1 November 2024

Productivity Commission
GPO Box 1428
Canberra City ACT 2601

Dear Productivity Commission,

TOMRA shares our insights into this inquiry as a global leader in sorting, collection and reverse-vending technology that facilitates real circular economic outcomes, and provide our feedback based on 52 years' experience in the design, operation and administration of container deposit schemes around the world.

TOMRA was founded in 1972 with the invention of the world's first Reverse Vending Machine (RVM) for the collection of returnable beverage containers. We now have over 80,000 RVM installations globally operating in 45+ international markets, collecting over 46 billion used beverage containers for recycling and reuse every year.

Additionally, TOMRA is a global leader in sensor-based sorting for recycling and resource recovery, with 179 world-leading advanced optical sorting installations operating in 48 material recycling and plastic processing facilities throughout Australia. To date, more than 9,000 systems have been installed in 100 countries worldwide.

It should be noted that in providing this submission, TOMRA plays an active and integral role in the Australian recycling sector and wider circular economy. In partnership with Cleanaway, TOMRA are Network Operator for the NSW Container Deposit Scheme 'Return and Earn', Victoria's Container Deposit Scheme 'CDS Vic' and Tasmania's soon to be established Container Deposit Scheme 'Recycle Rewards'. TOMRA also operate container refund points in Western Australia, Queensland and the Northern Territory.

Naturally, we would be very happy to discuss any and all of what we have outlined in our submission in greater detail if required.

Yours sincerely

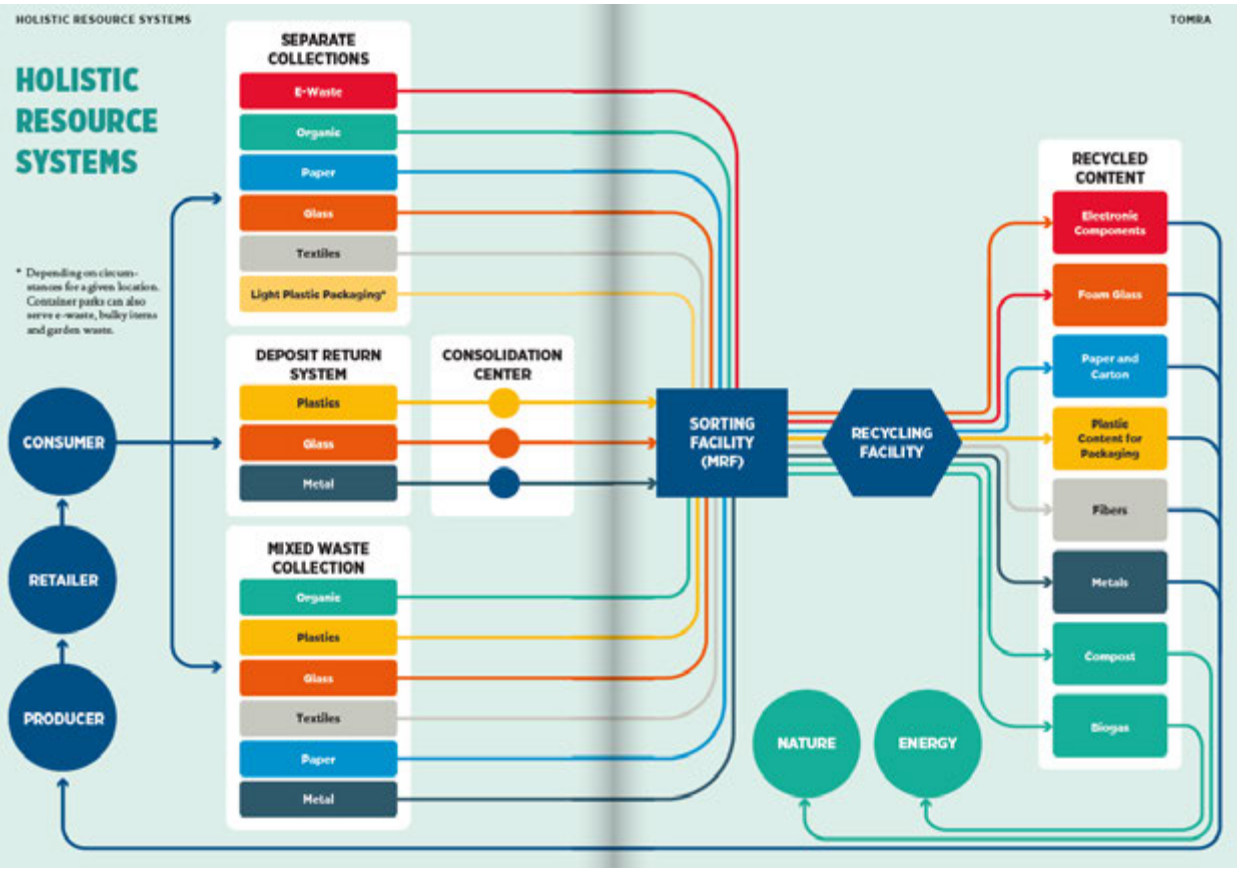
Chris Gingell
Vice-President - Public Affairs (Pacific)

Holistic resource systems approach to achieving a true circular economy

As a global frontrunner in empowering the circularity of resources, TOMRA continues to analyze and optimize methods that achieve the highest recycling rate and reduction in GHG emissions possible. As such, TOMRA strongly supports the circular economic efficiencies that result from the Australian adoption of a fully functioning *Holistic Resource System* approach to resource recovery. The concept of Holistic Resource Systems is further developed in the supporting document provided with this submission: *'Holistic Resource Systems: A framework approach for improving the management of waste and taking action against climate change'.*

The *Holistic Resource System Framework* is outlined in the image below, and integrates the three resource recovery pillars of:

- Container Deposit Schemes (CDS) (known in Europe as Deposit Return Systems (DRS)) to prioritize the highest value food-grade recycling
- the separate collection of specific material types, to prioritise high value recycling (not just diversion or downcycling), and
- Mixed Waste Sorting to maximize recycling and its associated carbon benefits.



Holistic Resource Systems integrate waste management techniques designed to respond to regional challenges of managing resources and minimizing their impact on the planet. They are based on current international policies

and approaches on both national and regional levels that deal with existing products, materials, and waste flows. The composition of materials will inevitably alter over time, with systems being adapted incrementally to adjust to these changes. The unique advantage of using a *Holistic Resource Systems* approach is its capability to adapt to location requirements and future needs.

The three pillars of a fully functioning *Holistic Resource System* are expanded upon below:

1. Container Deposit Schemes

Container Deposit Schemes (CDS) for beverage containers generate much higher collection rates when compared to other separate collections of the same materials. They are an ideal solution to achieve high recycling rates and replacement of virgin materials and associated policies such as, or similar to, the Single Use Plastics (SUP) Directive in Europe, which includes:

- a collection target of 90% recycling for single-use plastic bottles by 2029 (with an interim target of 77% by 2025), and
- that these bottles contain at least 25% recycled plastic in their manufacture by 2025 (for PET bottles), and 30% by 2030 (for all bottles).

With the launch of Tasmania's Container Deposit Scheme in mid-2025, Australia will be the first continent to have fully operational deposit systems in place for eligible beverage containers. Whilst this milestone should be celebrated, the reality is that Australian CDS' perform poorly in terms of recycling and circular economic outcomes when compared with existing international schemes. There are now roughly 50 international jurisdictions that have established CDS', the majority of which see container return rates of well over 85% (many of which achieve 95%+), compared with all Australian schemes which see return rates nowhere near these high figures. The rolling annual average return rate across all Australian schemes sits in the mid-60%.

The reason for the low performance of Australia's CDS' is due to two key factors:

- A low 'Deposit Value' of 10cents (AUD), and
- Lower levels of convenience - e.g. the lack of mandatory 'Return-to-Retail' requirements as part of Australian State and Territory CDS legislations

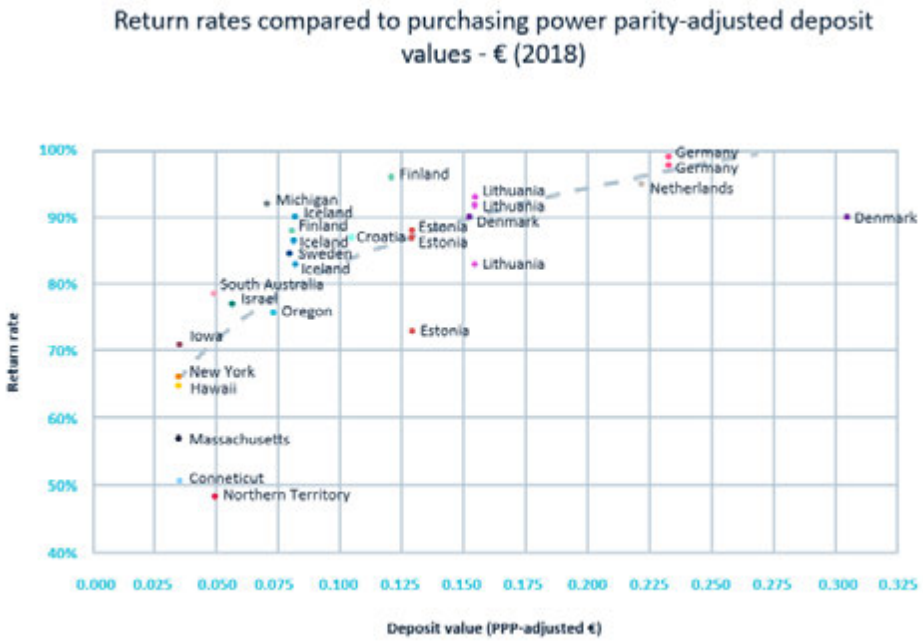
<u>Deposit Value</u>

One key factor to the success of CDS is the financial incentive for the return of each individual container, that being the 'Deposit Value'.

In Australia, all CDS schemes have a deposit value of 10c AUD which, when compared with the majority of high-performing international schemes, is very low. This means the financial incentive for consumers to return their containers is underwhelming in Australia, depressing overall scheme return rates. It is also worth noting that the

value of South Australia's original deposit when introduced in 1977 would be the equivalent of around 40 cents in today's money. In layman's terms, 10c is just not enough of a financial incentive for a large proportion of Australians (especially middle and high income Australians) to go to the effort of returning containers.

This correlation between deposit value and return rate can be seen succinctly using the below graph, which shows purchasing power parity-adjusted deposit values mapped against scheme return rates:



Convenience

It is widely acknowledged and understood that the more convenient it is for consumers to return their empty eligible containers, the higher likelihood exists that they will. In most international Container Deposit Schemes, convenience is built into their design through what is called 'Return-to-Retail' legislation. Under this scheme design model, retailers that sell beverages contained in eligible CDS containers are mandated to act as the collection and deposit refund network for that jurisdiction's respective CDS. What this means in practice is that if you are a retailer that sells beverages contained within eligible containers, you are legally obligated to accept retuned empty eligible containers and pay back the deposit. It also results in a high density of refund points given almost every supermarket and large food retailer is a part of the network, i.e. a refund point is never too far away. This inbuilt convenience for consumers is a crucial factor in the high return rates of 85%+ seen in most international schemes.

No Australian state or territory CDS legislations contain mandated 'Return-to-Retail' legislative requirements, and therefore both the locations and number of CDS refund points is considered inconvenient when compared to the convenience of most international CDS'. Some Australian jurisdictions have designed their schemes to allow for the establishment of convenient retail-based refund points, (such as seen most prevalently in New South Wales and some parts of Victoria), but the density of these refund points compared to other international schemes is still quite low. This means the majority of Australians need to make dedicated travel arrangements (most often by car) to inconvenient geographic locations they would otherwise have no reason to travel to, just to return their containers

and receive their deposit back. Additionally, in Australian jurisdictions where convenient retail-based collection point infrastructure (such as Reverse Vending Machines) exists, some, but not all, retailers and shopping centres have this infrastructure in place, adding a level of confusion for Australians in knowing where they can go to return their containers. This confusion does not exist in other international CDS jurisdictions, where it is widely known by all consumers that every supermarket or beverage retailer is a collection and refund point host.

Examples of High-performing CDS' vs Australian CDS'

To clearly illustrate the intersection of '*Convenience + High Deposit Value = High CDS Return Rate*', we have compared international high-performing CDS' that have both key features integrated into their design and operation, alongside the performance of all established Australian state-based CDS' that don't:

International Container Deposit Schemes (all with convenience built into the scheme design)

Germany = Return Rate **98%**

Refund point per person = 640

Deposit Value = 0.41cents (AUD)

Finland = Return Rate **96%**

Refund point per person = 1,230

Deposit Value = 0.16-0.32cents (AUD)

Denmark = Return Rate **93%**

Refund point per person = 1,900

Deposit Value = 0.21-0.64cents (AUD)

Iceland = Return Rate **91%**

Refund point per person = 6,147

Deposit Value = 0.20cents (AUD)

Lithuania = Return Rate **90%**

Refund point per person = 1,035

Deposit Value = 0.16cents (AUD)

Established Australian State Container Deposit Schemes

South Australia = Return Rate **approx. 75%**

Refund point per person = 13,400

Deposit Value = 0.10cents (AUD)

New South Wales = Return Rate **68%**

Refund point per person = 13,000

Deposit Value = 0.10cents (AUD)

Queensland = Return Rate **63%**

Refund point per person = 18,500

Deposit Value = 0.10cents (AUD)

Western Australia = Return Rate **63%**

Refund point per person = 13,000

Deposit Value = 0.10cents (AUD)

Victoria = Return Rate **(unreported)**

Refund point per person = 14,500

Deposit Value = 0.10cents (AUD)

Within Australia's *National Waste Policy Action Plan 2019*, one of the key targets is:

- *Target 3: 80% average resource recovery rate from all waste streams by 2030*

Australia's Container Deposit Schemes are a low hanging fruit for resource recovery, with well-established systems, infrastructure, incentives and investment. If they are not capable of reaching 80%+ recovery rates, then there is little prospect for more complex material streams. Yet, as mentioned above, Australian schemes are generally only averaging in the mid 60% return rate range. With the right policy settings these schemes can easily reach more ambitious levels, as is widely proven in international schemes, and to do so quickly and effectively the most effective policy tools will be:

A) An increase in deposit value

B) Re-examination of the convenience levels offered and consideration of requirements for refund point infrastructure at retail locations / shopping centres over a certain size

2. Separate Collection

To ensure the highest recycling outcomes and carbon benefit when recycling materials, the following resources are advised to be separated from residual waste at source and collected in single streams:

ORGANIC - Food and Garden Waste

Offsets demand of fossil-derived fertilizer and improves soil carbon through compost and digestate from source-separated organic material suited for agricultural needs. Reduction of organics in residual waste also likely to enhance mixed waste sorting.

PAPER - Graphic, De-Ink and Packaging Paper

Maximizing the amount of reusable pulp for paper recycling requires dry and clean collection to avoid the structural degradation of material. Source-separated papers further reduce non-fiber contaminants resulting in the highest potential yields of pulp.

TEXTILES - Post-Consumer Apparel and Industry Scrap

Significant reduction of primary production impact on climate through reuse of textiles. Recycling pre-and post-consumer textiles requires clean and dry collection to effectively sort various types of fibers at scale for the garment industry.

E-WASTE - Electrical and Electronic Equipment, Household Batteries

Reduce demand for primary resources while protecting the environment from toxic substances by enabling the safe

reuse and recovery of recyclable materials found in electrical and electronic equipment waste.

3. Mixed Waste Sorting

As mentioned above, Australia's *National Waste Policy Action Plan 2019*, has a key target of 80% average resource recovery rate from all waste streams by 2030.

As reported in the latest *National Waste Policy Action Plan Progress Report 2023*, the above target will not be met, with the Municipal Solid Waste recovery rate actually trending downwards:

In Australia, there exists no legislative mandates for the sorting of recyclable packaging from kerbside general waste infrastructure prior to landfilling, nor penalties for the landfilling of recyclable packaging contained within that infrastructure. As such, if a highly recyclable PET plastic container (for example) ends up incorrectly placed in a household or business general waste bin rather than in the correct household or business recycling bin, that container will and does end up in an Australian landfill.

The solution to this problem, and a logical way to easily meet the key outcomes of reform outlined above, is for a federally mandated requirement that kerbside household and business general waste bins are to be sorted for the extraction of recyclable material prior to the remaining non-recyclable residual waste being landfilled. This process is known globally as 'Mixed Waste Sorting' (MWS).

Mixed Waste Sorting (MWS) is a final stage solution for recovering recyclable materials such as plastics, metals and paper before residual waste is sent to landfill. It serves as a recovery backstop for recyclable materials not captured to the highest grades in container deposit schemes and effective separate collections. Until recently, plastics recovered from mixed waste were considered contaminated and of poorer quality. Today, automated sorting systems combined with advanced mechanical recycling transform these plastics into near virgin-like recycled content through sophisticated purification and deodorizing technologies. The high-quality recycled plastics are ideal for non-food grade packaging, further accelerating the transition to a circular economy.

Depending on local circumstances and where the resulting benefits outweigh the costs, MWS can also include target materials not captured by separate collections. In most cases, the overall system cost is reduced due to savings on residual treatment and substantial environmental benefits.

In the Netherlands, 'AVR', which specializes in the processing of various types of residual waste for the cities of Rotterdam, The Hague and Utrecht, commenced MWS in 2018. AVR targets rigid plastics (PET, PE, PP), films (DKR 310) and beverage cartons (Tetra Pak, DKR 510) for sorting and removal before sending residual waste to incineration (as is more common in Europe than landfilling). AVR now recovers 12 times the amount of plastic for recycling with mixed waste sorting – an enormous boost in recycling rates and GHG benefit.

In Norway, 'IVAR' manages all residues and waste collection from 10 municipalities with an approximate population of 325.000. With its advanced municipal solid waste sorting plant, it recovers high volumes of recyclable materials before incineration, reducing CO2 emissions and the global dependency on virgin material by supplying high-quality recycled content for new products and packaging. Since it stopped the separate collection for plastics in its region and established mixed waste sorting, the facility increased recovery rates from 28% to 82% and achieved recycling rates of 56.4%, thus meeting the EU's plastic recycling rate target of 55% by 2030 ahead of time. (https://www.tomra.com/en/waste-metal-recycling/media-center/customer-stories/ivar-iks)

Also in Norway, ROAF, who collects and sorts waste from seven municipalities surrounding Oslo, has also established Mixed Waste Sorting. Previously, plastics had been collected separately at kerbside, but despite this separate collection, a lot of recyclables still ended up in the household waste fraction and were thus deemed to be incinerated. Since ROAF abolished the separate collection of plastics and established MWS, this fully automated plant is now on track to reach the EU's plastics recycling rate target of 50% by 2025 and 55% by 2030. (https://www.tomra.com/en/waste-metal-recycling/media-center/customer-stories/roaf)

The concept of Mixed Waste Sorting is further developed in the supporting document provided with this submission: *'The Ultimate Guide to Mixed Waste Sorting: Holistic Resource Systems approach of presorting municipal solid waste before incineration and landfill to significantly reduce greenhouse gas emissions'.*

Reusable packaging and the true cost of single-use packaging

TOMRA strongly supports the Federal Government's commitment to introduce mandatory nationwide packaging design obligations based on international best practice and make industry responsible for the packaging they place on the market.

TOMRA additionally recommends that the Federal Government looks to align these packaging reforms to the European Union *Packaging and Packaging Waste Regulation (PPWR)* set to become law at the end of 2024, which builds on the European Union's existing *Single Use Plastics Directive*, outlined previously in this submission.

Despite TOMRA's support for Australia's mandatory packaging reforms and their alignment with the European Union *PPWR*, there is one area of opportunity for Australia to take the lead over Europe – *Reusable* packaging.

Reuse is widely recognised as offering a more environmentally sustainable and circular approach to consumption

than single use. Lifecycle impacts can vary, but in the case of coffee cups for instance, once a reusable cup is used approximately six times or more it will generally provide a lower environmental footprint than the equivalent number of individual single use cups. For every additional cycle, there are further benefits and, since many cups are designed to offer hundreds of cycles, the full economic and environmental cost savings can be very significant.

The true cost to Australia due to the widescale usage of single-use packaging (which includes compostable and bio-plastic packaging, not just plastic packaging) is far greater than simply the monetary cost of the packaging itself. As it currently stands in Australia, the cost of single-use packaging does not include the significant detrimental environmental costs nor waste disposal and clean-up costs that are born by society and governments, costs of which should instead rightly be shouldered by the packaging industry who are responsible for putting these products onto the market.

To reiterate this point, the key finding from the September 2024 report *'Facilitating the Adoption of Takeaway Reuse Systems - Cost Assessment of Moving from Single-use Packaging to a Takeaway Reuse System and Assessment of the Necessary Policy Measures'* commissioned by 'Zero Waste Europe' (https://zerowasteeurope.eu/library/reuse-aarhus-berlin-public-authorities/) states that:

- "single-use is only relatively low cost because the environmental externalities associated with it are not currently priced in – these being the costs of litter clean-up, litter disamenity and carbon impacts. These externality costs are borne by society as a whole, and so are paid by a wider group of citizens than takeaway vendors. As the externality costs of single-use packaging are greater than the increased costs to vendors of switching to a reuse packaging system, the cost benefits for society as a whole of making the switch outweigh the increase in cost for vendors.

  Policy interventions are needed to incentivise and facilitate the adoption of effective reuse packaging systems that can deliver both environmental and economic benefits to society. As adopting reuse is necessary in order to reduce consumption of single-use takeaway packaging and the associated negative environmental impacts, it is reasonable to take the environmental costs borne by society into account when designing the required policy interventions. This can be done by using fiscal instruments such as taxes, levies or adjusted Extended Producer Responsibility (EPR) fees to modify single-use packaging costs to internalise the current externalities (i.e., litter clean-up, litter disamenity and carbon impacts), thereby creating a more level playing field for reusable packaging to compete with single-use packaging."

Saying this, TOMRA believes it is not simply enough to put a cost on single-use packaging, such as an EPR levy or fee, and expect reusable packaging to be adopted at scale. Without reusable packaging collection, logistics and sanitization infrastructure in place, such as that currently established in the Danish city of Aarhus (https://reuseable.dk/en/ / https://www.youtube.com/watch?v=Ekxb5c7T4_Q), widespread reusable packaging adoption objectives will not be realised.

For example, Germany has EPR fees on single-use takeaway packaging which has resulted in single-use packaging becoming more expensive for takeaway vendors than the reusable options in many cases. Yet despite this, as the

necessary reusable packaging collection, logistics and sanitization infrastructure does not exist in much of the country, nor are there mandatory legislated reuse targets in place, takeaway vendors have continued to utilise the single-use option despite its higher cost.

To highlight this point, the same September 2024 'Zero Waste Europe' report quoted above states that:

- "Germany has in place fiscal policy measures in the form of EPR fees on single-use packaging. The results of this study show that such fees are likely to increase the cost of single-use takeaway packaging for some formats (such as cups and bowls) to the extent that a reuse packaging system for takeaway packaging is expected to have a comparatively lower cost to vendors – and therefore to consumers. It is interesting to note that although EPR fees in Germany have been shown to likely result in lower reuse packaging system costs than single-use, we are yet to see reuse systems in Germany achieving high levels of market penetration. This perhaps indicates that the impact of these types of fiscal interventions on vendor costs are on their own insufficient to facilitate high levels of market penetration of reuse packaging systems.

  To optimise the performance of reuse packaging systems, and to ensure they are efficient and convenient to use for both takeaway vendors and consumers, policy should also focus on setting system objectives, such as minimum return and rotation rates, minimum requirements on collection point coverage, minimum and maximum deposit/penalty levels, a requirement that funds from unredeemed penalties/deposits stay within the reuse packaging system and guarantees around the hygiene safety of the system. Pursuing objectives like these would help to ensures interoperability across regions and would simplify engagement for both vendors and consumers."

To enable the successful adoption of widescale reusable packaging in Australia, a systems approach is needed, not just simply EPR fees and levies on single-use as the sole regulatory mechanism alone. As such, TOMRA supports the 'Ellen Macarthur Foundation' in its conclusion from the report '*Unlocking a reuse revolution: scaling returnable packaging*' (https://www.ellenmacarthurfoundation.org/scaling-returnable-packaging/overview), that to realise the full potential of reuse systems, regulatory mechanisms must have the clear-end goals and objectives that result in the realisation of all three of the following market conditions (as quoted in this report):

> *"Scale and shared infrastructure*
>
> Sharing infrastructure provides economies of scale for all steps of the value chain (collection, sorting, cleaning, and transportation). It is particularly crucial to collaborate on collection infrastructure, not only to share costs, but also to offer customers a consistent and smooth experience. Customers are much more likely to adopt new models when they do not have to segregate packaging for, and interact with, different systems.
>
> *Packaging standardisation and pooling*
>
> Harmonising the structural design of packaging within a product category while using labels and closures to

differentiate brand and product lines can significantly increase the efficiency of the system. Standardisation can drive down sorting, cleaning, and storage costs, and pooling of packaging can dramatically decrease transport distances and associated emissions and costs.

High return rates

Reached through incentivising return and a frictionless return experience —are a key performance driver for all reuse systems. When transitioning, it is paramount to progress through the early stage, when return rates are likely very low, as quickly as possible. Among other factors, shared collection, a wide range of products, and customer convenience can help achieve high return rates by driving behaviour change. All actors must work together to learn how to reach the high return rates which this study shows are needed, the inspiration for which can be found in established systems (such as high-performing 'Return-to-Retail' CDSs)."

The widescale mandatory adoption of reusable packaging in Australia would make a significant difference to meeting the targets set out in the *2019 National Waste Policy Action Plan,* in particular the target to '*Reduce total waste generated by 10% per person by 2030',* a target which has been reported in the latest *'National Waste Policy Action Plan Progress Report 2023'* will not be met, stating that:

- "If we don't do more to use our resources more efficiently and reduce the amount we throw away, the target is unlikely to be met".

United Nations Treaty to End Plastic Pollution

Finally, TOMRA commends the Federal Government's commitment to genuine circular economic outcomes for plastics by joining the *High Ambition Coalition to End Plastic Pollution* and work towards a *United Nations (UN) Treaty to End Plastic Pollution*.

TOMRA envisions a circular future where plastic never becomes pollution. A *UN Treaty to End Plastic Pollution* has the power to address the plastic pollution crisis at scale and forging the path towards a circular economy for plastics.

As a founding member of the *Business Coalition for the Global Plastic Treaty*, TOMRA recommends that the Federal Government adopt the following policy positions to meet Australia's *2019 National Waste Action Plan* commitments and global obligations, and advocate for these positions to be integrated into a future *UN Treaty to End Plastic Pollution*:

1. Ensure access to general waste collection for all citizens in all regions as a universal human right. Global access to waste collection is imperative to prevent litter and end illegal dumpsites and open burning.

2. Promote reuse models by setting targets for specific categories, such as takeaway food and beverage

packaging, and creating financial incentives that initiate a shift from single-use to reusable packaging wherever this is environmentally beneficial. This will work towards making plastic consumption more resource efficient.

3. Ensure specific ambitious mandatory recycling targets for high performance systems, providing realistic, staggered targets for all countries at their individual development stage. Set a minimum 55% recycling target for plastic packaging. This will ensure that resources are spent on efficient initiatives towards a sustainable circular economy for plastic.

4. Introduce legislated well-designed Extended Producer Responsibility (EPR) for plastic packaging. Mandatory EPR will provide a long term and sustainable financing mechanism for infrastructure investments to collect, sort, and recycle plastic waste, as well as incentivize producers to choose and manage their packaging more sustainably.

5. Introduce legislated well-designed Container Deposit Schemes (CDS) / Deposit Return Systems (DRS) for beverage containers combined with a 90% separate collection target. As a well-mandated, full-cost EPR scheme, CDS/DRS will decrease the amount of plastic that lands in nature (approximately 20%-25% of all marine litter is beverage container related) and drive circularity with a proven potential of 80% bottle to bottle recycling.

6. Introduce legislated well-designed EPR for textiles to enable the scaling up of textile collection, sorting, reuse and recycling infrastructure and accelerate the transition towards a circular economy for textiles. Today, polyester represents >50% of the global fiber market with textile recycling rates at <1%.

7. Introduce legal measures ensuring effective Mixed Waste Sorting (MWS) prior to Energy-from-Waste, including a meaningful CO2 tax on plastic usage in Energy-from-Waste. Furthermore, energy recovery from plastic should not contribute to the achievement of recycling targets, nor be defined as renewable energy. MWS is essential for the high recovery of plastic for recycling and typically increases recycling rates by 2-5 times. Additionally, by diverting plastics from burning, this solution contributes to a reduction in CO2 emissions. As each ton of plastic used in Energy-from-Waste generates ~2.5 tonnes CO2 emissions.

8. Introduce legal measures ensuring effective Mixed Waste Sorting (MWS) prior to landfill, including landfill plastic taxes or bans where alternative waste treatment is available. MWS will enable the recovery of plastic before it is lost to landfill, keeping these resources in circulation for as long as possible.

9. Introduce legal measures ensuring closed-loop – or high-quality - recycling, including recycled content targets, financial incentives for use of recycled plastic and strict export/import control for waste and recycled plastic. This will motivate eco-design, as well as optimization throughout a circular value chain.

10. Ensure independent institutions control the transparent reporting and measurement of achievements based on well-defined global industry standards. Worldwide alignment and efficient systems will create a

level playing ground and stimulate real progress.