



Senate Standing Committee on Environment and Communications
GPO Box 6100
Parliament House
Canberra, ACT 2600

November 2017

To whom it may concern,

O-I thanks the Senate Standing Council on Environment and Communications for the opportunity to make a submission for the “Inquiry into the Waste and Recycling industry in Australia”. Our submission relates to glass recycling and although not addressed individually, focuses on the following terms of reference:

- The role of landfill levies in determining the end destination of material, including the hypothecation of collected levies for enforcement and waste diversion purposes.
- The role of different incentives and collection methods in determining the quality and quantity of material collected for recycling.
- The destination of material collected for recycling, including the extent of material reprocessing and the stockpiling of collected material.
- The current economic conditions in the industry, including the market for material collected for recycling.

1. About O-I

Owens-Illinois, Inc. (O-I) is the world’s largest glass container manufacturer and preferred partner for many leading food and beverage brands. With revenues of \$6.2 billion in 2015, O-I’s headquarters is in Perrysburg, Ohio, USA, and employs more than 27,000 people at 80 plants in 23 countries consuming 5 million tonnes of recycled glass. O-I delivers safe, sustainable, pure, iconic, brand-building glass packaging to a growing global marketplace.

O-I’s Asia Pacific region has its headquarters in Melbourne, Australia and has around 6,000 employees in 11 glass-making plants and one glass recycling plant. The company operates these facilities in Australia, China, Indonesia and New Zealand, and also has two joint venture operations with Thailand’s Berli Jucker Public Company Limited (BJC) in Malaysia and Vietnam.

2. O-I Australia overview

Owens-Illinois (Australia) Pty Ltd is a wholly-owned subsidiary of Owens-Illinois, Inc. The company's legal operating entity in Australia is ACI Operations Pty Ltd, trading as O-I Australia.

O-I Australia is the country's largest glass container manufacturer and makes glass packaging for the beer, wine, spirits, non-alcoholic beverage, ready-to-drink and food markets. The business manufactures glass packing only, supplying glass containers to a variety of domestic and international customers.

O-I Australia's annual turnover is in excess of \$AUD 700 million. The company has four glass making plants located in Adelaide, Brisbane, Melbourne and Sydney and one glass recycling plant located in Brisbane. Through the efforts of our approximate 1,000 employees, O-I Australia produces around 600,000 packed tonnes of glass products (or around 2.5 billion containers) per annum, ranging from baby food and coffee jars to beer and wine bottles.

O-I is by far the largest consumer of post-consumer cullet in Australia using in excess of 250,000 tonnes per year and recycle content increasing dramatically over the past ten years from 22% in 2007 to 39% in 2017.

3. Glass recycling:

About recycling

Glass is among the world's most sustainable packaging forms and is 100% infinitely recyclable. Every tonne of recycled glass can be turned into one tonne of new glass packaging. Using recycled glass (called cullet) as a raw material in glass container manufacturing has the following benefits:

- It reduces virgin raw material usage (soda ash, sand and limestone) that would otherwise be extracted (1kg of cullet used replaces 1.2kg of virgin raw materials).
- It produces energy savings of approximately 3% for every 10% of cullet used. Cullet requires less energy to melt than raw materials.
- Carbon emissions are also reduced by approximately 5% for every 10% of cullet used in production.

Glass reprocessing role

O-I globally is committed to using 60% or more of post-consumer cullet across our worldwide operations. Compared to today's baseline of 39%, it is possible to use much higher percentages of cullet in the production of glass packaging. Significant work goes into developing new cullet markets, and where colour sorted and contaminant-free cullet is available at commercially viable prices, O-I is committed to recycling it.

O-I Australia has a long and proud history of manufacturing new glass containers from recycled glass containers. Efficiently collecting and recycling glass in a closed loop or "cradle to cradle" fashion has been part of O-I's DNA for almost 30 years.

Well before recycling became popular, O-I Australia (as ACI) initiated a viable recycling system through bottle merchants.

Throughout the 1980s and 1990s, O-I Australia worked closely with local and state governments and the collectors to implement and promote kerbside collection and sorting of glass containers. O-I Australia also funded local government to provide recycling bags and crates as well as promotional leaflets throughout Australia.

In more recent years, O-I Australia was central in establishing cullet processing facilities (beneficiation plants) to clean and colour sort material that comes through the 'away from home' and kerbside recycling stream.

O-I Australia contracted the establishment of five such beneficiation plants in each of the locations it has plants and provides on-site storage and handling systems for beneficiated cullet.

O-I Australia's own glass recycling plant – Brisbane Cullet

A few years ago, O-I Australia identified an opportunity to fill a missing link in the glass recycling loop in South East Queensland which would also allow O-I to significantly increase cullet usage at our O-I Brisbane plant. In June 2014, O-I publicly announced our intent to build a new optical sorting cullet plant in Brisbane with the support of the Australian Packaging Covenant (APC).

Brisbane Cullet commenced operation in November 2015, and now processes circa 100,000 tonnes of recycled glass per year. It is the only Australian glass recycling facility with the three main glass processing capabilities – optical processing; fine grind cullet processing and; flat glass crushing – on one site to produce all three main types of furnace ready cullet.

Cullet produced is then transported to our manufacturing plant in South Brisbane where it is used to make glass bottles for Australia's leading breweries and brands.

Brisbane Cullet represents a \$5.9 AUD million investment funded by O-I and the APC. It is the first investment of this size in Queensland and it is the first time O-I has established a cullet process facility from a greenfield site.

We are very proud that Brisbane Cullet has created 20 new jobs in the local community and ensures all glass in Queensland has an opportunity to be recovered through a closed-loop process and recycled into new O-I glass bottles.

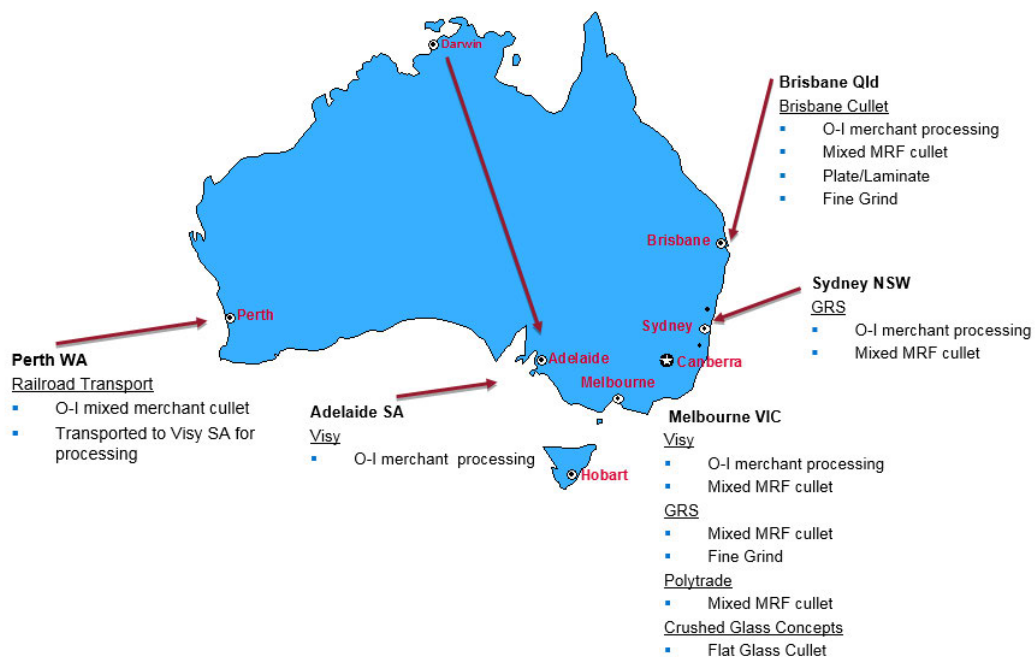
Innovation in new cullet types

O-I Australia continues to pioneer work both internally and with our suppliers to increase the amount of external cullet used in the manufacturing process. For example, fine-grind cullet, an almost sandy-like substance of minute glass particles, was previously not able to be used in glass recycling. O-I Australia has worked with new technologies and other providers to break new ground in the use of fine-grind cullet in new bottles and jars.

In 2015-16, 11,843 tonnes of fine grind cullet and 8,081 tonnes of flat glass cullet were used in manufacturing glass containers. Also during this period, O-I Australia introduced solar glass cullet using 2,892 tonnes.

The solar cullet supplier manufactures solar panels for use in generating renewable power, and O-I Australia purchases the manufacturing scrap, as well as solar panels that do not pass quality control. The company continues to look at new sources – both in traditional colour sorted cullet – and also cullet from other sources or mixed in colour

Current supplier base and post-consumer cullet consumption



Recycled glass type	2014/15	2015/16	2016/17
Cullet	201,687	222,800	235,291
Fine grind	11,723	11,843	7,945
Flat/laminated	5,945	8,081	13,882
Solar glass		2,892	2,246
Total	219,355	245,616	259,364

Note: steady increase usage of post-consumer cullet over the last three years

Current recycling challenges:

Australia is recognised as having one of the best kerbside recycling systems in the world. Over the years, kerbside recycling has been very successful in increasing overall recycling rates. Kerbside recycling provides many well recognised benefits, such as increasing the volume of recyclables, ease and convenience of use, and depth of penetration.

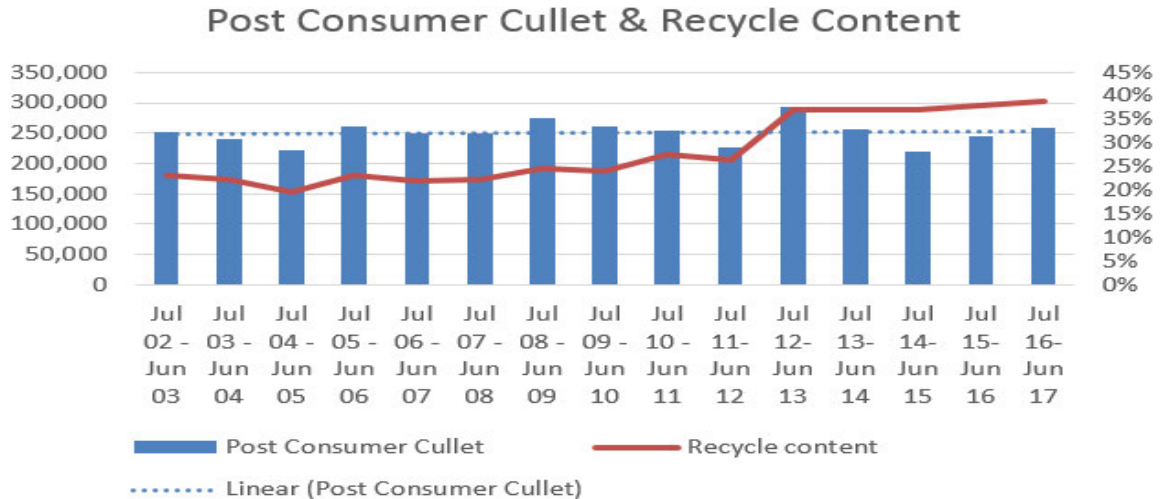
While household participation in recycling remains high (around 90% in Australia), the current collection system results in a significant level of small glass fragments and contaminants that we cannot use in our manufacturing process.

For operational, quality and safety reasons, it is essential for O-I to colour sort recycled glass and remove contaminants that do not melt in the glass container manufacturing process (such as metals, stones, ceramics, Pyrex, drinking glasses, ovenware, window glass, opal glass, and medical and laboratory glass).

Mixing glass, paper, aluminium and plastic into a single recycling bin (commingled collection), combined with high compaction rates, breaks down the glass into small particles making extraction difficult and results in the contamination of other recyclable materials. As a result, current commingled processes generate approximately 50% glass waste through the beneficiation process.

Despite the detrimental impact of kerbside collections on the quality and quantity of recycled glass, O-I Australia has been able to maintain an average of 250,000 tonnes of post-consumer cullet and recycle content has increased from 23% to 39% over the past 15 years.

This result has been achieved due to the dedication of the general public to recycling glass, and the willingness of O-I Australia and our suppliers to invest in technology to process recycled glass and manufacture new containers with increasing recycled content.



O-I Australia and our cullet suppliers continue to invest heavily in implementing new technology to improve recovery of glass from commingled collections. Optical sorting and x-ray technology is needed to colour sort small particles of glass and remove contaminants.

There are examples in Victoria and NSW where cullet suppliers have invested in excess of \$10 million establishing world class glass beneficiation plants. O-I has invested \$5.2 million jointly with the Australian Packaging Covenant to establish Brisbane Cullet in Crestmead, QLD. An additional \$2 million investment is planned for mid-2018.

Such technology is expensive and its commercial viability relies heavily on high volumes of glass collected through commingled kerbside collections.

Impact of Container Deposit Legislation

Across the world, O-I selectively supports non-discriminatory Container Deposit Legislation (CDL, also known as container deposit schemes) that helps deliver high volumes of good quality and cost effective cullet. Our position is very much market specific and our support for CDL is typically in markets that have limited recycling infrastructure and where existing recycling outcomes are poor.

Historically, O-I's view is that a CDL system has limited benefits for glass recycling rates. O-I and our suppliers have invested heavily in processing capabilities and technologies to extract high volumes of cullet via the current commingling collection system.

The introduction of a CDL system would inevitably create two streams of glass collections, which increases cost and complexity and does not necessarily increase glass recycling rates.

For example, if CDL diverted half of all glass from the commingled kerbside system, this would significantly reduce the economies of scale needed to support the glass processing technology needed for commingled kerbside

collections. The remaining glass in the commingled bin will be dirtier and more difficult to extract. These factors will impact long term viability and reduce overall recycling rates.

With the introduction of CDL, developing infrastructure to help support the existing kerbside recycling system will need to be investigated. If glass in the kerbside collection stream can be of the same quality of CDL glass moving forward, future cullet beneficiation facilities will not be as capital intensive and the overall cost of recycling could be reduced.

4. Requirements of a waste and recycling system

O-I Australia believes the following points provide guidance on the characteristics of an effective and environmentally focused waste and recycling system:

- Prioritisation of closed-loop (cradle to cradle) recycling and higher order environmental outcomes.
- Generation of high volume, high quality recycled glass.
- Minimises costs to the packaging supply chain.
- Uniform application of the system so as to prevent market distortion.
- No discrimination between different packaging mediums based on weight (due to a lack of correlation between packaging weight and environmental outcomes).
- A competitive system that allows re-producers to economically access recycled material.
- A system that supports local packaging, food and beverage manufacturers.
- A system that helps fund innovation in recycling.
- A single national approach.

5. Recommendation

Glass-only kerbside collection

O-I believes the single greatest improvement to glass recycling would come from the introduction of kerbside glass only collection systems.

Current Beneficiation Facilities using feedstock from the current kerbside collection system yield between 30% to 60% glass recoveries. Glass only kerbside collections will significantly increase the glass recovery to at least 90%.

If you consider the New Zealand model where there is considerable glass only kerbside collection (as opposed to commingled collections), the post-consumer cullet used in glass container manufacture has been in excess of 50% for the last four years and in the last two years greater than 55%.

O-I's New Zealand operation ranks 16 out of the company's 80 plants with respect to post consumer cullet consumption.

If Australia was able to achieve cullet consumptions of 55%, it would represent 365,769 tonnes. Achieving the 60% post-consumer cullet target would represent 399,021 tonnes a 53% increase on current post consumer cullet tonnes consumed.

The introduction of glass only collections would ultimately deliver both kerbside collected glass and CDL glass to Cullet Beneficiation Plants with similar quality and allow for less capital intensive facilities, reducing the cost of recycling in the future.

Recyclers of other materials will also see this as an advantage as the current kerbside collection system creates glass contamination for paper, cardboard, plastic and aluminium.

Establishment of a recycling funding pool generated from existing land fill levies:

A recycling funding pool set up to help improve packaging recovery rates prioritising closed loop recycling initiatives ahead of others due to their superior environmental benefits. Funding prioritisation should be based on broad environmental criteria, not just a single measure of landfill avoidance.

Landfill levy exemptions and recycling credits:

Companies that are being proactive and investing considerable capital into recycling facilities should not be penalised with landfill levies to dispose of material that has been incorrectly disposed of in kerbside collection bins.

Companies who actively use recycled materials in their manufacturing process should be rewarded and provided with a benefit that recognises their contribution to recycling and waste minimisation.

Container Deposit Schemes:

O-I ideally supports a single national approach, rather than a fragmented jurisdictional approach which may become difficult to manage and costly within a national packaging industry.

Such market instability makes it harder to encourage and attract long-term capital investment in glass recycling technology and infrastructure.

We believe that any future CDL systems should be designed to be easily rolled into a national framework at some point in the future.

6. Willingness to be involved in the ongoing process

O-I Australia appreciates the opportunity to provide a submission into the “Inquiry into the Waste and Recycling industry in Australia”.

We would like to extend an invitation to the Senate Committee to visit one of our four glass container manufacturing facilities and our glass recycling facility.

O-I operates globally across many different waste and recycling systems and can offer expert information and opinions on these schemes if it would be deemed beneficial.

Finally, we would like to express our interest in being involved in future stages of this inquiry. Of particular interest is our inclusion in any future working groups that may be set up to review and shape future system design.

For further information please contact: Craig Mynott, Regional Director of Cullet Asia Pacific, at _____ or phone _____