Opportunities in the Circular Economy

Pact Group submission to the Productivity Commission

Plastic Recycling and Recycled Plastic Packaging Manufacturing

Economic, Employment, and Environmental Benefits for Australia

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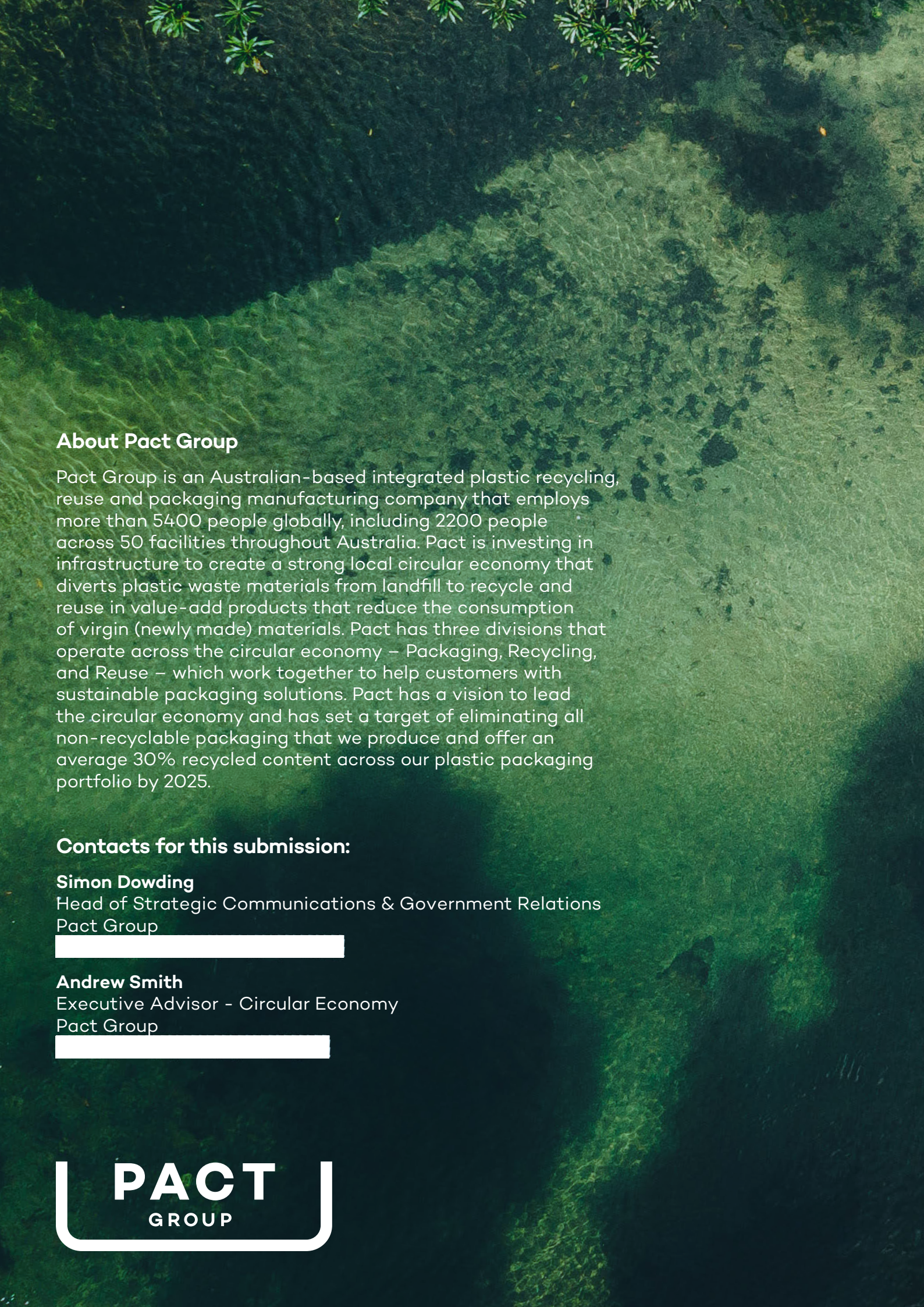

About Pact Group

Pact Group is an Australian-based integrated plastic recycling, reuse and packaging manufacturing company that employs more than 5400 people globally, including 2200 people across 50 facilities throughout Australia. Pact is investing in infrastructure to create a strong local circular economy that diverts plastic waste materials from landfill to recycle and reuse in value-add products that reduce the consumption of virgin (newly made) materials. Pact has three divisions that operate across the circular economy – Packaging, Recycling, and Reuse – which work together to help customers with sustainable packaging solutions. Pact has a vision to lead the circular economy and has set a target of eliminating all non-recyclable packaging that we produce and offer an average 30% recycled content across our plastic packaging portfolio by 2025.

Contacts for this submission:

Simon Dowding
Head of Strategic Communications & Government Relations
Pact Group
[redacted]

Andrew Smith
Executive Advisor - Circular Economy
Pact Group
[redacted]

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Executive Summary

As a leading plastic recycling, reuse and packaging manufacturing company, Pact has a vision to lead the circular economy in Australia.

A domestic circular economy is essential for fostering sustainable economic growth, reducing environmental impact, and enhancing resource efficiency within Australia. By transitioning from a traditional linear economy, where products are made, used, and disposed of, to a circular economy which prioritises the recovery and remanufacturing of locally sourced recycled materials, such as plastic, Australia can significantly reduce its environmental footprint and reliance on fossil fuels.

Recycling plastic is 2.2 times less emissions intensive than making plastic from fossil fuels so providing local, recycled content for commercial use will enable a lower emissions Circular Economy solution.[1]

In the context of packaging, a thriving domestic circular economy can minimise waste, lower carbon emissions, and create new economic and employment opportunities. Unfortunately, progress towards a circular economy for packaging in Australia has been disappointing.

Australia's failure to achieve the 2025 National Packaging Targets[2] provides clear evidence to government that the current co-regulatory system with voluntary targets has failed and wholesale reform of packaging regulation is required to transform the industry. Maintaining the status quo or simply trying to improve the current regulatory arrangements will have little to no effect on efforts to reduce the impact of packaging on our environment and build a sustainable domestic circular economy for packaging.

Data from the Australian Packaging Covenant Organisation (APCO) reveals that of the approximately 1.3 million tonnes of plastic packaging placed on the Australian market in 2021-22, just 258,000 tonnes (20%) was recovered and only 74,000 tonnes (6%) of new packaging was made with post-consumer recycled content. [3]

Following the 2022 ban on plastic waste exports[4], State and Federal Governments provided millions of dollars in funding and grants for new and upgraded plastic recycling facilities to build domestic processing capacity and divert thousands of tonnes of plastic waste from landfill.[5]

With a move towards a regulated packaging framework with mandatory minimum thresholds for recycled content, there is a risk that these new facilities will be undermined by cheap imported products unless there are policies and/or incentives for businesses to procure domestic products and materials.

As such, Pact Group strongly supports the intent of the reforms under Option 3 outlined in the Reform of Packaging Regulation Consultation Paper released by the Department of Climate Change, Energy, Environment and Water.[6]

Implementing mandatory design standards with minimum thresholds for recycled content, an extended producer responsibility (EPR) scheme with eco-modulated fees, and improved recycling labelling are essential for advancing the nation's circular economy aspirations and ensuring sustainable packaging practices now and into the future.

However, we and others in the sector share concerns about the potential unintended consequences if the regulations do not incentivise the use of Australian-made recycled products.

To ensure Australia's plastic recycling and recycled packaging industry delivers the environmental, economic and employment benefits, it is crucial that policy settings incentivise the use of Australian-made recycled plastic resin and packaging over imported alternatives. Without this support, Australia runs the risk of being swamped with cheap imported and unregulated recycled

[1] AMCS-WWF: Climate impacts of plastic consumption in Australia
[2] Review of the 2025 National Packaging Targets - APCO
[3] Australian Packaging Consumption and Recovery Data 2021-22 - APCO
[4] Exports of waste plastic - DCCEEW
[5] Recycling Modernisation Fund - DCCEEW
[6] Reform_of_Packaging_Regulation_Consultation_paper.pdf

products that could seriously jeopardise domestic producers and manufacturers and hinder efforts to build a strong local circular economy.

Economic Benefits

Strengthening the Local Economy

The Australian recycling industry is an important contributor to the Australian economy. Results of a macro-economic analysis of the industry commissioned by the Australian Council of Recycling (ACOR) reveal the Australian recycling industry is estimated to have contributed almost $19 billion to the Australian economy and provided nearly 95,000 jobs in 2021–22.[7]

Expressed alternatively, according to the ACOR data, the Australian recycling industry generates:

- 0.82 cents in every dollar of economic activity in Australia.
- 0.7 jobs in every 100 jobs in Australia; that is, for every 142 jobs that exist in the Australian economy, the Australian recycling industry provides one of those jobs.
- $465 in net economic activity for every one tonne of material recycled; and
- One job for every 431 tonnes of material recycled in Australia.

In its Circular Economy Roadmap released in 2021, the CSIRO found that if Australia increased its recycling rate by 5% this would add an estimated $1 billion to Australia's GDP.[8] Furthermore, the CSIRO Roadmap noted that sending large proportion of plastics to landfill represents a large loss of value to the economy, not only in the form of jobs and revenue but also in an ongoing reliance on virgin materials for the generation of new plastic products.

Encouraging Innovation and Investment

The preference for locally sourced recycled plastic encourages innovation within the Australian recycling industry. It incentivises research and development, leading to more efficient recycling technologies and processes. Government incentives, such as grants and subsidies, further promote investment in the sector, fostering a competitive and advanced recycling industry.

Through the Australian Government's Recycling Modernisation Fund (RMF), governments have contributed $250 million towards new recycling infrastructure across Australia with almost $1 billion in co-investment from industry.

With the support of grants through the RMF, Pact and its partners in the Circular Plastics Australia (CPA) joint ventures[9] have invested more than $200 million to build three large scale plastics recycling plants which are all operational. Two of the CPA plants (in Albury NSW and Melbourne VIC) have a combined capacity to produce approximately 40,000 tonnes of food grade recycled PET a year, predominantly from beverage bottles collected through container deposit schemes. The third facility, also in Melbourne, can produce up to 20,000 tonnes of food and non-food grade recycled HDPE a year.

Employment Benefits

Job Creation and Skill Development

The recycling industry in Australia is a significant source of employment. The CSIRO has estimated that Australia's recycling sector generates 9.2 jobs per 10,000 tonnes of waste recovered, compared with only 2.8 jobs for the same amount of waste sent to landfill. [10] The sector employs thousands of workers, from collection and sorting to processing and manufacturing. By prioritising Australian-made recycled plastic, the industry can create new jobs and enhance skill development, particularly in regional areas where employment opportunities may be limited. Pact Group currently

[7] 230523_economic_contribution_of_recycling_-_acor.pdf
[8] Circular Economy Roadmap
[9] Circular Plastics Australia - Remade in Australia
[10] Circular Economy Roadmap

employs more than 2200 people in its plastic recycling, reuse and packaging manufacturing facilities throughout Australia and a further 900 people in New Zealand.

Environmental Benefits

Reducing Carbon Footprint

One of the most compelling arguments for using Australian-made recycled plastic is its environmental impact. Locally sourced recycled plastic significantly reduces carbon emissions compared to imported virgin resins derived from fossil fuels, as well as imported recycled materials, where shorter transportation distances lower the carbon footprint, contributing to Australia's commitment to reducing greenhouse gas emissions.

When comparing mechanically recycled plastic to virgin plastic, recycled PET, HDPE and PP offer a dramatic reduction in carbon emissions and energy production.

For example, an international scientific study published in February 2024 found that recycling polyethylene terephthalate (PET) plastic (which is widely used for bottled water, carbonated beverages and food packaging) can significantly reduce energy and GHG emissions compared to virgin PET production. A life cycle assessment (LCA) study revealed that it can reduce energy consumption by 84%, GHG emissions by 71%, and lower energy intensity and carbon footprint compared to the production of virgin PET.[11]

Pact Group is one of the largest plastics recyclers in Australasia. In FY24 Pact Recycling sites processed and sold 59,000 tonnes of resin which was utilised internally for our own products or sold to packaging producers. Our recycling facilities process a diverse range of plastic polymers. Feedstock sources vary between sites and include kerbside collections, Container Deposit Scheme materials, pre-consumer waste and the various product stewardship programs we participate in. Pact, in collaboration with our customers, uses the recycled resins to replace virgin resin in the manufacture of new finished goods to create a circular economy.

Our internal life cycle assessment shows that the use of locally produced recycled resins reduce the Scope 3 emissions of purchased resins by approximately 40% to 45% per unit of weight purchased, when compared to the equivalent imported virgin resin.[12] The use of Australian made recycled resins also reduces our upstream transportation emissions, as the recycled resin is produced locally as opposed to imported, sea freighted alternatives.

Minimising Waste

The preference for domestic recycled plastic supports a circular economy, where materials are reused and recycled, minimising waste. In its 2030 Strategic Plan[13], the Australian Packaging Covenant Organisation (APCO) emphasises the importance of finding solutions to better manage packaging so it doesn't become waste. By using recycled plastic in new packaging, businesses can help divert waste from landfills and reduce the reliance on virgin materials.

Enhancing Environmental Stewardship

Choosing locally produced recycled plastic aligns with Australia's environmental stewardship goals. It promotes sustainable practices within the manufacturing sector and encourages consumers to adopt environmentally friendly behaviours. This shift towards sustainability can have a ripple effect, influencing other industries to prioritize local and recycled materials.

[11] Polyethylene terephthalate (PET) recycling: A review - ScienceDirect
[12] Sustainability | Pact Group
[13] 2030 Strategic Plan - APCO

Risks of not Prioritising a Domestic Circular Economy

Quality and Safety Concerns

Imported recycled resin and packaging often come with quality, safety and provenance issues. The lack of stringent quality control measures in some exporting countries can result in substandard materials that do not meet Australian regulatory standards. These materials can pose risks to consumer safety and compromise the integrity of the packaging. Thorough traceability and material verification systems and processes must be in place to ensure imported products meet Australian standards and prevent unscrupulous manufacturers and distributors passing off imported virgin resin as recycled resin.

Economic Risks

Relying on cheap imports can expose the Australian market to economic volatility and supply chain disruptions. Fluctuations in international markets and trade policies can affect the availability and cost of imported materials. By investing in local production, Australia can mitigate these risks and ensure a stable supply of high-quality recycled plastic resins that are not subject to the volatility of international markets.

Environmental Degradation

The environmental impact of importing recycled materials extends beyond carbon emissions. The lack of transparency in the recycling processes of some exporting countries can result in environmental degradation and pollution. By supporting local recycling efforts, Australia can ensure that environmental standards are met and contribute to global sustainability goals.

Internationally, concerns about the environmental impact of imported recycled resins and finished goods resulted in the EU introducing the Packaging and Packaging Waste Regulation earlier this year which obliges all importers of recycled resins and packaging to meet strict EU environmental standards.[14]

Clause 31(b) states: *"The promotion of the use of recycled content in plastic packaging is based on the premise that the recycled content itself was produced in an environmentally sustainable way, so that the carbon footprint is reduced and the circular economy is encouraged. To that end, certain safeguards need to be put in place in order to ensure that the way in which recycled content is obtained does not cancel out the environmental benefits of using such recycled content in subsequent plastic packaging. Therefore, it is necessary to address the related environmental concerns in a non-discriminatory manner with regard to both domestically produced and imported plastic packaging."*

Conclusion

It is vital that there is a national framework to direct Australia's transition to a circular economy. Implementing national packaging regulations with uniform standards and requirements will provide certainty to industry and drive necessary change.

The preference for Australian-made recycled plastic in packaging manufacturing is a strategic decision that offers numerous benefits for the domestic circular economy. It strengthens the economy overall, creates employment opportunities, and supports environmental sustainability. Moreover, it mitigates the risks associated with importing cheap recycled resin and packaging, ensuring higher quality and safety standards.

This regulatory reform must be supported by agreement among the States and Territories to harmonise kerbside recycling collections and container deposit schemes to maximise the recovery of recyclable plastic materials and ensure the long-term viability of Australian recyclers. By prioritising locally sourced recycled plastic, Australia can lead the way in sustainable packaging and contribute to a strong circular economy for the recycling and packaging manufacturing industries.

[14] European Parliament legislative resolution on packaging and packaging waste of 24 April 2024

Information request 1: Circular economy success stories and measures of success

Case Studies

Circular Plastics Australia (CPA) Industry Partnerships: A bottle-to-bottle solution

In 2020, Pact Group, Cleanaway Waste Management, Asahi Beverages, and Coca-Cola Europacific Partners (CCEP) formed a cross-industry partnership to build two new polyethylene terephthalate (PET) plastic recycling facilities to address the lack of local recycling capacity for plastic beverage bottles collected via Container Deposit Schemes and through kerbside recycling.

PET recycling is an essential part of the circular economy, which aims to reduce waste and conserve resources.

The two Circular Plastics Australia (CPA) recycling facilities for PET are now fully operational – one in Melbourne and one in Albury, NSW – and each has the capacity to produce up to 20,000 tonnes of high-quality PET resin a year, the equivalent to approximately 2 billion 600ml beverage bottles overall.

CPA (PET) enables the creation of a circular economy by drawing on the expertise and sustainability objectives of each joint venture partner.

Asahi Beverages has a goal of transitioning to 100% eco-friendly materials for all PET beverage bottles by 2030. Eco friendly means either 100% recycled content, compostable or biobased plastics.

Seven out of 10 CCEP beverage bottles in Australia are already made from recycled content, but the company is designing for 100% recyclability and implementing pack-to-pack recycling solutions for all its products in Australia.

Pact Group has a target to average 30% recycled content across the company's plastics portfolio by 2025 and eliminate all problem packaging.

Cleanaway provides the PET feedstock through its waste collection and sorting network, while Pact managed the build and operates the two plants. The facilities use state-of-the-art sorting, washing, decontamination and extrusion technology to recycle the PET beverage bottles into food grade resin which is used by Asahi and CCEP to manufacture new recycled beverage bottles and by Pact to make food and beverage packaging, all of which can be recycled again and again.

By building the country's two largest end-to-end PET recycling plants and significantly boosting onshore recycled PET plastic supply, CPA has created a closed loop system for PET beverage bottles where they are made, consumed, recycled and remade to be given another life.

The ability to recycle PET beverage bottles at scale assists in the diversion of waste from landfill and the litter stream as well as reducing Australia's reliance on virgin plastic resin derived from fossil fuels, thereby lowering CO2 emissions.

According to an international scientific study published in February 2024, PET recycling can significantly reduce energy and GHG emissions compared to virgin PET production, with a life cycle assessment (LCA) study showing that it can reduce energy consumption by 84%, GHG emissions by 71%, and lower energy intensity and carbon footprint compared to the production of virgin PET.[15]

The two CPA facilities also help brand owners and producers achieve the 2025 National Packaging Targets which are that 70% of plastic packaging must be recycled or composted and plastic packaging must be made with an average 20% recycled content.

[15] Polyethylene terephthalate (PET) recycling: A review - ScienceDirect

Circular Plastics Australia (CPA) Industry Partnerships: Sustainable milk bottles

According to Dairy Australia, Australians consume about 94 litres of milk each year on a per capita basis, which equates to more than a billion plastic milk bottles.

As part of an effort to increase milk bottle recycling in Australia, Pact Group formed a joint venture with Cleanaway Waste Management to build and operate the Circular Plastics Australia (PE) mixed plastics recycling facility in the Melbourne suburb of Laverton.

The facility, which commenced operations in early 2024, recycles high density polyethylene (HDPE) and polypropylene (PP). HDPE is used to manufacture milk bottles and dairy containers, bottles for shampoos, soaps, detergents, and laundry products. PP is used to manufacture packaging for a range of household and industrial products such as paint pails, flowerpots and fertiliser tubs.

At full operational capacity, the facility can recycle up to 20,000 tonnes of plastic waste each year, or the equivalent of around half a billion 2L plastic milk bottles.

The plastic waste is collected from kerbside recycling bins by Cleanaway Waste Management and sent to its Materials Recovery Facility in Laverton. Here, the HDPE and PP bottles and containers are separated from other plastics and sent to the adjacent CPA mixed plastics recycling plant, which is operated by Pact

The CPA recycling facility uses multiple infrared and optical sorters to ensure separation of the used plastic containers by polymer type. The material is shredded, ground, washed, sanitised and dried before final conversion to high quality food and non-food grade resins.

Pact uses the food grade resins from the recycled milk bottles to manufacture new milk bottles and dairy containers. The recycled HDPE packaging complies with the food safety requirements as per the FSANZ Food Standards Code and the US FDA 21 CFR 177.1520 for Olefin polymers for use as basic components of single use food contact surfaces. These regulatory food safety requirements are the same for recycled and virgin HDPE packaging.

The non-food grade resin is used by Pact to make packaging for household products (e.g. laundry and personal care bottles), industrial packaging and new kerbside rubbish bins.

Dairy Packaging

Pact's dairy packaging facilities are being upgraded with new energy efficient blending and moulding equipment, material handling systems and quality control systems to increase the use of recycled materials in the production of HDPE milk bottles. This will enable up to 50% recycled content in milk bottles and dramatically reduce the need for virgin plastic.

New milk bottle manufacturing equipment has been installed in two of Pact's dairy packaging facilities in Perth and Sydney, and work is almost complete on upgrades to facilities in Victoria and Queensland.

Some of Australia's largest dairy producers including Norco, Brownes, A2 and Bulla, have committed to incorporating recycled content in their milk bottles, which Pact is now manufacturing.

For consumers, it means more locally processed recycled content will be used in their milk bottles, providing a major benefit to the environment, and meeting a growing consumer demand for recycled packaging.

What goes in the recycling bin is made into a new bin

In 2024, Pact commenced production of its 120L and 240L SULO kerbside garbage bins using up to 100% recycled plastic - an Australian first. The bins are manufactured using recycled HDPE plastic from end-of-life bins and discarded household packaging waste collected from household recycling bins.

The packaging waste is recycled at the Pact-operated Circular Plastics Australia (CPA) recycling facility in Melbourne, which is a joint venture with Cleanaway Waste Management. The plastic bottles, jars and lids are sorted, shredded and washed in the state-of-the-art facility before being turned into a high-quality resin suitable for SULO bin manufacturing.

The resin is blended with recycled plastic pellets from end-of-life bins which are collected from local councils and waste management companies across Australia and processed at Pact recycling facilities in Victoria, New South Wales and Queensland.

The new recycled 120L and 240L SULO bins are manufactured in dark colours such as black and dark green which enables them to be made with up to 100% recycled plastic. This reduces the need to use virgin resin sourced from fossil fuels.

Using recycled resin to manufacture new bins can also significantly reduce the carbon emissions as well as the water usage from the manufacturing process. Using up to 100% recycled content instead of virgin resin in the manufacture of 50,000 240L bins can cut CO2 emissions by 478 tonnes and save 23.4 million litres of water. [16] This is equivalent to planting 717 trees[17] and filling nine Olympic size swimming pools[18].

Pact manufactures its SULO bins using the latest fully automated injection moulding, blending and material handling machinery at its manufacturing plants in Melbourne and Somersby, NSW.

SULO bins are used for general waste, recycling, food and garden organics (FOGO), and glass collection and have been rolled out to more than 200 local councils across Australia as well as for commercial customers. To date, Pact has delivered more than 20 million SULO bins into the Australian market.

SULO's recycled bins meet the same quality and performance standards as kerbside garbage bins made with virgin resin or a combination of virgin and recycled resin and are in turn recyclable at the end of their life.

By using discarded plastic packaging in addition to the norm of using old bins, Pact has created a circular economy for kerbside bins, and the plastic waste that householders put in them, by creating new products from old ones.

[16] Based on 240L two-wheeled black or grey mobile garbage bins (excluding lids, wheels and axles) comprising up to 100% recycled HDPE resin compared with the same bins manufactured from virgin (i.e. newly made) HDPE resin. Comparison made using SULO carbon calculator.

[17] This figure represents the number of trees planted and grown to maturity that would be needed to absorb the relevant amount of carbon dioxide saved.

[18] Based on FINA specifications for Olympic standard pools (50m x 25m) with a depth of 2m.

Reusable Produce Crates

Retailers and fresh produce suppliers are increasingly focussed on operating more efficiently and sustainably when moving products through the supply chain.

On the waste hierarchy, reuse is directly after prevention and keeping resources such as produce crates in circulation reduces the environmental impact when compared with a single use product such as cardboard boxes.

Viscount Reuse, a joint venture between Pact Group and global infrastructure investment manager Morrison & Co, manufactures reusable and recyclable plastic crates and operates a network of wash and distribution facilities that keeps them circulating in a loop from suppliers to retailer distribution centres and into supermarkets throughout Australia and New Zealand.

The reusable plastic crates are designed to be used about 140 times before being recycled, unlike single use corrugated cardboard, waxed cardboard and expanded polystyrene boxes, thereby decreasing waste and maximising efficiency.

The crates are manufactured in New South Wales and crate servicing and wash sites are strategically located in Australia and New Zealand within an average distance of 5 – 7km from retailers' distribution centres.

Viscount Reuse supplies crates to fresh produce suppliers for major supermarkets in Australia and New Zealand, including Woolworths Group, ALDI Australia, and Drakes in Australia, and Foodstuffs in New Zealand.

The business recently extended its crate pooling contract with Woolworths by 10 years and plans to scale up usage from 50 million to 80 million crates a year by 2025. The business has also secured a long-term contract extension with ALDI Australia.

Using Recycled Plastic for Infrastructure

Pact Group has developed manufacturing capability to transform rigid and soft plastic waste materials into plastic noise walls used on freeways and rail lines.

The Rotationally Moulded Panels (RMP), which are made from up to 80% recycled plastic, provide a lightweight, low maintenance and longer life alternative to traditional materials such as concrete and steel.

The plastic-based composition of these panels means that they are much lighter than steel and concrete panels, and therefore much quicker and safer to install. They are also non-porous, which means that paint and graffiti cannot be absorbed.

The panels are long-lasting with a lifecycle of more than forty years. The blend of plastic materials is designed to be 100% recyclable at the end of each panel's life and can be made into other industrial products such as bollards and underground telecommunication pits.

The noise walls have transformed approximately 570 tonnes of high-density polyethylene (HDPE) plastic bottles, soft plastics and other hard-to-recycle plastic materials into panels spanning 32,000 square metres along the Mordialloc Freeway in Melbourne's south. More than 10,000 panels were made and installed along sections of the freeway.

The panels can be customised to be aesthetically relevant for each community in which they are placed and are comparably lower cost with a smaller environmental footprint when compared with conventional concrete products. Plastic noise walls can play a key role in a circular economy by diverting millions of tonnes of single use plastic waste from landfill and turning it into recyclable infrastructure.

Potential to move to a circular economy

The Four Components of a Successful Circular Economy

As illustrated in the diagram below, there are four key components to achieving a successful circular economy. It is imperative that all four components operate robustly and are economically viable in their own right. Failure or break down in one area can impact the entire circular economy, potentially resulting in dire financial and environmental consequences. In relation to plastic packaging, the four components are as follows:

1. **Raw material availability**
   Recyclers need security of feedstock supply to process. This means consistent volumes of "clean" plastic waste such as Container Deposit Scheme bottles and sorted plastics from Material Recovery Facilities. The more raw material that is available and the more affordable it is for local industry, the more that will be recycled onshore and the higher the take up by domestic manufacturers.

2. **Recycling Infrastructure and Capabilities**
   Until recently, Australia lacked the infrastructure to recycle plastic waste at scale. Without the technical capability and physical infrastructure to recycle a range of plastic types, plastic waste simply ends up in landfill rather than being processed into high quality resins which can be used to manufacture packaging for food, dairy, personal care, household and industrial products.

3. **Manufacturing capability to convert recycled resins into packaging**
   Packaging manufacturers need to be able to incorporate recycled resins into their products at scale. In most instances, it requires new equipment due to the differences in properties between recycled and virgin resins.

4. **Demand creation for recycled products**
   While consumer pressure and the goodwill of brand owners play a role in creating demand for recycled content in packaging, international experience shows that regulations are needed to promote and incentivise the use of recycled products. It is crucial that the use of domestic recycled products – resins and finished goods – are incentivised to create a strong local circular economy.

Information request 2: Priority opportunities to progress the circular economy

Opportunities

A Tray-to-Tray Solution

Australians are among the largest consumers of meat per capita in the world,[19] consuming an average of 103kg of chicken, beef, sheep and pork products per capita per year.[20]

Much of this meat is packaged in polyethylene terephthalate (PET) plastic thermoformed trays (meat trays) and sold through supermarkets. Of the 43,000 tonnes of PET trays and punnets placed on the Australian market each year,[21] it is estimated that meat trays comprise more than half which equates to well over one billion trays.[22]

The remainder of the 43,000 tonnes consists of PET punnets for fruit & vegetables, such as mushrooms, berries and tomatoes, bakery packaging and packaged biscuit trays.

More than 85% of kerbside recycling collections in Australia currently accept PET meat trays and punnets. However, not all this material is recycled into value-added products. Much of this material is either downcycled for industrial products, co-mingled with other PET waste material and exported, or sent to landfill which does not achieve Australia's aim of creating a domestic circular economy for plastic packaging.

Pact is planning to develop a large-scale operation to manufacture new PET plastic meat trays and punnets using recycled PET which has been produced from PET trays and punnets sourced from household recycling bins. The recycled PET will be produced at the Pact-operated Circular Plastics Australia (CPA) recycling facility in Melbourne.[23]

CPA, which currently recycle PET beverage bottles from container deposit schemes, has a target to process approximately 5,000 tonnes per annum of used PET trays and punnets to produce 3,500 tonnes of recycled PET.

The recycled flake will be combined with recycled bottle material to make new thermoform food trays and punnets at Pact's packaging site in Melbourne's south-east. The installation of new production lines will enable the manufacture of approximately 400 million recycled PET meat trays and punnets per annum.

This packaging will be supplied to major suppliers of packaged food products for sale in Australian supermarkets, grocery stores and other outlets. Once these products are consumed, the used meat trays and punnets will be placed in household kerbside recycling bins for collection, recycling, reprocessing and remanufacturing, creating a closed loop solution for one of the most common items of food packaging in Australia.

Through this process Pact will be ensuring that there is a high value application for the recycled PET produced from processing used meat trays and punnets, creating a valuable market for this material.

This in turn provides the economic incentive in the supply chain for the ongoing collection and recycling of meat trays and punnets.

[19] Agricultural output - Meat consumption - OECD Data
[20] ABARES Agricultural commodities, March quarter 2023
[21] APCO Australian Packaging Consumption and Recovery Data 2021-22 (p86)
[22] Based on industry sales estimates for meat trays with average 20g weight.
[23] Circular Plastics Australia (PET) is a joint venture between Pact Group, Cleanaway Waste Management, Asahi Beverages, and Coca-Cola Europacific Partners.

Risks

Developments in international markets

Australia is a net importer of packaging material, all of which reaches domestic waste streams. APCO data from 2021-22 reveals that only 22% of all plastic packaging placed on the market in Australia is locally sourced and manufactured.[24]

The export of several formats of unprocessed plastic packaging waste is now regulated, requiring for this material to be processed domestically. It is crucial to prioritise markets for domestically processed recycled content, both within Australia and internationally. Due to higher costs of production in Australia, domestically produced material competes on an uneven playing field with cheaper virgin and recycled imports.

Internationally, concerns about the manufacturing processes and environmental impact of imported resins resulted in the EU implementing Article 7 of the Packaging and Packaging Waste Regulation in March 2024.[25]

The EU now obliges all importers of recycled resins and packaging to meet strict EU environmental standards to ensure that the way in which recycled content is obtained does not cancel out the environmental benefits of using such recycled content in subsequent plastic packaging.

Clause 31(b) of the EU's Packaging and Packaging Waste Regulation mandates standards for recycled plastic products based on the environmental impact of packaging to ensure environmental impacts, quality and standards are not compromised. The clause states:

"*The promotion of the use of recycled content in plastic packaging is based on the premise that the recycled content itself was produced in an environmentally sustainable way, so that the carbon footprint is reduced and the circular economy is encouraged. To that end, certain safeguards need to be put in place in order to ensure that the way in which recycled content is obtained does not cancel out the environmental benefits of using such recycled content in subsequent plastic packaging. Therefore, it is necessary to address the related environmental concerns in a non-discriminatory manner with regard to both domestically produced and imported plastic packaging.*"

Implementing similar measures in Australia would ensure the local recycling and packaging manufacturing industry is not disadvantaged by either rogue domestic operators or the importation of cheaper materials from overseas facilities where environmental, health and labour standards may not meet Australian standards.

Further, the promotion of the use of locally recycled content in plastic packaging is based on the premise that the material was collected, processed and produced in an environmentally sustainable way, and thereby contributing to Australia's carbon footprint reduction efforts.

[24] APCO Australian Packaging Consumption and Recovery Data 2021-22

[25] EU Packaging and Packaging Waste Regulation

Information request 3: Hurdles and barriers to a circular economy

PET plastic recycling

The Australian plastic recycling industry is facing an imbalance between the supply and demand of natural PET feedstock from State container deposit schemes (CDS) as more processing infrastructure becomes operational and demand internationally for recycled material increases.

While governments and industry share a unified objective of closing the loop for PET beverage bottles through a strong domestic circular economy, modest CDS redemption rates for PET bottles, export of recycled PET flake, and continued investment in processing infrastructure threatens the viability of domestic PET recycling facilities which have been established with government support.

The Australian and State Governments are investing more than $250 million in infrastructure through the Recycling Modernisation Fund (RMF) to support the domestic circular economy. The Circular Plastics Australia (CPA) joint venture (comprising Pact Group, Cleanaway Waste Management, Asahi Beverages and Coca-Cola Europacific Partners) is a beneficiary of RMF funding, having received grants totalling $11 million to establish two large-scale $50 million PET recycling facilities in Melbourne and Albury NSW.

The CPA and other RMF-funded PET plastic recycling facilities are adding more than 85,000 tonnes of new PET processing capacity in Australia.[26]

According to the APCO Australian Packaging Consumption & Recovery Data 2021–22[27], the post-consumer PET packaging recovery rate is relatively high, reflecting the concentration of use in beverage packaging, with high levels of recovery through both kerbside and CDS collection systems.

The data shows that of the 116,000 tonnes of natural or transparent bottles and jars placed on the market in 2021-22, approximately 85,000 tonnes was recovered. Of the material recovered, 30,000 tonnes was collected through CDS, with the remainder through council recycling services. The data does not include CDS material from Victoria which commenced its scheme in November 2023.

Reported return rates vary state by state, and while overall redemption rates range from 63% to 75%, figures show PET redemption rates are much lower.

Queensland reported an overall return rate of 63.5% in FY23[28]. Data on PET beverage bottles from 2021-22 reveals a return rate of 53.8%.[29]

Western Australia's overall redemption rate was 63.2% in 2023 with a 57.09% return rate for PET containers.[30]

The overall return rate for South Australia in 2023-24 was 75% while the return rate for PET containers was 66%.[31]

New South Wales reported an overall redemption rate of 68% in FY24[32] (includes glass, aluminium, PET and liquid paperboard bottles). No data could be found on PET only return rates.

Access to ample quantities of PET bottle material from the state's container deposit schemes is crucial to domestic recycling operations and ultimately, the viability of these facilities. Supply of food-grade recycled PET resin from these facilities will also be critical for domestic packaging manufacturers to comply with mandated recycled content and Australian standards requirements to be included in forthcoming National Packaging Laws.

[26] Recycling Modernisation Fund data viewer - DCCEEW
[27] APCO Australian Packaging Consumption and Recovery Data 2021-22
[28] Container-Exchange-Annual-Report-2023.pdf (containerexchange.com.au)
[29] Discussion paper: Proposal to expand the scope of eligible container in Queensland's container refund scheme – Containers for Change (www.qld.gov.au)
[30] 2022-23-Annual-Report-1.pdf (warrrl.com.au)
[31] Container deposit scheme | EPA
[32] Home - EfC (exchangeforchange.com.au)

Cost of imported virgin PET resin vs locally recycled PET resin

PET plastic is highly valued in consumer packaging due to its exceptional durability and strength, making it ideal for protecting food and medicine. Its lightweight nature reduces transportation costs and environmental impact. Additionally, PET is easily recyclable, promoting sustainability and aligning with national packaging laws that mandate recycled content.

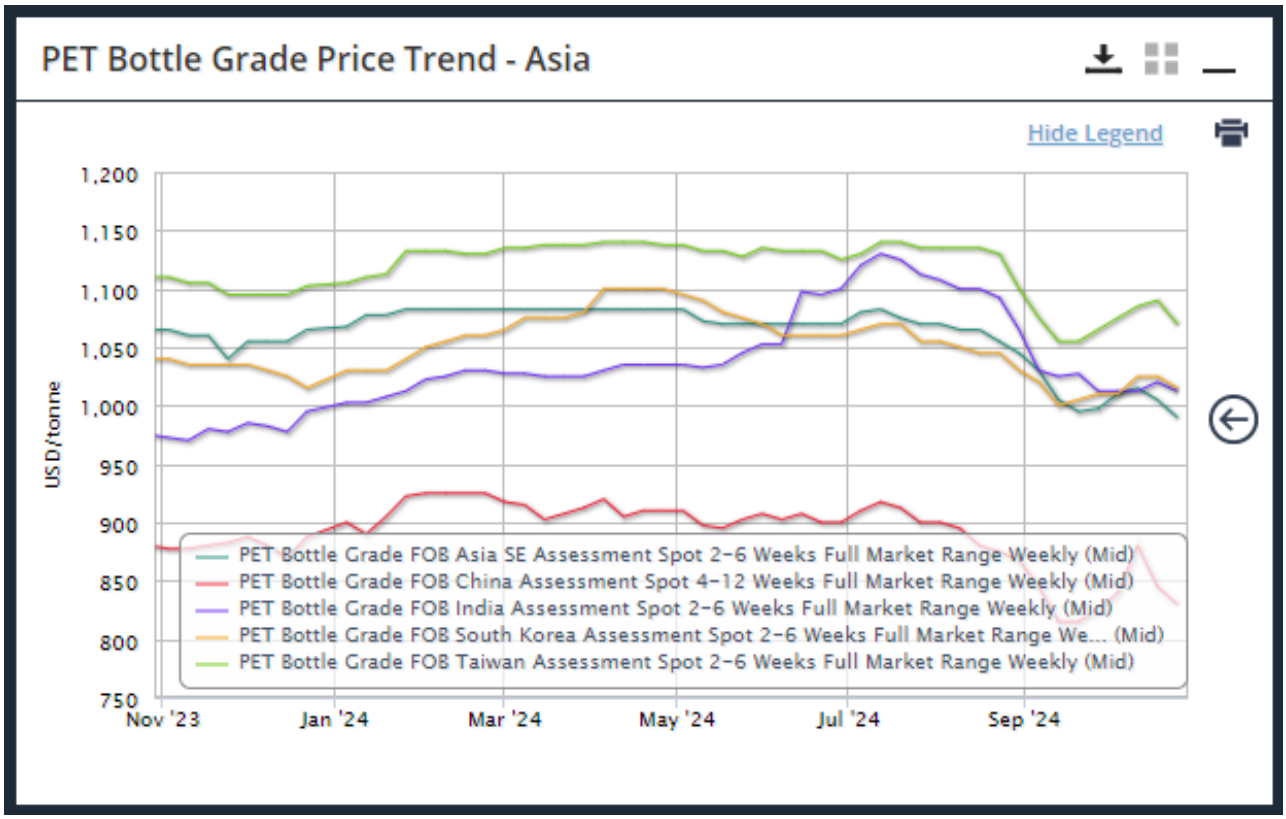
Virgin PET, or polyethylene terephthalate, is initially derived from fossil fuels. The production process begins with the extraction of petroleum or natural gas, which is then refined and processed into small pellets. These pellets can be melted down again and moulded into various shapes for use in packaging, textiles, and other applications.

Mechanical recycling of PET plastic waste involves shredding the material into small flakes then washing the flakes in a hot solution to clean and remove labels, adhesives, and residue. The clean flakes then undergo a process where they are melted down, cooled and sanitised to form small recycled plastic pellets which are food safe.

Demand for PET, both virgin and recycled, is increasing globally and prices fluctuate.

The cost of imported virgin PET (including freight) averaged approximately $1700 per tonne in 2023-24. The cost of per tonne of locally made recycled PET resin is up to 35% higher.

The demand for CDS material is elevating the purchase price of baled PET bottles for local recyclers which in turn creates a disparity between the cost for locally produced food grade recycled PET resin and cheaper, imported virgin resin.



PET virgin bottle grade prices – Nov 23 to Sep 24

Lack of Coordination: Kerbside recycling collection

There are inconsistencies and a lack of coordination in the kerbside collection systems operating across Australia. For example, Recycling Victoria (RV) is proposing to exclude plastic meat and deli trays from kerbside recycling bins.

This proposal is outlined in the standard contents list for mixed recycling in RV's draft Household Waste and Recycling Service Standard 2024.[33] The list details what items are to be accepted and not accepted in the mixed recycling service provided by all local councils in Victoria.

The proposed exclusion of plastic meat and deli trays from kerbside recycling bins is inconsistent with the objectives of the planned reform of packaging regulations as outlined in DCCEEW's consultation paper.[34] Specifically, outcome 2 for reform is that packaging materials are kept in use and circulated at their highest value; packaging is designed for recyclability; and recyclable packaging is collected, recycled and reprocessed.

The proposed exclusion of plastic meat and deli trays from kerbside recycling bins will severely hinder efforts to advance a circular economy for a high-volume format of packaging and the proposal should not progress for the following reasons:

Meat trays are recyclable. The overwhelming majority of meat trays placed on the market in Australia are recyclable as they are made from thermoform PET or polypropylene (PP) which can be easily sorted and recycled. Industry has transitioned away from non-recyclable formats (such as PVC) to predominately clear PET thermoform trays, and these are currently accepted and collected in approximately 85% of the kerbside recycling bins in Australia, including in Victoria. Based on APCO data, we estimate that removing meat and deli trays from Victoria's kerbside recycling bins could result in approximately 31,000 tonnes of plastic waste going to landfill.

Exclusion of meat trays / deli meat trays is inconsistent with the draft standard. The Recycling Victoria draft standard specifically includes biscuit and chocolate trays, and fruit and vegetable trays and punnets. These items are made from thermoform PET, the same material as meat and deli meat trays.

Exclusion of meat trays is inconsistent with the national draft packaging design standards. DCCEEW is working with States, Territories and industry to establish design and recyclability standards for packaging to enhance the circular economy. Thermoform PET packaging is recognised as being a recoverable and recyclable packaging material in the standards under development.

Exclusion of meat trays is inconsistent with the Australasian Recycling Label (ARL) program. The majority of meat and deli trays have been designed to align with both APCO and global design standards for recyclability, and as a result these trays carry the recyclable ARL across Australia and New Zealand.

Pact Group currently recycles and manufactures PET meat trays in Victoria. Pact operates two of Australia's largest PET recycling facilities, the Circular Plastics Australia recycling plants, in Melbourne and Albury (NSW), both of which have capability to recycle PET meat trays, fruit and vegetable punnets, and biscuit and chocolate trays, in addition to the PET beverage bottles collected through container deposit schemes.

Pact currently manufactures recyclable PET thermoform trays and punnets at facilities in Victoria and New Zealand for consumption in the Australian market. Further, Pact is proposing to develop a large-scale operation in Victoria to manufacture new PET plastic meat trays and punnets using recycled PET which has been produced from PET trays and punnets sourced from household recycling bins and recycled at the CPA recycling facilities.

Excluding meat trays is inconsistent with the Victorian Government's Plan for a Circular Economy. Goal one of the plan is *"Design to last, repair and recycle"* and goal three is to "*Recycle more resources"* with a target to divert 80 per cent of waste from landfill by 2030, with an interim target of 72 per cent by 2025. A circular economy for PET plastic trays and punnets is one in which the used packaging is collected, recycled and remanufactured into new food grade trays used to supply product into the major supermarket supply chains.

[33] Household Waste and Recycling Service Standard 2024
[34] Reform of Packaging Regulation Consultation paper (DCCEEW)

Information request 4: Governments' role in the circular economy

For this section, please refer to Pact Group's submission to the Department of Climate Change, Energy, Environment and Water in response to the Consultation Paper on Reforming Packaging Regulation.