, to reach 6.9 million tonnes by 2025.[14] However, consumption per head of population is expected to grow more slowly (0.7% per year), increasing from 244 kg to 252 kg per capita by 2025.

Growth in packaging volumes makes the transformation of the packaging system to a more circular model more challenging, as it increases the investments needed to improve capacity in collection, sortation and reprocessing.

The largest increase in consumption is expected to be for paper packaging (11% by 2024-25 compared to 2019-20). Plastics would see a small overall reduction and more substantial reductions for PS, EPS and flexible HDPE as problematic single-use items are phased out. Consumption of rigid PET and flexible LDPE, which are both highly recyclable, are expected to increase significantly.

Without any additional interventions the overall collection rate for packaging is projected to increase only slightly, from 62% in 2019-20 to 64% in 2024-25, and the recovery rate from 55% to 56%. Local utilisation of recycled materials is projected to continue growing (from 34% to 53%). The share of baled exports from MRFs and CDS is expected to fall from 26% of total packaging to 3% in 2024-25 owing to restrictions on waste exports.

Looking at individual materials, improved performance in the recovery chain is expected for both plastics and glass. The collection rate for plastics is projected to increase from 20% to 43% due to the expansion of CDS to additional jurisdictions and increased local reprocessing capacity and demand for feedstock resulting in a 36% overall recovery rate. PET is the only one of the high-volume polymers expected to reach the 70% recovery target.

The glass collection rate is projected to increase from 77% in 2019-20 to 89% in 2024-25, and recovery from 60% to 73%. A much higher proportion of glass is expected to be collected through CDS (from 18% to 30%).

Alternative scenarios were modelled to explore additional interventions or changes needed to meet the 70% recovery target for plastic packaging (Scenarios 2-5 in Table 4).

3.1.2. ADDING ALL GLASS TO CDS

Scenario 2 modelled the expansion of CDS to all jurisdictions by 2023 and the inclusion of all glass packaging. This would increase total CDS-eligible packaging from approximately 638,000 tonnes under BAU to around 1.2 million tonnes. The proportion of glass packaging recovered via dedicated CDS collection is projected to increase from 30% for all glass packaging under BAU assumptions, to 68%. This is a significant increase in the supply of quality glass suitable for container manufacturing.*

Under this scenario collection efficiency for glass would increase to around 96% (a 7% increase on BAU) and the recovery rate is expected to reach 79% (an increase of 6%).

*In South Australia around 99% of glass returned through CDS depots is recovered for sale as cullet ready for container manufacturing, compared to only 11% of glass collected in kerbside bins used as cullet (EPA SA (2021), Improving south Australia's recycling makes cents, p.6. Available at https://www.epa.sa.gov.au/files/14100_epa_cds_review.pdf).

3.1.3. MEETING THE 70% RECOVERY TARGET FOR PLASTICS

Plastic packaging is not projected to meet the recovery target by 2024-25 under the BAU assumptions (**Scenario 1**). Collection efficiency is poor for plastic packaging and as such, the low collection rate limits the achievable downstream recovery rate. The BAU collection efficiency is 65% for rigid packaging, and 19% for flexible packaging (43% overall). The recovery rate is projected to be 36%.

Under **Scenario 3** assumptions, with CDS collection of rigid HDPE milk bottles and increased rigid PP collection to align with HDPE recovery, the 70% target is reached for rigid packaging, with a modelled recovery rate of 71%. This recovery rate is achieved assuming an average collection efficiency of 81% for all rigid polymers. In this scenario, the soft plastic recovery system does not change and so despite the increase in the recovery rate for rigid packaging in line with the target, the overall plastic recovery rate only reaches 43%. This highlights the importance in focussing on soft plastic to support achievement of the overall plastics target, as soft plastics make up approximately 49% of all plastic packaging.

Scenario 4 specifically targets separate collections of soft plastic collections. This is achieved by ramping up separate collection of business-to-consumer (B2C) soft plastics and commercial collections of B2B soft plastic collections by 400%. However, these interventions only lead to an increase in soft plastics recovery of approximately 4% over BAU soft plastics recovery, and an increase in overall plastics recovery from 36% in BAU to 38%. This highlights the extent to which separate collection of consumer soft plastics and B2B collections would need to increase to support overall recovery and achieve the overall 70% recovery rate target.

The final scenario modelled (**Scenario 5**), combining assumptions from Scenarios 3 and 4, models a system in which the 70% packaging recovery target is achieved. In the case of rigid packaging, the target is achieved under assumptions for Scenario 3 with the exception of LDPE (recovery rate of 33%) and 'other' polymers (28%). While recovery rates for these two exceptions are considerably lower than the target of 70%, their share of total rigid packaging POM is low at approximately 5%.

In the case of flexible packaging, assumptions assured that the 70% target would be reached for all flexible packaging POM, supported by additional kerbside collection. Separate collection for B2C and B2B soft plastics were fixed in line with Scenario 4. Flexible PVC was already projected to achieve recovery rates of 83% under BAU, however for the other flexible polymers, recovery rates were 17% (flexible LDPE) and below. The recovery rate target might alternatively be met by focusing on specific flexible polymer types, for example flexible LDPE, HDPE and PP account for 73% of all flexible packaging types. By this pathway, an estimated recovery rate of approximately 83% for these targeted polymers would be required.

To achieve the 70% recovery rate target for rigid plastics, a collection efficiency of 82% is required—an increase of 17% over BAU. For soft plastics, an estimated collection efficiency of 88% is required, which represents a significant increase compared to BAU collection efficiency of 19%. Thus, to achieve the 2025 packaging recovery target for plastics, a higher collection efficiency for flexible plastic is needed compared to rigid, assuming current sorting (MRF) and recovery efficiencies that are lower for flexibles. In other words, more flexible plastic needs to be collected compared to rigid plastic to achieve the same recovery rate. The flexible plastic collection efficiency rate under Scenario 4 assumptions is only 24%, indicating the need to further ramp up collections by all pathways including via kerbside collections. Further eliminations of hard-to-recycle soft plastic packaging POM would also improve performance.

3.1.4. MEETING THE 10% TARGET FOR REUSABLE PACKAGING

The contribution of increased reuse on the estimated 2024-25 recovery rate was also evaluated. This evaluation assumes that an increase in reusable packaging would impact packaging POM via an increase in avoided single-use packaging, thereby impacting recovery rates.

An increase in the share of reusable packaging from 3% to 10% by 2024-25 is estimated to increase the quantity of avoided single-use packaging from approximately 2.9 million tonnes in 2019-20 (through existing reuse systems) to 5.9 million tonnes. Wood packaging (via avoidance of fibreboard packaging) contributes the most to avoidance, at approximately 81% of total avoidance (consistent across 2019-20, and 2024-25 cases).

It was estimated that with a 10% reuse rate, total packaging POM would be approximately 6.4 million tonnes, a decrease over BAU of approximately 7%. Total packaging recovery increases from 56% in BAU Scenario 1 to 60% in the 10% reuse case, as a result in offsets to packaging POM.

3.2. ECONOMIC COSTS AND INCENTIVES

An economic analysis of the packaging system was undertaken to identify gaps, barriers and potential interventions to improve circularity and achieve the 2025 Targets.[15]

Packaging is a complex system with money and material flowing through various steps in two stages:

PRODUCTION AND USE OF PACKAGING

RECOVERY OF PACKAGING

Production is funded through the consumption of packaged goods. Recovery, however, is funded by various sources, including through waste management levies and charges, CDS fees and the sale of recovered materials.

The total cost of the recovery system is estimated to be around $2.6 billion each year*, with only 42% of this coming from the sale of the recovered materials themselves (Figure 13).

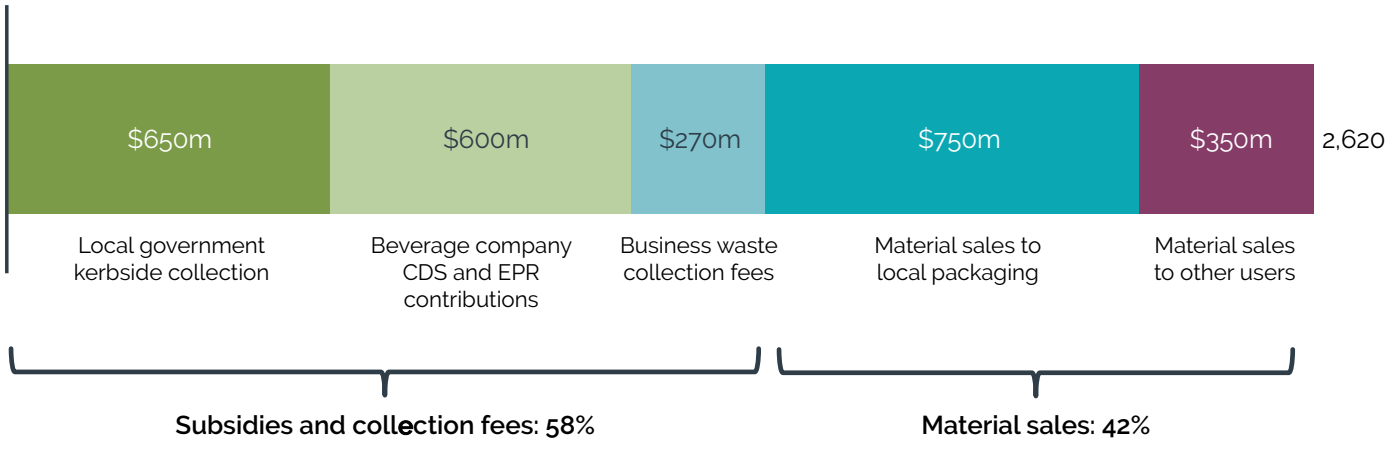


Figure 13: Sources of funding for the recovery stage of the packaging system, $m, 2019-20[16]

*This cost includes the treatment of packaging materials after use, whether they are recycled or disposed to landfill.

3.2.1. ESTIMATED COSTS OF MEETING THE 2025 TARGETS

Achieving circularity in the packaging system will require changes to packaging design to maximise recyclability, increases in collection and reprocessing of material, and changes to production processes to use more recycled content. The recovery stage of the system is likely to bear the greatest cost of these changes, as increased volumes of material are collected, sorted and processed. Recovery would cost at least $1.7 billion more than today, or around $50 per person. Most of the additional cost is in collection ($740 million) and reprocessing ($670 million) followed by sortation ($310 million) and disposal ($60 million). Ideally this increased cost would primarily be funded by increased sales of recovered materials to packaging producers.

3.2.2. CHANGING BEHAVIOUR THROUGH FINANCIAL INCENTIVES

Consumers and producers can generally be expected to operate in their own commercial interests, so significant shifts in behaviour are only likely to be sustained if participants' financial incentives are aligned with the circular objectives of the 2025 Targets. It should be noted, of course, that not all participants always act commercially. They may also be motived by their values to act altruistically, or for other purposes, so other levers such as education can also influence behaviour. However, the focus of this analysis was on economic structures and financial incentives in the system.

Consumers play a critical role in the recovery system by source separating their packaging for recycling. CDS offers a financial incentive for recovery by providing consumers with a 10-cent refund for each container. There is little incentive for source separation of other recyclable materials as kerbside recycling is funded through a waste management charge included in council rates. Consumers could be incentivised to better separate recyclable packaging by expanding the scope of container deposit schemes or through cost-based mechanisms such as PAYT schemes that discourage inappropriate disposal.

Producers generally lack a financial incentive to use more recycled materials. Some recycled materials are cheaper to use and are already well used, particularly for metal, paper and glass. However, recycled plastics are often more expensive to purchase, and there are often additional costs. These may include:

- significant capital costs to transition production machinery that can blend and use recycled materials,
- shallower markets than virgin substitutes make it difficult to source material reliably, and/or
- lack of consistent quality and contamination of recovered materials.

For glass in particular, because of its weight, transport costs can be prohibitive. Producers could be incentivised to use more recycled materials through various market-based mechanisms, such as taxes on virgin materials, eco-modulated fees in product stewardship schemes (such as CDS) or subsidies for the use of recycled content. By redirecting flows from virgin to recycled materials, these policies would significantly contribute to funding the increasing recovery costs under the 2025 Targets.

Waste levies provide producers and other organisations with an incentive to recycle by increasing disposal costs, but this is mitigated by the higher costs of separating and collecting recyclables.

Policy options that could use financial incentives to drive behaviour changes are summarised in Table 5.

Table 5: Policy options to change incentives in the packaging system

Policy initiative	Potential impacts
Container deposit scheme scope expansion e.g., glass bottles for wine, spirits and cordial*	• CDS provides a financial incentive for collection by consumers and through sorting (e.g., MRFs). • Reduced costs of kerbside collection and sorting because materials are separated at source. • Higher value recovered materials from CDS are in demand for reprocessing back into packaging.
Pay-as-you-throw (PAYT) schemes	Consumers are charged different collection fees depending on the amount of waste they produce, which provides a financial incentive to reduce and recycle.
Waste levies	• Waste levies increase the cost of disposal, which provides businesses and other organisations with an incentive to divert waste to recycling. • Levies can also be hypothecated to fund infrastructure improvements and R&D to improve recovery.
Government capital investment subsidies	Government subsidies (grants) reduce the costs to the recycling industry of sorting, cleaning and reprocessing.
Virgin material taxes	Provide producers with a financial incentive to increase recycled content
Eco-modulated fees for product stewardships schemes**	• Differential fees to join a product stewardship scheme based on the direct costs of recycling each material or format provide producers with a financial incentive to choose more recyclable packaging. • Fees could also be differentiated based on the share of recycled content.
Tradeable offset schemes	Producers that exceed a recycled content target are issued credits, which could be sold to other producers.
Subsidies or tax exemptions	A subsidy or tax exemption is offered to producers who use recycled content.
GST exemption for products with recycled packaging	Consumers are exempt or pay less GST on items that use recycled packaging.

*The benefits of shifting these materials from kerbside to CDS are outlined in EPA South Australia (2021), Improving South Australia's recycling makes cents: A discussion paper to review SA's container deposit scheme, available at https://yoursay.sa.gov.au/cds-review

**These are considered best practice for product stewardship. See for example European Commission (2014), Development of Guidance on Extended Producer Responsibility (EPR), available at https://www2.deloitte.com/content/dam/Deloitte/fr/Documents/sustainability-services/deloitte_sustainability-les-filieres-a-responsabilite-elargie-du-producteur-en-europe_dec-15.pdf

3.3. THE 2025 MONITORING PROGRAM

3.3.1. THE 2025 TARGETS

APCO is planning to consult with stakeholders on potential changes to the targets. These changes would be incorporated in the new iteration of the Strategic Plan for the Australian Packaging Covenant due to commence on 1 July 2022. Issues to be considered in this consultation will include:

- **Adoption of a recovery target for all packaging**
  Rationale: At present the only recovery target is for plastics (70%). A target for all packaging is considered best practice.
- **More specific recycled content targets for plastics**
  Rationale: The opportunity to increase PCR content in packaging depends on material type, format (e.g., rigid vs. flexible plastics), application (e.g., food vs. non-food) and availability of recycled material. The targets could be amended to be more ambitious for some specific materials and formats.
- **Revisit the target for metals**
  Rationale: We now have more accurate data on PCR content in metal packaging and the current target does not appear to be achievable for all metal formats. Additional targets based on material and/or format will help drive higher levels of recycled content, supporting stronger end markets for recovered materials.
- **Consider an impact-based target for packaging**
  Rationale: Recycling reduces the carbon footprint of materials by diverting material from landfill and reducing demand for virgin materials. Impact-based metrics such as carbon emissions help drive behaviour change by linking recyclability and recycled content to broader sustainability goals such as zero emissions. APCO already reports the climate change impact of packaging in landfill.[17] Impact-based metrics are considered best practice.[18]

3.3.2. 2025 MONITORING PROGRAM

This report highlights the need to update the KPIs and measures in the 2025 Monitoring Program to reflect data availability and provide more focus on both leading and lagging indicators (Table 6). This report is designed to act as a consultation platform for the review process, it is expected these changes would be incorporated in the new iteration of the Strategic Plan for the Australian Packaging Covenant.

Table 6: 2025 Monitoring Program results and proposed updates

Strategic Intervention Points (SIPs) and Key Performance Indicators (KPI)	Measures	Proposed change to measure	Latest result	Data source
SIP 1: Design: Sustainable Packaging Guidelines (SPGs) KPI 1: Compliance with the Sustainable Packaging Principles of the SPGs for all products put on the market by large Members	**1.1:** 100% of products put on market by large Members have been reviewed against the SPGs	Retain	58.6%	APCO Annual Reporting Tool (Reporting Tool)
	1.2: 75% of large Members confirm that applying the SPGs delivers business value	Retain	Measure not available until FY22	New question added to the Reporting Tool for 2021
SIP 2: Production: Single-use, Unnecessary and Problematics Plastics are phased out KPI 2: Phase-out of identified priority items for single-use, unnecessary and problematic plastic packaging formats	**2.1**: 100% of large APCO Members using single use, unnecessary and problematic plastics have phased out identified priority items	Retain	Measure not available until FY22	ARL Program monitoring
SIP 3: Use: Australasian Recycling Label KPI 3: Coverage, uptake and consumer awareness of the ARL is optimised	**3.1:** Greater than 75% of iconic consumer-facing brands have the ARL	Remove (difficult to define and conflicts with NPP target of 80% by Dec. 23)	Data not available	ARL Program monitoring
	3.2: 100% of large APCO Members apply the ARL	Retain	60.76%	APCO market research
	3.3: 80% of products on the market have the ARL	Replace with 80% of supermarket products display the ARL (align with NPP)	AUS = 9.2% NZ = 5.19%	ARL Program monitoring
	3.4: 85% of consumers recognise the ARL	Retain	61 - 64% AU 52 - 54% NZ	APCO market research
SIP 4: Disposal: Material Standards KPI 4: Packaging value chain participants accept standards	**4.1:** Packaging specifications developed	Remove Replace with 4.1 Increasing collection efficiency	Completed 62% 2019-20	Material Flow Analysis
	4.2: Industry awareness of packaging specifications	Remove Replace with 4.2: Increasing sorting efficiency	Completed 61% 2019-20	Material Flow Analysis
	4.3: Reduced contamination in household recycling bins	Remove	Measure not available until FY22/FY23	Government audits

Table 6: 2025 Monitoring Program results and proposed updates (CONTINUED)

Strategic Intervention Points (SIPs) and Key Performance Indicators (KPI)	Measures	Proposed change to measure	Latest result	Data source
SIP 5: Recovery: Reprocessing Capacity KPI 5: Onshore infrastructure capacity is developing to ensure packaging materials are 100% recyclable, reusable or compostable	**5.1:** Onshore infrastructure capacity for plastic packaging equals 900,000 tonnes	Retain	72,000 tonnes processed in AU in 2019-2	Consumption & recycling survey
	5.2: Approvals for development of infrastructure for plastic packaging equates to 900,000 tonnes	Update Replace with 5.2 Projections for onshore reprocessing capacity by 2024-25 equates to 900,000 tonnes (Leading indicator)	Data not available Projections for 420,000 tonnes in 2024-25	Consumption & recycling survey
	5.3: 100% of all packaging materials are recyclable and/or compostable	Retain	86% 2019-20	Consumption & recycling survey
	5.4: 10% of packaging is reusable	Retain	3% 2019-20	Consumption & recycling survey
	5.5: 70% of plastic packaging is recycled	Retain	16% 2019-20	Consumption & recycling survey
SIP 6: Market Creation: Market value optimised KPI 6: Optimise the value of materials at the end market stage, to create clean, high-value material streams is fundamental in ensuring an economically sustainable circular economic approach to packaging	**6.1:** 75% of packaging has a net positive value at end-of-life	Replace Replace with: 6.1 Increasing packaging circularity rate KPI 6: Optimise the proportion of packaging recovered and reprocessed back into packaging within Australia	Measure not available 25% in 2019-20	Material Flow Analysis

Table 6: 2025 Monitoring Program results and proposed updates (CONTINUED)

Strategic Intervention Points (SIPs) and Key Performance Indicators (KPI)	Measures	Proposed change to measure	Latest result	Data source
SIP 7: Market Creation: Recycled content KPI 7: Average recycled content in packaging is increasing year on year	**7.1:** Traceability protocols are developed and implemented	Remove Replace with 7.1: Projected increase in recycled content by packaging manufacturers (leading indicator)	Completed 183,000 tonnes	Consumption & recycling survey
	7.2: 50% average recycled content in packaging	Retain	39%	Consumption & recycling survey
	7.3: 20% average recycled content in plastic packaging	Retain	3%	Consumption & recycling survey
	7.4: 30% average recycled content in PET packaging	Retain for rigid PET	13%	Consumption & recycling survey
	7.5: 20% average recycled content in HDPE packaging	Retain for rigid HDPE	3%	Consumption & recycling survey
	7.6: 60% average recycled content in paper packaging	Retain	54%	Consumption & recycling survey
	7.7: 35% average recycled content in metal packaging	Retain	11%	Consumption & recycling survey
	7.8: 50% average recycled content in glass packaging	Retain	37%	Consumption & recycling survey

4.CASE STUDIES

The case studies are just some of the examples of progress being achieved towards the 2025 Targets and the outcomes of Our Packaging Future.

OUTCOME 1:
PACKAGING DESIGNED FOR CIRCULARITY

Gillette's 100% recyclable packaging

Leading consumer brands company P&G has transformed the packaging for its Gillette range of grooming products to meet its targets for packaging, which include:

- 100% reusable or recyclable
- 50% less virgin plastic
- 100% responsibly sourced

For the 100% reusable or recyclability target, P&G '...plan to make this happen for the majority of our packaging through a combination of material choice, package design, and working with partners to create innovative solutions for more sustainable products.'

One of the biggest transformations to date has been for systems razor packaging across Gillette and Venus products. Previously these were sold in a blister pack comprising a cardboard backing and a thermoformed PET shell. In 2018 the packaging was modified to reduce the amount of plastic by 50%, and then further improved in 2021 with a complete redesign. The new packaging is a cardboard carton which is:

- 100% recyclable
- Manufactured from paper certified by the Forest Stewardship Council (FSC)
- Manufactured with 30-50% recycled material

This innovation is helping eliminate a significant amount of plastic packaging per year, equivalent to around 584,000 1.5 litre plastic bottles.

These benefits extend to the product itself. Gillette Venus razors have refillable handles manufactured from at least 30% recycled content, and the company has partnered with Terracycle to offer a recycling solution for any brand or razor and its packaging.

A redesigned box for Venus product (2021)

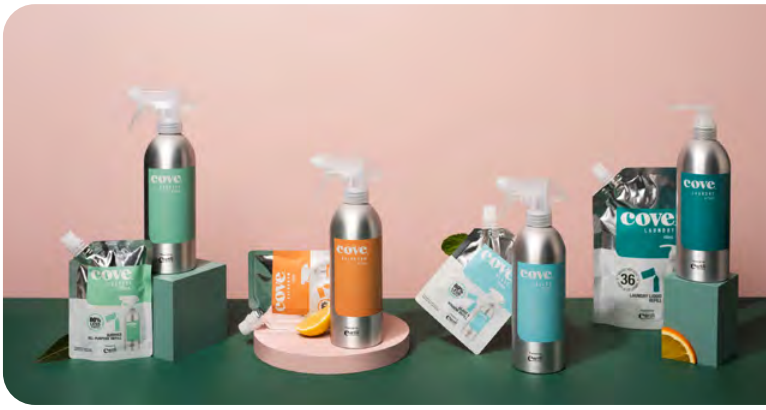
A redesigned box for Gillette product (2021)

Natures Organics refillable containers

Reusable packaging helps to reduce waste to landfill by eliminating single use packaging. While relatively common for B2B packaging formats with closed distribution systems, consumer packaging is more challenging because of the need to establish return systems and change consumer behaviour. Natures Organics has found an elegant and innovative solution.

In 2020 Natures Organics launched its Cove brand of cleaning products in reusable aluminium bottles with recyclable refill packs. This innovative packaging strategy delivers a range of environmental benefits:

- The bottle is durable enough to be refilled repeatedly, and then recycled at the end of its life. The plastic trigger currently has to be disposed to landfill due to mix of plastic and metal components.
- The bottle is refilled with a concentrated product which is then topped up from the tap, which reduced the amount of packaging material (80% less plastic than a conventional bottle). The cleaning solutions that are four times more concentrated than standard products.
- The small size of the pack also improves transport efficiency by reducing size and weight.
- The refill pouch can be recycled after use through the REDcycle store drop-off program for soft plastics.



Disruptive Packaging reusable produce boxes

Disruptive Packaging has created a unique material box called Uniqcor®. Uniqcor® has fit for purpose specifications in durability, leakproof, waterproof and temperature management. The new material is an alternative for EPS and waxed cardboard that can be washed, sanitised, and reused up to ten times and completely closed-loop recyclable.

The recycling process delivers 100% yield and is a low energy and low water process into new Uniqcor® packaging. Uniqcor® cartons and octobins are increasing the value within the circular economy through reuse. When they are no longer fit for purpose, the company closes the loop with large customers and industry by having Uniqcor® bins on-site for collection and recycling.

Uniqcor® is growing quickly in the seafood and fresh produce sectors where they replace polystyrene and waxed cartons directly. Displacing these materials from landfill provides better results for producers, community, employers, employees, and the environment. Claudio's Quality Seafoods, one of the Sydney Fish Markets oldest and finest establishments has embraced Uniqcor packaging, saying:

> *"Due to the design and strength, we collect the emptied Uniqcor boxes from our home delivery customers with each subsequent home delivery. We reuse the boxes up to 10 times and then collate them for pickup and recycling. We are pleased to be involved in this closed-loop process; it reduces our packaging spend as well as the volume of boxes that would otherwise go to landfill"*

OUTCOME 2:
IMPROVED COLLECTION & RECYCLING SYSTEMS

A new industry model for recycling

The national packaging targets are driving demand for food grade rPET suitable for manufacturing back into packaging within Australia. This is resulting in cross-sector collaborations to build local recycling facilities.

In February 2020 Pact, Cleanaway and Asahi Beverages announced their intention to jointly develop a plastic pelletising facility in Albury NSW to close the loop and contribute to a circular economy. The Circular Plastics Australia PET facility is expected to process up to 28,000 tonnes of plastic bottles and other recyclables into flake and food grade pellets. This will be converted into more than 20,000 tonnes of new PET bottles and food packaging.

The cross-value chain collaboration uniquely combines the expertise of each participant. Cleanaway will provide available feedstock through its collection and sorting network. Pact will provide technical and packaging expertise and Asahi Beverages and Pact will buy the majority of the recycled pellets from the facility to use in their packaging products. The construction of the facility is almost complete and it is anticipated to be operational in late 2021.

A second joint venture was announced in August 2021 when Pact Group, Cleanaway, Asahi Beverages and Coca-Cola Europacific Partners (CCEP) announced that they had signed an MOU for a joint venture to build and operate a PET recycling facility which is expected to produce at least another 20,000 tonnes of new rPET bottles and food packaging. A decision on the plant's location is anticipated in the coming months and construction is expected to be completed by 2023.

IQ Renew solutions for soft plastics recycling

IQ Renew operates a MRF and secondary material processing facilities for glass and plastics on the NSW Central Coast. Over the past couple of years, the company has collaborated with multiple partners to develop an end-to-end solution for household soft plastics.

COLLECTION

IQ Renew is developing an innovative kerbside collection system called Curbcycle. In 2021, the CurbCycle program is being trialled with 2,000 households on the NSW Central Coast who 'opted-in' to join the project. Participating households collect clean soft plastics in a specific collection bag, added to their recycling bin for normal collection. The bags are pulled out manually at the pre-sort stage of the IQ Renew MRF. The success of the trial has enabled it to be offered to other councils.

SORTING

IQ Renew is working to improve efficiencies by automating the sorting process. A project funded through the Australian Government CRC-P program is developing a template for upgrading existing MRFs by introducing 'Internet of Things' automation and trialling it in an existing MRF. Depending on the size of the MRF and level of automation, the bags of soft plastics can either be removed manually or identified and removed automatically.

REPROCESSING

iQ Renew owns the Cat-HTR™ platform for end-of-life plastic in Australia and New Zealand. This unique chemical recycling technology has a low environmental footprint, and produces a high-quality sustainable oil from plastic otherwise sent to landfill. The Licella pilot plant has already successfully converted a high concentration of end-of-life plastic to oil, and Licella™ continue to work with IQ Renew to refine this process.

In mid-2021, IQ Renew built a demonstration scale (5,000 tonne) Soft Plastic Engineered Commodities (SPEC) recycling facility on the Central Coast to produce flake from household and C&I soft plastics. The SPEC facility will accept plastic films from multiple sources including the REDcycle program. This material will be processed into flake and sorted by polymer to provide feedstock to a variety of end markets, including existing recyclers and future advanced recycling facilities. IQ Renew is planning to establish several full-scale SPEC plants (30-5,000 tonne capacity) to process soft plastics packaging.

OUTCOME 3:
EXPANDED MARKETS FOR USED PACKAGING

Colgate-Palmolive and Wellman partner on 100% rPET bottles

The successful integration of PCR material in packaging requires collaboration across the packaging supply chain and with recycled resin manufacturers to identify and overcome any technical barriers.

In May 2020 Colgate-Palmolive launched a range of household products in 100% rPET packaging including Palmolive Dishwashing Liquid and Ajax Spray'n'Wipe. This has been achieved through a strong partnership with industry leader Wellman Packaging.

Wellman CEO Craig Wellman has also acknowledged the support and commitment of recycled material supplier, Martogg as one of the keys to the project's success. Martogg LCM, a division of The Martogg Group, has continued to invest in new equipment to produce food grade rPET and rHDPE.

This initiative from Colgate-Palmolive and Wellman follows other innovations from Wellman including a 90% recycled food grade recycled PE sauce bottle and 100% rPET preforms.

The Australian dairy industry commits to closing the loop

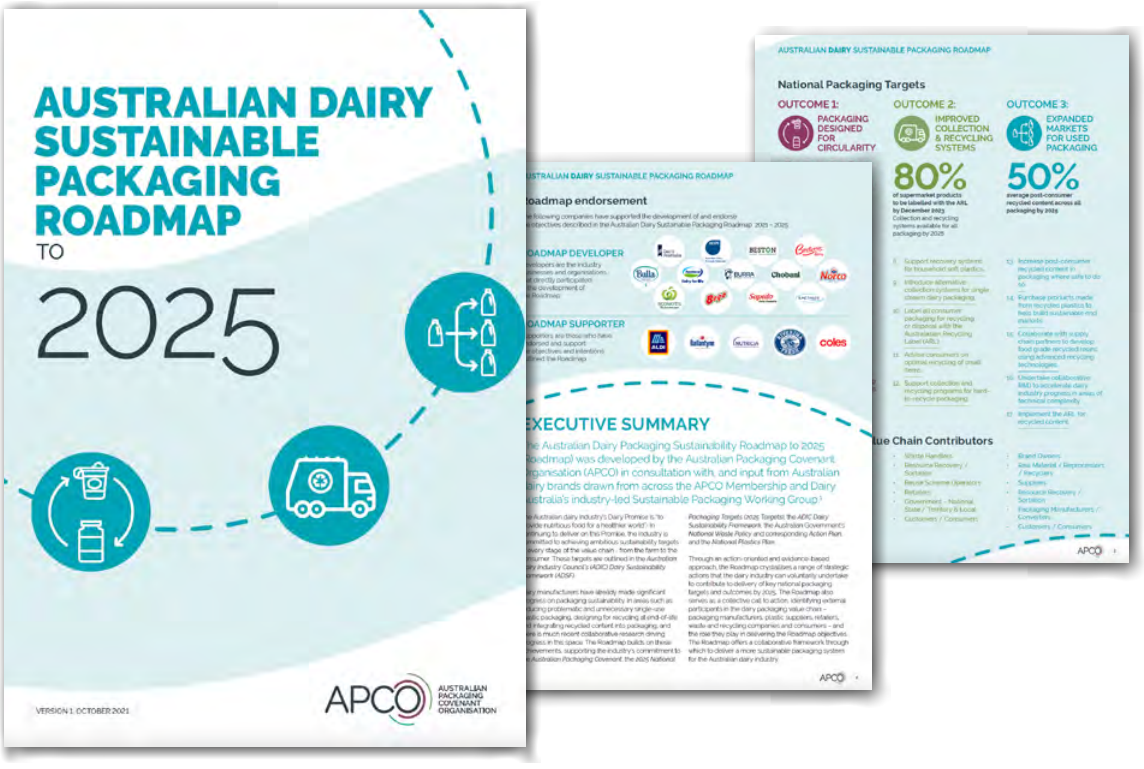
The Australian Dairy Sustainable Packaging Roadmap to 2025, launched in October 2021, was developed by APCO in collaboration with dairy manufacturers and Dairy Australia. It is the first industry-specific packaging report of its kind world-wide, providing an outline of strategic initiatives and opportunities the dairy manufacturing sector can undertake in three broad areas – packaging design, collection and recycling, and expanded end markets for used packaging.

A key commitment to improve end markets is to increase PCR content in packaging where safe to do so. There are opportunities for recycled content in a range of consumer packaging formats including HDPE milk and cream bottles and PET bottles and thermoforms.

Dairy manufacturers have committed to include the highest possible proportion of recycled content with the objective of delivering an average of 50% recycled content rate across all packaging formats used by the dairy products industry, in accordance with the 2025 Targets. It is anticipated that recycled content in PET and HDPE packaging will increase gradually as the availability of local, food-grade resin increases with new and expanded recycling capacity coming on stream.

Recent initiatives to increase recycled content include:

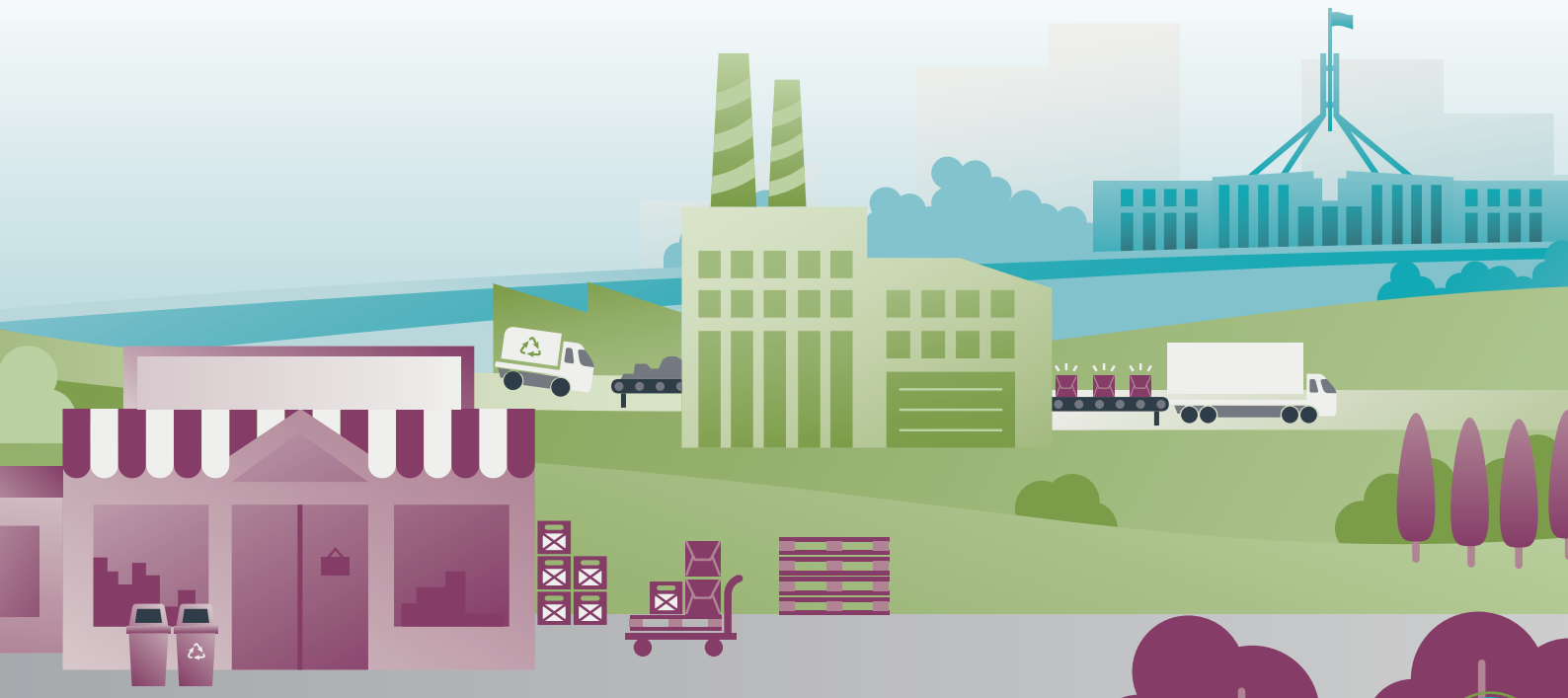
- Dairy Australia and Bega Dairy and Drinks collaborated on a research project to develop a pathway for increased recycled plastic in milk bottles. The project tested the performance of milk bottles containing various levels of post-consumer recycled content and concluded that up to 50% rHDPE is technically feasible.
- After successful trials Bega Cheese Limited is aiming to launch new packaging for one of their spreads products in a bottle manufactured from at least 30% post-consumer rPET in 2021. They were also on track to transition up to 20% of their cheese slice clamshell packaging to incorporate up to 50% post-consumer rPET by the end of this year.
- Woolworths has a target to achieve an average of 60% recycled content in its Own Brand packaging by the end of 2025 and is on track to achieve 100% for 1 litre PET milk bottles and 50% rHDPE for 2 litre & 3 litre milk bottles.
- Goodman Fielder's Meadow Fresh brand has partnered with Pact Group to launch the first recycled HDPE milk bottle in New Zealand with 30% food-grade rHDPE; reducing the 830 tonnes of virgin plastic used annually by 250 tonnes.
- A multi-stakeholder research project aims to enable higher levels of recycled content in HDPE bottles by making it easier to remove labels and adhesives in the recycling process. Coordinated by the NSW Smart Sensing Network (NSSN) and led by PEGRAS Asia Pacific, project partners include Bega, Saputo and Lactalis and three NSSN member universities, including UNSW, the University of Sydney, and University of Technology Sydney (UTS).



5. CONCLUSION

Over the past few years, the packaging system has moved closer to the 2025 Targets with more packaging being collected, reduced losses in sorting systems, and a higher recovery rate, which is now at 55%. Companies in the packaging supply chain are actively working to eliminate problematic and unnecessary single-use plastic packaging and designing to be 'recycle-ready', while industry and government are co-investing in infrastructure to improve the quality and quantity of recyclable materials reprocessed within Australia. Businesses, consumers and governments are more engaged in packaging sustainability than ever before. There is still, however, a lot more to be done to achieve true circularity.

This report provides a pathway to reach the 2025 Targets through collective action. It is based on a strong knowledge base and detailed analysis of the areas where positive progress is being made as well as the barriers and remaining gaps. It will inform consultation for the new iteration of the Strategic Plan for the Australian Packaging Covenant, which is due to commence on 1 July 2022. This process will lay the groundwork for further improvements in the packaging system towards 2025 and beyond.



GLOSSARY

Advanced recycling	A term used to describe processes that turn polymers back into their chemical components so that they can be manufactured into new hydrocarbon products including oils and plastics. Also called *chemical recycling* or *feedstock recycling*.
Bioplastics	A broad term for plastics that are biobased, biodegradable or both. Bioplastics fall into one of three groups: Bio-based and biodegradable, Bio-based (but not biodegradable) and Biodegradable (but not bio-based). Conventional polymers (e.g., PET and HDPE) can also be fully or partially bio-based.
Biodegradable	A generic term that indicates a plastic is biologically available for microbial decomposition, with no detail on its breakdown outputs, time or extent of degradation or end environments.
Collection efficiency	Used packaging that is collected (not directed to landfill), divided by total packaging PoM. [In the gate for CDS and MRF divided by PoM]
Compostable packaging	Packaging that will break down into water, carbon dioxide and biomass over a comparatively short period of time if they have the right conditions (e.g., being in a compost system). Genuinely compostable products are certified to a standard to either break down in a home compost or commercial composting facilities.[19]
Compostable plastic packaging	Packaging or item made to compost down through approved processes. It can be called compostable if it is certified to AS 4736 and if it is successfully collected, sorted, and composted in practice and at scale.
Eco-modulated fees	Differential fees to join a product stewardship scheme based on the direct costs of recycling each material or format provide producers with a financial incentive to choose more recyclable packaging.
Fragmentable plastic	A material (however described) made of plastic which includes additives to accelerate the fragmentation of the material into smaller pieces, triggered by ultraviolet radiation or heat exposure, whether or not this is, or may be, followed by partial or complete breakdown of the material by microbial action.[20]
Local secondary material utilisation rate	Secondary material produced (excluding stockpiled amounts) to be utilised locally for manufacturing or other industrial applications, divided by total packaging onto the market. [Out the gate of reprocessors for local utilisation and energy recovery divided by POM]

Mechanical recycling	The use of physical processes such as sorting, chipping, grinding, washing and extruding to convert scrap plastics to a usable input for the manufacture of new products.
Out the gate	Material leaving a facility following reprocessing and excluding most contamination.
Problematic plastic packaging	Packaging that, in Australia, is currently: • Difficult to collect/recover for reuse, recycling or composting purposes; or • A material that hinders, disrupts or obstructs opportunities to recover other materials or resources; or • A significant contribution to the plastic litter problem; or • Manufactured with, contains or has contained hazardous chemicals or materials (e.g., PFAS, BPA) that pose a significant risk to human health or the environment. This type of packaging may not be considered problematic should emerging technologies result in effective collection/recovery for reuse, recycling or composting purposes, provided it can be removed from the environment.
Producer responsibility organisation	A collective entity set up by producers or through legislation, which becomes responsible for meeting the recycling obligations of individual producers.
Reprocessor	Facility that uses an industrial process to change the physical structure and properties of a waste material so it can be used again. This can include energy from waste facilities that use materials to generate energy.
Secondary material reprocessor	A process undertaken after sorting in which a recovered material is put through an industrial process to change it so that it can be used as an input for the manufacture of new products. Also see 'Reprocessor'.
Single-use plastic packaging	Packaging that is likely to be designed to be discarded after single use and is routinely disposed of after its contents have been unpacked or exhausted.
Sorting efficiency	Waste destined for re-processing/downstream recovery, divided by total packaging PoM. [Out the gate for CDS and MRF divided by PoM]
Unnecessary plastic packaging	Packaging that can currently be reduced or substituted with non-plastic fit-for-purpose alternatives and/or can be eliminated entirely without compromising the consumer's access to the product or causing undesirable environmental outcomes. Note: *There may be necessary case-by-case exemptions for packaging required for occupational, health and safety standards, including packaging regulated for specific industry use such as therapeutic and hazardous goods*

REFERENCES

1. Australian Packaging Covenant Organisation, 2021a. Australian Packaging Consumption & Recovery Data 2019-20, p.91
2. As proposed in EPA SA (2021), Improving South Australia's recycling makes cents. Available at https://www.epa.sa.gov.au/files/14100_epa_cds_review.pdf
3. Department of Agriculture, Water and the Environment, 2021. Waste exports. Available at: https://www.awe.gov.au/environment/protection/waste/exports
4. Institute for Sustainable Futures, 2021. Material Flow Analysis of Australian Packaging 2019-20. Report to APCO.
5. Institute for Sustainable Futures, 2021.
6. Australian Packaging Covenant Organisation, 2021a. p 96.
7. Australian Packaging Covenant Organisation and Planet Ark, 2021. Australian Recycling Label Consumer Insights Report 2021. Available at: https://documents.packagingcovenant.org.au/public-documents/ARL%20Consumer%20Insights%20Report%202021
8. Australian Packaging Covenant Organisation, 2021b. National Compostable Packaging Strategy. Available at: https://documents.packagingcovenant.org.au/public-documents/National%20Compostable%20Packaging%20Strategy
9. As proposed in EPA SA (2021), Improving South Australia's recycling makes cents. Available at https://www.epa.sa.gov.au/files/14100_epa_cds_review.pdf
10. Australian Packaging Covenant Organisation, 2021a. p 140.
11. Institute for Sustainable Future, 2021.
12. Australian Packaging Covenant Organisation, 2021a. p 96.
13. Australian Packaging Covenant Organisation, 2021a. p 99.
14. Australian Packaging Covenant Organisation, 2021a. p 94.
15. Accenture, 2021. Costs and incentives for a more circular packaging system. Report to APCO.
16. Accenture, 2021. p 12.
17. Australian Packaging Covenant Organisation, 2021a. p 90-91.
18. Circular, 2020. 'Making an impact', Circular Online. Available at: https://www.circularonline.co.uk/features/making-an-impact/
19. WasteMINZ, 2019. A quick guide to environmental claims for plastic products and packaging. Available at: https://www.wasteminz.org.nz/wp-content/uploads/2019/03/Quick-Guide-final-2019.pdf
20. South Australian Single-use and Other Plastic Products (Waste Avoidance) Bill 2020, Available at: https://www.legislation.sa.gov.au/LZ/C/A/SINGLE-USE%20AND%20OTHER%20PLASTIC%20PRODUCTS%20(WASTE%20AVOIDANCE)%20ACT%202020/CURRENT/2020.27.AUTH.PDF