OUR PACKAGING FUTURE

A COLLECTIVE IMPACT FRAMEWORK TO ACHIEVE THE 2025 NATIONAL PACKAGING TARGETS

APRIL 2020

APCO

AUSTRALIAN
PACKAGING
COVENANT
ORGANISATION

Acknowledgements

We acknowledge and thank the 200 plus organisations and individuals from across the packaging value chain in both industry and government that contributed to the co-design and development of this report.

In particular we thank the individuals who contributed to the Collective Action Group and their organisations and governments for their support and the facilitation of their resources to complete this important work. Additionally we recognise the 2018 and 2019 APCO Working Groups and the Government Officials Group for their valuable and expert contributions.

The achievement of a circular economy for packaging in Australia will be inextricably linked to the efforts, expertise and commitment of all who have participated and contributed to the creation of Our Packaging Future.

Contents

Executive Summary

The whole packaging value chain collaborates to keep packaging materials out of landfill, and maximise the circular value of the materials, energy and labour within the local economy.

This is the vision for our packaging future, a future that recognises our planet has finite resources to meet our ever increasing consumption. It acknowledges that our traditional take, make and waste approach is not going to sustain our communities in the future.

It's a vision that pays homage to future generations by stepping forward as a collective group dependent on the resources of this planet to say: this is simply not good enough. We will not accept a future defined by waste stockpiles, inefficient waste recovery economies, self-interest and fragmented regulation and policy approaches.

We recognise that packaging has brought much to our modern lifestyles; increased affordability and convenience provided by mass production and the durability of clever materials. Today packaging plays an important role in reducing food waste, managing hazardous goods and protecting life-saving medicine. Plastic, in particular, serves its purpose producing lower life-cycle impacts, albeit at the expenses of the more obvious and deleterious effect of litter.

However, packaging is primarily made from finite resources. And it is obvious to all, despite all the great qualities of these products, the way we manage them at the end-of-life has poor environmental outcomes on land and in our oceans - which must be remedied.

The 2025 National Packaging Targets (2025 Targets) set the ambition for all Australians to choose a sustainable pathway for our future. The 2025 Targets clearly articulate a set of objectives to improve the sustainability outcomes for all product packaging placed onto the Australian market by 2025:

- 100% reusable, recyclable or compostable packaging
- 70% of plastic packaging being recycled or composted
- 50% of average recycled content included in packaging
- The phase out of problematic and unnecessary single-use plastics packaging.

This document, Our Packaging Future, sets out the collective impact framework (see Figure 1) necessary to deliver the 2025 Targets, focusing on three key outcomes:

1. Packaging designed for circularity
2. Improved collection and recycling systems
3. Expanded markets for used packaging

Driving these outcomes is a series of interdependent strategies co-designed by key stakeholders within the packaging value chain.

Each strategy will be achieved through actions that:

- APCO Members are committed to deliver,
- key stakeholders in the packaging value chain will need to implement,
- governments will need to support with targeted funding, system adjustments and appropriate policy settings.

The outcomes, strategies and actions identified from the framework to achieve the 2025 National Packaging Targets are:

- providing the ambition for Australia through the 2025 Targets,
- recognising the areas that will deliver real change through the transition period by working on the identified opportunities,
- enabling decisive action by stakeholders across the packaging value chain through the actions identified within each strategy.

Successful collective impact is dependent on all stakeholders within a system taking coordinated action to deliver real change and impact. To do this

effectively, it is essential to understand the system in which stakeholders operate. In Australia, there are approximately 5.5 million tonnes of packaging material placed on the market annually, and just 49% ends up as recovered, recycled material suitable to be used in another application. Importantly, 88% of that 5.5 million tonnes is recyclable, yet it is not being recycled and is, instead, ending up in either landfill, or as litter on land and in our oceans. Acknowledging these inefficiencies in the system is fundamental to identifying and agreeing those barriers that will, unless rectified, prevent us from meeting the 2025 Targets.

Our Packaging Future is a call to action to all stakeholders in the packaging ecosystem to thoughtfully and collectively determine how they can contribute to the achievement of the vision for our packaging future in Australia. How they can work collaboratively to identify the things that are working to improve the system, to stop doing the things that negatively impact the system, and begin to do the necessary things to implement a significant and sustainable system that is cost effective and world leading in terms of government and community impact, job creation and economic growth.

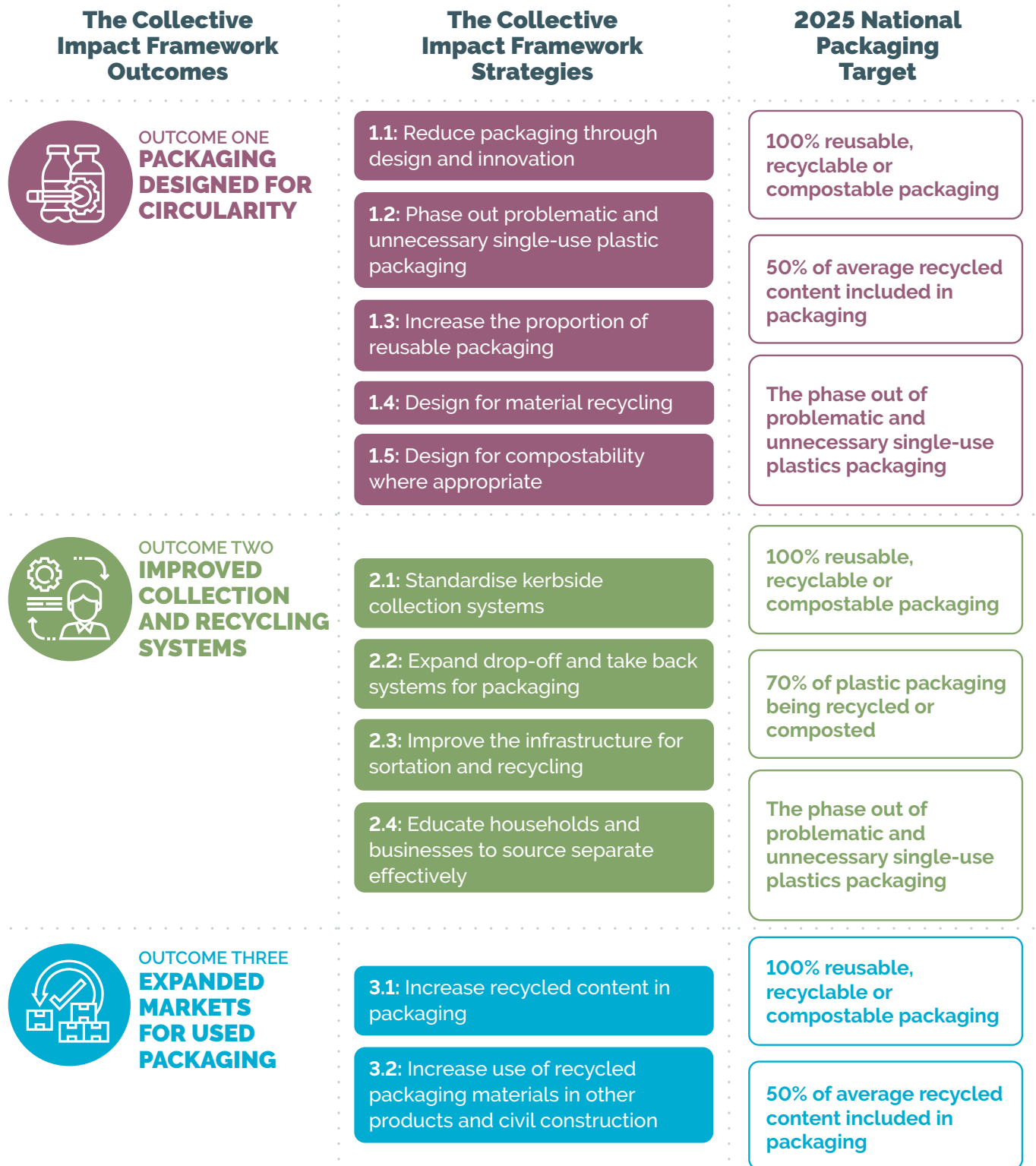| The Collective Impact Framework Outcomes	The Collective Impact Framework Strategies	2025 National Packaging Target
OUTCOME ONE **PACKAGING DESIGNED FOR CIRCULARITY**	**1.1**: Reduce packaging through design and innovation	**100% reusable, recyclable or compostable packaging**
	1.2: Phase out problematic and unnecessary single-use plastic packaging	**50% of average recycled content included in packaging**
	1.3: Increase the proportion of reusable packaging	**The phase out of problematic and unnecessary single-use plastics packaging**
	1.4: Design for material recycling	
	1.5: Design for compostability where appropriate	
OUTCOME TWO **IMPROVED COLLECTION AND RECYCLING SYSTEMS**	**2.1**: Standardise kerbside collection systems	**100% reusable, recyclable or compostable packaging**
	2.2: Expand drop-off and take back systems for packaging	**70% of plastic packaging being recycled or composted**
	2.3: Improve the infrastructure for sortation and recycling	**The phase out of problematic and unnecessary single-use plastics packaging**
	2.4: Educate households and businesses to source separate effectively	
OUTCOME THREE **EXPANDED MARKETS FOR USED PACKAGING**	**3.1**: Increase recycled content in packaging	**100% reusable, recyclable or compostable packaging**
	3.2: Increase use of recycled packaging materials in other products and civil construction	**50% of average recycled content included in packaging**

Figure 1: *The collective impact framework to achieve the 2025 National Packaging Targets*

Click on the above Outcome or Strategy to go directly to that section of the document

1.0 Packaging Today

Purpose

The Australian 2025 National Packaging Targets (2025 Targets), shown in Figure 2, provide a clear mandate to deliver a new sustainable pathway for packaging in Australia. The 2025 Targets will be achieved by APCO Members working in collaboration with all stakeholders involved in designing, managing and governing the packaging supply chain in Australia. The three key outcomes and interdependent strategies identified in this document form the Collective Impact Framework to ensure all stakeholders plan and make the necessary adjustments to meet the 2025 timeline. The Collective Impact Framework will underpin strategic planning, projects and stakeholder engagement out to 2025 and beyond.

100%
of packaging to be reusable, recyclable or compostable

70%
of plastic packaging recycled or composted

2025 National Packaging Targets

50%
average recycled content across all packaging

Phase Out
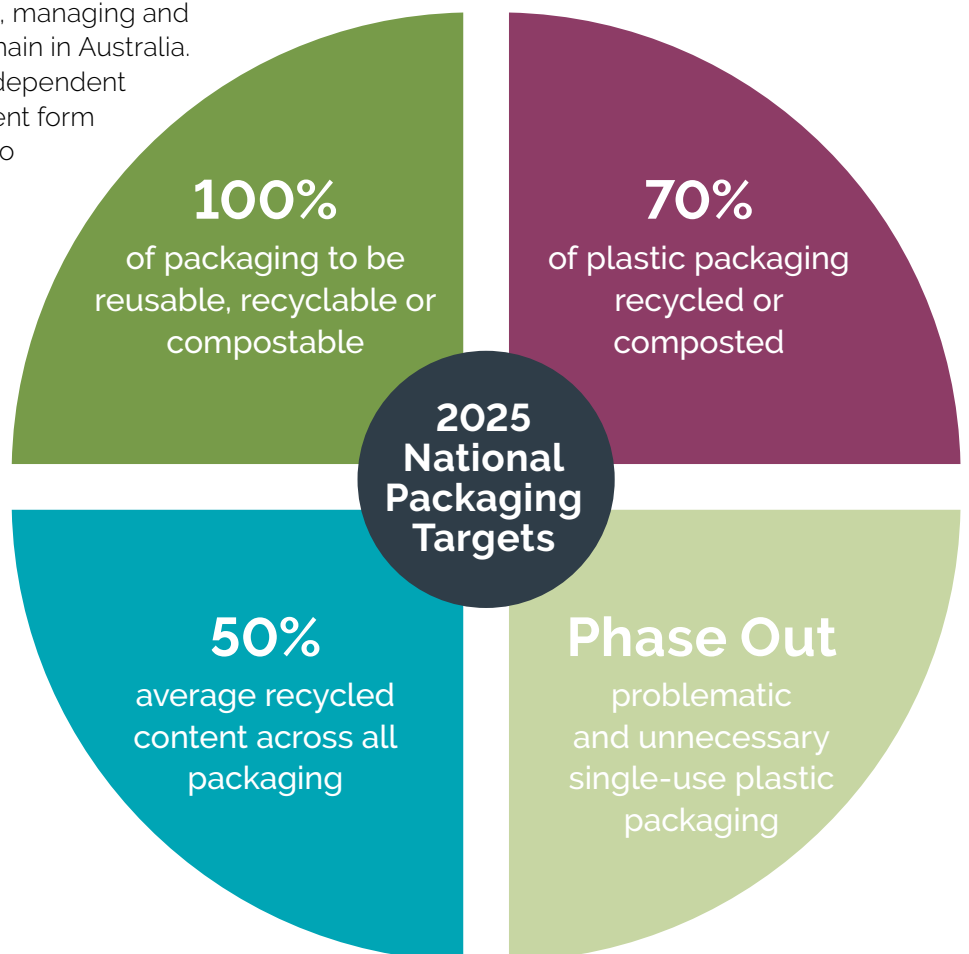problematic and unnecessary single-use plastic packaging

Figure 2: The 2025 National Packaging Targets

Australia's packaging ecosystem

The Australian packaging ecosystem is large and complex. The achievement of a sustainable packaging ecosystem will depend on contributions from key stakeholders with varying roles and levels of influence:

- **Brand Owners in Australia** should satisfy the obligations of the National Environment Protection (Used Packaging Materials) Measure 2011 (NEPM). The industry preferred pathway to meet these obligations is by becoming a Signatory to the Australian Packaging Covenant/Member of APCO. APCO Membership captures approximately 75% of Australia's packaging market share.

- **Local governments** provide waste and recycling services and public education, and support end-markets through their procurement activities. The municipal recycling system is based on individual decisions by over 500 local councils who contract the waste and recycling services available to the public. This controls how packaging collections will be managed and which types of packaging will be collected for recycling, directly influencing the end-of-life of these materials. Councils can reorientate their engagement to provide advice to both community and businesses on eliminating, reusing and recycling packaging.

- **Businesses** and organisations support packaging circularity and sustainability through procurement of recycled products, decisions about the packaging to avoid, reduce and reuse, and the systems established for waste collection or recycling. This may include speciality collections for source separated cardboard or plastic, or commingled collections.

- **Consumers** (individuals) support packaging circularity and sustainability through their purchasing choices (for example by choosing products that carry the Australasian Recycling Label (ARL)) and correct source separation of recyclables. The collection of packaging fit for reuse and recycling relies on the separation systems we participate in. These systems are fundamentally impacted by the individual decisions of eight million households and more than two million businesses[1] that choose how to dispose of each item after use[2]. By disposing of their packaging correctly, consumers from

both households and businesses eliminate contamination of recyclables and ensure valuable resources are kept within the system and not lost to landfill.

- **Collectors** provide businesses and councils with collection bins, transport for reuse schemes, and speciality and commingled packaging recycling collections. They are the conduit for suppliers, material sorters and reprocessors. The handling of materials during this process can affect the quality of material received by sorters and reprocessors, for example excessive compaction or mixing source separated materials.

- **Sorters** aggregate and sort specific materials using a range of equipment and technologies to achieve the highest potential value for their secondary reprocessing markets locally and overseas.

- **Reprocessors** treat materials from sorters to create recycled materials and/or products that meet the specifications of manufacturers in Australia and overseas. Reprocessors' equipment and technologies determine the quality of recycled material available for use in packaging and products, reducing the reliance on virgin materials and improving the circularity of the Earth's scarce resources.

- **Governments** at the federal, state, territory and local levels establish policy goals and financial, regulatory and material standards to protect the environment and ensure community safety. They also have potential to expand markets for recycled products significantly through procurement targets, specifications in tenders and operations that provide the incentive for reprocessors to invest in additional facilities. Another important role is their investment planning and facilitation for resource recovery facilities.

[1] Australian Bureau of Statistics, 2017. 2016 Census QuickStats: Dwellings – dwelling structure. Available at:
https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/036
[2] Australian Bureau of Statistics, 2019. Counts of Australian Businesses, including Entries and Exits, June 2014 to June 2018. Available at:
https://www.abs.gov.au/ausstats/abs@.nsf/mediareleasesbytitle/950EC94DB899312ECA2573B00017B8F4

Achieving the 2025 Targets in a system of such complexity presents both challenges and opportunities for all stakeholders, and requires action across the whole packaging value chain. Examples of the activities of stakeholders within the packaging value chain are provided in Figure 3.

Figure 3: Activities and stakeholders in the packaging value chain

2.0 Our Packaging Future

A vision for Australia's packaging future

Our Packaging Future is based on an overarching vision where packaging exists and operates in a circular economy. This will require fundamental changes in the way that packaging is manufactured, used, collected and reprocessed into new packaging or products. Figure 5 provides an overview of the various stages of activity within the value chain, the current status of each activity and the vision for its future state.
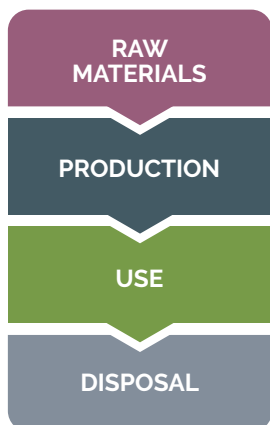
The whole packaging value chain collaborates to keep packaging materials out of landfill and maximise the circular value of the materials, energy and labour within the local economy.

Transitioning to a circular economy

Achieving the 2025 Targets is an important step on the pathway to a circular economy. It will help to shift the linear economy to an efficient and effective reuse and recycling economy, before embracing the final transition to a circular economy that focuses on the redesign of materials and products as well as effective recycling systems for packaging. This transition is illustrated in Figure 4.

LINEAR ECONOMY

RAW MATERIALS

PRODUCTION

USE

DISPOSAL

RECYCLING ECONOMY

RAW MATERIALS

RECYCLING

PRODUCTION

USE

DISPOSAL

CIRCULAR ECONOMY

RAW MATERIALS

PRODUCTION

RECYCLING

USE

Figure 4: *The transition to a circular economy[3]*

[3] Based on Downes, J., 2018. The Conversation: The planned national waste policy won't deliver a truly circular economy. Available at: https://theconversation.com/the-planned-national-waste-policy-wont-deliver-a-truly-circular-economy-103908

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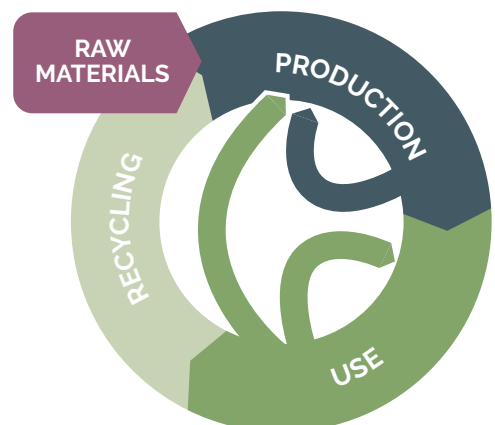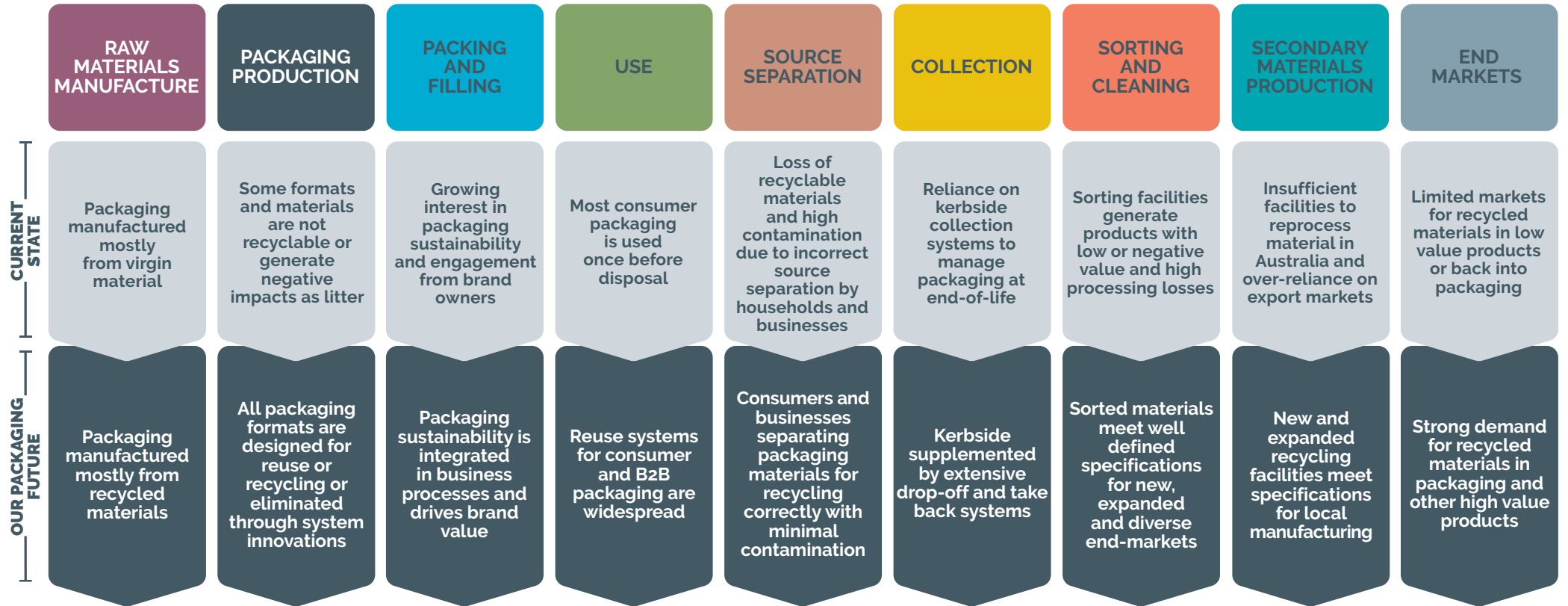|	RAW MATERIALS MANUFACTURE	PACKAGING PRODUCTION	PACKING AND FILLING	USE	SOURCE SEPARATION	COLLECTION	SORTING AND CLEANING	SECONDARY MATERIALS PRODUCTION	END MARKETS
CURRENT STATE	Packaging manufactured mostly from virgin material	Some formats and materials are not recyclable or generate negative impacts as litter	Growing interest in packaging sustainability and engagement from brand owners	Most consumer packaging is used once before disposal	Loss of recyclable materials and high contamination due to incorrect source separation by households and businesses	Reliance on kerbside collection systems to manage packaging at end-of-life	Sorting facilities generate products with low or negative value and high processing losses	Insufficient facilities to reprocess material in Australia and over-reliance on export markets	Limited markets for recycled materials in low value products or back into packaging
OUR PACKAGING FUTURE	Packaging manufactured mostly from recycled materials	All packaging formats are designed for reuse or recycling or eliminated through system innovations	Packaging sustainability is integrated in business processes and drives brand value	Reuse systems for consumer and B2B packaging are widespread	Consumers and businesses separating packaging materials for recycling correctly with minimal contamination	Kerbside supplemented by extensive drop-off and take back systems	Sorted materials meet well defined specifications for new, expanded and diverse end-markets	New and expanded recycling facilities meet specifications for local manufacturing	Strong demand for recycled materials in packaging and other high value products

Figure 5: *Transforming the packaging value chain*

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The Collective Impact Framework

Considering the complex packaging value chain, it is vital that stakeholders from different sectors commit to a common agenda to address this complex social, economic and environmental issue; stakeholders cannot work in isolation to solve these problems. The Collective Impact Framework is embedded in the operational activities of APCO through the Collective Impact model. This model is a structured approach to problem-solving that consists of five core criteria:

1. **Common Agenda:**
   All participants have a shared vision for change, including a common understanding of the problem and a joint approach to solving it through agreed actions.
   - **APCO:** Achieving the 2025 National Packaging Targets is Australia's common agenda.

2. **Continuous Communication:**
   Consistent and open communication is needed across the many players to build trust, assure mutual objectives, and create common motivation.
   - **APCO:** Continuous communication is achieved through advisory groups and the Collective Action Group which drive transparency and shared communication.

3. **Backbone Function:**
   Creating and managing Collective Impact requires dedicated staff with specific skills to co-ordinate participating organisations and agencies.
   - **APCO:** The co-ordinating (backbone) organisation for the delivery of the 2025 National Packaging Targets.

4. **Mutually Reinforcing Activities:**
   Participant activities must be differentiated while still being co-ordinated through a mutually reinforcing plan of action.
   - **APCO:** Activities are mutually reinforced through collaborative projects and strategically aligned activities across the packaging value chain.

5. **Shared Measurement System:**
   Collecting data and measuring results consistently across all participants ensures that efforts remain aligned and participants hold each other accountable.[4]
   - **APCO:** Shared research and benchmarking allows the consistent measurement of progress toward the 2025 National Packaging Targets.

[4] Preskill, H., Parkhurst, M. & Juster, J.S., 2014. Guide to Evaluation Collective Impact: Learning and evaluation in the collective impact context. Available at: https://www.fsg.org/publications/guide-evaluating-collective-impact

Progress towards the 2025 Targets

The benchmark data collected in 2019 and 2020 shows that Australia is making progress towards the 2025 Targets, as shown in Figure 6. The 100% Target and the Phase Out Target are on track for successful delivery by 2025.

Australia has performed beyond expectations against the 30% Recycled Content Target. Analysis shows that the average recycled content across all packaging is 35% and identifies a significant disparity in the performance of the various material streams across paper, metal, glass and plastic. Plastic is at a particularly low level of only 2% recycled content.

After completion of this data analysis in 2019 and 2020, key stakeholders from government and industry participated in a consultation process to review and identify a new recycled content target. The National Packaging Target has been updated to reflect that new ambition; 50% average recycled content will be included across all packaging by 2025.

The remaining target for 70% of Australia's plastic packaging to be recycled or composted by 2025 will require a significant investment in domestic recycling infrastructure.
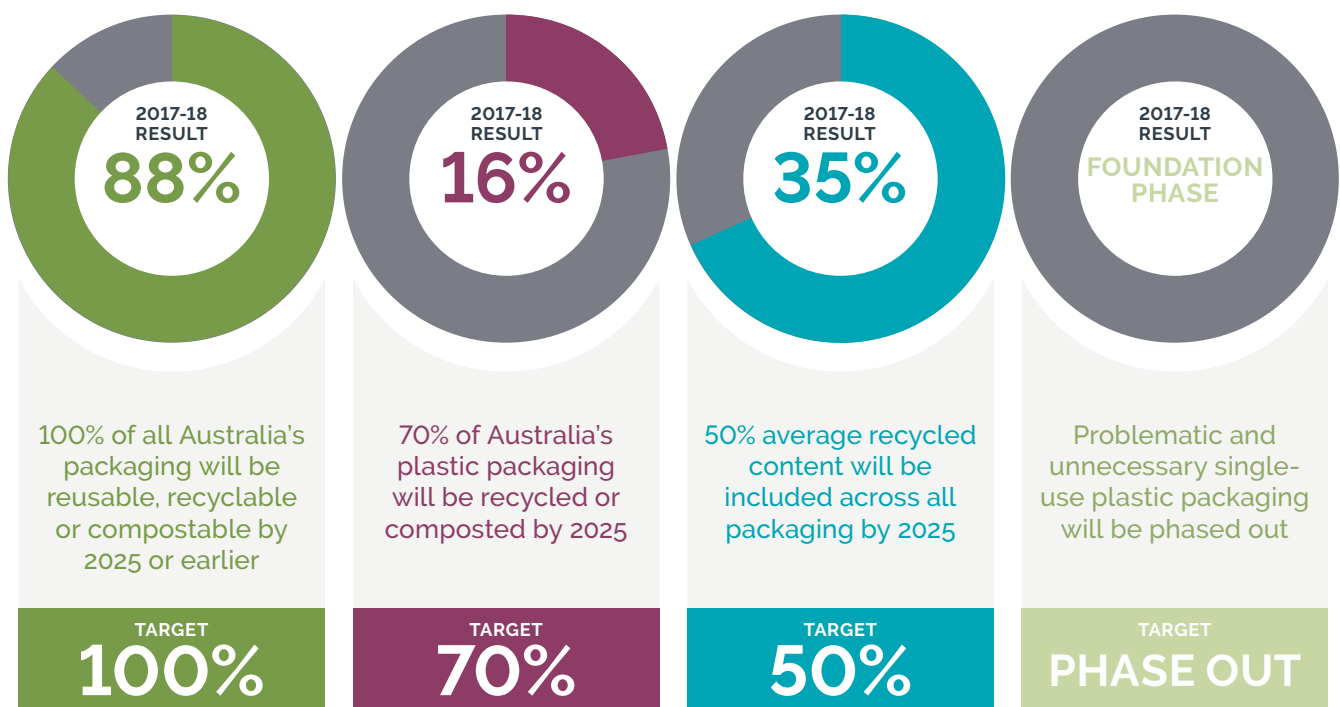

2017-18 RESULT 88% — 100% of all Australia's packaging will be reusable, recyclable or compostable by 2025 or earlier — **TARGET 100%**

2017-18 RESULT 16% — 70% of Australia's plastic packaging will be recycled or composted by 2025 — **TARGET 70%**

2017-18 RESULT 35% — 50% average recycled content will be included across all packaging by 2025 — **TARGET 50%**

2017-18 RESULT FOUNDATION PHASE — Problematic and unnecessary single-use plastic packaging will be phased out — **TARGET PHASE OUT**

Figure 6: Progress Results for the 2025 National Packaging Targets

Each Opportunity relates to one or more Strategy - click on the boxes to read more.

Opportunities for our packaging future

Packaging material flow data, infrastructure mapping and economic analysis completed by APCO in 2019 and 2020 identified a range of systemic challenges and opportunities. Insights were coalesced during stakeholder consultations in 2019 and 2020 to characterise the key outcomes and strategies that provide the foundation for the Collective Impact Framework in Section 3.0, and the opportunities detailed here.

Opportunity 1: Implement reuse models

Reusable packaging provides a more circular solution than recycling by keeping packaging in use for a longer period of time before it reaches end-of-life.

Reusable packaging formats such as shipping pallets, fresh produce crates and bulk bins are already widely used in business supply chains. Consumer applications such as reusable hot and cold drink cups and refillable food containers are also becoming more popular for food service and specialty stores.

Packaging reuse systems will play an important role across business-to-business (B2B) and consumer applications, and further development and collaboration is required to assess the opportunities for reusable packaging across different sectors. Commercial viability, costs to consumers and life-cycle analysis of reuse options need to be considered to determine if the total benefits to society (environmental, economic and social) exceed the costs.

SEE STRATEGY 1.3

Opportunity 2: Improve recyclability through redesign and system changes

Recyclability is impacted by a range of factors such as format, composition and colour, as well as insufficient collection systems, sorting and reprocessing. A suite of actions is required to improve recyclability, including reduction and redesign (for example to reduce complexity) of packaging, and new and improved recovery systems.

These required actions provide scope for interventions that will present new business opportunities, economic growth and job creation to support improved recovery systems.

SEE STRATEGY 1.4

Opportunity 3: Address significant losses in the recovery chain

Design for recycling is necessary, yet insufficient to deliver significant increases in recovery rates due to other losses throughout the packaging supply chain. Losses may include materials not collected, disposed of incorrectly or lost within the recovery process, that end up in landfill due to breakage, contamination or incorrect sorting.

A Material Flow Analysis (MFA) commissioned by APCO in 2019 shows the most significant losses of materials within the system are:

- **Source separation by households and businesses** - with 28% of packaging being incorrectly disposed of in the wrong bin or directly disposed to landfill, either due to lack of access to collection, insufficient financial incentive (for example where recycling costs more than disposal), or inaccurate disposal practices;

- **Sorting facilities** – Material Recovery Facilities (MRFs) and secondary reprocessors lose approximately 20% of incoming materials due to contamination, breakage or sorting technology constraints.

As shown in Figure 7, of the 5.5 million tonnes of packaging placed on the market in 2017-18:

- 4.8 million tonnes is recyclable
- 3.3 million tonnes are collected for recycling
- 2.7 million tonnes is recycled into products

5.4 million tonnes
PLACED ON THE MARKET

4.8 million tonnes
PACKAGING THAT IS RECYCLABLE

12%
NOT RECYCLABLE BY DESIGN

3.3 million tonnes
PACKAGING COLLECTED FOR RECYCLING

32%
NOT COLLECTED FOR RECYCLING

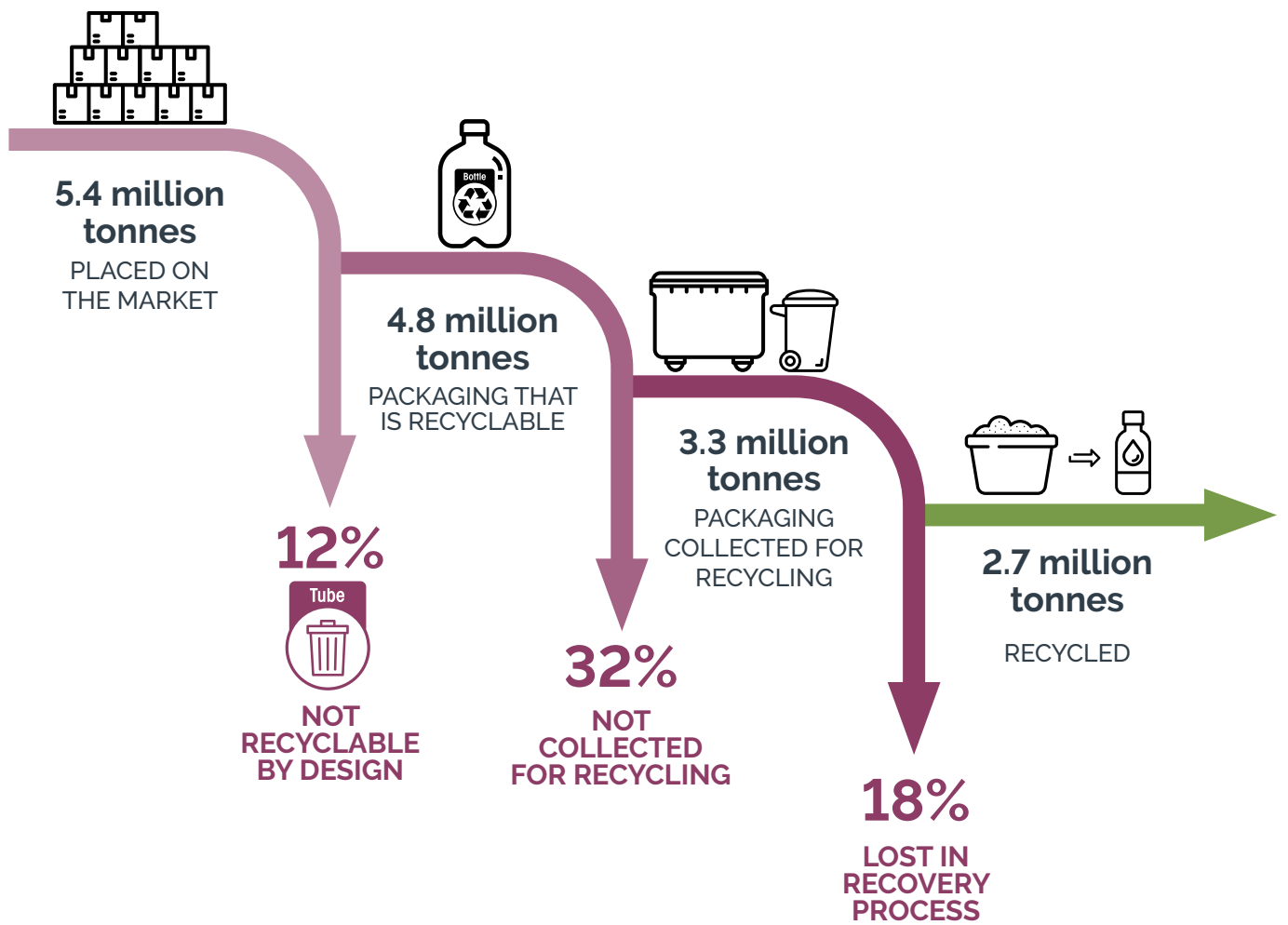**2.7 million tonnes**
RECYCLED

18%
LOST IN RECOVERY PROCESS

Figure 7: Packaging losses through the packaging recovery system, 2017-2018.

These figures highlight the significant gap between the percentage of packaging that is 'recyclable' through current systems (88%) and the percentage that is actually collected, sorted and reprocessed back into usable products (49%). These losses in the system can be reduced through more extensive and consistent education on recyclability to increase the collection of recyclable materials, infrastructure investments to reduce sorting and processing losses, as well as increasing access to and use of separate collections for reuse and recovery of quality materials.

SEE STRATEGY 2.1   SEE STRATEGY 2.2

SEE STRATEGY 2.3   SEE STRATEGY 2.4

Opportunity 4: Overcome risks to the current recycling system

Approximately 2.67 million tonnes of post-consumer packaging, or 49% of packaging put onto the market, was recovered in Australia in financial year 2017-18. By material, recovery estimates range from a low of 16% for plastics, up to 46% for glass, 48% for metals and 63% for paper and paperboard. Recovery is estimated at the out-going gate of the secondary processing facility for the used packaging. This means that an estimated 2.78 million tonnes of valuable resources were disposed to landfill.

There are many reasons for this gap between design, collection and recovery, including a low level of awareness of recyclability and collection service options amongst many consumers, limited availability or cost of collection services for businesses and other organisations, and limited incentives for development of new services for reuse and recovery.

The recycling system is facing significant risks that need to be addressed through a collaborative and strategic approach. Current pressures on the waste and recycling industry include:

- Increasingly limited end-markets as a result of contamination restrictions imposed on the import of waste materials by China, Malaysia, Indonesia and other countries.[5] Most MRFs are unable to meet the specifications for mixed paper and mixed plastics in these markets.

- Stockpiling of materials while new markets are identified or developed, particularly for mixed materials and glass fines. An estimated 200,000–300,000 tonnes of kerbside recyclables were in storage in Melbourne at the end of 2019.[6] These stockpiles increase the risk of fires and are therefore subject to strict regulations.

- Closures of MRFs in 2019 have reduced capacity and caused temporary stockpiling or disposal of recyclables to landfill. This level of sensitivity to market changes presents a heightened, systemic risk. Strategic, remedial measures must be considered to ensure a robust and resilient recycling system that is agile enough to respond to changing market conditions.

- Incoming export bans (in 2020-21) will again tighten the current system's functionality. Although the bans support the principles of the circular transition in driving domestic reprocessing and end-markets, the short term could see recyclables that are unable to be processed.

MRFs in particular are facing significant challenges including highly contaminated inputs from commingled collections, fixed contracts with local government and prices of recycled materials linked to price volatility of virgin materials.

There is strong community support for increased recycling and local processing of recyclables instead of exporting. Further support, including education to reduce contamination and strong market development for plastics, paper and glass is needed to build long-term financial sustainability into the system where the supply of materials is supported by market demand.

There is a significant opportunity for waste collection and recycling to be recognised as essential services that provide critical infrastructure requiring government oversight, strategic planning, collaborative action and significant investment to ensure that the system is sustainable for all stakeholders.

SEE STRATEGY 2.1   SEE STRATEGY 2.2

SEE STRATEGY 2.3   SEE STRATEGY 2.4

[5] Sustainability Victoria, 2020. Recovered resources market bulletin, January 2020. Available at: https://www.sustainability.vic.gov.au/Business/Investment-facilitation/Recovered-resources-market-bulletin
[6] Sustainability Victoria, 2019. Recovered resources market bulletin, December 2019. Available at: https://www.sustainability.vic.gov.au/Business/Investment-facilitation/Recovered-resources-market-bulletin

Opportunity 5: Find alternative models to address increased packaging consumption

Total packaging placed on the market (POM) in Australia is estimated at approximately 5.5 million tonnes. POM is defined as packaging that has been made available to the end-consumer (including business users), and covers imported and domestic, primary, secondary and tertiary packaging.

Current trends indicate that in the absence of major changes, packaging consumption will increase to 6.5 million tonnes by 2025, a 19% increase on 2017-18.

This is based on manufacturers' survey responses and assumes a constant growth rate each year.[7]

The projection for large increases in packaging consumption reinforces the opportunity to create reuse programs with greater volume capacity of material, with a focus on reduction as well as recycling.

SEE STRATEGY 1.1   SEE STRATEGY 1.2

Opportunity 6: Meet the challenge of the 70% target for plastic packaging

With a current plastics recycling rate of 16%, achieving the 2025 Target of 70% recovery of plastic packaging will require a significant capacity increase in domestic collection, sorting and reprocessing of this material. In 2017-18 only 39,000 tonnes of plastic packaging were processed in Australia, with the remaining 134,000 tonnes exported and therefore subject to export bans. The amount of plastic packaging placed on the market is expected to increase from just over one million tonnes in 2017-18 to 1.27 million tonnes by 2025.

APCO has modelled a range of scenarios to identify pathways to meet the 70% plastics recovery target by 2025.[8] The opportunities presented through the development of these pathways include major changes to packaging design, significant investment in new processing capacity in Australia and end-market development through recycled content in packaging and products.

If no action is taken to address the plastics issue, other than to implement the proposed export bans

and the current system is maintained, the recovery rate for plastic packaging will drop from the current 16% to 13% in 2025.

To achieve the 70% recovery target for plastic packaging by 2025, the system will need to have the following capacity by 2025:

- 80% recovery rate for rigid plastics

- 60% recovery rate for flexible plastics

- Domestic infrastructure capacity for reprocessing plastic packaging of 900,000 tonnes per year (a shortfall of around 740,000 tonnes compared to business as usual).

The additional required capacity will provide industry and governments with the necessary market demand to confidently expand domestic recycling capacity, driving economic and job growth.

SEE STRATEGY 1.4   SEE STRATEGY 2.1
SEE STRATEGY 2.2   SEE STRATEGY 2.3

[7] Envisage Works, 2019. Australian Packaging Consumption & Resource Recovery Data 2017-2018 Report. p.72. Available at: https://www.packagingcovenant.org.au/industry-resources
[8] Envisage Works, unpublished.

Opportunity 7: Focus on plastics collection, sortation and design

The complexity of packaging types has made sorting and secondary processing extremely challenging, particularly in plastics. In light of these challenges, businesses are making commitments to improve circular design and these must be accelerated. Rationalising polymers to PET, HDPE and PP, with the phase out of PVC, PS, EPS and unnecessarily complex composite materials will greatly improve recovery rates and efficiencies for reprocessing. Packaging materials considered to have poor recoverability are generally composites or 'uncommon' materials[9], including multi-material soft plastics, some forms of EPS, PS, PVC and PCPB.

Developing and expanding plastics collection, sorting and processing infrastructure, particularly for plastics from business sectors with clean, high volume streams is a priority. A greater focus on B2B packaging will capture more of the 350,000 tonnes of flexible plastics put onto the market each year, particularly LDPE and HDPE, as well as rigid HDPE packaging such as crates and trays.

The current major gap in the local secondary processing infrastructure is the capacity to sort, clean and process single polymer streams to a grade that can effectively compete with virgin resins, either in packaging or non-packaging applications.

With the lowest recycled content rate across all packaging at 2.2% by weight (compared with paper, metals and glass all in excess of 30%), increasing the recycled content of plastic is a priority. Of greatest focus should be polymers commonly used in rigid packaging applications that already have proven technical and economic feasibility, i.e. PET, HDPE and PP.

This priority focus from key stakeholders will deliver many occasions for industry to drive commercially sustainable growth in the recycled plastic packaging market in Australia.

SEE STRATEGY 1.4 **SEE STRATEGY 2.3**
SEE STRATEGY 3.1

Opportunity 8: Grow domestic end-markets

The last two decades have seen government policy and industry focused on increasing volume and lowering cost. Consequently, Australia's recycling systems have evolved to increasingly centralised facilities producing large quantities of low-quality material largely unsuitable for domestic processing and markets. This has seen a shift from a balance between domestic and international markets to a heavy reliance on international markets up until the introduction of China's import restrictions in 2018.

Australia's recovery systems have become highly dependent on export markets, with 46% of total recovered packaging materials exported in 2017-18, predominantly as baled materials from MRFs.

In terms of risks and exposure, Australia's metals recovery is almost entirely reliant on export markets. The highest risk is to steel-tin plate due to its lower commodity value and the lack of processing facilities in Australia. More than half (54%) of the recovered paper and approximately three quarters (77%) of recovered plastic packaging were also exported in 2017-18.

End-market availability and commodity value plays a major role in determining the feasibility of existing and new collection, sorting and processing systems. Recent closures of MRF businesses in Victoria, South Australia, New South Wales, Tasmania and Queensland illustrate the vulnerability of Australia's current kerbside recycling model and system.

The Federal Government's 2019 commitment to ban the export of low value plastic and paper adds greater urgency to the need for domestic market development, including through procurement and investment in new processing equipment and systems. The ban also escalates the risk of increased quantities going to landfill. The bans related to packaging will be introduced in several phases:[10]

- all waste glass by July 2020

- mixed waste plastics by July 2021

- remaining waste products, including mixed paper and cardboard, by no later than 30 June 2022.

[9] World Economic Forum and Ellen MacArthur Foundation, 2017. The New Plastics Economy – Catalysing Action. Available at: https://www.ellenmacarthurfoundation.org/publications/new-plastics-economy-catalysing-action
[10] Department of Agriculture, Water and the Environment, 2019. Banning exports of waste plastic, paper, glass and tyres – discussion paper. Available at: https://www.environment.gov.au/protection/waste-resource-recovery/coag-waste-export-ban-consultation

One of the keys to growth of domestic markets will be greater 'market pull' through both government and industry procurement specifications in tenders, as well as increased recycled content in packaging. By growing our domestic end-markets, Australia can lessen its dependency on volatile export markets which have led to significant business closures, losses of materials and a lack of trust in the system.

Finding viable and transparent markets must be a priority and requires commitments from both industry and government to collaboratively drive demand and invest in improved infrastructure.

SEE STRATEGY 2.3   SEE STRATEGY 3.1

SEE STRATEGY 3.2

Opportunity 9: Increase recycled content in packaging

In 2017-18, Australia's packaging was comprised of 35% (1.9 million tonnes) of recycled content from post-consumer sources. Most post-consumer material in packaging is from separate collections of cardboard, glass and plastics from commercial and industrial (C&I) sources, as well as from container deposit schemes.

As Australia has already met the original 30% recycled content target, a new all packaging average target of 50% has been co-developed with key stakeholders in

the packaging supply chain in order to drive increased demand and end-markets for post-consumer material collected in Australia. This increased target will encourage the use of an additional 1.3 million tonnes of material in packaging, from both local and imported sources. The increased use of post-consumer recycled content in packaging is fundamental for the circular economy and essential to ensure Australia meets the 2025 Targets.

SEE STRATEGY 3.1

Opportunity 10: Recycle packaging from the commercial and industrial (C&I) stream

Most B2B packaging is recyclable but many organisations do not have access to a recycling service or are failing to separate all of their recyclable packaging for collection.

There is incomplete data on packaging waste generated and recovered from the C&I and construction and demolition (C&D) sectors, however the available data (Figure 8) suggests that these sectors represent a significant opportunity.
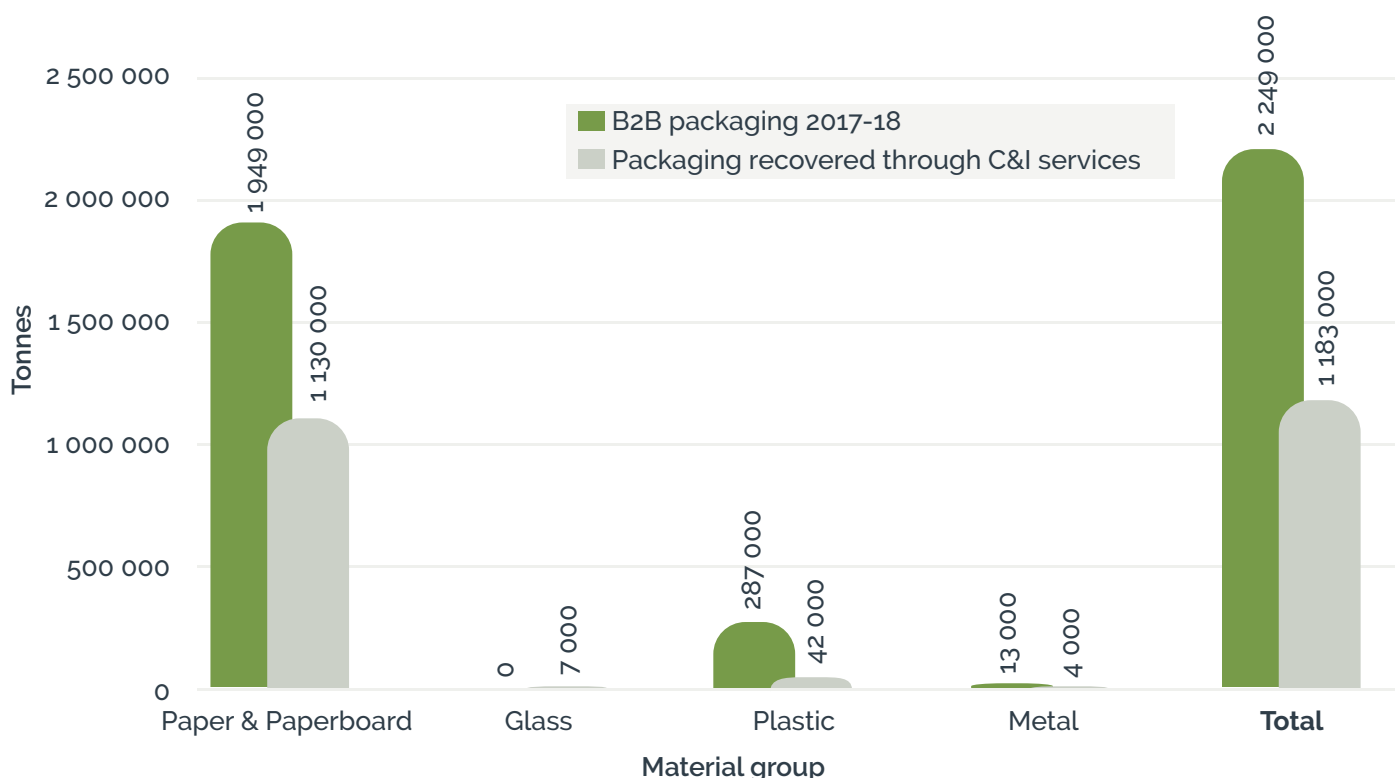

Figure 8: B2B packaging and recovery through C&I services

While over 2.2 million tonnes of B2B packaging were put onto the market in 2017-18, only around 1.2 million tonnes were collected for recycling through commercial services.

Some of the significant losses of recyclable material in the packaging system are from the C&I sector. It has been estimated, that approximately 550,000 tonnes of corrugated cardboard are disposed directly to landfill after use, and a large proportion of this is likely to be cardboard boxes used in retail distribution. This provides an ideal opportunity for industry and government to work together to identify the appropriate interventions to ensure recyclable material collected within the system is actually recycled and reprocessed.

SEE STRATEGY 2.2   SEE STRATEGY 2.3

Opportunity 11: Scale up soft plastics recycling

At approximately 449,000 tonnes, soft plastics represent approximately a third of all plastic packaging placed on the market. Approximately 29,000 tonnes (6%) were recycled in 2017-18[11]. Most of the recovered material was LDPE film recovered from B2B applications, supplemented by consumer retail drop-offs (such as REDcycle) and a small number of councils collecting through kerbside systems.

Developing a circular economy for soft plastics is hampered by the material's diversity, complexity, single-use nature and low market value. Multi-material layered composites have been developed to protect and extend the shelf life of specialty products like meat and dairy, however, these functional requirements pose challenges for reprocessors. Phasing out or redesigning problematic formats is an important part of the solution with significant research and development required to design mono-material structures that deliver similar functions and avoid perverse outcomes such as food waste or compromised product safety.

Kerbside collection of soft plastics can cause significant processing problems at MRFs, including entanglement in machinery; further analysis of its operational impact is required. Additional research is essential to determine the most effective and efficient way to collect greater volumes of soft plastics, including expanded drop-off systems. Any additional collections would need to be implemented in conjunction with an end-market demand solution. A higher priority is to increase collection of clean pallet wrap, shrink wrap and other flexible plastics from commercial and industrial sources where commercial value already exists.

Market development for end-of-life packaging is also critical. This requires further analysis to determine which types of materials are suitable for recycling back into packaging or other products. The use of soft plastics in road base, for example, is estimated to achieve a net benefit of $130 per tonne[12] and may be a useful interim solution. Chemical recovery and other alternative technologies may provide longer-term end-markets, once the collection and recovery infrastructure are further developed.

SEE STRATEGY 1.4   SEE STRATEGY 2.2
SEE STRATEGY 2.3   SEE STRATEGY 3.2

[11] Envisage Works, 2019.
[12] The CIE & APC, unpublished. Alternative packaging collection systems and end markets – Economic Analysis of options.

Opportunity 12: Increase recycling education

Consumers are a vital part of the packaging system and the decisions they make have a significant impact on recovery rates. Recent research found the greatest loss of material occurs at the source, with households and businesses disposing of approximately 2.2 million tonnes of packaging to landfill.[13] Much of this material incorrectly disposed at source is considered highly recyclable, including 551,000 tonnes of corrugated cardboard, over 300,000 tonnes of glass and 70,000 tonnes of PET packaging (Figure 9).

Many consumers and other waste generators are confused about which packaging is recyclable and which is not.[14] Consumer education and awareness campaigns, consistent services (bin colours and collected materials), feedback to households on bin contents via audits and truck cameras, as well as nationally consistent labelling via the Australasian Recycling Label (ARL) will be critical to reduce losses.
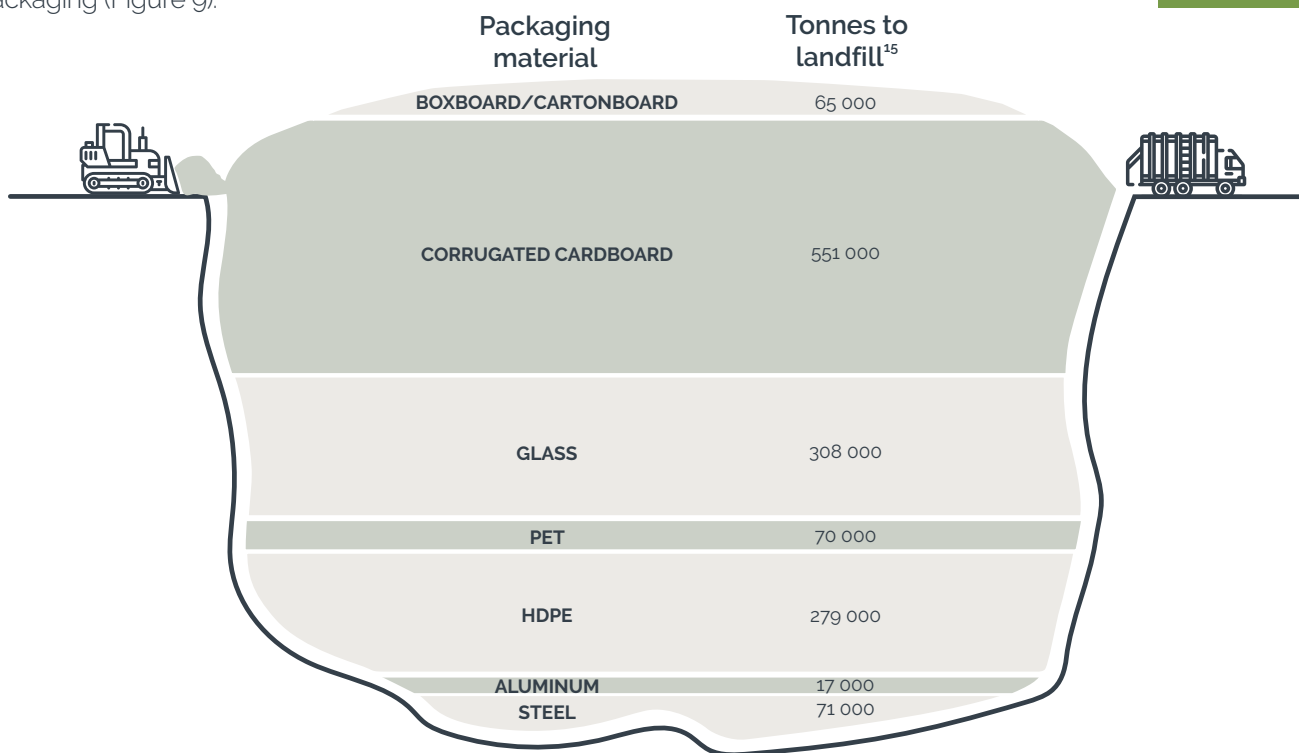
SEE STRATEGY 2.4

Packaging material	Tonnes to landfill[15]
BOXBOARD/CARTONBOARD	65 000
CORRUGATED CARDBOARD	551 000
GLASS	308 000
PET	70 000
HDPE	279 000
ALUMINUM	17 000
STEEL	71 000

Figure 9: Tonnes of packaging to landfill in 2017-18

Opportunity 13: Increase glass recovery

Separate glass collection systems from kerbside and/or street based drop off bins, and extension of container deposit schemes to include more sources of glass packaging, could improve recycling outcomes for glass and remove contamination from other kerbside streams, particularly paper and cardboard.

Source separated glass streams could be accommodated through additional or expanded beneficiation plants, which remove contaminants and prepare glass for end-markets. Crushed glass may be cost-competitive with virgin sand in regional areas and is likely to have a net benefit in civil construction projects.

Glass, mixed paper and mixed plastics have the weakest reprocessing value under current MRF sorting processes. There are significant sorting losses for glass owing to breakage and crushing during collection.[15] Reducing compaction rates and removing glass from commingled collections would reduce losses.

MRFs that accept all materials are no longer universal. A new MRF established by Australian Paper Recovery in Victoria now only accepts material from councils that have introduced a 'glass out' strategy for commingled bins. This alternative approach to conventional sorting could theoretically see cleaner and higher value streams for other packaging materials, primarily paper and cardboard.

SEE STRATEGY 2.1   SEE STRATEGY 2.2

SEE STRATEGY 2.3

[13] Institute for Sustainable Futures (ISF), in Envisage Works, 2019. pp. 57-73
[14] Pollinate, unpublished. The Australasian Recycling Label. Report to Planet Ark.
[15] Institute for Sustainable Futures (ISF), in Envisage Works, 2019. Pp. 57-73

Opportunity 14: Use compostable packaging only where it supports the recovery of food waste and food-contaminated packaging

Food waste accounts for 30-40% of residual waste disposed by households[16], and contributes to greenhouse gas (GHG) emissions as it breaks down in landfill. Compostable packaging has the potential to reduce waste and therefore GHG emissions by supporting the recovery of food waste from households and by facilitating recycling of food-contaminated packaging and food waste through an integrated organics recycling system.

Compostable packaging is currently a very minor packaging stream with approximately 1,000 tonnes of certified compostable plastics placed on the market in 2017-18.[17] In organics processing facilities, the throughput of compostable packaging is stated to be less than 0.3% of their input stream.[18]

Compostable packaging is considered a potentially important packaging solution in very specific applications, however its role and suitable applications require further research. Expanding the use of compostable packaging is expected to generate net costs of about $100 per tonne if collected from households, and $300 per tonne if collected away from home.[19] This is due to the relative expense of compostable materials compared to traditional materials and the low value of compost products.[20]

Investment is required in organics collection and processing facilities given the expectation that more packaging formats, particularly in food service applications, may be compostable in the future.

Collection from households would rely on the availability of Food Organics and Garden Organics (FOGO) collections, which may impose additional costs on local government and are not yet widely available throughout Australia.

In 2019 it was estimated that fewer than 3% of the Australian population had access to FOGO services, although this is expected to change in coming years. Even where there are FOGO services in place, commercial composting facilities may not accept compostable plastic packaging with these collected organics.[21]

Processing facilities would also need to be able to distinguish between certified compostable and non-compostable materials, particularly for plastics. If disposed of incorrectly, compostable and any other 'fragmentable' plastics have the potential to contaminate organics recycling as well as material recycling systems. These materials must be disposed to landfill.

Further development of FOGO collections and an appropriate labelling system supported by consumer education, could drive wider use of compostable packaging as part of a broader strategy to improve the recovery of food waste and food-contaminated packaging.

SEE STRATEGY 1.5   SEE STRATEGY 2.4

[16] Mason, L., Boyle, T., Fyfe, J., Smith, T., Cordell, D., 2011. National Food Waste Data Assessment: Final Report. Prepared for the Department of Sustainability, Environment, Water, Population and Communities, by the Institute for Sustainable Futures, University of Technology, Sydney. Available at: https://www.environment.gov.au/protection/waste-resource-recovery/publications/national-food-waste-assessment-final-report

[17] Envisage Works, 2019.

[18] Blue Environment, unpublished. Packaging collection, sorting and recycling infrastructure mapping.

[19] The CIE & APC, unpublished.

[20] The CIE & APC, unpublished.

[21] Blue Environment, unpublished.

3.0 The Collective Impact Framework to Achieve the 2025 Targets

The Collective Impact Framework identifies three key outcomes:

1. Packaging designed for circularity

2. Improved collection and recycling systems

3. Expanded markets for used packaging

Driving these outcomes is a series of interdependent strategies co-designed by key stakeholders within the packaging value chain (Figure 10).

Each strategy will be achieved through actions that both:

• APCO Members are committed to deliver,
• key stakeholders in the packaging value chain will need to implement,
• governments will need to support with targeted funding, system adjustments and appropriate policy settings.

Figure 11 shows how the delivery of these strategies impacts the entire packaging value chain and therefore requires action from all stakeholders. These actions are discussed below with reference to other activities already underway across industry and government that mutually reinforce progress towards the 2025 Targets.
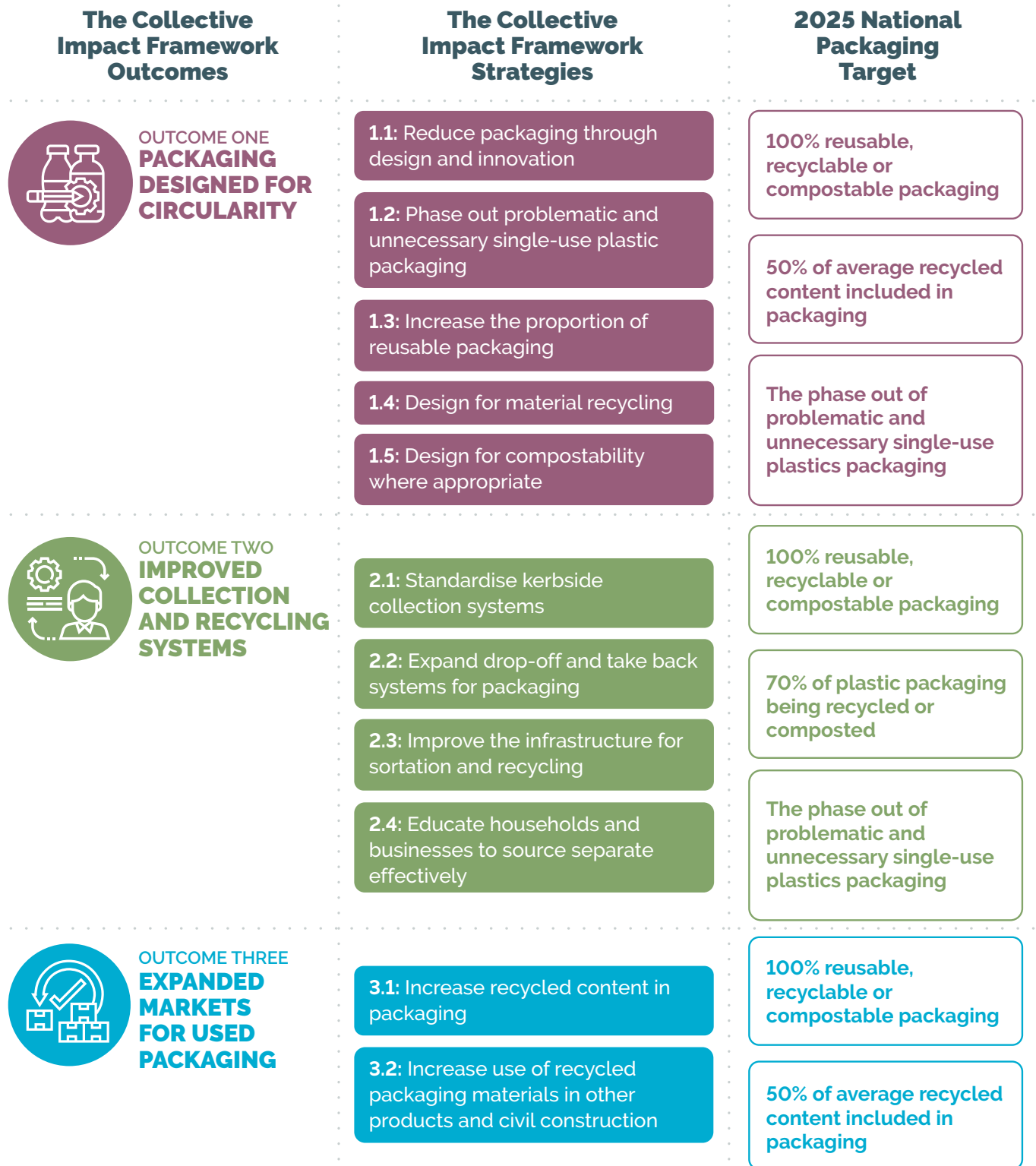
The Collective Impact Framework Outcomes	The Collective Impact Framework Strategies	2025 National Packaging Target
OUTCOME ONE **PACKAGING DESIGNED FOR CIRCULARITY**	**1.1**: Reduce packaging through design and innovation	**100% reusable, recyclable or compostable packaging**
	1.2: Phase out problematic and unnecessary single-use plastic packaging	**50% of average recycled content included in packaging**
	1.3: Increase the proportion of reusable packaging	**The phase out of problematic and unnecessary single-use plastics packaging**
	1.4: Design for material recycling	
	1.5: Design for compostability where appropriate	
OUTCOME TWO **IMPROVED COLLECTION AND RECYCLING SYSTEMS**	**2.1**: Standardise kerbside collection systems	**100% reusable, recyclable or compostable packaging**
	2.2: Expand drop-off and take back systems for packaging	**70% of plastic packaging being recycled or composted**
	2.3: Improve the infrastructure for sortation and recycling	**The phase out of problematic and unnecessary single-use plastics packaging**
	2.4: Educate households and businesses to source separate effectively	
OUTCOME THREE **EXPANDED MARKETS FOR USED PACKAGING**	**3.1**: Increase recycled content in packaging	**100% reusable, recyclable or compostable packaging**
	3.2: Increase use of recycled packaging materials in other products and civil construction	**50% of average recycled content included in packaging**

Figure 10: Summary of strategies to achieve the 2025 Targets in Australia

Click on the above Outcome or Strategy to go directly to that section of the document

Figure 11: The strategies address the key challenges and opportunities along the packaging value chain

APCO   24

OUTCOME ONE
PACKAGING DESIGNED FOR CIRCULARITY

Strategy 1.1
Reduce packaging through design and innovation

Many APCO Members have found opportunities to reduce the amount of material they use through careful evaluation of new and existing packaging using the Sustainable Packaging Guidelines (SPGs)[22]. Further action is required to reduce the total amount of packaging placed onto the market through:

- redesigned or improved business processes to ensure that all packaging has been optimised,
- new product delivery models that support reuse or eliminate unnecessary packaging.

This strategy aims to reduce packaging consumption at source by optimising the amount of packaging that is placed onto the market in the first place. This reduces environmental impacts at every stage of the life-cycle, from raw materials extraction through to processing, distribution and disposal or recycling. For example, a 5% reduction in material used across all packaging POM (through light-weighting, eliminating

unnecessary components, more efficient use of packaging in the supply chain and reuse) would eliminate over 250,000 tonnes of packaging and the associated life-cycle impacts.

There is, however, a need to recognise that reduction in packaging can result in product losses or damage. Packaging design and the choice of packaging materials need to be optimised to ensure the product is protected throughout distribution and storage.

Some trade-offs with recyclability, at least in the short term, may also need to be considered at the design stage. Over recent years, significant material reductions and life-cycle benefits have been achieved in the transition from rigid to flexible packaging formats. These changes have prompted a reappraisal of flexible packaging to reduce its complexity and continue progress towards mono-material structures.

APCO commitments

- Require and support all APCO Members to use the SPGs to improve their packaging, including reduction and optimisation.
- Run industry training courses on design for sustainability and the SPGs in collaboration with the Australian Institute of Packaging (AIP).
- Undertake detailed analysis of the 12% of packaging identified as currently not meeting the 100% reusable, recyclable or compostable 2025 Target, to identify opportunities for elimination, reduction or redesign.
- Provide updated design guidelines for Members on problematic formats and materials.
- Track reduction and optimisation of packaging by APCO Members through the APCO Annual Reporting Tool. All APCO Members are required to report how much of their packaging has achieved a reduction in material weight or has been optimised for material efficiency.
- Implement a National Consumer Education program in collaboration with Planet Ark and APCO Members, ensuring consistent, agreed messaging regarding recycling and reducing consumption.

Mutually reinforcing activities

- State and Territory Governments continue to enforce the NEPM for Used Packaging Materials to ensure all Brand Owners are actively working to reduce the environmental impact of their packaging.
- The National Waste Policy Action Plan includes a target to reduce total waste generation by 10% per person by 2030[23].
- The Western Australian Government is aiming to reduce waste generation per person by 20% by 2030.[24]
- The Tasmanian Government's Draft Waste Action Plan aims to reduce waste generated by 5% per person by 2025 and 10% by 2030[25].
- In 2020 the Australian Government delivered a Cooperative Research Centres Projects (CRC-P) round with priority funding for new and innovative solutions to plastics recycling and plastic waste reduction.
- The Victorian Government's *Recycling Victoria* policy includes a target to reduce waste generation by 15 per cent per capita by 2030. It also establishes business support grants - to foster innovation in design and materials use, and reduce waste.

[22] Australian Packaging Covenant Organisation, 2019a. Sustainable Packaging Guidelines. Available at: https://www.packagingcovenant.org.au/industry-resources
[23] Department of Environment and Energy, 2019. National Waste Policy Action Plan. Available at: https://www.environment.gov.au/protection/waste-resource-recovery/publications/national-waste-policy-action-plan
[24] Waste Authority – Western Australia Government, 2019. Waste Avoidance and Resource Recovery Strategy 2030. Available at: https://www.wasteauthority.wa.gov.au/publications/view/strategy/waste-avoidance-and-resource-recovery-strategy-2030
[25] Department of Primary Industries, Parks, Water and Environment, 2019. Draft Waste Action Plan. Available at: https://dpipwe.tas.gov.au/environmental-management/waste-action-plan

Packaging designed for circularity

Proof points

Sheridan optimises packaging

In 2018, Sheridan conducted a trial of a new, minimalist packaging format for its Austyn range of towels, sold through Sheridan Outlet stores.

The large cardboard insert previously used for packaging towels was replaced with a small, tear-away card which was incorporated into the towel seam during the manufacturing process. After purchase, the primary portion of the ticket is easily removed using a perforation built into the tag, while the residual component left beneath the stitching is designed to dissolve within three washes.

The response from customers was so positive that Sheridan has now committed to rolling out the new optimised packaging across their entire towel range, eliminating around 600,000 pieces of card and reducing the company's use of fibre-based packaging by 19 tonnes per year.

To complement this, Sheridan is progressively implementing the Australasian Recycling Label across all products to ensure that their customers are fully informed about the disposal pathways for all their packaging.

Campbell Arnott's redesigns Tim Tam's packaging

As part of a company-wide packaging review in 2018, Campbell Arnott's made a number of changes to the packaging of the iconic Tim Tam biscuits. The project demonstrates that significant improvements can be made to packaging sustainability without compromising product quality, through a few relatively simple changes. The key changes included:

- Reducing the number of inks used in printing from nine to four
- Switching the internal trays to a plastic accepted as recyclable through kerbside collection systems, rather than the previously used black plastics that were undetectable through MRFs
- Switching from imported, bleached corrugated cardboard to locally sourced, recycled content board, establishing an end-market for Australian recycled fibre packaging, and avoiding importing virgin materials
- Joining the REDcycle soft plastics recycling program to provide consumers with a collection option for recycling of the films used to wrap the biscuits.
- Implementing the Australasian Recycling Label to provide consumers with clear and consistent information on the correct disposal of all packaging components.

These changes led to substantial reductions in resource usage, including an 11-tonne reduction in inks annually, a 20% reduction in water and energy consumption and a 54% increase in the recovery of Arnott's branded soft packaging, up to 18 tonnes.

Packaging designed for circularity

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Promote updated SPGs to Members through APCO and AIP training	All APCO Members use the SPGs to reduce material usage (2020-2025)	APCO Members report an increase in packaging optimisation or reduction (2020-2025)
Develop the National Consumer Education Campaign on packaging (2020)	Implement the National Consumer Education Campaign in partnership with Members and key stakeholders to deliver consistent and agreed communication regarding recycling and reduced consumption (2020-2024)	
Analyse packaging that is not designed for the current system to identify opportunities for reduction, reuse and recycling.	All APCO Members actively work to phase out priority plastic packaging (2020-2025)	

Federal and state jurisdictions implement approaches to achieve targets of waste generation reduction.

KEY:	Green:	APCO Commitments
	Black:	Mutually reinforcing activities

Packaging designed
for circularity

Strategy 1.2
Phase out problematic and unnecessary single-use plastic packaging

Phasing out problematic and unnecessary single-use plastic packaging is essential to ensure that 100% of packaging is reusable, recyclable or compostable by 2025, and that 70% of all plastic packaging is recycled or composted.

A range of plastic items have been identified as priority items for phase-out through APCO's consultation process. While some of these items are not generally considered to be packaging, items such as straws and stirrers, cutlery, plates, cups and bowls are frequently combined with packaging and therefore cannot be excluded from the discussion or approach. Many of the priority items are used in the retail and food services sectors.

The fundamental aim is to achieve behavioural change away from single-use to durable, quality and reusable packaging. Substitution of one material for another, for example from polystyrene to compostable plastic, or from plastic to paperboard, is not the best solution. Through consultation, APCO has identified a number of packaging items and materials that are considered a priority for action, as well as a short list of materials that require further investigation (Figure 12).

These items are the focus of significant momentum in Australia and globally amongst industry, communities and governments to eliminate litter and improve the circularity of packaging. Some products or materials that are currently problematic could be redesigned to improve recyclability or may become recyclable in future as collection and recycling systems change. Others could be replaced with durable, reusable alternatives or eliminated altogether. The global New Plastics Economy strategy proposes strategies for small format packaging, multi-material formats, and 'uncommon materials' such as PVC and EPS, and nutrient-contaminated packaging[26].

The estimated volume of material that these identified items represent is approximately 85,000 tonnes[27]. Although this may seem relatively small, their impact in recycling streams, the litter stream and our natural environment are considered significant. Additional materials or packaging formats will be progressively reviewed to ensure all identified problematic and unnecessary single-use plastic packaging is phased out.

Eliminating or phasing out problematic and unnecessary single-use plastic packaging is likely to require both voluntary industry efforts such as standards and levies, and government policy initiatives. Single-use lightweight plastic shopping bags, for example, are already banned from use in all Australian jurisdictions.

PACKAGING TYPES	EXAMPLES	PRIORITY SOLUTIONS
FRAGMENTABLE PLASTICS Plastics with additives to accelerate fragmentation into smaller pieces, e.g. oxo-degradable bags		**ELIMINATE** remove from the system and utilise recyclable or certified compostable materials
EPS FOOD SERVICE Cups, clamshells, trays and other consumer packaging made from EPS		**REDESIGN** packaging formats, material types and/or delivery models
EPS LOOSE FILL Packing 'peanuts' or similar used to protect products in transport		**INNOVATE** materials and formats to deliver the same protective function
LIGHTWEIGHT PLASTIC BAGS Single-use bags under 35 micron		**REPLACE** actively explore reusable alternatives or elimination
UNCOMMON OR PROBLEMATIC MATERIALS Rigid PVC & PS, multi-material soft plastics, opaque PET, carbon black		**INVESTIGATE** actively explore the priority of addressing these materials

Figure 12: *Problematic and unnecessary single-use plastic packaging identified as a priority for phase out.*

26 World Economic Forum and Ellen MacArthur Foundation, 2017.
27 Envisage Works, unpublished.

APCO

Packaging designed for circularity

APCO commitments

- Require and support all APCO Members to use the SPGs to identify opportunities to phase out problematic and unnecessary single-use plastics.
- Undertake research on problematic packaging materials to identify current fates and design implications.
- Build on APCO's issues paper[28] to develop an action plan for phasing out priority items
- Support the actions of government jurisdictions to (where possible) achieve a nationally consistent approach to reducing problematic and unnecessary single-use plastics through regulation or policy.
- Facilitate industry training courses on design for sustainability and the SPGs in collaboration with the AIP.
- Work with the Queensland Department of Environment and Science (DES), the National Retail Association and retailers to develop a voluntary sustainable shopping bag code of practice[29].
- Work with Boomerang Alliance and participating governments to deliver the Plastic Free Places program.
- Promote APCO's Food Service Packaging Sustainability Guidelines and other existing resources to targeted stakeholders[30].
- Develop collaborative projects in priority sectors including food services and tourism, to phase out problematic and unnecessary packaging.

Mutually reinforcing activities

- The National Waste Policy Action Plan includes a target to phase out problematic and unnecessary plastics by 2025[31].
- State and Territory governments have identified priority single-use plastic items for regulation or other interventions such as procurement requirements and certifications to reinforce actions by industry.
- Many jurisdictions have already banned single-use plastic shopping bags. The Victorian Government ban includes conventional and compostable and degradable plastics, and legislation allows for regulatory inclusion of other problematic items[32].
- The Queensland DES released its Plastic Pollution Reduction Plan (PPRP) in November 2019. This includes a commitment to work with APCO on the 2025 Targets. The PPRP states that the government plans to introduce legislation in 2020 banning certain single-use plastic items.[33]
- The South Australian and Australian Capital Territory Governments are planning to introduce legislation in 2020 to ban certain single-use items[34].
- Many companies and supply chains have formed plans and begun to phase out problematic items and are developing standards for circular alternatives and systems. Colgate Palmolive, for example, plans to phase out PVC completely by 2020, previously used in toothbrush blister packs, shrinks sleeves etc.[35]
- Stewardship programs have been developed for the recovery of problematic materials that are technically recyclable, including certain types of EPS and PVC.
- Many festivals and outdoor events, as well as councils, are introducing policies to become 'single-use plastic free'.

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[28] Australian Packaging Covenant Organisation, 2019b. Single-Use, problematic and Unnecessary Plastic Packaging. Available at: https://www.packagingcovenant.org.au/industry-resources

[29] Queensland Government, 2019. Tackling plastic waste: Queensland's Plastic Pollution Reduction Plan. p.11. Available at: https://www.qld.gov.au/environment/pollution/management/waste/recovery/reduction/plastic-pollution

[30] Australian Packaging Covenant Organisation, 2020a. Food Services Packaging Sustainability Guidelines. Available at: https://www.packagingcovenant.org.au/industry-resources

[31] Department of Environment and Energy, 2019.

[32] Department of Environment, Land, Water and Planning, 2019. Plastic bag ban: Reducing the impacts of plastics on the Victorian environment. Available at: https://www.environment.vic.gov.au/sustainability/plastic-bags#bags

[33] Queensland Government, 2019.

[34] Green Industries South Australia, 2019. Turning the Tide on Single-use Plastic Products: Approach and next steps. Available at: https://www.greenindustries.sa.gov.au/priorities/plastics

[35] Colgate-Palmolive, 2020. Our performance: Delivering More Sustainable Packaging. Available at: https://www.colgatepalmolive.com/en-us/core-values/sustainability/performance

Packaging designed for circularity

Proof points

Woolworths & Coles
nationwide ban on free lightweight shopping bags

In mid-2017, two of Australia's major supermarket retail chains, Woolworths and Coles, responded to growing customer concern around plastic bag pollution, announcing almost simultaneously that they would remove lightweight single-use shopping bags from their stores. ALDI has never offered free plastic shopping bags to their customers.

The National Retail Association reports an estimated 80% decline in consumption of lightweight shopping bags since the retailer change and introduction of state bans, equating to a total of 1.5 billion single-use bags eliminated from the major supermarkets.[36] To date, this is now forecasted to have exceeded 3 billion single-use bags eliminated.[37]

L-R Clockwise: Through the sale of reusable community bags Coles is raising funds for organisation such as Guide Dogs Australia. (Ella Burke puppy Bryn) / Single use plastic bags gone for good at Woolworths

Boomerang Alliance
'Plastic Free Places' program

In 2017, environment NGO Boomerang Alliance launched Plastic Free Places, a program designed to support communities seeking to eliminate single-use plastics. Focused initially on cafes, restaurants and food service providers, the program sought to transition businesses away from six of the key single-use plastic items that regularly appeared at the top of national litter indices[38].

Debuting in Queensland's coastal resort town of Noosa, the program provides hands-on support, supplemented by an extensive pool of resources ranging from advice on alternative materials and step-by-step transition guides, to signage and educational resources.

By December 2019, Plastic Free Noosa had 204 business members, 63 Plastic Free Champions and expanded to 20 events and markets participating in the program. By working across a business' supply chain, the program has been able to quantify the number of single-use plastic items that have been avoided since the program started, estimated to be 4,314,066 pieces.

Plastic Free Places has since expanded around Australia and is currently operating programs in Byron Bay (NSW), Bassendean (WA) and a number of precincts in Adelaide (SA).

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[36] '1.5 BILLION SINGLE USE PLASTIC BAGS ELIMINATED SINCE JULY' – National Retail Association – https://www.nra.net.au/media-release/1-5-billion-single-use-plastic-bags-eliminated-since-july/ accessed 17 Jan 2020
[37] Keep Australia beautiful https://kab.org.au/litter-research/national-litter-index/
[38] Keep Australia beautiful https://kab.org.au/litter-research/national-litter-index/

Packaging designed for circularity

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Develop action plans to support the phasing out of problematic and unnecessary single-use plastic packaging (2020)	All APCO Members actively work to phase out priority plastic packaging (2020-2025)	Evaluate progress in delivery of the phase out action plans and update as needed (2022-2025)
Finalise the voluntary code of practice for shopping bags with key stakeholders (2020)	Retailers adhere to the implementation of the voluntary code of practice for shopping bags (2021-2025)	APCO retail Members implement and report an increase in the phase out of heavy weight plastic bags (2021-2025)
South Australian, Australian Capital Territory and Queensland Government legislation on single-use plastics (2020)	Support the considered implementation of all jurisdictional single-use plastic legislations (2020-2025)	

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

Strategy 1.3
Increase the proportion of reusable packaging

A shift to more reusable packaging could achieve significant benefits from a circular economy perspective. In line with the waste hierarchy, opportunities to eliminate or reduce packaging should be implemented first, followed by investigation of reuse opportunities. Broader impacts need to be considered to ensure that reuse models achieve a net environmental benefit compared to single-use.

There are significant opportunities for more reusable packaging in both B2B and consumer packaging. The Ellen MacArthur Foundation's (EMF) New Plastics Economy Action Plan suggests that reuse provides an economically attractive opportunity for at least 20% of plastic packaging alone[39]. In Australia, consideration must be given to the economic viability of reusable packaging that is required to be transported significant distances.

The most common applications for reuse are found in B2B packaging. Examples include pooled packaging (e.g. pallets) and reusable distribution packaging in a business' supply chain (e.g. crates for fresh produce, kegs for beer and other beverages, intermediate bulk containers (IBCs) for liquid chemicals and seedling trays for nurseries and agriculture).

Consultations facilitated by APCO suggest that[40]:

- Reusable packaging has been extensively implemented in B2B applications where commercially viable or marginal (either resulting in a cost saving or a small cost) and where supply chains have adapted to accommodate reuse systems.
- Supply chain alignment and cooperation of stakeholders is critical for B2B reusables to be viable. This is likely to be easier to achieve for larger retailers, suppliers and logistic companies, as they are likely to have greater control along the supply chain.

- There are significant differences in the costs and benefits of reusables for different applications. It appears that most B2B use of reusable packaging results in cost savings. Where reusables have been considered, but not pursued, it is often due to costs or practical difficulties, such as difficulties in replicating favourable properties that are present in single-use packaging.

While B2B applications often involve conventional return systems, a wide range of new delivery businesses, programs and behaviours are being developed and becoming commonplace for multi-use and returnable consumer packaging replacing disposable packaging. Examples include durable carry bags, reusable drink cups, taps at water fountains, reusable food ware at festivals, efficient water refill systems for in-home use, self-serve refill systems for nuts and dried fruit in supermarkets, and acceptance of customer containers for takeaway food[41]. There is significant opportunity for increases in this space as we see a greater acceptance of the 'sharing economy'.

The environmental benefits of reusable packaging need to be considered on a case by case basis, for example by undertaking a life-cycle assessment (LCA), as realisation of these benefits is heavily dependent on the number of returns and transport distances involved in reusable packaging systems.

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[39] World Economic Forum and Ellen MacArthur Foundation, 2017.
[40] The CIE & APC, unpublished.
[41] Ellen Macarthur Foundation, 2019a. Reuse: rethinking packaging. Available at: https://www.ellenmacarthurfoundation.org/publications/reuse

Packaging designed for circularity

APCO Commitments

- Develop the methodology to measure and track current reuse material flows in the Australian packaging system.
- Integrate reuse data into the Material Flow Analysis (MFA) for the 2025 Targets.
- Undertake research to identify and prioritise opportunities for reuse for both consumer and B2B packaging, including priority industries and applications.
- Facilitate collaborative projects to implement reuse in targeted supply chains.
- Work with Planet Ark to promote reuse systems through the Circular Economy Hub.

Mutually reinforcing activities

- The NSW Government's Circular Economy policy and the Victorian Government's Recycling Victoria policy both include a focus on supporting reuse and repair activities[42].
- Many companies in the packaging supply chain in Australia have signed the EMF's New Plastics Economy Global Commitment. Signatories are required to report annually on progress towards targets, including the extent to which they have moved from single-use to reuse models.[43]

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[42] NSW Environment Protection Authority, 2019. NSW Circular Economy Policy: Too Good To Waste. Available at: https://www.epa.nsw.gov.au/publications/recyclere-use/circular-economy-policy-final
[43] Ellen MacArthur Foundation, 2019b. The New Plastics Economy Global Commitment: 2019 Progress Report. Available at: https://www.newplasticseconomy.org/about/publications/global-commitment-2019-progress-report

Packaging designed for circularity

## Proof points

Woolworths partnership with Loop[44]

As part of their commitment to Sustainability, Woolworths has partnered with Terracycle to bring the LOOP platform to Australia from June 2021.

Well-known brands will now be offering products in durable and reusable containers, rather than single-use plastic packaging. When finished with the product, the packaging can be collected, cleaned, refilled and reused, in a reusable tote bag.

The platform allows customers to shop their favourite brands, which have been reimagined to waste free.

The Innovative circular packaging system is the brainchild of Terracycle CEO, Tom Szaky, and already has the support globally of companies like PepsiCo, Nestle, and Procter and Gamble.
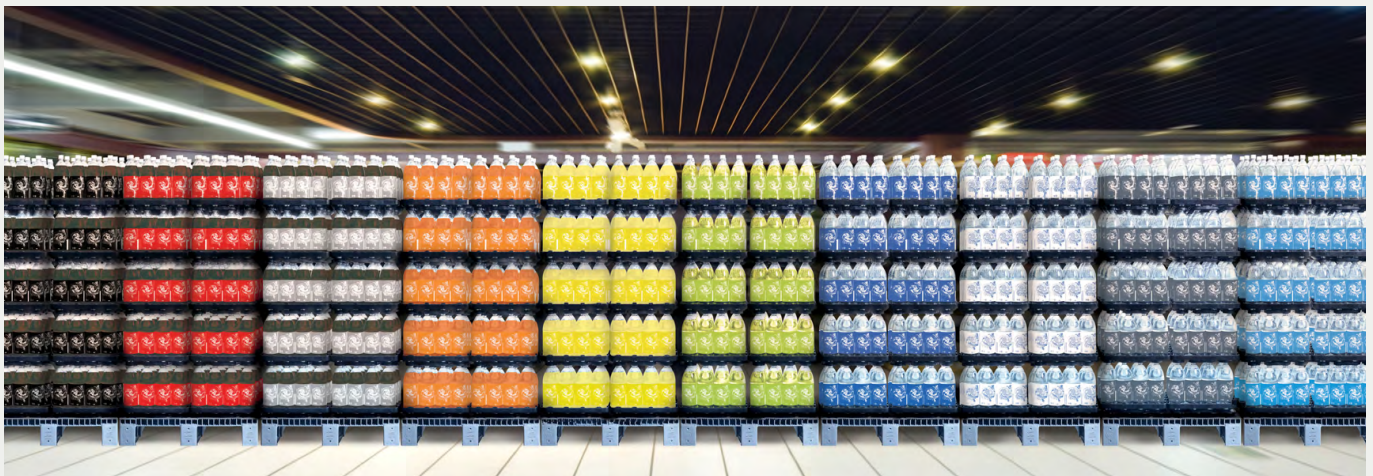
CHEP B2B reusables deliver resource efficiency gains and eliminate waste[45]

CHEP has led the market in sustainable B2B packaging for a number of years, with its Share and Reuse Circular Economy model at the heart of its business. Close collaboration with its customers enables CHEP to tailor solutions and deliver measureable gains in resource efficiency and waste avoidance.

Working with Australian drinks producer Tru Blu Beverages, CHEP identified, trialled and implemented a series of solutions that included reusable Retail Display Pallets and Beverage Tray systems, allowing the same packaging to be used for transportation, replenishment, merchandising display and product storage. This allowed Tru Blu Beverages to move product from manufacturing to shop floor, fully stocked and ready for deployment.

In addition to reducing the handling of product along the supply chain and minimising transport resources, the system successfully eliminated the need for one-way fibre carton packaging. This change significantly reduced Tru Blu's packaging material costs and eliminated a substantial waste stream generated in the transportation and delivery of product to the consumer.

44 https://7news.com.au/lifestyle/shopping/woolworths-announces-new-re-usable-container-program-loop-to-reduce-shopping-waste-c-529218
45 https://www.chep.com/au/en/consumer-goods/case-study-tru-blu-beverages

Packaging designed for circularity

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Promote updated SPGs to Members through APCO and AIP training courses (2020)	All APCO Members use the SPGs to improve design for recovery including new opportunities for reuse (2020-2025)	APCO Members report on the increase in proportion of reusable packaging (2020-2025)
Develop methodology to measure and track reuse flows (2020)	Deliver annual Material Flow Analysis (MFA) data reports with inclusion of reuse flows (2021-2025)	
Complete research into the opportunities for reuse models for both consumer and B2B packaging (2020)	Facilitate collaborative projects to implement reuse models across targeted applications or supply chains (2021-2025)	

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

Packaging designed for circularity

Strategy 1.4
Design for material recycling

Design for recycling is an essential strategy to achieve all four of the 2025 Targets. It means that packaging is designed in such a way that it is able to be collected, recycled and converted into a new product under current systems. Packaging should be designed for the most appropriate and highest value end-markets following a review of available recycling systems and careful selection of materials and components. Packaging materials with limited and economically unviable end-markets will have to be phased out to improve waste diversion and financial sustainability in the waste and recycling system.

The Packaging Recyclability Evaluation Portal (PREP) currently provides the evidence base for the classification of packaging recyclability through kerbside collection systems in Australia and New Zealand (and the REDcycle soft plastics recycling program within Australia) under the Australasian

Recycling Label (ARL) Program. PREP provides feedback on why a packaging item may be considered not recyclable to educate APCO Members on how to design for recyclability, allowing the opportunity to change or eliminate part of the packaging before the packaged product goes to market. Over time, there is capacity for PREP to be extended to other collection systems including those servicing the commercial and industrial sector.

While design for recycling is important for the transition to a more circular packaging ecosystem, reduction and reuse are considered a higher priority under the waste hierarchy. A life-cycle and systems approach are necessary to ensure that a focus on recyclability does not result in perverse outcomes such as increased material use or higher greenhouse gas emissions.

APCO Commitments

- Require and support all APCO Members to use the SPGs to improve their packaging, including design for recycling.
- Facilitate industry training courses on design for sustainability and the SPGs in collaboration with the AIP.
- Track design for recovery (reuse, recycling or composting) by APCO Members through the APCO Annual Reporting Tool. All APCO Members are required to report how much of their packaging is able to be recovered.
- Undertake research on testing methods for the pulpability of certain paper packaging formats to inform designing for recyclability which includes effective processing.
- Undertake trials in MRFs on the fate of different materials and formats to inform design for recyclability by better understanding sorting capabilities and the fate of packaging in MRFs.

Mutually reinforcing activities

- Consumers are supporting recycling through purchasing. A 2018 consumer survey found that 45% would be willing to pay more for a product with more environmentally friendly packaging[46].
- Signatories to EMF's New Plastics Economy Global Commitment report annually on the proportion of their packaging that is designed for reuse, recycling or composting (around 60% met this requirement in 2019)[47].
- Many large global brands (including APCO Members) have announced ambitious targets for recyclable packaging, such as those announced by Unilever,[48] Mars[49] and Nestlé[50].
- Globally there is a concerted effort by polymer and packaging manufacturers to develop new materials and formats to improve recyclability of soft plastics. The aim is to replace complex multi-material laminates with recyclable polyolefin-based (i.e. mainly polyethylene and polypropylene) materials.
- Sustainability Victoria provides grants to organisations that use, produce or recycle packaging to support them to reduce packaging waste.

[46] PACT Group, 2019. End of Waste: A white paper. Available at: https://pactgroup.com.au/news/pact-group-release-end-of-waste-white-paper/
[47] Ellen Macarthur Foundation, 2019b.
[48] Unilever, n.d. Sustainable Living: Waste & Packaging. Available at https://www.unilever.com/sustainable-living/reducing-environmental-impact/waste-and-packaging/
[49] Mars, n.d. Sustainability Plan, Healthy Planet: Plans to Rethink Our Packaging, Today. Available at: https://www.mars.com/sustainability-plan/healthy-planet/sustain-able-packaging
[50] Nestle, 2018. Nestle aiming at 00% recyclable or reusable packaging by 2025. Available at: https://www.nestle.com/media/pressreleases/allpressreleases/nestle-recycla-ble-reusable-packaging-by-2025

Packaging designed for circularity

Proof points

Unilever pigment change increases recovery of black plastic packaging

Black packaging conveys a sense of luxury and sophistication, but when it comes to recyclability, the pigments used to create black plastics have long been problematic. Carbon black has traditionally been used to make plastic packaging black, but the light-absorbing nature of the pigment meant that the Near Infra-Red (NIR) detection technology used in Material Recovery Facilities (MRFs) worldwide, was unable to detect the type of plastic, sending often highly recyclable plastics to landfill.

After significant investment to address the carbon black challenge, Unilever helped develop a new black pigment that can now be detected by NIR scanning. This means that that it will be soon be possible for

these viable plastics to be selected for recycling, thereby reducing resource leakage and closing the loop on previously unprocessed materials. The new colour technology is being rolled out across all black Unilever packaging globally, having commenced in the UK in 2019.

Whereas in the past this type of technological breakthrough might have been kept confidential for competitive reasons, Unilever's decision to share this technology with industry worldwide highlights the strength of the company's commitment to improving packaging outcomes universally. Unilever Australia will be rolling out this technology in 2020, the first brands to use this will make approximately 200 tonnes of packaging now available for recovery, with even more significant impacts likely to be seen across the entire packaging industry, as other manufacturers embrace the technology, and the recovery and recycling rates for black plastics improve.

Nestlé redesign components for full recyclability

Nestlé is committed globally and locally to phase out all plastics that are not-recyclable or hard to recycle from all products by 2025, along with its commitment to make 100% of its packaging recyclable or reusable by 2025.

One example of redesign by Nestlé is the Allen's lollies rigid tub, which saw the integration of the tamper evidence tab into the lid. Not only does this reduce the propensity for this small plastic tab to become litter, but it also enables the small piece of plastic to be carried through the MRF sorting process when remaining attached to the lid, ensuring it can be recycled. This integration of tamper evidence tabs is being rolled out across several

of Nestlé's products to reduce litter and increase the recyclability of small separable packaging items.

Packaging designed for circularity

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Promote updated SPGs to Members through APCO and AIP training courses (2020)	All APCO Members use the SPGs to improve design for recovery (2020-2025)	APCO Members report on the increased proportion of packaging that is designed for reuse or recycling (2020-2025)
Coordinate stakeholder agreement to the developed fibre-based packaging recyclability methodology (2020)	Test fibre-packaging recycling and deliver design guidelines for fibre-based packaging recyclability (2021)	Ongoing review of design guidelines to support advances in packaging and recovery pathways (2022-2025)
Investigate how PCPB, glass and small items of packaging are sorted in MRFs (2020)	Integrate results of MRF trials into PREP and release design guidelines (2020-2021)	Investigate the fate of additional problematic packaging items in sorting and reprocessing systems (2021-2025)

KEY: Green: APCO Commitments

Black: Mutually reinforcing activities

Strategy 1.5
Design for compostability where appropriate

While there is growing industry and consumer interest in the utilisation of compostable plastic packaging, there is also considerable confusion and misinformation in the market about materials labelled 'compostable', 'degradable' or 'biodegradable', and the correct disposal methods for these materials. Plastic packaging should only claim to be compostable if it is certified to a recognised standard[51] and the terms 'degradable' or 'biodegradable' should be avoided.

The amount of compostable plastic packaging on the market is currently very small (approximately 1000 tonnes) but this is expected to grow steadily over the next few years. These alternatives can often impose a cost on Brand Owners and customers, and the growth in the market needs to be carefully managed to ensure that:

- reuse and recycling are prioritised over composting, except where compostable packaging supports the recovery of food waste or where food contamination hinders material recycling,
- any packaging that claims to be compostable is certified to an appropriate compostability standard,
- raw materials are not displacing food production or natural environments,
- consumers know how to dispose of compostable packaging without contaminating existing systems for organics, soft plastics or commingled packaging recycling,
- organics recycling facilities can manage and recycle compostable packaging without detrimental impacts on their processes or end products.

In the short term, compostable packaging should only be used in applications where it can support the recovery of food waste and heavily food-contaminated packaging (that would otherwise not be recyclable). This includes plastic and fibre packaging.

These applications are likely to include:

- bags for collecting food waste for food organics and garden organics (FOGO) kerbside collection,
- food service packaging in closed systems, i.e. where the type of packaging can be controlled and there is a dedicated organics recovery service.

While closed-loop food service systems such as cafes, food courts, markets and festivals are an opportunity to improve effective collection and processing of compostable packaging, these systems also present important opportunities to adopt circular economy principles to avoid waste and minimise resource consumption by reducing packaging or transitioning to reusable packaging.

Reusable packaging as an alternative to compostable packaging may have better outcomes from a circular economy perspective, and contribute to the National Waste Policy waste reduction target.

In the longer term, compostable packaging could be used in other consumer packaging applications where reuse or recycling options are not available. Compostable packaging must be easily distinguishable from recyclable packaging, and only encouraged where there is appropriate collection, processing infrastructure and end-markets for this type of packaging, and where avoidance, reuse or other recovery outcomes are not feasible. Compostable packaging increases can only occur in parallel with the rollout of FOGO bins and improved capacity of organics facilities to manage and recover these materials.

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51 Australasian Bioplastics Association, n.d. Australasian Bioplastics Association. Available at: https://www.bioplastics.org.au/

Packaging designed for circularity

APCO Commitments

- Develop a positioning statement on compostable packaging for decision-making within the packaging supply chain, including the opportunities for and limitations of these materials, in collaboration with the Australasian Bioplastics Association (ABA) and the Australian Organics Recycling Association (AORA).
- Develop a national strategy for compostable packaging in collaboration with ABA, AORA and other key industry and government stakeholders.
- Work with the ABA and AORA to encourage industry to phase out fragmentable (degradable) plastics that are not certified compostable or recyclable.
- In the longer term, develop a consumer education program and harmonised messaging that advises consumers how to dispose of their compostable packaging correctly.
- Consult with governments on the potential to standardise the colour of compostable FOGO bags to reduce confusion for consumers and allow for easier identification by composters.

Mutually reinforcing activities

- The National Waste Policy Action Plan includes a target to halve the amount of organic waste sent to landfill for disposal by 2030[52].
- Many local councils have already introduced FOGO collections or are undertaking trials, although not all currently accept compostable packaging.
- In Adelaide over 60% of the metropolitan population has access to a FOGO service[53].
- ABA manages the Australian certification program for compostable plastics.
- The Victorian Government's *Recycling Victoria* policy includes targets to halve the volume of organic material going to landfill and to ensure every Victorian household has access to food and garden organic waste recycling services or local composting by 2030.

Packaging designed for circularity

Proof points

BioPak closes the loop on compostable packaging

In 2017, Australian compostable foodservice packaging supplier BioPak, was aware of the significant lack of access to industrial scale composting services in Australia, and the resulting unintended consequence that much compostable packaging was ending up in landfill.

In order to address this, BioPak established an organic waste collection service, enabling BioPak customers to divert organic waste and compostable packaging from landfill. Working with local waste collection contractors and composting service providers, BioPak facilitates the collection service for businesses, schools, universities, retailers, venues and event organisers, either as an on-going service or as a one-off for individual occasions.

By using compostable packaging and having the option of a dedicated green waste bin for

the disposal of organic waste, there is no need to separate packaging from food waste and this material can then be diverted from landfill and transformed into high quality compost that can be used to grow more food – a simple, regenerative, circular solution that effectively and efficiently addresses two significant and problematic waste streams produced by the foodservice industry.

Lendlease zero waste policy in action at Barangaroo

Sydney's Barangaroo precinct, one of Australia's largest urban redevelopment projects, was constructed with a zero-waste philosophy at its heart from the outset. With some 80 Green Star-rated retail tenancies spread across the precinct, the volume of food and organic waste always had the potential to be substantial. To address this, Lendlease factored organics collection and processing, coupled with a mandatory requirement for tenants to use only compostable packaging into the design phase of the project.

All retail tenants operating within the Barangaroo precinct are required to use compostable packaging across the business and Lendlease has invested

significant time and effort in supporting tenants to understand the rationale behind the requirement and convert their business practices to accommodate this obligation.

To further support the compulsory use of compostable packaging, the property developer installed an organic waste macerator beneath the buildings. Some 60 tonnes of food waste and packaging are processed on-site each month, before being taken off-site to an industrial composter, where it is converted to green energy and fertiliser. This represents a significant amount of waste being diverted from landfill annually.

Packaging designed for circularity

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Release a joint guideline on the key considerations for compostable packaging (2020)	Develop a national compostable packaging strategy with industry and government partners (2020-2021)	Halve the amount of organic waste sent to landfill for disposal through increasing the proportion of households with access to FOGO collections (2030)
Drive the active phase out of fragmentable (degradable) plastics that are not certified compostable or recyclable (2020-2022)	Deliver consumer education to increase understanding and correct disposal of compostable packaging (2021-2025)	Develop labelling system for clear identification of compostable packaging and disposal instructions (2022-2024)

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

OUTCOME TWO

IMPROVED COLLECTION AND RECYCLING SYSTEMS

Improved collection and recycling systems

Strategy 2.1
Standardise kerbside collection systems

An estimated 88% of packaging is currently recyclable but only 49% was recycled in 2017-18. Recyclable packaging is lost to landfill during sorting or recycling processes and in places that have no available recycling system. A significant volume is also disposed of incorrectly by consumers in their landfill bins. This indicates that limiting these losses through improved source separation and collection practices, supported by on-pack labelling and feedback to residents by local councils, will have a substantial impact on improving used packaging recovery. This strategy has potential to contribute to the recovery of up to 2 million additional tonnes of recyclable packaging that is currently disposed to landfill.

One of the challenges for consumer education is the variation between local council services. The Australian Council of Recycling (ACOR) has identified 3,800 variations in how councils manage their waste in NSW alone.[54] These variations range from the colour and number of bins to the materials accepted in these bins. By working towards standardised collection systems, consistent consumer education and information is able to be developed, reducing confusion between councils, regions and states/territories.

Options to increase diversion from landfill include standardising the list of materials collected by each council, the language used to describe them, and educating households on how to 'recycle right'. Standardising the materials for collection across councils nationally will reduce contamination of recycling streams with non-recyclable materials, and reduce the loss of recyclable materials directly to landfill. This approach will also support Brand Owners to simplify packaging design by providing clearer direction on which materials and formats are the most widely recyclable.

Materials not accepted by the largest numbers of councils include:

- foil-lined juice and milk cartons, often referred to as aseptic packaging – these materials are not widely collected within the kerbside recycling system in most states and territories,
- plastics 4 to 6 (LDPE, PP and PS) – these materials are not collected by approximately 50% of councils in Queensland and Western Australia, and a third of councils in New South Wales, South Australia and Tasmania.

It is also important to note that currently, 23% of councils do not provide any kerbside recycling service at all – these are in rural or remote areas with small and dispersed populations. This lack of access could be addressed by developing shared infrastructure and collection processes for packaging waste, for example through drop-off facilities at local council sites or alongside other product stewardship schemes. While improving public access to recycling services in remote and regional areas is an important goal, there may be some areas or some materials for which recycling will not generate a net environmental benefit due to lack of end-markets or transport distances.

A report from Infrastructure Victoria concluded that differences between council services acts as a 'handbrake' on resource recovery because this makes it difficult to provide consistent messages on what can and cannot be recycled[55]. Green Industries SA has also recommended a standard list of materials to be collected across all councils in Adelaide to reduce confusion for ratepayers and allow for common messaging[56].

A coordinated national education campaign could combine common messaging on packaging, on bins and in government promotional materials and websites. This would be most effective when coupled and reinforced with feedback on bin contents through bin audits.

[54] Grace, R., Chung, L. & Dye, J., 2019. Explainer: Not sure what can and can't be recycled? Here's how it works. The Sydney Morning Herald. Available at: https://www.smh.com.au/national/nsw/not-sure-what-can-and-can-t-be-recycled-here-s-how-it-works-20191204-p53grj.html
[55] Infrastructure Victoria, 2019. Recycling and resource recovery infrastructure: evidence base report. Available at: https://www.infrastructurevictoria.com.au/project/advice-on-waste-infrastructure-in-victoria/
[56] Green Industries South Australia, 2019. Adelaide Metropolitan Area Kerbside Waste Performance Report 2016-17. Available at: https://www.greenindustries.sa.gov.au/publications-local-government

Improved collection and recycling systems

APCO Commitments

- Deliver the Australasian Recycling Label (ARL) Program - a behaviour change program to ensure appropriate consumer recycling and disposal behaviours (see Strategy 2.5).
- Manage the work of the APCO Technical Advisory Committee to ensure the currency of packaging recyclability information.
- Explore and facilitate waste collection partnerships in regional and remote areas including potential collaboration with other product stewardship schemes where kerbside collection is not feasible.

Mutually reinforcing activities

- The National Waste Policy Action Plan commits that all governments will consider national standards for kerbside collection and materials recovery facilities[57].
- ACOR's 10-point plan for recycling includes standardising recycling methods. They suggest clear definitions of scope of materials in kerbside recycling and preferred practice collection methodologies[58].
- The Western Australian Waste Taskforce has developed consistent messaging on what to include and not include in recycling bins that it encourages all local councils to use[59].
- A report from Green Industries SA (GISA) recommended standardised, consistent materials collected in bin-based services across all metropolitan councils[60]. This would include a standard list of materials that can be placed in the recycling and organics bins to reduce confusion for ratepayers and material stream contamination. This recommendation has been progressed through the launch of the statewide Which Bin communications campaign and online search engine in May 2019.
- The Victorian Government's *Recycling Victoria* policy will standardise kerbside recycling services across the state, supported by a consistent statewide education and behaviour change program.

[57] *Department of Environment and Energy, 2019.*
[58] *Australian Council of Recycling, 2018. ACOR 10 Point Plan for Results-Based Recycling. Available at: https://www.acor.org.au/policy-positions.html*
[59] *Western Australia Local Government Association, 2018. Information Session Outcomes: Recycling Market Update and Consistent Communications. Available at: https://www.wastenet.net.au/documents/364/recycling-market-update-and-consistent-communications*
[60] *Green Industries South Australia, 2019.*

Improved collection and recycling systems

Proof points

WA Local Governments collaborate on recycling messages[61]

Many Local Governments in the Perth metropolitan area and around WA have introduced standardised consumer messaging regarding what can and cannot be recycled in the yellow-lid recycling bin. These changes are part of an effort to reduce contamination and make recycling easier for everyone.

As a result of the China Sword import restrictions, the WA Government established a Waste Taskforce to prepare advice to the Minister for Environment on recycling market issues and opportunities in Western Australia. The Taskforce's recommendations included communications options to reduce contamination in kerbside recycling bins.

WA's three recycling companies have worked together to establish new, consistent guidelines for items that can be placed in the recycling bin, with the aim of reducing contamination so that materials can still be effectively traded for recovery and costs to ratepayers contained. WALGA, working with the Department of Water and Environmental Regulation (DWER), Local Governments and MRF operators have established a Consistent Communications Collective – which aims to work together to ensure

Place items loose in the recycling bin.

Recyclables

Bagged recycling goes to landfill.

#BeAGoodSort

that all those communicating with the community on waste management related matters are providing a consistent message. One example is the consistent messaging developed by the Collective, and designed using the Waste Authority's WasteSorted Toolkit, for National Recycling Week. All members of the Collective posted the same messages on the same day to raise awareness of key issues for recycling.

MWRRG supporting standardised recycling bins in Melbourne[62]

The Metropolitan Waste and Resource Recovery Group (MWRRG) in Melbourne has developed the Bin Standardisation Guide to support metropolitan councils in aligning their current kerbside garbage, recycling and organics bins with Standards Australia's *Mobile Waste Containers – colours, markings and designation requirements AS 4123.7-2006 (R2017).*

Utilising the standard can reduce waste sent to landfill, increase recycling and support consistent education campaigns to reduce resident confusion about how to correctly use kerbside bins collection services.

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[61] City of South Perth, 2018. Recycling rules have changed in WA. Available at: https://southperth.wa.gov.au/about-us/news-and-publications/news-and-public-notices/news-detail/2018/11/12/recycling-rules-have-changed-in-wa
[62] Metropolitan Waste and Resource Recovery Group, 2017. Bin Standardisation Guide. Available at: https://www.mwrrg.vic.gov.au/projects/current-strategic-projects/bin-standardisation-guide/

Improved collection and recycling systems

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
APCO Members apply the ARL to an increased proportion of their packaging on the market (2020-2025)	APCO Members actively use design guidelines that support recyclability (2020-2025)	Technical Advisory Committee oversee updates to PREP, ensuring the tool remains accurate over time (2020-2025)
National Waste Policy Action Plan reviews national standards for kerbside collection (2020-2030)		Victoria implements a fourth bin to separately collect glass (2023)

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

Improved collection and recycling systems

Strategy 2.2
Expand drop-off and take back systems for packaging

While the kerbside collection system will continue to be the primary mechanism to collect packaging from households, some formats or materials are difficult or expensive to recover through MRFs. These include soft plastics, EPS and smaller items that fall through screens and end up in landfill. Other materials, particularly glass, tend to get damaged and contaminated in the kerbside collection and sorting system, which reduces their value as a material for remanufacturing.

For these reasons, more attention needs to be paid to the opportunity to build or expand alternative drop-off or take-back systems, both for consumers and businesses. Examples of drop-off systems for households include the REDcycle program for soft plastics and container deposit schemes/legislation (CDS/CDL) in most jurisdictions. Some other product stewardship schemes also accept packaging. These source-separation systems allow for higher quality and volumes of material to be collected. There are also greater opportunities for consumer engagement and incentive.

APCO Commitments

- Convene the CDS National Working Group as a collaborative forum aiming to facilitate consistency and alignment of future closed-loop schemes.
- Explore and facilitate waste collection partnerships in regional and remote areas including potential collaboration with other product stewardship schemes where kerbside collection is not feasible.
- Assist APCO Members and other stakeholders to develop closed-loop partnerships to recover packaging materials beyond kerbside collection systems.
- Expand the scope of the ARL to recognise additional drop-off collection systems, while providing ongoing support for those currently included i.e. REDcycle.

Mutually reinforcing activities

- The Victorian Government has announced that it will introduce a CDS, meaning that all jurisdictions will have a scheme in place by 2023[63].
- Australian Ministers for Environment (Meeting of Environment Ministers or MEM) have agreed to work together to expand and harmonise the scope and alignment of container deposit schemes and product labelling for beverage manufacturers.
- Expanded Polystyrene Australia (EPSA) is trialling the collection of EPS through member companies for recycling into waffle pods.
- Packaging manufacturers, Brand Owners and retailers are funding the national collection and recycling for consumer soft plastics through the REDcycle Program.
- Many local councils provide drop-off facilities for packaging not accepted within kerbside collection through their transfer stations and recycling centres.
- The South Australian Government is undertaking a CDS review and released a consultation summary report in 2019. This information will be used to develop a discussion paper on how it can build on its successful container deposit scheme. The release of the discussion paper and further public consultation is planned for early 2020.

[63] Andrews, D. Hon., 2020. Transforming Recycling in Victoria. Available at: https://www.premier.vic.gov.au/transforming-recycling-in-victoria/

Improved collection and recycling systems

Proof points

REDcycle providing a recovery pathway for soft plastics

Aware of the growing volume of soft plastics circulating in the marketplace that were destined for landfill, Melbourne-based RED Group developed the supermarket-based REDcycle soft plastics recycling program in 2011, to provide a viable recovery pathway for consumer soft plastics.

Working initially with Coles and expanding into Woolworths, REDcycle manages collection bins located inside all of the retailers' stores – over 1830 locations nationwide - with shoppers encouraged to collect soft plastics at home and return them to store for processing. Collected materials are then transported to Australian manufacturing partners, including;

1. **Replas**, based in Ballarat, Victoria, who convert REDcycle material into a range of recycled products including indoor and outdoor furniture, bollards, and signage.[64]

2. **Close the Loop**, based in Somerton, Victoria, who utilise REDcycle material as a component of high performance recycled asphalt additive for road infrastructure known as Tonerplas.[65]

3. **Plastic Forests**, based in Albury, NSW, who use REDcycle material as a component of products

such as mini wheel stops and air conditioner mounting blocks for the consumer market.[66]

REDcycle reports that it has recovered more than 800 million pieces of soft plastic since the launch of the program in 2011[67]. Integrated into the Australasian Recycling Label (ARL) program since

2018, REDcycle has seen brand partnerships increase significantly. Consumers can now refer to the 'Return to store' or 'Store drop off' ARL instructions, providing greater education on the action needed to recycle their soft plastic packaging.

Simply Cups[68] cup recycling

Simply Cups is Australia's largest cup recycling program, diverting more than 10 million cups from landfill since 2017. The recycling scheme, founded by Closed Loop, has nearly 1000 collection points at 7-Eleven, office buildings and shopping centres across Australia. Simply Cups accepts any brand of paper-based takeaway cup.

Collecting coffee cups as a separate waste stream enables the program to recover both the paper and plastic materials. Simply Cups works with innovative new technologies which transform cups into new products such as outdoor furniture, trays and cup holders, and traffic solutions such as roadside kerbing.

[64] Replas, n.d. Australian Made Recycled-Plastic Products. Available at; https://www.replas.com.au/
[65] Close the Loop, n.d. Sustainability in Action: Tonerplas. Available at: https://www.closetheloop.com.au/tonerplas/
[66] Plastic Forests, n.d. Products – AirCon MountingBlocks. Available at: http://plasticforests.com.au/product/air-con-mounting-blocks
[67] REDcycle website: https://www.redcycle.net.au/faqs/ - Accessed 24 Jan 2020
[68] https://wastemanagementreview.com.au/simply-cups-reaches-10-million-milestone/; https://www.simplycups.com.au/faq

Improved collection and recycling systems

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Establish the CDS Working Group (2020)	Develop a comprehensive and aligned agenda of CDS harmonisation opportunities (2020-2021)	Develop key principles or a model to guide the delivery of future closed loop systems (2021-2025)
Establish CDS (Containers for Change) in WA (2020)	Establish CDS in Tasmania (2022)	Establish CDS in Victoria (2023)
Facilitate waste collection opportunities in regional and remote areas (2020-2021)	Extend the ARL to support additional drop-off collection systems and B2B recycling streams (2021-2025)	Identify and facilitate additional opportunities for closed loop collection systems (2021-2025)

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

Improved collection and recycling systems

Strategy 2.3
Improve the infrastructure for sortation and recycling

Sorting Facilities

Sorting systems need to improve to meet specifications in local and export markets and maximise the value of packaging at end-of-life. MRFs are the primary infrastructure for sorting commingled materials. The complexity of packaging types and materials has increased markedly over the past decade or two, making separation into marketable products more challenging. In addition, contamination is exacerbated by consumers placing the wrong materials in the bin (including biohazard materials). MRF operators also face a range of market challenges including import restrictions in traditional markets such as China and Indonesia, reduced prices for some materials and the proposed export bans.

Further investment in MRFs to enhance efficiencies and improve the quality of products generated will help to reduce material losses and development of quality raw materials for established end-markets. This can open up new markets, for example the Northern Adelaide Waste Management Authority (NAWMA) MRF is investing in a new sorting line to enable paper to be recycled into newspaper[69].

Glass

It is widely recognised that the current system of commingled collection of recyclable materials from households does not produce sufficiently clean glass to support viable end-markets, and that greater source separation is required.[70]

CDS/CDL are being rolled out nationally, resulting in a cleaner stream of source separated glass. However, CDS does not remove all glass from the commingled bin and contamination and loss of value continues. CDS collection systems could be enhanced by:

- extending the scope of these schemes to include more glass packaging products,
- providing drop-off collection points for non-deposit glass near CDS collection points,
- providing additional bins/crates to households specifically for glass.

Several councils are trialling separate collections for glass to increase recovery and reduce both material and financial losses. Trial collections are occurring in several municipalities with improvement seen in the quality of separately collected glass, as well as the removal of glass contamination from MRF-bound material and some increase in yields from households.

In New Zealand, about half of glass sent for recycling is collected separately. This is also the case in many other countries such as Wales, Denmark and Switzerland. European countries often use street based drop-off containers (or igloos) to support glass recovery. These could be considered in Australia to ensure high quality glass returns from households, cafes and other outlets.

There is a need for additional beneficiation capacity and upgrades of some existing plants to include appropriate sorting technologies.[71] Modifications to MRFs to produce more suitable glass in a larger fragment size with less contaminants should be considered.

Some beneficiation plants have optical equipment that can sort to a lower fragment size than other sites. This can result in lower levels of loss. Expansion of small fragment sorting equipment may also aid recycling. The lack of independent beneficiation plants will need to be addressed to ensure glass separate routes, including deposit schemes, can be accessed freely[72].

Rigid plastics

The low recycling rate for plastic packaging is due to many factors including limited reprocessing capacity in Australia, particularly the capacity to manufacture flake or pellets that can be used to make a wide variety of plastic products. Most rigid plastics are collected through commingled kerbside systems from households, and there is an opportunity to collect more clean plastics such as crates and other large containers from commercial and industrial sources.

The proposed national export ban will reduce available end-markets for plastics, with the exception of 'clean plastics sorted to a single resin type and

[69] *Waste Management Review, 2018. Northern Adelaide Waste management authority upgrade. Available at: https://wastemanagementreview.com.au/adelaide-recycling-plant/*
[70] *Infrastructure Victoria, 2019.*
[71] *Blue Environment, unpublished.*
[72] *Blue Environment, unpublished.*

Improved collection and recycling systems

processed ready for further use (e.g. flakes and pellets)[73]. In 2017-18, 77% of recovered plastics (134 000 tonnes) were exported[74].

The major gap in the secondary processing infrastructure capacity for packaging plastics relates to the capacity to sort, clean and process single polymer rigid plastic streams to a grade that is (effectively) virgin resin competing, either in packaging or non-packaging applications. Scrap plastics that are processed to this level could be used in many applications both within Australia, or sold readily into overseas markets, including into countries with import restrictions on scrap plastic imports.

The limited capacity to manufacture food grade plastics, as well as material suitable for cosmetics and therapeutic products, means that most recycled plastics cannot go back into packaging. Results from APCO's cost benefit analysis have identified this investment will generate a significant economic benefit, as the additional value of production is generally greater than the assumed costs.[75]

An important enabling trend to this needed upgrade in plastic packaging reprocessing capacity is the shift in packaging design towards material selection for recyclability and the specification of recycled content. There may be some trade-offs, for example clear plastics have stronger end-markets but coloured plastics can often absorb a higher proportion of recycled content. The impact of progressively eliminating rigid PVC, rigid PS or EPS materials from packaging, as well as pigments that reduce recyclability, will need to be evaluated on an ongoing basis.

Soft plastics

At least 350,000 tonnes of soft plastics were placed onto the market in 2017-18, and only 29,000 tonnes or 8% was recycled. Around 28,000 tonnes were recycled from C&I sources, and 1,000 tonnes from consumers.[76]

Despite the high levels of consumer accessibility to drop-off facilities at supermarkets or council collection points, the quantity of materials collected from households are inadequate in terms of increasing recycling rates for plastics.

Any expansion in recovery of soft plastics will require a planned approach with initial focus on improved packaging design and market development for recycled plastics, followed by increased investment in sorting, recycling and alternative waste technologies. Priority should be given to the expansion of collection of soft plastics from business such as warehouses, major retailers and specific sectors. This is due to the significant quantities of soft plastics used, much of which is clean, unpigmented LDPE (e.g. stretch wrap). This would need to be collected through specialist waste management services.

One option that has been investigated for households is the incorporation of soft plastics into the kerbside collection system, however this is not currently supported by most MRF operators. Soft plastic is a contaminant that tends to get caught in machinery and is difficult to separate from the paper and cardboard streams. The total net cost of kerbside collection of soft plastics is estimated to be $68 million, assuming collection of 80,000 tonnes of soft plastic each year ($843 per tonne of material collected).

An expanded national drop-off collection system that is convenient and accessible for consumers is another option that may be more viable from a cost perspective. Collections through drop-off facilities could potentially be enhanced with:

- more support for the current collection system through supermarkets,
- development of drop-off facilities at other retail outlets,
- more soft plastics collections at local government resource recovery centres,
- rural soft plastics collections that would handle agricultural soft plastic.

Increased collections will need to be driven by expanded end-markets and processing capacity, which is currently very limited. While processing back into plastic packaging and products is the long-term vision, other applications, such as incorporation into road base, provide an important interim solution.

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[73] Department of Agriculture, Water and the Environment, 2019.
[74] Envisage works, 2019.
[75] The CIE & APC, unpublished.
[76] Envisage works, 2019.

Improved collection and recycling systems

APCO Commitments

- Promote design for recycling to reduce contamination and enhance recyclability in collection, sorting and recycling systems.
- Collect data on current recycling levels and opportunities in the C&I sector.
- Undertake research on the most appropriate collection systems and end-markets for soft plastics from household and C&I sources.
- Trial closed-loop collection, recycling and procurement models for soft plastics.
- Implement the 2020 Development Phase of the ANZPAC Plastics Pact program and support the ongoing development of the program.

Mutually reinforcing activities

- The National Waste Policy Action Plan commits all governments to build industry capacity and infrastructure to collect, separate, recycle and remanufacture recycled materials.[77]
- Several State and Territory jurisdictions provide grants for infrastructure and/or market development for recycling.
- The Australian Government is introducing phased bans on exports of specific waste materials that have not been processed into value-added products.[78]
- The Australian Government is providing $20 million to support the domestic recycling industry through the Cooperative Research Centres Projects (CRC-P) grants program as well as $100 million for the Australian Recycling Investment Fund.
- A number of local councils are trialling or implementing source separation of glass at kerbside.
- ACOR is developing an accreditation system for MRFs and other recycling operations.

Improved collection and recycling systems

Proof points

Glass-only kerbside collection bins in regional Victoria

The Victorian Government has announced that all households will receive a fourth kerbside collection bin for glass. The rollout will start in 2021 and be implemented gradually depending on local community needs and existing contracts.[79]

Several regional councils have already taken action. Macedon Ranges Shire Council is rolling out separate kerbside glass collections, following a successful 2019 trial. The decision comes after Macedon Ranges was one of 33 Victorian councils affected by the closure of recycling processor SKM Recycling. A new recycling processor has been identified, but only if glass is removed from the household recycling bins. Macedon's new 140 litre glass-only bins will be collected every four weeks and have purple lids.[80]

Moyne Shire Council is introducing a similar service in 2020, supported by a community education campaign. New purple-lidded bins were delivered at the beginning of the year with the new service to begin in February. The glass bins will be emptied every four weeks, while the yellow-lidded recycling and green-lidded FOGO bins will continue to be collected every two weeks, and the red-lidded landfill bin remains weekly. Separating glass at the kerbside will provide Council access to a range of potential recycling processors that do not accept glass. Glass will be crushed at a separate recycling depot within the shire for use as a substitute for sand in road base.[81]

Increasing local capacity to recycle and process post-consumer PET packaging by PACT Group and Martogg Group[82]

Pact Group

Pact Group have committed to expanding local capacity to recycle post-consumer materials by an increased 35,000 tonnes per annum, in addition to the more than 30,000 tonnes of resin they currently convert. This capacity has been supported through the five co-funding grants Pact Group received throughout 2019.[83] In 2020 a new joint venture between PACT, Cleanaway and Asahi Beverages to recycle plastic packaging was also announced[84].

Martogg

Martogg Group's own brand of recycled PET, marPET®, is produced in Victoria using Vacurema® Technology. As demand for food-grade rPET is growing worldwide, Martogg have committed to expanding their capacity to support Australia's packaging manufacturers. Martogg recently started up its second rPET processing line and will have added a third line by mid-2020 that will increase their total marPET® recycling capability to 23,000 tonnes per annum.

[79] https://wastemanagementreview.com.au/macedon-ranges-to-roll-out-seperate-kerbside-glass-collections/
[80] http://www.moyne.vic.gov.au/News-Media/Changes-to-Kerbside-Services-Better4Moyne
[81] https://wastemanagementreview.com.au/vic-councils-awarded-1-25m-for-kerbside-upgrades/
[82] Envisage Works, Sustainable Resource Use and Industry Edge (2019), Recovered Resources Bulletin, Prepared for WMRR and Sustainability Victoria, October 2019
[83] Pact Group, 2019. Sustainability Review. Available at: https://pactgroup.com.au/sustainability/
[84] Cleanaway, 2020.

Improved collection and recycling systems

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Collect data on recycling rates and opportunities in the C&I sector (2020)	Undertake research on collection systems and end markets for soft plastics (2020-2021)	Identify opportunities for closed loop recycling of soft plastics by Members (2020-2021)
Support APCO Members to pledge commitments to recycled content in packaging to drive demand and therefore infrastructure (2020)	Lead development of ANZPAC Plastics Pact program in Australia (2020)	Exchange learnings and best practices across countries and regions to accelerate the transition to the circular economy for plastic through ANZPAC Plastics Pact (2021-2025)
Facilitate waste collection opportunities in regional and remote areas (2020-2021)	Australian Government to support domestic recycling through Cooperative Research Centres Projects grants programs and the Australian Recycling Investment Fund (2020-2030)	

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

Improved collection and recycling systems

Strategy 2.4
Educate households and businesses to source separate effectively

The Material Flow Analysis report for Australia, highlights the significant losses of recyclable packaging that occur at source, i.e. in households, businesses and institutions, when people dispose of recyclable packaging to landfill.[85] Around 550,000 tonnes of corrugated cardboard, for example, was disposed directly to landfill in 2017-18, despite it being recyclable and an important source of revenue when available as a clean stream.

Recovery rates are linked to decisions made by millions of people every day on how to dispose of their packaging, which determines whether it ends up in landfill or is sent for reprocessing. These decisions are influenced by many factors including awareness, knowledge and values, and the availability and cost of recycling services. A challenge for many smaller organisations, for example, is the additional cost of a recycling service compared to landfill disposal.

Education and communication have potential to redirect more packaging to recycling collection services by raising awareness and educating people. This can take many forms including:

- on-pack labelling,
- marketing campaigns by Brand Owners,
- local council education via websites, newsletters, bin tags etc.,
- state government education campaigns,
- Planet Ark's National Recycling Week and Recycling Near You.

The Australasian Recycling Label (ARL) Program is a powerful behaviour change program. The standardised on-pack labelling system, underpinned by PREP and supported by a national communications campaign, educates consumers about the correct disposal of packaging at end-of-life. At the end of 2019, over 300 APCO Members were already using PREP and the ARL to inform and engage their consumers in recycling on over 15,000 product SKUs.

In 2019, the Australian Government committed funding to APCO to create a consistent national approach to consumer education on reducing, reusing and recycling packaging over the next four years. Consumer engagement and education will be vital to achieve increased recycling rates, reduced contamination in recycling and composting systems, and active purchasing of products made with recycled content. For consumer education to be successful, consistent messaging is required from all organisations and institutions. APCO's National Approach to Consumer Education for Sustainable Packaging aims to deliver agreed consistent key messaging for best practice delivery on engaging and educating consumers regarding responsible consumption, recycling right, reuse systems and the benefits of sustainable packaging, including its purpose in fighting food waste. This will also support the extension of the ARL to harmonise communications for the use of recycled content and B2B packaging.

[85] Institute for Sustainable Futures (ISF), in Envisage Works, 2019. pp. 57-73

Improved collection and recycling systems

APCO Commitments

- Work with APCO Members to implement the ARL on all consumer packaging.
- Develop a better understanding of C&I collection services to establish the suitability of the ARL to be applied to B2B packaging.
- Implement the National Approach to Consumer Education for Sustainable Packaging program.

Mutually reinforcing activities

- Planet Ark collects annual data on access to recycling services to support their Recycling Near You website and information service.
- ACOR has developed a recycling App to help consumers find out how to recycle municipal waste in NSW.
- BehaviourWorks at Monash University is undertaking research on how to change consumer behaviour to reduce contamination in recycling bins[86].
- The Western Australian Waste Taskforce has developed consistent messaging on what to include and not include in recycling bins. A bin tagging program funded by the state government and implemented by WALGA is also providing community feedback on the content of their kerbside bins[87].
- State and territory governments promote recycling through websites and many other communication and engagement tools.
- Industry associations such as the Australian Food and Grocery Council (AFGC) and the National Retailers Association (NRA) engage their members on sustainable packaging.
- Recycling Victoria includes statewide education and behaviour change programs to deliver consistent recycling and waste reduction messages across Victoria, helping households and businesses transition to new recycling services and improving source separation behaviours.
- Planet Ark also lists recycling services for C&I and C&D nationally via the Business Recycling website.

[86] Western Australia Local Government Association, 2018.
[87] Wastenet, n.d. Bin Tagging Program. Available at: https://www.wastenet.net.au/programs/bin-tagging-program.aspx

Improved collection and recycling systems

Proof points

Australasian Recycling Label educates consumers to reduce kerbside contamination

In 2017, as the world adjusted to the China Sword policy, APCO recognised the need for effective labelling on product packaging, to ensure the correct disposal by households at the end-of-life and to improve the quality and resource recovery rates for packaging materials entering the Australian market.

In partnership with Planet Ark, APCO launched the **Australasian Recycling Label (ARL)** in 2018, for exclusive use by APCO Members. Underpinned by PREP Design's Packaging Recyclability Evaluation Portal (PREP) and Planet Ark's *Recycling Near You* data, the ARL allows Brand Owners to accurately label their packaging with clear, consistent disposal advice for households utilising kerbside waste collection systems.

RIGHT LABEL **RIGHT BIN**

Box | Wrap | Film

Store Drop Off

arl.org.au
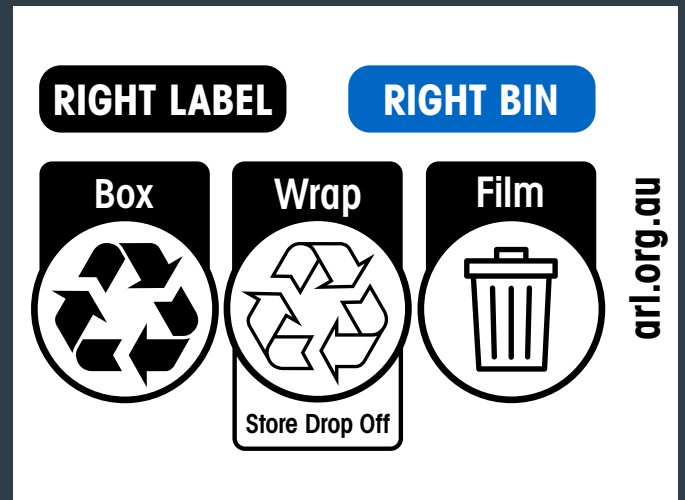
Nestlé supports the ARL

APCO Member Nestlé is one of the world's largest food and beverage companies, representing more than 2,000 brands worldwide. Since joining the ARL Program in 2017, Nestlé has become a leading proponent of the ARL. With its first two products to feature the ARL hitting the shelves in August 2018, a further 470 products featuring the label have since been released, with a commitment to apply the ARL on all locally controlled artwork by the end of 2020.

More broadly, the company aims to make 100% of its packaging recyclable and reusable by 2025, in line with Australia's 2025 Targets. Nestlé's packaging team is well on the way to achieving its goals, with more than 1,800 SKUs (as of 2019) already assessed through PREP.

Improved collection and recycling systems

Waste Companies
take education into their own hands

Operating at the front line of waste management, companies like **Cleanaway, Visy, Veolia** and **SUEZ** understand the value of education when it comes to reducing contamination of recyclables and improving resource recovery outcomes.

Cleanaway offers tailored educational programs and resources for community, businesses, schools and colleges, with age-specific content catering to diverse range of age groups and audiences.

Through its public program, *Project R*, **Visy** provides a comprehensive range of publicly accessible generic posters, signage and educational resources for use in a range of environments, from schools to offices.

Predominantly focused on sustainability, **Veolia** provides a range of publicly accessible educational resources for schools (including the School Sustainability Challenge), councils and businesses.

SUEZ offers on-site and online training options for business, as well as customisable signage templates around resource recovery and education programs for schools and local communities.

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Engage 50% of eligible APCO Members to sign up to PREP and the ARL (2020)	Display the ARL on an increasing number of packaging SKUs on the market (2020-2025)	Engage 100% of eligible APCO Members to sign up to PREP and the ARL (2025)
Develop the National Approach to Consumer Education for Sustainable Packaging program (2020)	Implement the National Approach to Consumer Education for Sustainable Packaging program in partnership with APCO Members and key stakeholders to deliver consistent and agreed communication regarding correct recycling behaviours and more (2020-2024)	
Research the recyclability flows of C&I packaging and potential application of the ARL in collaboration with the waste and recycling industry (2020)	Technical Advisory Committee oversee updates to PREP, ensuring the tool remains accurate over time (2020-2025)	Adapt the ARL to be applicable for application on B2B and C&I packaging to support greater recovery of these streams (2021-2022)

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

OUTCOME THREE
EXPANDED MARKETS FOR USED PACKAGING

Expanded markets for used packaging

Strategy 3.1
Increase recycled content in packaging

In the transition towards a circular economy, we must aim to recycle as much packaging as possible back into packaging to keep materials at their highest potential value for as long as possible. This strategy is a fundamental part of the 'circular transition', acknowledging that these markets and the manufacturing capacity required to support them will take time to develop. There are technical, regulatory, financial and supply chain constraints that limit the use of recycled material in some applications, particularly food and pharmaceutical packaging, and flexible plastics, which need to be addressed.

Many APCO Members are leading this transition by investing in R&D and equipment to utilise more recycled material in their packaging. APCO will work with its Members to drive demand for recycled material, particularly for plastics.

APCO Commitments

- Work with Members to publicly pledge the volumes of specific materials that they will transition from virgin materials to recycled content by 2025, to identify market demand for recycled materials
- Prepare the business case and detailed design guidelines for use of recycled materials in packaging.
- Develop a traceability and verification system for recycled content in packaging and products.
- Design a labelling system for recycled content in packaging, linked to the ARL and supported by the verification system.
- Work with stakeholders on projects to increase use of recycled content in targeted sectors.
- Assist Planet Ark to build a database of recycled content packaging products in the Circular Economy Hub and Marketplace.

Mutually reinforcing activities

- The National Waste Policy Action Plan commits the Australian Government to identify financial and other incentives to assist businesses to design for, and use, greater volumes of recycled materials across their supply chains. It also commits all governments to develop new markets for recycled products and materials.[88]
- Many companies in the packaging supply chain in Australia have signed the EMF's New Plastics Economy Global Commitment. Signatories have to report annually on progress towards targets, including average levels of recycled content.[89]
- NWRIC and APCO will collaborate in developing national resource recovery specifications for packaging materials. These will provide companies in the packaging supply chain confidence in the quality of materials being supplied by the resource recovery sector.
- Recycling Victoria's Recycling Markets Acceleration package aims to drive innovation and provide standards, specifications and guidance for increased recycled material use.

[88] Department of Environment and Energy, 2019.
[89] Ellen MacArthur Foundation, 2019b.

Expanded markets for used packaging

Proof points

Natures Organics driving the Australian market for recycled content in consumer packaging[90]

Natures Organics has had sustainability in focus since it was founded in 1981 and a major part of the company's strategy relates to the use of recycled materials in packaging wherever possible.

Across a diverse range of brands including Earth Choice and Organic Care, the company uses 100% post-consumer recycled plastic in all its PET bottles, 100% recycled fibre in shipping cartons and 50% recycled HDPE in laundry liquid bottles.

Natures Organics' sustainable packaging strategy sees the company utilising almost 1,500 tonnes of rPET and 127 tonnes of recycled HDPE annually, making a significant contribution to driving the end market for recycled plastics.

The company is also a great example of the circular economy operating at scale within the domestic market. In addition to driving demand for recycled materials, Natures Organics works with Australian plastics recycler VISY to source their recycled plastics and have changed their designs to increase recyclability.

Wellman Packaging recycled polyethylene sauce bottle[91]

Wellman Packaging has developed an innovative 'squeezy' sauce bottle with 90% food grade recycled polyethylene. Believed to be a first in ANZ markets, the innovation comes after two years of intensive work by the company in partnership with its supply chain partners, to develop the proprietary processes and polymer technologies required.

The claim of 90% food grade recycled plastic will be backed by Wellman Packaging's independently audited certificate of compliance. The company will continue to develop the technology and is confident that the recycled content will shift to 100% over the next two years. The development is part of an overarching strategy to move to business into a fully sustainable model for plastics packaging.

[90] https://www.packagingcovenant.org.au/documents/item/3199
[91] Hughson, L., 2019. EXCLUSIVE: Wellman launches ANZ first recycled squeezy sauce bottle. Packaging News. Available at: https://www.packagingnews.com.au/latest/exclusive-wellman-launches-anz-first-recycled-squeezy-sauce-bottle

Expanded markets for used packaging

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Finalise updated recycled content targets for the 2025 Targets (2020)	Review and update recycled content targets if necessary (2022)	APCO Members to actively report on an increasing percentage of packaging with recycled content, across all materials (2020-2025)
APCO Members to pledge demand for recycled content in packaging to drive local markets (2020)	Develop traceability and verification program for recycled content in packaging and products (2020-2021)	Support sector specific projects and trials to increase recycled content in packaging (2020-2025)
Collaboratively develop specifications for recycled materials (2020-2021)	Planet Ark to develop a national Circular Economy Hub and Marketplace (2020-2025)	Federal, State and Local government to procure products made with recycled content materials (2020-2030)
Develop an evidence based labelling program for recycled content in packaging (2020-21)	Develop design guidelines to support the increased inclusion of recycled content in packaging (2021-2022)	Monitor and maintain the recycled content labelling program for APCO Members (2021-2025)

KEY: Green: APCO Commitments
Black: Mutually reinforcing activities

Expanded markets for used packaging

Strategy 3.2
Increase use of recycled packaging materials in other products and civil construction

In 2017-18, approximately 1.3 million tonnes of packaging recovered in Australia was recycled back into packaging and 536,000 tonnes into non-packaging applications[92]. This strategy aims to increase closed-loop recycling (packaging into packaging) as well as reuse in alternative products.

One of the most promising end-markets for recycled packaging unable to be reprocessed back into packaging is into civil construction, particularly roads. It has been estimated that 7,500 tonnes of soft plastics and 150,000 tonnes of crushed glass could be used in Australian roads each year, generating a net present value of around $245m[93]. These figures could be much higher. Analysis of 12 current major roads projects in Australia identified the potential to divert an additional 104,500 tonnes of soft plastics and 1.34 million tonnes of glass[94]. This strategy will require increased investment in processing facilities to boost supply, government commitment and procurement targets to specify recycled materials, and changes to some standards.

Government procurement of recycled materials in the form of products (including packaging) and construction materials needs to increase to support market development. There are challenges for government agencies in doing so, such as the cost of some recycled materials compared to traditional materials and lack of information on recycled materials. APCO is investigating opportunities to provide support for government agencies (with the focus primarily on local, state and territory governments) to procure recycled materials in the form of products (including packaging) and construction materials. These could include:

- Supporting learning from pilot projects and the sharing of information between pilot projects that encourage 'learning by doing' and the sharing of information between government agencies and suppliers of recycled materials.
- Facilitating sharing of information on challenges and approaches to integrating recycled content into procurement practices, for example through a community of practice, webinars and events.
- Assisting the development of skills and knowledge on recycled content procurement, for example through a recycled content procurement toolkit.

[92] Envisage Works, 2019.
[93] The CIE and APC, unpublished.
[94] MRA Consulting, 2019. Public Procurement of Road Building Materials – Research into Recycled Content. A submission to ACOR. Available at: http://www.acor.org.au/publications.html

Expanded markets for used packaging

APCO Commitments

- Develop a traceability and verification system for recycled content in packaging and products.
- Assist Planet Ark to build a database of recycled content packaging and products on the Circular Economy Hub and Marketplace.
- Develop resources to support state and local government procurement of recycled content products.
- Support REDcycle's circular economy partnership initiative, which will enable organisations to actively participate in a circular model by committing to the procurement of recycled products containing materials recovered through the REDcycle Program.

Mutually reinforcing activities

- The National Waste Policy Action Plan Target 4 commits to significantly increase the use of recycled content by governments and industry.[95] Specific actions include:
    - identifying financial and other incentives to assist businesses to design for, and use, greater volumes of recycled materials across their supply chains;
    - developing new markets for recycled products and materials; and
    - prioritising the development of national standards and specifications for the use of recycled content in a broad range of capital works projects, particularly for road and rail.
- Many local councils are proactively seeking to increase procurement of recycled products to support end-markets for kerbside material.
- In NSW local government procurement of recycled products is supported through the Sustainable Choice program[96].
- AustRoads publishes standards and publications surrounding the use of recycled content in roads and pavements etc[97].
- The Victorian Government's Recycled First policy will build new requirements into future major transport projects to optimise, and report on, the use of recycled materials."

[95] Department of Environment and Energy, 2019.
[96] Local Government New South Wales, n.d. Sustainable Choice. Available at: https://www.lgnsw.org.au/member-services/sustainable-choice
[97] Austroads, n.d. Publications. Available at: https://austroads.com.au/publications?f.Publication+State%7CpublicationState=Live&f.Topic%7C-publicationTopic=Recycled+material&sort=date

Expanded markets for used packaging

Proof points

Downer Group recycles materials in road base

In May 2018, the Victorian Government announced the $2.5 million program supporting market development for recovered resources at the launch of a road made from recovered materials. The Resource Recovery Market Development program was designed to support research, development and demonstration projects that have the potential to use significant quantities of recovered resources.

In partnership with the Sustainability Victoria, Hume City Council, Close the Loop and RED Group, Downer constructed Australia's first road utilising a combination of soft plastics, glass, reclaimed asphalt and toner remnants from used printer cartridges.

For every 1km of road (2 lanes), the road surface uses approximately:

- 530,000 recycled plastic bags and packaging.
- 170,000 recycled glass bottles.

- Toner from 12,500 used printer cartridges.
- 130 tonnes of reclaimed road (asphalt), with the inclusion of 20% Reclaimed Asphalt Pavement (RAP).

Monitoring of the surface since installation has highlighted a 65% improvement in fatigue for longer life pavements, and improved deformation resistance to heavy vehicular traffic[98].

UNSW SMaRT Microfactories recycle used resources into sustainable materials

The University of NSW's (UNSW) Centre for Sustainable Materials Research and Technology (SMaRT) was established in 2008 to develop creative solutions for major waste challenges. The product of the work undertaken by the university is a range of new waste-integrated novel (WIN) building materials.

A few examples of these novel materials:
- Utilising waste plastics harvested from e-waste processed through the SMaRT microfactory at UNSW, the SMaRT team has transformed the material into filament for use in 3D printing.
- Developing an alternative to virgin materials in construction and furniture making, the SMaRT Centre has created a sustainable particle board by processing used wood into particle and creating a Binder made from mixed-waste plastics that are typically landfilled.
- Aiming to improve glass recycling rates, the SMaRT Centre has created a process that
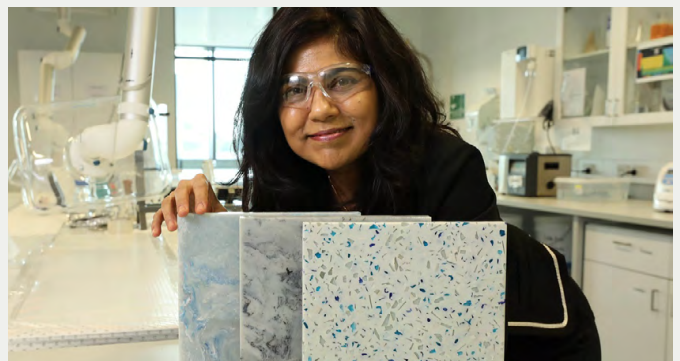
allows waste glass to be converted into a material similar to the quartz stone often used in benchtops, vanity units, flooring and other building materials.

Taking a creative approach to material sustainability, the SMaRT Centre is demonstrating clear pathways for some of the more challenging waste materials, in the sustainable buildings of the future.

[98] Sustainability Victoria, July 2018. Paving the way with soft plastics and glass – Fact sheet. Available at: https://www.sustainability.vic.gov.au/Government/Waste-and-resource-recovery/Recycled-materials-in-pavement

Expanded markets for used packaging

Actions to 2025

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Develop traceability and verification program for recycled content in packaging and products (2020-2021)	Support government stake-holders to utilise the traceability program to verify the procurement of recycled content products (2021-2025)	Drive support for APCO Members to commit to the procurement of recycled packaging and products (2020-2025)
Collaboratively develop specifications for recycled materials (2020-2021)	Planet Ark to develop a national Circular Economy Hub and Marketplace (2020-2025)	Federal, State and Local government to procure products made with recycled materials (2020-2030)

KEY: Green: APCO Commitments
      Black: Mutually reinforcing activities

4.0 Measuring and Reporting Progress

To ensure that APCO is able to monitor and report on progress towards the 2025 Targets, a data collection program will be finalised in 2020. This will include:

- the data collection methodology for baseline progress;
- reporting requirements and data sources; and
- a schedule of reporting/collection frequency.

Most Australian jurisdictions already collect some data on packaging collection and recycling. There is an opportunity to improve the quality of data collection and reduce unnecessary duplication by developing a more coordinated approach with government.

APCO Commitments

- Investigate in collaboration with all levels of government, the potential for coordinated national data collection on packaging waste to landfill (waste audits), consumption and recovery.
- Publish annual reports on progress towards the 2025 Targets.
- APCO provide reporting to government under the requirements of the Australian Packaging Covenant.

Mutually reinforcing activities

- The Australian Government have published an Experimental National Waste Account to quantify key material flows and the economic value of the waste and recycling industry.[99]
- ACOR is developing an accreditation system for MRFs and other recycling operations that may be able to provide data on MRF efficiency.
- State and territory government collect data on waste and recycling that feeds into the Australian Government's National Waste Report.
- Planet Ark undertakes research annually on consumer awareness of the ARL.
- Under Recycling Victoria, the Victorian Government will expand waste data systems to cover the whole economy – including product and process design, material use, reuse, recycling and safe disposal.
- It is fundamentally important that APCO continues to measure packaging outcomes such as consumption, recovery and system losses. The framework reporting will be developed to align and meet the critical success factors in the APC Strategic Plan and the Statement of Intent.

It is fundamentally important that APCO continues to measure packaging outcomes such as consumption, recovery and system losses. Intermediate outcomes will also be measured to enable progress towards the targets to be evaluated.

[99] Australian Bureau of Statistics, 2019. Waste Account, Australia, Experimental Estimates, 2016-17. Available at: https://eea.environment.gov.au/projects/experimental-national-waste-account

5.0 Glossary

B2B	Business to business
Collection efficiency	Materials collected for recycling divided by total packaging waste entering the collection system.
Compostable packaging[100]	A packaging or packaging component (1) is compostable if it is certified to AS4736 (2), AS5810 (3) or a similar compostability standard, and if its successful post-consumer (4) collection, (sorting), and composting is proven to work in practice and at scale (5). **Notes** 1. ISO 18601:2013: A packaging component is a part of packaging that can be separated by hand or by using simple physical means (e.g. a cap, a lid and (non in-mould) labels). 2. Australian Standard AS 4736: 2006 Biodegradable plastics—Biodegradable plastics suitable for composting and other microbial treatment or Australian Standard 3. Australian Standard 5810: 2010 Biodegradable plastics—Biodegradable plastics suitable for home composting 4. ISO 14021 clarifies post-consumer material as material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain. 5. 'At scale' implies that there are significant and relevant geographical areas, as measured by population size, where the packaging is actually composted in practice.
Composted packaging[101]	Packaging that underwent degradation by biological processes during composting to yield CO_2, water, inorganic compounds and biomass at a rate consistent with other known compostable materials and leaves no visible, distinguishable or toxic residue, in accordance with accepted industry standards (1). **Notes** 1. Accepted industry standards include Australian Standard AS 4736: 2006 Biodegradable plastics—Biodegradable plastics suitable for composting and other microbial treatment or Australian Standard and Australian Standard 5810: 2010 Biodegradable plastics—Biodegradable plastics suitable for home composting
EPS	Expanded polystyrene
Fragmentable plastics	Plastic materials including oxo-degradable, oxo-biodegradable and enzyme-mediated materials that incorporate an additive to accelerate the fragmentation of the material into smaller pieces, triggered by ultraviolet radiation or heat exposure, and do not meet the requirements of the internationally recognised compostable plastics standard specifications including AS4736 and AS5810.
HDPE	High density polyethylene

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[100] Based on Ellen Macarthur Foundation, 2019c. The New Plastics Economy: Global Commitment Reporting Guidelines. p. 49. Available at: https://www.newplasticseconomy.org/about/publications/reporting
[101] Australian Packaging Covenant Organisation, 2019. Biodegradable and Compostable Packaging Working Group. p. 7. Available at: https://www.packagingcovenant.org.au/who-we-are/apco-working-groups

LDPE	Low density polyethylene
Local material utilisation	Materials recovered and reprocessed (recyclate) for use within Australia for the manufacture of new products.
Material flow analysis (MFA)	Material flow analysis (MFA) is a mass balanced based analytical method to quantify flows and stocks of materials or substances for a well-defined system and time period. MFA is also referred to as substance flow analysis (SFA).
Material recycling	Reprocessing, by means of a manufacturing process, of a used packaging material into a product, a component incorporated into a product, or a secondary (recycled) raw material
Packaging[102]	Consumer packaging is defined in the National Environment Protection (Used Packaging Materials) Measure 2011 to mean all packaging products made of any material, or combination of materials, for the containment, protection, marketing or handling of consumer products. This also includes distribution packaging. For clarity, consumer packaging includes: • Primary packaging – materials directly containing the product • Secondary packaging – materials used to contain single or multiple primary packed products • Tertiary packaging – materials used to distribute packaged and unpackaged products
Packaging placed on the market[103]	Packaging is defined as being 'placed on the market' (PoM) when it is first made available to the end-consumer, and disposal is following the intended full use of the packaging, and can be considered 'post-consumer'. Packaging losses prior to the point of PoM are considered pre-consumer losses.
PCPB	Polymer coated paperboard
PET	Polyethylene terephthalate
Post-consumer materials[104]	Material waste generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.
PP	Polypropylene
Pre-consumer materials[105]	Material diverted from the waste stream during a manufacturing process. Excludes is reutilisation of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it.
Problematic plastic packaging	Plastic packaging that is currently: • difficult to collect/recover for reuse, recycling or composting purposes; or, • a waste material that hinders or disrupts/obstructs opportunities to recover other materials or resources; or • contributing to the litter problem; or, • made using, manufactured with, contains or has contained hazardous chemicals or materials 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.
PS	Polystyrene
PVC	Polyvinyl chloride
Recovery rate	Recovery (at a defined point) as a percentage of end-of-life disposal. Similar meaning to 'Recycling rate' but can include material into composting and energy recovery. Excludes reused products. Also see 'Recycling rate'.

Recyclable packaging[106]	A packaging (1) or packaging component (2,3) is recyclable if its successful post-consumer (4) collection, sorting, and recycling (5) is proven to work in practice and at scale. Notes 1. A package can be considered recyclable if its main packaging components, are recyclable according to the above definition, and if the remaining minor components are compatible with the recycling process and do not hinder the recyclability of the main components. The PREP design tool provides information on recyclability of packaging through kerbside collection services. 2. A packaging component is a part of packaging that can be separated by hand or by using simple physical means (ISO 18601), e.g. a cap, a lid and (non in-mould) labels. 3. A packaging component can only be considered recyclable if that entire component, excluding minor incidental constituents (6), is recyclable according to the definition above. If just one material of a multi-material component is recyclable, one can only claim recyclability of that material, not of the component as a whole (in line with ISO 14021). 4. ISO 14021 defines post-consumer material as material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain. It excludes pre-consumer material (e.g. production scrap). 5. ISO 18601:2013: A packaging constituent is a part from which packaging or its components are made and which cannot be separated by hand or by using simple physical means (e.g. a layer of a multi-layered pack or an in-mould label).
Recycled content[107]	The proportion, by mass, of pre-consumer and post-consumer recycled material in packaging. Only pre-consumer and post-consumer materials shall be considered as recycled content, consistent with the definitions below. Recycled content is expressed as a percentage of the quantity of packaging material placed onto the market.
Recycled packaging[108]	Packaging that has been reprocessed from recovered (reclaimed) material by means of a manufacturing process and made into a final product or into a component for incorporation into a product.
Recycling rate	Recovery (at a defined point) as a percentage of end-of-life disposal. Similar meaning to 'Recovery rate' but excludes material into energy recovery and reused products.
Reusable packaging[109]	Packaging which has been designed to accomplish or proves its ability to accomplish a minimum number of trips or rotations (1,2) in a system for reuse (3,4). Notes 1. A trip is defined as transfer of packaging, from filling/loading to emptying/unloading. A rotation is defined as a cycle undergone by reusable packaging from filling/loading to filling/loading (ISO 18603). 2. The minimum number of trips or rotations refers to the fact that the 'system for reuse' in place should be proven to work in practice, i.e. that a significant share of the package is actually reused (measured e.g. by an average reuse rate or an average number of use-cycles per package). 3. A system for reuse is defined as established arrangements (organisational, technical or financial) which ensure the possibility of reuse, in closed-loop, open-loop or in a hybrid system (ISO 18603). 4. Reuse is an operation by which packaging is refilled or used for the same purpose for which it was conceived, enabling the packaging to be refilled (ISO 18603).
Single-use plastic packaging	Plastic 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.
Unnecessary plastic packaging	Plastic 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.

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[106] Ellen Macarthur Foundation, 2019c. p. 45.
[107] Based on Standards Australian, 2018. Australian Standard 14021: 2018, Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling), p. 15.
[108] Based on Standards Australia, 2018. Australian Standard 14021: 2018, Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling), p. 15.
[109] Ellen Macarthur Foundation, 2019c, pp. 36-7.

Appendix 1.

All actions across the three phases of implementation for the delivery of the 2025 National Packaging Targets

Strategy 1.1 Reduce packaging through design and innovation

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Promote updated SPGs to Members through APCO and AIP training	All APCO Members use the SPGs to reduce material usage (2020-2025)	APCO Members report an increase in packaging optimisation or reduction (2020-2025)
Develop the National Consumer Education Campaign on packaging (2020)	Implement the National Consumer Education Campaign in partnership with Members and key stakeholders to deliver consistent and agreed communication regarding recycling and reduced consumption (2020-2024)	
Analyse packaging that is not designed for the current system to identify opportunities for reduction, reuse and recycling.	All APCO Members actively work to phase out priority plastic packaging (2020-2025)	

Federal and state jurisdictions implement approaches to achieve targets of waste generation reduction.

Strategy 1.2 Phase out problematic and unnecessary single-use plastic packaging

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Develop action plans to support the phasing out of problematic and unnecessary single-use plastic packaging (2020)	All APCO Members actively work to phase out priority plastic packaging (2020-2025)	Evaluate progress in delivery of the phase out action plans and update as needed (2022-2025)
Finalise the voluntary code of practice for shopping bags with key stakeholders (2020)	Retailers adhere to the implementation of the voluntary code of practice for shopping bags (2021-2025)	APCO retail Members implement and report an increase in the phase out of heavy weight plastic bags (2021-2025)
South Australian, Australian Capital Territory and Queensland Government legislation on single-use plastics (2020)	Support the considered implementation of all jurisdictional single-use plastic legislations (2020-2025)	

Strategy 1.3 Increase the proportion of reusable packaging

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Promote updated SPGs to Members through APCO and AIP training courses (2020)	All APCO Members use the SPGs to improve design for recovery including new opportunities for reuse (2020-2025)	APCO Members report on the increase in proportion of reusable packaging (2020-2025)
Develop methodology to measure and track reuse flows (2020)	Deliver annual Material Flow Analysis (MFA) data reports with inclusion of reuse flows (2021-2025)	
Complete research into the opportunities for reuse models for both consumer and B2B packaging (2020)	Facilitate collaborative projects to implement reuse models across targeted applications or supply chains (2021-2025)	

Strategy 1.4 Design for material recycling

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Promote updated SPGs to Members through APCO and AIP training courses (2020)	All APCO Members use the SPGs to improve design for recovery (2020-2025)	APCO Members report on the increased proportion of packaging that is designed for reuse or recycling (2020-2025)
Coordinate stakeholder agreement to the developed fibre-based packaging recyclability methodology (2020)	Test fibre-packaging recycling and deliver design guidelines for fibre-based packaging recyclability (2021)	Ongoing review of design guidelines to support advances in packaging and recovery pathways (2022-2025)
Investigate how PCPB, glass and small items of packaging are sorted in MRFs (2020)	Integrate results of MRF trials into PREP and release design guidelines (2020-2021)	Investigate the fate of additional problematic packaging items in sorting and reprocessing systems (2021-2025)

Strategy 1.5 Design for compostability where appropriate

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Release a joint guideline on the key considerations for compostable packaging (2020)	Develop a national compostable packaging strategy with industry and government partners (2020-2021)	Halve the amount of organic waste sent to landfill for disposal through increasing the proportion of households with access to FOGO collections (2030)
Drive the active phase out of fragmentable (degradable) plastics that are not certified compostable or recyclable (2020-2022)	Deliver consumer education to increase understanding and correct disposal of compostable packaging (2021-2025)	Develop labelling system for clear identification of compostable packaging and disposal instructions (2022-2024)

Strategy 2.1 Standardise kerbside collection systems

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
APCO Members apply the ARL to an increased proportion of their packaging on the market (2020-2025)	APCO Members actively use design guidelines that support recyclability (2020-2025)	Technical Advisory Committee oversee updates to PREP, ensuring the tool remains accurate over time (2020-2025)
National Waste Policy Action Plan reviews national standards for kerbside collection (2020-2030)		Victoria implements a fourth bin to separately collect glass (2023)

Strategy 2.2 Expand drop-off and take back systems for packaging

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Establish the CDS Working Group (2020)	Develop a comprehensive and aligned agenda of CDS harmonisation opportunities (2020-2021)	Develop key principles or a model to guide the delivery of future closed loop systems (2021-2025)
Establish CDS (Containers for Change) in WA (2020)	Establish CDS in Tasmania (2022)	Establish CDS in Victoria (2023)
Facilitate waste collection opportunities in regional and remote areas (2020-2021)	Extend the ARL to support additional drop-off collection systems and B2B recycling streams (2021-2025)	Identify and facilitate additional opportunities for closed loop collection systems (2021-2025)

Strategy 2.3 Improve the infrastructure for sortation and recycling

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Collect data on recycling rates and opportunities in the C&I sector (2020)	Undertake research on collection systems and end markets for soft plastics (2020-2021)	Identify opportunities for closed loop recycling of soft plastics by Members (2020-2021)
Support APCO Members to pledge commitments to recycled content in packaging to drive demand and therefore infrastructure (2020)	Lead development of ANZPAC Plastics Pact program in Australia (2020)	Exchange learnings and best practices across countries and regions to accelerate the transition to the circular economy for plastic through ANZPAC Plastics Pact (2021-2025)
Facilitate waste collection opportunities in regional and remote areas (2020-2021)	Australian Government to support domestic recycling through Cooperative Research Centres Projects grants programs and the Australian Recycling Investment Fund (2020-2030)	

Strategy 2.4 Educate households and businesses to source separate effectively

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Engage 50% of eligible APCO Members to sign up to PREP and the ARL (2020)	Display the ARL on an increasing number of packaging SKUs on the market (2020-2025)	Engage 100% of eligible APCO Members to sign up to PREP and the ARL (2025)
Develop the National Approach to Consumer Education for Sustainable Packaging program (2020)	Implement the National Approach to Consumer Education for Sustainable Packaging program in partnership with APCO Members and key stakeholders to deliver consistent and agreed communication regarding correct recycling behaviours and more (2020-2024)	
Research the recyclability flows of C&I packaging and potential application of the ARL in collaboration with the waste and recycling industry (2020)	Technical Advisory Committee oversee updates to PREP, ensuring the tool remains accurate over time (2020-2025)	Adapt the ARL to be applicable for application on B2B and C&I packaging to support greater recovery of these streams (2021-2022)

Strategy 3.1 Increase recycled content in packaging

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Finalise updated recycled content targets for the 2025 Targets (2020)	Review and update recycled content targets if necessary (2022)	APCO Members to actively report on an increasing percentage of packaging with recycled content, across all materials (2020-2025)
APCO Members to pledge demand for recycled content in packaging to drive local markets (2020)	Develop traceability and verification program for recycled content in packaging and products (2020-2021)	Support sector specific projects and trials to increase recycled content in packaging (2020-2025)
Collaboratively develop specifications for recycled materials (2020-2021)	Planet Ark to develop a national Circular Economy Hub and Marketplace (2020-2025)	Federal, State and Local government to procure products made with recycled content materials (2020-2030)
Develop an evidence based labelling program for recycled content in packaging (2020-21)	Develop design guidelines to support the increased inclusion of recycled content in packaging (2021-2022)	Monitor and maintain the recycled content labelling program for APCO Members (2021-2025)

Strategy 3.2 Increase use of recycled packaging materials in other products and civil construction

FOUNDATIONAL 2020	DEVELOPMENT 2020-2022	REALISATION 2022-2025
Develop traceability and verification program for recycled content in packaging and products (2020-2021)	Support government stake-holders to utilise the traceability program to verify the procurement of recycled content products (2021-2025)	Drive support for APCO Members to commit to the procurement of recycled packaging and products (2020-2025)
Collaboratively develop specifications for recycled materials (2020-2021)	Planet Ark to develop a national Circular Economy Hub and Marketplace (2020-2025)	Federal, State and Local government to procure products made with recycled materials (2020-2030)

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