

All
Sorted



Answering the Big Recycling Questions



Produced by Planet Ark for
National Recycling Week 2015



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At A Glance



What happens to my recycling?

- ➔ Kerbside bins go to facilities where fans, eddy currents, magnets, light beams and people sort the different materials ready for recycling.
- ➔ Around **80%** waste generated by home renovations can be recycled.



What are the benefits of recycling?

- ➔ **75%** of all of the aluminium ever produced is still in use today.
- ➔ **9.2** jobs are created in recycling for every 2.8 in landfilling.
- ➔ Australian Paper's new plant can process **80,000** tonnes of paper a year and provides **246** permanent green jobs.
- ➔ There is a positive relationship between recycling and life satisfaction.



Who pays for recycling?

- ➔ Rate payers cover the cost of kerbside recycling with fees in NSW ranging from \$30-\$145 a year.
- ➔ **29 million** printer cartridges and **10 million** phones have been recycled through the 'Cartridges 4 Planet Ark' and MobileMuster programs, with the manufacturers covering the costs.



What are the most common recycling mistakes?

- ➔ Councils in Australia say the most common mistakes made by residents are:
 - 1 Putting plastic bags and soft plastics in the recycling
 - 2 Putting recyclable items in the garbage bin and
 - 3 Contaminating recycling with food.



How do we make recycling at work, work?

- ➔ Location! Paper recycling rose from 28% with one bin per office to **94%** when paper trays were located on desks.
- ➔ Finding the right equipment like bins and balers helps reduce contamination and reduce costs.



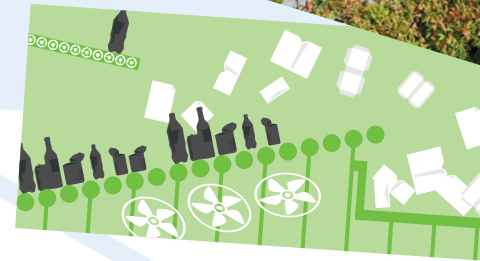
How does Australia's recycling compare to the rest of the world?

- ➔ **51%** of household waste in Australia is recycled compared to 65% in Germany and 57% in Belgium.
- ➔ **Less than 1%** of waste in Australia is incinerated compared to 50% in Sweden.



What is the future of recycling?

- ➔ The new Australian Recycling Label will provide manufacturers and customers with clear recycling information to reduce confusion.
- ➔ **In 2017** NSW is set to implement a container deposit scheme with the ACT and Queensland likely to follow.



Recycling is an industry with environmental, economic and human benefits.



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Introduction

Recycling is a constantly evolving industry, with new initiatives and technologies in continual development. However, regardless of how effective and efficient new machines are at processing material, one of the most vital stages in the chain is the very first one: items being placed into the recycling system. Without a continuous and reliable input of recyclable items, it would not be economically viable to maintain recycling facilities and invest in the development of new equipment. Every Australian therefore plays an important role, with their recycling habits influencing the success of the whole recycling industry.

Studies have clearly shown that convenient access to services and knowledge of what is recyclable are significant factors in determining whether people engage in recycling activities¹. However, even when services are readily available, not everyone participates or participates fully. This effect partly stems from the fact that there is still confusion among the

general public about certain parts of the recycling process and the outcomes that it achieves, with perceived knowledge tending to be greater than actual knowledge². These variables are important for motivating recycling behaviours, with awareness and comprehension increasing a person's concern for the environment and their willingness to help^{3,4}.

About this report

In this report Planet Ark will address seven of the big recycling questions, with the aim of getting 'recycling sorted' in the minds of Australians, highlighting its importance in a modern day Australia and helping to increase participation in recycling schemes.

The report draws on information and statistics from a wide range of Australian and international reports and includes the results of a Planet Ark survey of 115 councils across Australia.

Acknowledgments

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We also acknowledge the Supporting Sponsors: Australian Paper, Blackmores, MobileMuster and Officeworks.

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Planet Ark acknowledges the support of our National Recycling Week sponsors.



What happens to my recycling?

What might the bins go out is the limit of many people's recycling knowledge. Having an understanding of the recycling process helps make sense of the rules and why it's important to put items in their correct bin and why sometimes it can look like the recycling is being mixed in with the general waste.

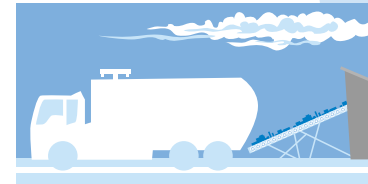
Kerbside Recycling

Getting It Sorted

After householders put their recycling bins out a waste collector picks it up and takes it to a Material Recovery Facility (MRF). Here the different types of recyclable materials are separated and prepared for end-user manufacturers through a series of both manual and mechanical processes:



The Sorting Process



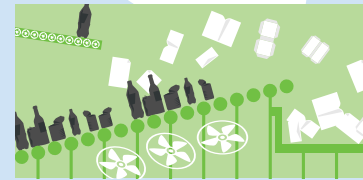
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The truck drops recycling onto a conveyer belt.



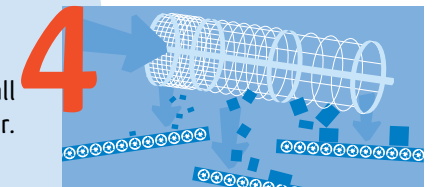
2

Staff remove - by hand - contaminants like plastic bags and car batteries.



3

Fans are used to separate paper.



4

A rotating trommel uses gravity to direct all other materials to a different conveyor.



5

Magnets pick up steel containers.



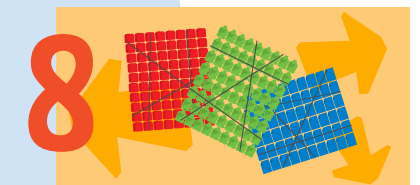
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Optical sensors detect the different types of plastic and use jets of air that push them into separated collection areas.



7

Eddy current repels aluminium cans, pushing them into holding cages.



8

The separated material is baled and sent to recyclers to be made into new material.

Contaminating the Process

The recycling process is designed to detect and sort a range of materials so they can re-used. There are a number of key contaminants that can interfere with the efficient functioning of the recycling process. In large volumes these contaminants can make recycling too costly or even dangerous for staff. They should be kept out of the recycling bin.

In large volumes contaminants can make recycling too costly or even dangerous for staff.



Recyclables in Plastic Bags

For safety reasons staff have to send recycling in bags to landfill.



Soft Plastics*

Soft plastics, like bread bags, get caught in the conveyer belts.



Drinkware Glass

Melts at a different temperature to bottles and jars clogging the machines.



Food

Excess food and oil contaminates the paper stream.



Polystyrene

Polystyrene foam acts like paper in the sorting process and prevents that paper being recycled.



Nappies

11% of people think nappies are recyclable but they present health risks to staff.

* Some contaminants are so common that councils and waste companies are developing ways to collect and recycle them. There are a number of council areas that now accept soft plastics like bread rice and pasta bags in their recycling. They include Lismore, and Ballina in NSW, Moreland in Victoria and Cambridge and Vincent in WA.



It Just Ends Up In Landfill

There is a persistent myth that items picked up for recycling end up in landfill. It's true that some contaminated materials go to landfill and there is the occasional driver who, through error or malice, puts recycling in the waste stream. However, it is simply not economic in most states for councils or waste companies to send recycling to landfill. Landfill levies are a cost imposed at the point of landfilling designed to make recycling a more economically desirable option. Queensland, the Northern Territory and Tasmania don't have state imposed levies while in NSW the landfill levy costs up to \$133.10 per tonne⁶. The other states' levies are up to \$60.52 per tonne in Victoria⁷, \$57 in South Australia^{5,8}, and \$60 in Western Australia⁹.

Mixing It Up

Some bins are labelled as both general waste and recycling. The waste collected from these is transported to facilities sometimes termed 'dirty' MRFs or alternative waste technologies, which are sites specifically designed to receive recycling mixed in with general waste¹⁰. At these facilities the collected materials are put through a process similar to a MRF, but the equipment is designed to deal with contaminants. All the recyclable materials are extracted with the remaining residue, mostly organics, processed into low-grade compost. It often contains glass, plastic or chemical contamination. These processes are most useful for public place and event recycling where contamination rates are high as well as extracting the last recyclables from kerbside general waste bins.

Alternative waste technologies help extract the recyclable items from general waste.



Where Does It End Up?

Once the different material streams have been separated at the MRF they are bundled together and sold to manufacturers to make new products.

Some of the most common materials from kerbside collections are re-processed here in Australia particularly paper, cardboard, aluminium, steel and PET plastic. These plants reprocess millions of tonnes of material every year, but some recyclables are exported for processing and re-use¹⁰. The majority of Australia's exports go to Asia, particularly China, which is prepared to pay high prices for recyclables to feed into its large manufacturing industry. These resources are valuable as China has few readily available sources of virgin materials such as indigenous forests or oil supplies^{10 11}.


Closing the loop by buying products made from recycled materials will help support the recycling industry in Australia. By creating market demand for items manufactured from recovered materials companies will have an economic incentive to buy recycled materials, increasing the volume of recycled material that stays in Australia for processing.



The new plant can process up to 80,000 tonnes of waste paper

Australians Manufacturing Australian Paper

Australian Paper's recycling facility in Maryvale, Victoria (pictured) is a positive example of closed loop and local recycling. Paper is collected from workplaces around the country. It is sent to the plant where ink, toner and other unwanted elements are removed and the paper pulped to produce clean fibre. This fibre is then used to manufacture premium recycled office paper like Reflex White 100% Recycled which is then purchased and used by those same Australian workplaces⁸. The quality of recycled paper has improved so much in recent years that most people cannot tell the difference between recycled content paper and virgin paper in either look or performance⁹.



Almost 100% of the four tonnes of soil, bricks, rock and sand in this bin was recycled.

Construction and Demolition Waste

Construction and demolition (C&D) waste is the material generated from the building or destruction of homes and buildings. It includes excavated sand and rock, bricks, concrete, timber frames, window and doorframes, pipes, electrical wiring and fixtures like kitchen sinks and baths. An estimated 85% of C&D waste is masonry such as bricks, concrete blocks and tiles¹⁵.

Sitting at 55%, C&D waste has a relatively high recycling rate in Australia and exceeds 70% in NSW, SA and the ACT¹⁶. In large part this is due to the fact that the material is generated in a relatively limited number of locations such as building, renovation and demolition sites. It is also highly recyclable when sent to appropriate facilities. When material arrives at a recycling facility it is put through a series of sorting processes specifically designed to separate the various construction and demolition materials. Some items are picked out

by hand while magnets pull out ferrous metals and trommels (rotating or shaking screens with various sized holes) separate rocks, stones and sand based on size.

At the end of the process the newly separated materials are sold for re-use. The benefits of buying recycled construction and demolition materials include that they can be cheaper than virgin materials and have the potential for reduced transport costs¹⁷. The variety of uses for the recycled materials includes:

- ➔ Garden cuttings and untreated wood will be used as mulch,
- ➔ Soil will be used as turf underlay,
- ➔ Concrete, bricks and rocks will be crushed and used as a drainage medium, behind retaining walls and as a road base and
- ➔ The sand will be used as pipe bedding, for backfilling and under concrete slabs.



What are the benefits of recycling?

Recycling is often seen as an exclusively environmental activity, however it has a number of other significant benefits. The most obvious of these is economic, but in addition there are social and emotional benefits as well.

For the Planet

Recycling waste results in many significant environmental benefits:

- ➔ Recycling reduces and can even eliminate the need to extract raw materials, conserving limited natural resources. Producing one tonne of virgin aluminium requires four tonnes of chemicals and eight tonnes of bauxite, whereas producing one tonne of recycled aluminium requires only one tonne of used aluminium¹⁸. Aluminium's ability to be recycled repeatedly, without loss of material, is why 75% of all of the aluminium ever produced is still in use today¹⁹.

- ➔ Recycling can reduce the amount of energy required to process and manufacture new products, compared to the use of virgin materials. Recycling one tonne of paper and cardboard saves enough energy to power four Australian homes for a month²⁰, and recycling one tonne of plastic saves enough energy to power 31 homes for a month²¹.
- ➔ Recycling diverts waste from landfill, preventing the release of greenhouse gases produced by the anaerobic decomposition of organic material. One of the gases released is methane, a greenhouse gas with 25 times the global warming potential of carbon dioxide²². Diverting one tonne of municipal solid waste from landfill (which on average contains around 70% biomass material) prevents 0.15 tonnes of methane from being released²³.

75% of all of the aluminium ever produced is still in use today.



For Profit

Landfilling waste is a simple, if environmentally damaging activity. It generates very few jobs and adds very little productive capacity to the economy. Recycling, on the other hand, generates direct and indirect jobs as well as ongoing investment.

- ➔ The process of recycling and composting creates more jobs than incineration and landfill¹⁸, with 9.2 jobs in recycling for every 2.8 jobs in landfill²⁴. In South Australia the introduction of the 2003 Zero Waste policy led to increased recycling rates, and jobs in the industry grew from 3000 to 4800²⁵. These jobs are also largely recession-proof, with recycling rates not shown to fluctuate with the broader economy²⁴.
- ➔ Access to recycled materials supports manufacturing in Australia, providing businesses with many resources that are cheaper than their virgin counterparts. Recycling concrete as aggregate for new concrete production, for example, provides a cost-effective method for the construction industry²⁶.

The Benefits of Locally Made Recycled Paper

Producing high quality recycled office paper at Australian Paper's new Maryvale plant makes economic sense. As well as using Australian waste paper it contributes the following benefits to the economy⁶⁶.



80,000 tonnes of paper processed annually



246 permanent jobs



\$51 million to national GDP each year



\$19 million to household income

9.2 jobs are created in recycling for every 2.8 in landfilling.





For People

Interestingly, recycling not only has large-scale environmental and economical benefits, but also has small-scale benefits for the people doing the recycling:

Research shows there is a positive relationship between recycling and life satisfaction.

- ➔ A study of 23,623 individuals across 27 countries found a significant positive relationship between recycling and life satisfaction²⁷. The result was linked with the positive emotions associated with altruistic behaviour and doing the 'right thing'.
- ➔ There is also a positive relationship between self-reported wellbeing and recycling, with recyclers being overall happier¹⁸.
- ➔ The positive life satisfaction and wellbeing effects of recycling are not dependent on age, with the link shown to be present in both adults and adolescents²⁸.





Who pays for recycling?

Recycling is an \$11 billion a year industry in Australia²⁴ and many manufacturers are willing to pay for recycled materials. This creates the impression that there's lots of money to be made from the process and occasionally confusion about why consumers are sometimes asked to pay for their recycling.

Some items, such as aluminium cans, have a resale value that covers the cost of their collection²⁹. This is not the case with most recyclables though, especially when complex processing and disposal of hazardous waste is required.



The Cost

- ➔ Collection
- ➔ Transport
- ➔ Sorting
- ➔ Processing
- ➔ Regulation and compliance
- ➔ Hazardous waste disposal
- ➔ Landfilling residual waste



The Benefit

- ➔ Environmental protection
- ➔ Saves landfill space
- ➔ Jobs and investment
- ➔ Resale value
- ➔ New products



Where does the money for recycling come from?



You - The Consumer or Resident

The introduction of a waste levy in most states and the resale value of recyclable materials means that the cost of providing a recycling service to residents is often cheaper than sending the waste to landfill³⁰. However, the cost of recycling is not completely offset and councils account for this difference by charging residential property owners rates.

The additional charge added to council rates for receiving a kerbside recycling collection service varies across councils depending on their location, ranging in NSW from \$30 to \$145 a year³⁰. As the cost of collection differs in different parts of the country depending upon factors like distance to recycling facilities and population densities, some councils are unable to provide the service.

For items that cannot go into the kerbside recycling bin and do not have a free industry or community-operated program, consumers may be asked to put their hand in their pocket for it to be recycled. For example, mattresses can be recycled at waste facilities for an average charge of \$60 each and car tyres can be recycled for around \$25 each³¹.

Manufacturers Pay Up

Around the world there is a growing movement towards product stewardship, or extended producer responsibility, programs. Under these programs, manufacturers and/or retailers assume responsibility for reducing the environmental impact of these items at their end-of-life by re-using, recycling or safely disposing of them³².

The Right Toner

'Cartridges 4 Planet Ark' is an example of a voluntary extended producer responsibility program, meaning that participating manufacturers, Brother, Canon, Epson, HP, Konica Minolta, Océ and Kyocera choose to fund the collection, recycling and resource recovery of the ink and toner cartridges they produce. The cartridges are recycled by Close the Loop, with zero waste sent to landfill. Consumers can recycle used cartridges for free by placing them into one of the tens of thousands of collection boxes located in retail stores, like Officeworks, and workplaces around the country.

Since 2003, 'Cartridges 4 Planet Ark' has diverted over 29 million cartridges from landfill³³.



Mustering Old Mobiles

MobileMuster is the Australian mobile phone industry's not-for-profit recycling program. It's a free service, funded solely by industry, that accepts all brands and types of mobile phones, plus their batteries, chargers and accessories. Its purpose is to ensure old mobiles and their accessories do not end up in landfill at the end of their life, but are instead recycled in a safe, secure and ethical way. In 2014 it became the first accredited voluntary scheme under the Australian Government's Product Stewardship Act.

Since 1998 MobileMuster has recycled nearly 10 million handsets and batteries, eliminating the need to mine 28,900 tonnes of precious metal ore, the equivalent of keeping 2,600 cars off the road.³⁴



Nearly 10 million handsets and batteries have been recycled.





Televisions and Computers

The National Television and Computer Recycling Scheme (NCRS) is an example of co-regulatory product stewardship, a combination of government regulation and industry action³⁵. The scheme enables households and small businesses to recycle their old televisions, computers and peripherals at convenient locations around the country. Under the scheme all importers and manufacturers (above a specific threshold) must cover the cost of collecting and recycling the items they produce. The financial contribution is determined by the quantity of new products they imported into the market in the previous financial year³⁶. TechCollect is the only not-for-profit arrangement formed under the NCRS and is made up of over 40 of the largest manufacturers and importers.

Since 2012 TechCollect has diverted more than 60,000 tonnes of TVs and computers from landfill.

Starting Down the Road

The National Tyre Product Stewardship Scheme was launched in January 2014. The new scheme aims to increase the 5% recycling rate that currently exists. Both the Australian Government and the tyre industry developed the scheme, which is a voluntary, industry-led program. A levy of 25c for every passenger tyre (or Equivalent Passenger Unit) has been added to the sale of new tyres to fund the scheme. Motorcycle tyres are 0.5EPU, a passenger car tyre is 1EPU and a 20" truck is 5EPU.

Each year 51 million
tyres are discarded
in Australia.



3

Who pays for recycling?

18

PLANET ARK

Australian Packaging Covenant High Performer O-I Australia

O-I Australia received the Australian Packaging Covenant's (APC) High Performer Award for a large packaging manufacturer. The award recognises the significant sustainability achievements made by O-I Australia in the 2013-14 financial year, in the design, manufacture and recovery of glass packaging products. O-I Australia also represents a key example of a manufacturer taking financial responsibility for reducing the impact of its products, running a Returnable Packaging Program for its customers and investing in new infrastructure to sort and process recyclable material.

Key Achievements

- ➔ Changes to the design of 21 products to make them lighter resulted in **5,895 tonnes less glass** being used to manufacture 502 million containers.
- ➔ In 2013-14, **256,571 tonnes of glass packaging were diverted from landfill** and used to produce new containers.
- ➔ **84,258 tonnes of material have been diverted** from landfill through the Returnable Packaging Program.

Key Actions

- ➔ Continuously reviewing the design and size of its products in order to identify new ways of reducing the quantity of glass required in manufacturing processes.
- ➔ Developing a new high-capacity cullet (broken or waste glass) optical sorting plant in Brisbane with joint funding from APC. The plant will recover large volumes of recycled glass for use at O-I's glass container manufacturing plant, ensuring that all glass has the opportunity to be recovered through a closed-loop process and recycled into new glass containers.
- ➔ Established a Returnable Packaging Program that encourages retail customers to return composite dividers, pallets, plastic dividers and top frames for re-use. The program uses the existing distribution network to collect and return items.
- ➔ Incorporated more green cullet (a colour that is harder to recycle) into the amber manufacturing process to reduce the impact of excess green glass.

Changes to bottle design resulted in **5,895 tonnes less glass** being used.



"As the makers of glass, O-I has proudly incorporated sustainable practices into our business for over a century. It is at the heart of all our planning, production and logistics.

Glass is 100 per cent recyclable, meaning that every bit of the glass we make can be recycled into a new glass container – over and over again. It takes less energy to melt recycled glass. We save enough energy to power a 60 watt light bulb for four hours with every recycled glass bottle we use in the manufacturing process.

We work with our customers and to lightweight our containers and invest in infrastructure and efficiencies and capture more recycled glass for use in our plants.

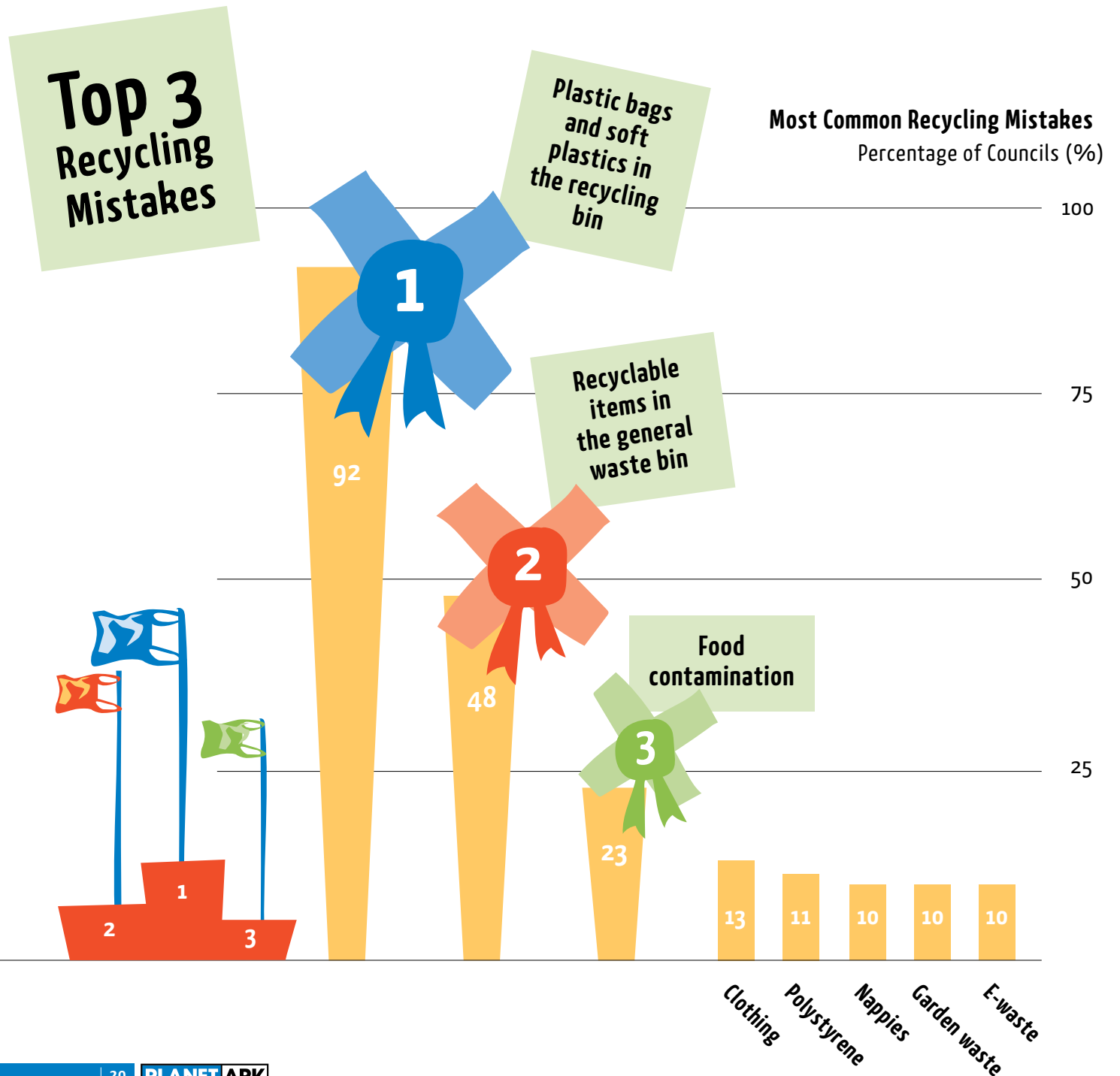
We are proud to be Australia's largest user of recycled glass."

Gary Combes
Director – Procurement, O-I Australia



What are the most common recycling mistakes?

Planet Ark surveyed 115 councils across Australia and asked them to identify the most common recycling mistakes made by their residents.



Bags In the Wrong Place

The most common mistake by far was plastic bags placed into the kerbside recycling bin, with nine out of ten councils (92%) saying that it is one of the most common mistakes made by their residents.

Plastic bags have numerous negative impacts on the recycling process:

- ➔ Staff can't open plastic bags for efficiency and safety reasons so any recyclable items inside are diverted to landfill, representing a waste of resources.
- ➔ The bags get caught in the wheels and cogs of the facilities' conveyer belts, which are designed for items like bottles and cans. Stopping the machines to remove tangled plastic bags slows down the whole process.
- ➔ In the right location plastic bags are recyclable. So sending them through the kerbside system, where they are a contaminant, represents a wasted opportunity to recycle.

Plastic bags are so common that councils and waste companies are developing ways to collect and recycle them. There are a number of council areas that now accept soft plastics like bread rice and pasta bags in their recycling. They include Lismore and Ballina in NSW, Moreland in Victoria and Cambridge and Vincent in WA. These are still very much the exception to the rule.

9 out of 10 councils identified plastic bags in the recycling bin as the most common recycling mistake.



RECYCLE
plastic bags
and packaging
HERE



In one year
83 million
pieces of soft
plastic were
recycled though
supermarkets.

Recycle your
plastic bags here

Drop 'Em Off

Although they shouldn't be in (most) recycling bins, soft plastics are technically recyclable. [REDcycle](#) has developed and implemented a recycling initiative for all of the soft plastics that cannot be placed into the kerbside recycling system, such as plastic shopping bags and cereal, lolly, bread and frozen food bags. Customers can drop their soft plastics off at one of 600 locations, including selected Coles and Woolworths stores, where they will be recycled into new products including outdoor furniture for schools and communities.³⁷ In the 2014-15 financial year alone **83 million pieces of soft plastic were diverted from landfill**³⁸.

Good Recycling Gone Bad

The second most common recycling mistake reported by nearly half of councils (48%) concerned residents placing items that are accepted in the kerbside recycling system into the general waste bin. These items are wasted resources, as the materials are sent to landfill instead of being used for the manufacture of new products.

Previous Planet Ark research has shown that the majority of people who place items into the wrong kerbside bin are doing so whilst believing that they are recycling correctly, not because they have a lack of concern for the environment¹⁴. This is a positive indication that residents will change their recycling behaviours once they know the correct action to take.



Food Fight

Food contamination was the third most common recycling mistake highlighted by councils (23%), meaning that residents are placing items into the kerbside recycling bin that have too much food waste attached to them. Items like pet food cans, takeaway containers and pizza boxes are particularly tricky.

Excess food in the recycling bin is a particular issue for paper recycling as the oil and grease combine with the paper fibres in the pulping process, lowering the quality of the new material. If a pizza box is relatively clean of grease and food it can be recycled in most council areas. If, however, the box is heavily soiled with grease, then the lid should be torn off and placed into the recycling bin whilst the base should be placed into the general waste bin.



The box on the bottom is recyclable in most areas.

A+ For Improvement

In the lead up to National Recycling Week 2014, research showed that only three out of ten Australians (33%) correctly knew that aerosol cans were recyclable. Nearly half of the general public (44%) believed that aerosol cans explode if they are recycled.

Following the inclusion of information about aerosol can recycling in that campaign, the number of people who correctly understood that aerosols, when empty, could be recycled rose to four out of ten.





How do we make recycling at work, work?

The commercial and industrial sector, which represents all businesses except construction and demolition, generates more waste than households in Australia but has lower landfill diversion rates, recycling less than half of its waste (46%) and sending around 7 million tonnes to landfill every year³⁹. Understanding how to make recycling in the workplace become as routine as it is at home, where 94% of Australians have access to kerbside recycling⁴⁰ and 85% of people think that it is easy and convenient¹⁴, is vital if Australia is to reduce the amount of waste being sent to landfill.



Having recycling at work makes staff feel good about their employer.

BINGO

CO-MINGLED

PLASTIC BOTTLES AND CONTAINERS ALUMINIUM CANS GLASS BOTTLES

Planet Ark has previously highlighted the benefits to businesses of recycling, including: staff feeling that they work for a responsible employer if they recycle, and businesses embracing 'green' mandates having an increased ability to recruit and retain good employees¹⁴. As Australians spend an average of 1,664 hours a year at work⁴¹, it is logical that employees want to feel positive about their workplace and studies have shown that happy employees correlate with positive firm performance⁴².

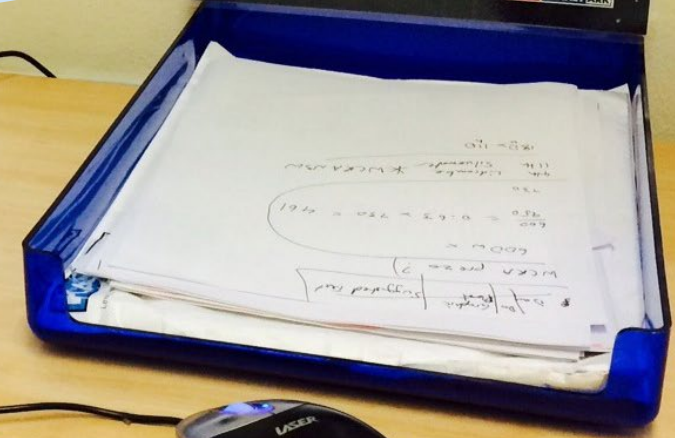
Free and Easy

As outlined in an earlier chapter, there is an increasing number of programs under which manufacturers establish free recycling programs for the items they produce. They can provide a free and easy collection programs that engages staff in waste reduction. '[Cartridges 4 Planet Ark](#)' and '[MobileMuster](#)' are two such examples. Participating workplaces receive collection boxes to set up in their office, with clear and simple signage about what can be recycled. These boxes advertise to staff, clients and customers that a business is actively trying to reduce its environmental impact.

Location, Location, Location

To achieve optimal performance, recycling needs to be as convenient or easier than throwing something into the general waste bin. This means that for every waste bin in the office there should be a recycling bin adjacent to it. Indeed, studies have shown that the location of recycling bins can significantly influence recycling rates and contamination levels. One study showed that the rate of office paper recycling rose from one third (28%) when there was a single bin for the whole office, to almost all paper being recycled (94%) when recycling trays were placed on every desk⁴³.

Paper recycling rose from 28% with one bin per office to 94% when paper trays we located on desks.





Fully Equipped

The range of materials that can be recycled from the workplace is huge. Shipping pallets, cardboard boxes, plastic wrap, oils, chemicals, paint, building materials and much more are recyclable if collected correctly and sent through the appropriate processes.

A key issue in ensuring commercial and industrial recycling is processed correctly is on-site separation, storage and in some cases initial processing. Motor oil, for example, is easily recycled, however, if it is mixed with brake fluid it becomes contaminated and can't be used. Selecting the right bins, balers and other equipment can help ensure that contamination is kept to a minimum and the recycling industry can extract the full environmental and financial benefit from the material they collect.

Planet Ark's [BusinessRecycling](https://www.planetark.com.au/businessrecycling) service has been developed with support from the NSW EPA to provide a one-stop-shop for workplaces, especially small to medium businesses, to make recycling easy. The site hosts a wide range of information and services including a new Recycling Equipment Catalogue that helps identify the best equipment to ensure effective recycling.

The right equipment makes recycling more efficient.



An Office Fling

Signing up to host a [Friday File Fling](#) as part of Planet Ark's National Recycling Week is a fun and easy way to get the whole office actively engaging in recycling. The Friday File Flings gets stored files that are no longer needed out of cluttered office filing cabinets and back into circulation to produce new paper.

Putting paper in the recycling bin is the first step. To truly recycle, workplaces need to use recycled office paper. Buying Australian made, recycled paper like Reflex 100% Recycled ensures that there is a local market for the paper that's going into Australian recycling bins.



Close the loop by using Australian made recycled paper.

An office Fling is a great way to get good quality paper back into use.



Australian Packaging Covenant High Performer

Pernod Ricard Winemakers

Pernod Ricard Winemakers Australia (the brand company for global wines including Jacob's Creek) received their APC award as equal highest performer in the Large Beverage Company category. Pernod Ricard Winemakers Australia represent an excellent example of a business focusing on team engagement and understanding in sustainability, to 'make recycling at work, work'. The award recognised the training and communications program established to facilitate sustainability communications, and how this supported the organisation exceeding their waste reduction targets.

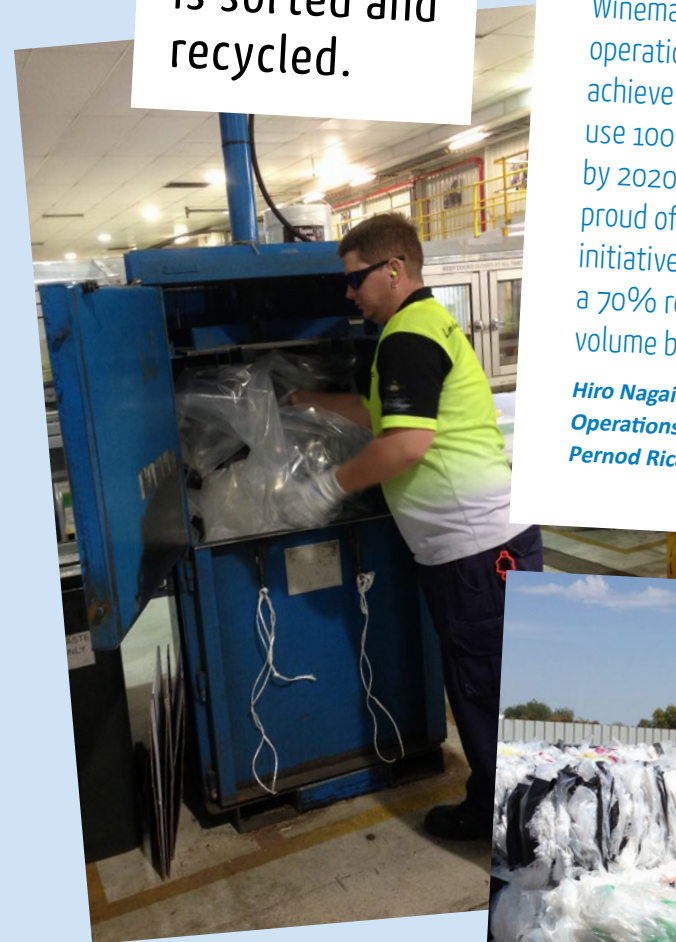
Key Achievements

- ➔ Only 32.41 tonnes of waste were sent to landfill in 2014, a reduction of over 70% from 2012 and exceeding waste reduction targets.
- ➔ All packaging material is 100% recycled content and 100% recyclable.
- ➔ 96% of onsite waste is sorted and recycled.
- ➔ A4 paper usage was reduced by 72,000 pages per annum.

Key Actions

- ➔ Incorporated the Sustainability Packaging Toolkit into the induction and training of all new operational staff.
- ➔ Ongoing training focusing on driving team engagement to achieve sustainability goals.
- ➔ Release a monthly 'Best Practice Bulletin' to remind teams to incorporate sustainable considerations into their daily processes, which is uploaded onto internal social media to make it available to all teams globally.
- ➔ Conduct review meetings with major suppliers to discuss environmental projects and opportunities for improvement, such as making packaging lighter, increasing its recycled content and increasing its re-usability.
- ➔ Collaborated with a resource recovery company to introduce a BioBin and more active waste management program onsite.
- ➔ Stopped printing invoices, moving to a paperless system.

96% of
onsite waste
is sorted and
recycled.




Pernod Ricard Winemakers
Leading Wine Innovation

"Respect for the environment is very important to Pernod Ricard Winemakers, our industrial operations are targeted to achieve zero waste to landfill and use 100% recyclable packaging by 2020. We are especially proud of our industrial recycling initiatives which resulted in a 70% reduction of land fill volume between 2012-2014."

Hiro Nagai
*Operations Director - Australia,
Pernod Ricard Winemakers*



70% waste reduction since 2012

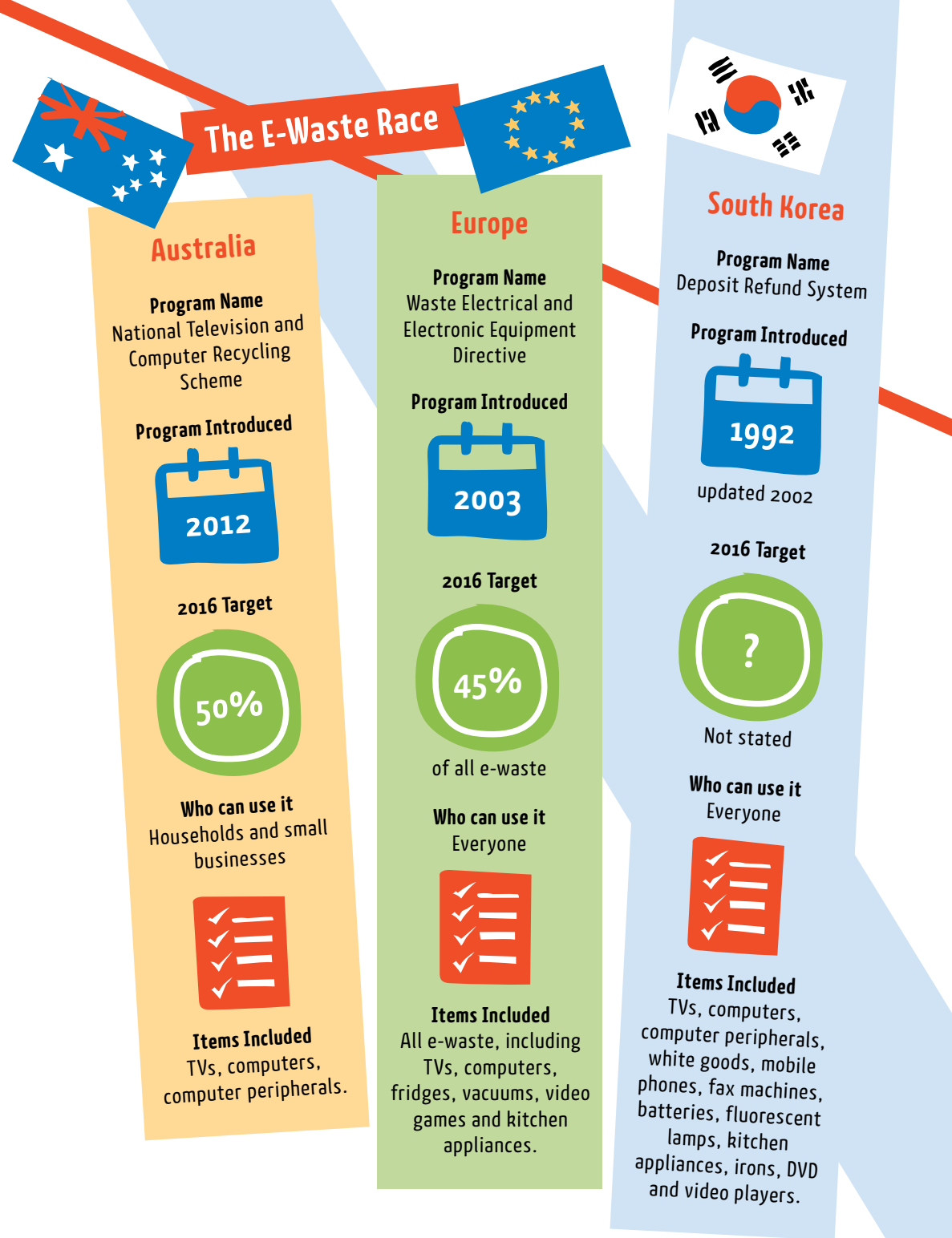


How does Australia's recycling compare to the rest of the world?

Australians compete against the rest of the world in many areas and recycling is no exception. In some areas, like newspaper recycling, we have been world leaders for years. In others we are playing catch up and in some we are right at the back of the field.

E-waste Schemes

E-waste is one of the largest and fastest-growing waste streams in the world and as more and more digital products emerge this rate is set to continue. The Australian Bureau of Statistics identifies that e-waste is increasing at three times the rate of other types of waste. Electronic equipment includes both non-renewable and toxic materials so there are environmental and economic reasons for recycling them. Programs like the not-for-profit [TechCollect](#) have been formed through government initiatives in Australia to bring the manufacturers and importers together into an organisation that manages the collection and recycling of the products covered by the scheme. So how does Australia compare?





The first collection through Power Tool Batteryback.

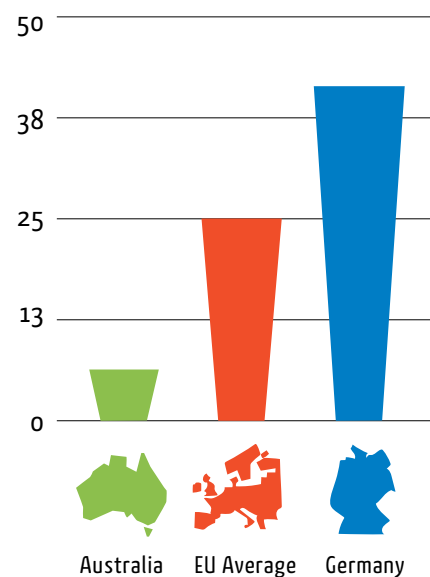
Powering Up Battery Recycling

Battery recycling is in its infancy in Australia. In the Europe Union, where battery recycling is mandatory, there are hundreds of thousands of collection points and initiatives designed to develop positive attitudes towards recycling in children and families.

There is action in Australia with some sectors, the government, industry and community pushing for a battery scheme similar to TVs and computers. However, in terms of small handheld batteries (AA, AAA, C, D and 9V), the two multinational manufacturers are currently refusing to participate in a recycling scheme until they are compelled to by government legislation. In the meantime, councils and retailers like **ALDI Supermarkets** are filling the gap.

Battery Recycling Rate

% Recycled



49-51

The [Australian Battery Recycling Initiative](#) (ABRI), a not-for-profit association established to promote responsible environmental management of batteries at end-of-life, has been working hard to develop best practice models of recycling. To this end, a pilot project called [Power Tool Batteryback](#) is underway in Brisbane (until June 2016) with the aim of collecting and recycling power tool batteries through hardware stores. The program is designed to provide valuable information on the willingness of consumers to participate and the costs of collection and recycling⁵².



Burning Up the Table

Overall, 51% of household waste in Australia is recycled⁵³. This level is relatively on par with recycling rates in northern European countries, and even exceeds the mean recycling rate of all 28 countries in the EU of 42%. There are, however, differences in the way the two jurisdictions treat waste. In Europe, around a quarter of their non-recycled waste is incinerated, significantly lowering the volume that is sent to landfill (Table 1a and b)⁵⁴. This difference is driven by the greater demand for an alternative to landfill sites due to greater population densities. Australia ceased incinerating waste on a large scale in the 1970s due to pollution concerns. In some states, like NSW, there is a move back to incineration under very specific circumstances and tight controls. For example, to gain permission to burn waste (and generate electricity), a processor needs to show it has extracted all viable recyclables from the waste. Only the residuals can be burnt.

% Council Waste Recycled By Country

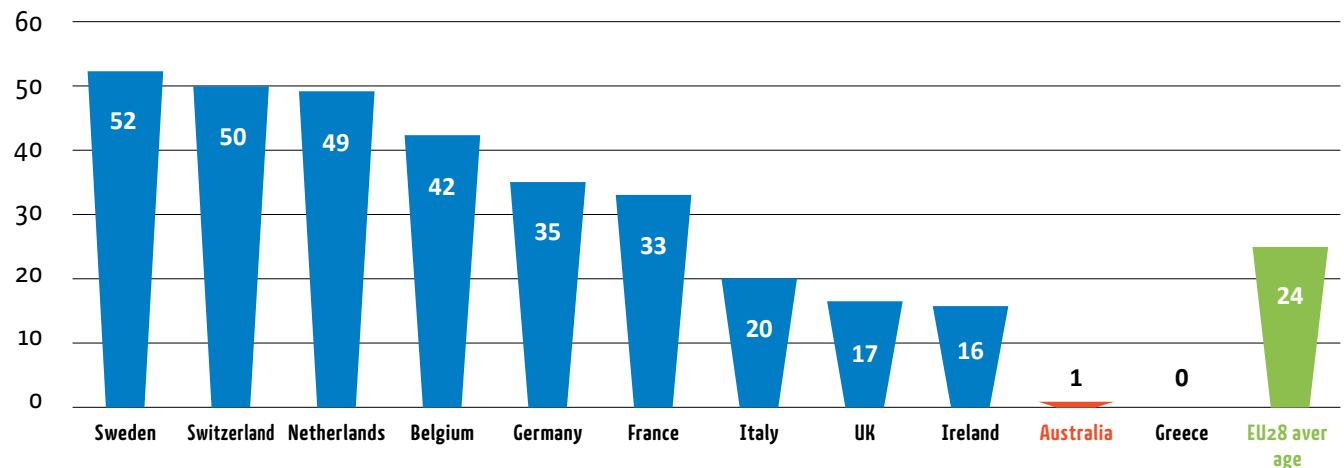
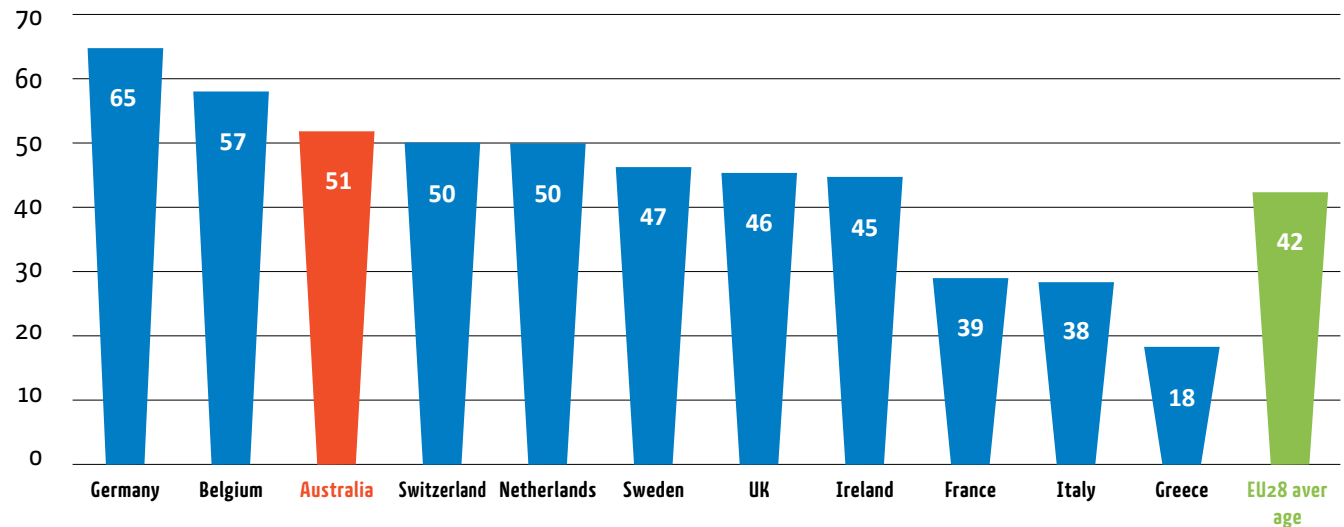


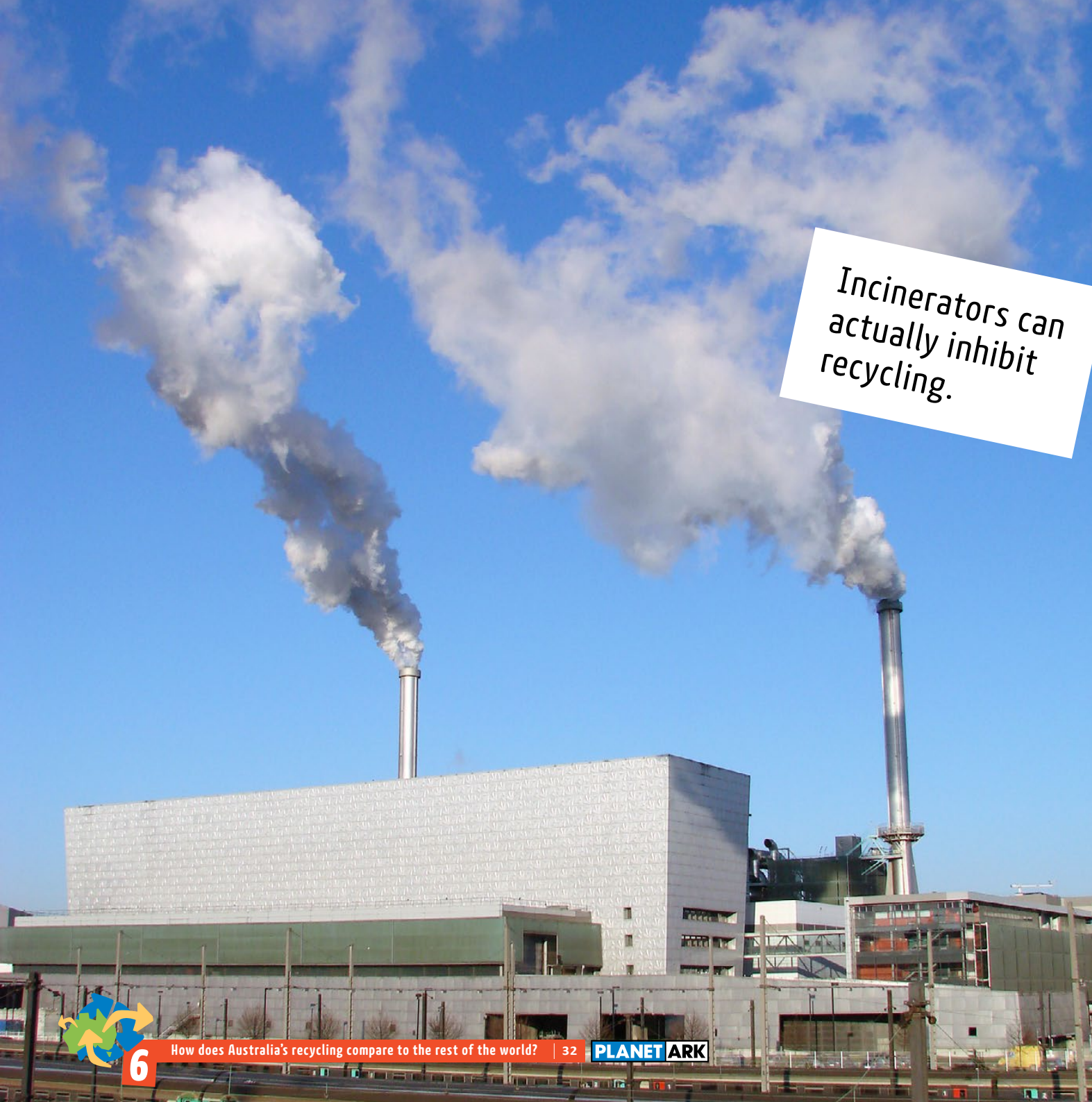
Recycled and composted (%)



% Council Waste Incinerated

Incinerated (%)





Incinerators can actually inhibit recycling.

Although incineration for energy is higher on the waste hierarchy than landfilling⁵⁵, recycling and reuse are significantly better for the environment. In the emerging Australian model incineration should only be a last resort as it can actually inhibit recycling. This is because incineration is often cheaper than sorting and recycling waste and the price paid for energy decreases as the volume increases. Some countries have more incinerators than are required for domestic waste volumes, so they import waste to make the facilities more profitable, e.g. Sweden has 31 plants, Germany 72 plants, the Netherlands 12 plants and Denmark 29 plants⁵⁶.

In Denmark every city has its own incinerator, most of which are publicly owned. If less waste is generated and rates of recycling increase, then the incinerators will function below capacity and increase operating costs. As these costs are passed onto residents through waste management fees, a system has been created whereby the more waste that is generated, the better the financial impact on the community through lower power prices. The result is that Denmark has one of the highest per capita waste generation rates in Europe with about 80% of it being incinerated.

Denmark is planning on addressing this problem with ambitious plans to be independent from fossil fuels by 2050.⁵⁷



Australian Packaging Covenant High Performer

Mars Australia

Mars Australia received the APC's award for highest performer under KPI 3, for onsite recovery and recycling.

Companies around the world are starting to identify the importance of achieving zero waste to landfill with their manufacturing practices. Mars has a global goal of achieving zero waste to landfill from their manufacturing facilities by the end of 2015. The APC's award recognises Mars Australia's strong progress towards this target in 2014, with two manufacturing sites achieving zero waste to landfill, and two more sites approaching this goal.

Key Achievements

- ➔ Mars Food decreased the amount of waste sent to landfill from 475 tonnes in 2013 to 188 tonnes in 2014, becoming a zero waste to landfill site in mid-2014.
- ➔ Mars Petcare reduced the 4,600 tonnes of waste sent to landfill annually to only 400 tonnes, with Mars Petcare Wodonga becoming a zero waste to landfill site.
- ➔ Mars Chocolate Australia reduced from 165 tonnes of landfill in 2014 to 0 in 2015. This was achieved through better recycling at source, partnership with global waste management and finding recyclable non-landfill homes for their waste.

Key Actions

- ➔ Conducted audits of their waste to identify more opportunities for recycling.
- ➔ Increased employee engagement and education on waste and recycling issues, enabling opportunities to discuss sustainability goals and drive change.
- ➔ Worked closely with co-packers and logistics warehouses to reduce and recycle packaging waste off site.
- ➔ Established a Recycling Collection Centre at the Mars Petcare Wodonga facility, so that waste can be sorted, processed and baled for resale onsite.
- ➔ Installed a closed loop organic composter at the Mars Petcare Wodonga facility, turning waste food into organic compost.
- ➔ Use the services of a waste processor to turn non-recyclable waste into bio-fuel.

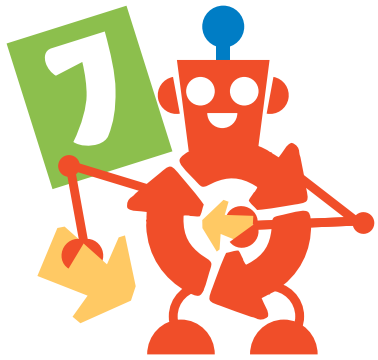
MARS
incorporated

Mars
Petcare
reduced
waste to
landfill
from
4,600
tonnes
to zero.

"At Mars, we have a global commitment to becoming Sustainable within a Generation. We have an amazing planet and we recognise that we have a responsibility to run our operations in a way that minimises our impact on the environment. In this day and age, given growing populations and greater knowledge of environmental impacts, we need to tackle the issue of waste to landfill. We are very proud of achieving 'zero waste to landfill' in 2015 by finding alternate homes for our waste, creating collaborative partnerships and ultimately creating less waste."

Michael Ryan, General Manager for Mars Chocolate





What is the future of recycling?

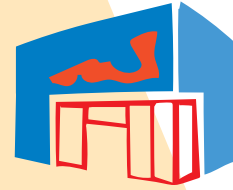
Humans have been recycling since the beginning of history. Adding manure to farmland and using scraps of fabric to mend or make clothes are forms of recycling. In a modern sense, recycling in Australia began in the 1980s and picked up speed in the 1990s. Moving forward from 2015 there are a number of pressures that will drive recycling into the future.



Future Drivers of Recycling



Increase in the amount of waste being generated⁵⁸, through greater consumption and population growth.



Increase in public willingness to recycle away from home as shown by success of 'Cartridges 4 Planet Ark', MobileMuster and TechCollect.



Increase in items covered by product stewardship legislation eg TVs and computers, tyres, paint and batteries.



Increasing public and private investment in recycling e.g. NSW \$400 million Waste Less Recycle More program and \$15 million by the Australian Packaging Covenant.



The promotion of sustainable business practices and end of life waste management.



Increase in awareness of the environmental dangers of waste, such as cadmium in power tool batteries and mercury in fluorescent lamps.



Increased scarcity of resources like phosphorous, oil, and precious metals.



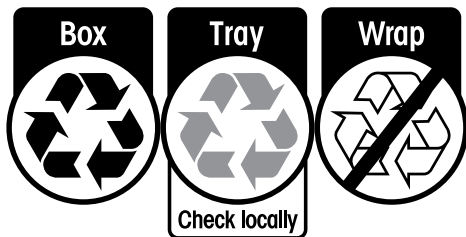
Financial incentives, such as the Container Deposit Scheme.

What's In a Label?

Although Australians are world-class recyclers at home, Planet Ark research conducted for National Recycling Week 2014 showed that 99% of people are confused about the recyclability of at least one common item of packaging. To address this confusion Planet Ark has developed the [Australian Recycling Label](#).

The Label was launched by Planet Ark in August 2015. Since then, two major Australian brands, Officeworks and Blackmores, have led the way by applying the label to a variety of their new products.

The label shows, in a simple standardised graphic, the recyclability of each component of the pack. A chocolate box, for example, is made up of the cardboard box, plastic tray and plastic wrap.



The recyclability is determined by widespread access to a council kerbside collection and the technical recyclability of each component. The components are the separate elements that make up the package. The technical recyclability may be determined by the size of the component, how it behaves in sorting processes and whether it is combined with other materials.

The Label uses the well-recognised symbols of a Mobius loop to indicate recyclability, the loop with a bar to show non-recyclability and a possible third panel instructing users to Check Locally or for specific behavioural instructions like 'Scrunch'.

The Label has two aims: The first is to allow manufacturers to make supportable recycling claims on their products, and the second is to reduce consumer confusion at the point of recycling. By reducing this confusion the Label will help increase the efficiency of recycling in Australia.

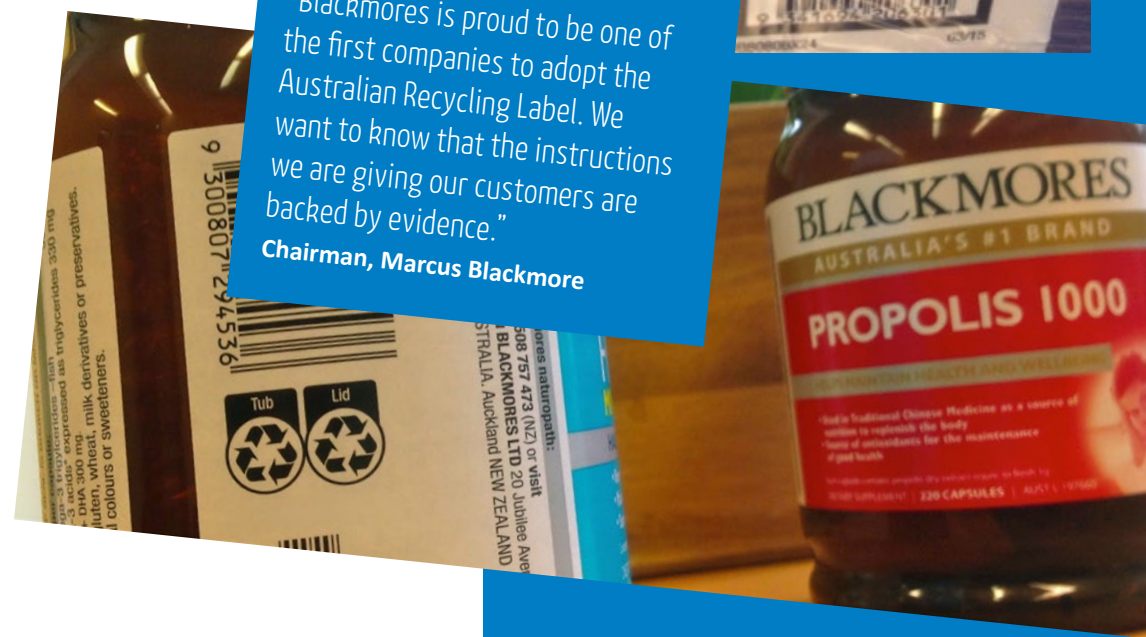
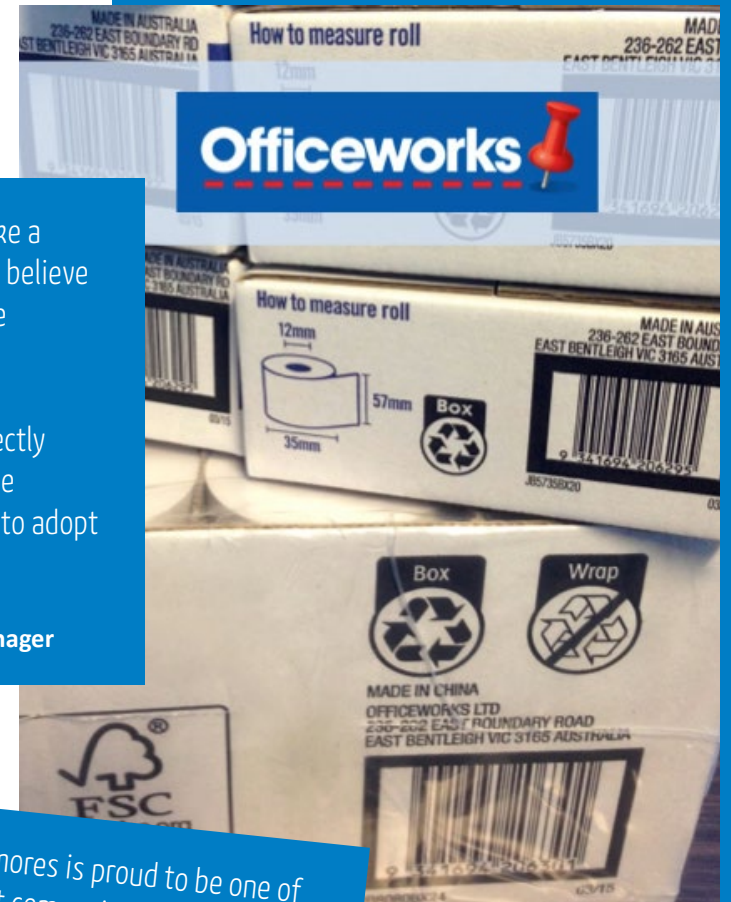
This is how the Australian Recycling Label could appear on a box of chocolates. The symbols make it clear that the cardboard box can be recycled in the kerbside bin, that the plastic tray may be recyclable (depending on the local council collection) and that the plastic wrap should not go in the kerbside bin.

"Officeworks wants to make a positive difference and we believe our customers do too. The Australian Recycling Label removes confusion for customers to recycle correctly so we were happy to be the first company in Australia to adopt and roll out the Label."

Lok-Man Shu,
National Sustainability Manager

"Blackmores is proud to be one of the first companies to adopt the Australian Recycling Label. We want to know that the instructions we are giving our customers are backed by evidence."

Chairman, Marcus Blackmore



Container Deposit Schemes in Australia

Northern Territory
2011

Queensland
2018 (Under consideration)

New South Wales
2017 (Under development)

South Australia
1977

ACT
2017 (Under consideration)

Return to the Future

A Container Deposit Scheme (CDS) involves a small deposit being paid by the consumer when purchasing an eligible beverage, which is refunded when the empty container is returned for recycling to either a reverse-vending machine or a waste facility. The scheme is based on the idea that with a value ascribed to an empty container, consumers are less likely to send it to landfill or litter (or if they are littered there is a value in picking them up).

A CDS has been successfully running in South Australia since 1977, where litter from beverage containers is the lowest in the country⁵⁹. The CDS was introduced to the Northern Territory in 2011 and doubled the recycling rate of beverage containers in its first year⁶⁰. After much debate a CDS is due to begin in NSW in 2017, to try to reduce the estimated 2 billion plastic bottles that are littered in NSW every year⁶¹. The decision of NSW to introduce a CDS has led to both the Queensland and ACT governments considering a similar scheme⁶².

The introduction of the CDS in NSW will also strengthen the future of the recycling industry by creating jobs and leading to the investment of new infrastructure.



Building Sustainability Into the Future

A key element in the future of recycling is for companies to invest in the development of products and processes that use the outputs of the recycling process, to develop a circular economy. There is little use collecting and processing materials unless there is a key market for it. Two examples of companies who have built their business on recycled products include Close the Loop's TonerPave and Dunlop Flooring's underlay.



Close the Loop - TonerPave

TonerPave® is the next generation in sustainable asphalt being made from the residual printer cartridge toner collected through 'Cartridges 4 Planet Ark'. It was developed by Downer EDI and Close the Loop. It has both environmental and economic benefits⁶³. TonerPave has been laid by multiple Melbourne councils and is currently being trialled in Sydney, reducing emissions from the production of bitumen by 40%⁶⁴.

Setting the Stage

"Programs like 'Cartridges 4 Planet Ark' are an essential part of an early stage circular economy because they prove that take back programs can efficiently collect and transform consumer items at end-of-life from what may be considered waste, into new economically and environmentally positive materials and products."

Steve Morriss, Founder and Executive Director of Close the Loop®.



Dunlop Flooring – EnviroTred

Dunlop Flooring's business model for carpet underlay is based on an almost closed loop process. More than 90% of the underlay produced for retailers like FlooringXtra is recycled.

The process is based on retailers and carpet layers collecting used foam underlay and returning it to Dunlop where it is cleaned, sorted and used in the manufacture of new underlay. Additional foam is purchased from manufacturers. ⁶⁵



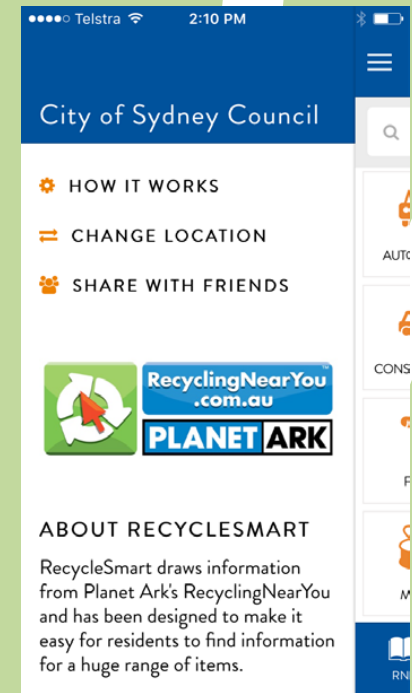
There's an App for That

Recycling is an ever-evolving industry. New materials and processes are constantly being developed. That can make it difficult for educational resources to keep up to date resulting in confusion and ultimately issues like contamination. Making information available digitally will enable it to be updated quickly and allow greater flexibility.

The new RecycleSmart App uses information drawn from Planet Ark's [RecyclingNearYou](http://RecyclingNearYou.com.au) site to provide information for every council area in Australia. It enables residents to search for both kerbside and drop off services for a huge range of materials.

Search for RecycleSmart from your app provider.

The RecycleSmart App provides recycling information for every council area in Australia.



Australian Packaging Covenant High Performer

Unilever Australia

Unilever Australia Ltd received the APC High Performer award for a large pharmacy and personal care company. The award recognises Unilever's innovative approach to packaging sustainability, waste reduction and education campaigns.

Unilever's purpose is to make sustainable living commonplace. In 2010, the company launched the Unilever Sustainable Living Plan, a blueprint for sustainable business to decouple growth from environmental impact and increase positive social impact by 2020. The scale of this ambition and the challenges of climate, resource efficiency and increased consumption have seen Unilever looking beyond their own operations to partner with others in business, government and society towards a world where everyone can live well and within the natural limits of the planet.

Unilever's APC achievements encompass the different types of actions companies can take to create a more sustainable business, acting as a key example of the practices that promote the future of recycling.

Key Achievements

- ➔ All 12.3 million Dove bar cartons in Australia are manufactured from recycled or certified sustainably sourced board.
- ➔ Lipton Green Tea: removed foil wrapping and changed format, saving 28 tonnes of packaging annually.
- ➔ Ice Cream Sticks: created shorter sticks, saving 16 tonnes of wood annually.
- ➔ Dove Aerosols: changed to a lightweight design saving 2.7 tonnes of aluminium annually.
- ➔ 87% of total waste is currently being recycled and all non-hazardous waste from manufacturing diverted away from landfill.

Key Actions

- ➔ Committed to buying 100% of raw materials from sustainable sources by 2020 and requesting suppliers use recycled content when possible.
- ➔ Aim to reduce the weight of packaging by one third by 2020.
- ➔ Send organic waste to Earthpower, who use anaerobic digesters to make green electricity.
- ➔ Imported pallets sent for shredding to make bedding for chickens.
- ➔ Waste awareness training conducted at all manufacturing sites.
- ➔ Sponsored national education campaign to raise awareness about aerosol recycling.

Reducing the size of ice cream sticks saved 16 tonnes of wood a year.

87% of total waste is currently being recycled



2014 Poster



"Reducing our waste is an integral part of the Unilever Sustainable Living Plan and we have been working to address this in a number of ways here in Australia, right through from the way we source, manufacture and package our products to how we increase recycling rates and reduce packaging litter.

Four years into our Sustainable Living Plan journey we have seen some great results including a major milestone of achieving zero non-hazardous waste to landfill from our Australian manufacturing sites.

We are very proud of these achievements but we also know there is more to be done. We are committed to continuing to reduce the environmental footprint of our products and achieving the goals of our Sustainable Living Plan in collaboration with our many external partners."

Clive Stiff, Chairman and CEO Unilever Australia and New Zealand



Your Answers – Taking Action

Recycling is continuing to grow in Australia, with new product stewardship schemes helping to promote the recycling and safe disposal of items that were routinely sent to landfill in the past. The growth of the recycling industry is a positive step for Australia, with this report highlighting some of the many environmental, economical and social benefits that recycling creates.

Australia's unique landscape, with a dispersed population, means that we face different recycling challenges to those of Europe and the US. It is therefore important that Australians continue to adapt their behaviours with the evolving industry as new schemes, processes and facilities become available.

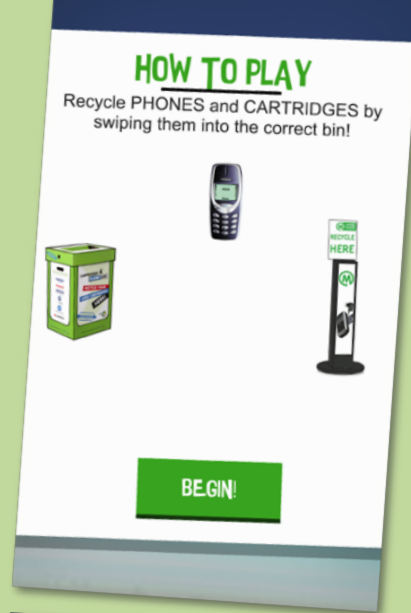


Good Habits

- ➔ Visit your local council's website or Planet Ark's [RecyclingNearYou](#) to find out what can go in your recycling bin and where to drop other items.
- ➔ Check that everyone in your household knows what can and cannot be placed into the kerbside recycling bin. If you share bins and notice that plastic bags are a problem, print off Planet Ark's '[Don't Bag It](#)' poster and stick it on the bins.

- ➔ Be on the lookout for the new [Australian Recycling Label](#) on Officeworks, Blackmores and other products and use it to determine which parts of the packaging can be recycled in your kerbside recycling bin.
- ➔ Visit Planet Ark's [BusinessRecycling](#) website to find out what recycling actions your business can take using a Step-By-Step Toolkit.
- ➔ Download Recycle Rescue App (iOS and Android) and see how good you are at recycling old mobile phones and printer cartridges.

Play
Recycle
Rescue



Make It Free

- ➔ Be aware of what free recycling services are offered in your local area. If drop-off centres are only available on certain dates, mark them on your calendar to make sure you are able to take advantage of them while they are open.
- ➔ If you are purchasing products not accepted in the kerbside recycling system, such as whitegoods and mattresses, ask the retailer if they have a recycling service where they collect your old item when delivering the new one.
- ➔ Encourage companies to take financial responsibility for the waste management of their products by favouring brands that have voluntary product stewardship schemes in place.
- ➔ Find out if your workplace is eligible for a free '[Cartridges 4 Planet Ark](#)' collection box and [MobileMuster](#) collection box.

Buy It Back

- ➔ Close the loop and buy products made from recycled materials, especially simple items like [Australian-made office paper](#) creating an economic incentive for businesses to use materials with recycled content.
- ➔ When building or renovating, look for a [waste company that recycles](#). Choosing them over companies that just landfill helps drive economic incentives to recycle.

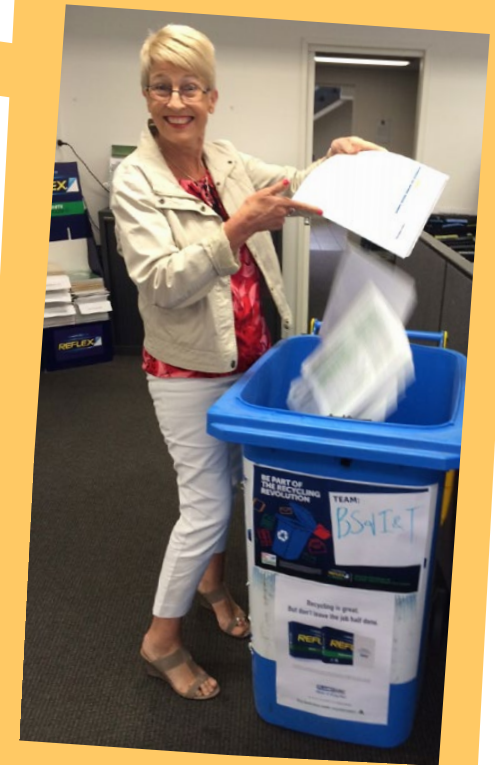
Host a Swap Party
at home, school
or work.

National Recycling Week

Planet Ark's National Recycling Week is a platform through which Australians can learn about new recycling schemes and actions taken by businesses to take responsibility for their waste. It is also a way to address key questions and misconceptions about how the kerbside recycling system works and what can be accepted within it in order to minimise contamination and increase overall recycling rates.

Activities specifically designed for individuals, workplaces, schools and councils at recyclingweek.planetark.org mean that it is easy to get involved and promote recycling.

You can have a fling alone, with your team or the whole organisation.



Activities include:

- ➔ Host a [Friday File Fling](#) at work to get no longer needed files back into the system and producing new paper.
- ➔ Get your school to participate in the [School Recycle Right Challenge](#) and promote recycling education.
- ➔ Promote re-use before recycling by setting up a [Big Aussie Swap Party](#) with your friends or at a council event.

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