

ACCELERATING THE TRANSITION TO A CIRCULAR ECONOMY:

A BLUEPRINT FOR ACTION ON PLASTICS AND PACKAGING

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Australian Industrial Ecology Network Pty Ltd
PO Box 5523
West Chatswood NSW 1515
www.aien.com.au

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What is the AIEN?



The Australian Industrial Ecology Network (AIEN) is a vibrant network of like-minded individuals, companies and institutions with a common interest in sustainable development through the study and practice of industrial ecology. We advocate the principles and concepts of industrial ecology in policy formation and business practice. The AIEN actively engages with organisations to facilitate improved performance and environmental benefits.

The AIEN is also a forum in which people can discuss ideas, seek advice from one another, connect with resources associated with the practice and study of industrial ecology or simply keep in touch through the network with developments and best practice in their areas of interest.

The AIEN was established as a proprietary limited company in October 2014 to promote and facilitate industrial sustainability through the application of industrial ecology. The company aims to provide a 'window on the world' of industrial ecology by relaying news, canvassing new ideas, producing position papers on topics such as energy from waste, organising events and alerting people to developments in academia and in practice. In effect, AIEN aspires to become the 'go-to' organisation for all things to do with industrial ecology, including collaboration on the design, planning and implementation of IE projects.

Contacts:

Colin Barker
Chairman
Australian Industrial Ecology Network
T: 0412 043 439
E: cbarker@newtecpoly.com.au

Veronica Dullens
Administrative Director
Australian Industrial Ecology Network
T: 0400 449 100
E: info@aien.com.au

Introduction

The AIEN is committed to the establishment of a full circular economy for the resources currently categorised as 'waste'.

The AIEN has a diverse membership numbering in excess of 200 individuals and businesses. Among its membership there are many fine resource recovery examples/case studies demonstrating the circular economy and its principles. The membership, however, remains fully aware that the current examples are merely case studies and that much effort will be required to achieve the revolution in materials management requisite to usher in circular economy as the resource management norm.

To this end, the AIEN has prepared this blueprint for prioritised action with respect to facilitating circular economy and start the circular economy 'flywheel' spinning.

Preamble - Circular Economy

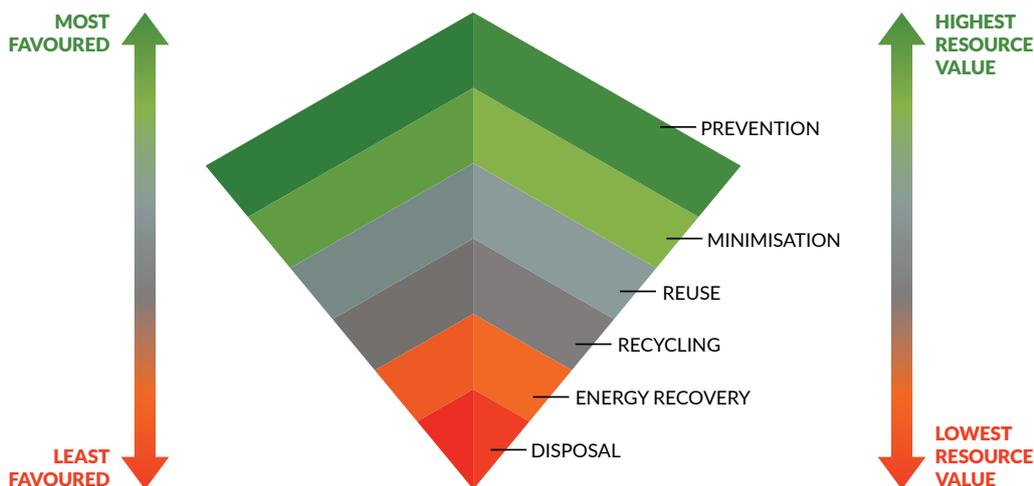


The AIEN believes there are opportunities available for the recycling/reuse of mixed plastics, rubber, glass, timber, aggregates, as valuable resources in higher value add product markets. Further, the AIEN endorses the concept of Highest Net Resource Value (HNRV) as worthy of detailed consideration and promotion. It is a concept enshrined within the waste hierarchy, but with a more tangible and measurable output.

HNRV reflects an approach that seeks to achieve or retain the highest possible resource value from the materials under consideration, 'net' of the cost and effort to achieve such an outcome.

The waste hierarchy is normally presented only in the context of environmental/social good. The AIEN has re-imagined the waste hierarchy as representing the notional value applied to a given 'resource'.

At the low-end, disposal to landfill implies the generator places a negative value on the resource. At the high end, the generator places full commercial value upon the resource through avoidance and/or minimisation.



Any failure to properly consider the importance of the waste hierarchy and HNRV principles may result in losses in the longer term through stranded investment. When resource availability becomes a constraint, resources will always flow to those who can afford to pay the most for them. This is why over-investment in energy technologies is not recommended.

In certain circumstances, including remote geographic location, and small and highly diffuse resource quantities, there may be valid arguments that energy recovery represents the HNRV achievable for resources otherwise considered as wastes. However, it would be lazy in the extreme to settle for lower resource values simply for ease and expedience. Energy from waste should only be considered where:

- HNRV alternatives have been fully saturated with the resources they require. This means energy recovery activities are restricted to 'residual' resources not required by the higher value adding processes; or
- Where very unusual circumstances are such that energy recovery is the only feasible process for the recovery of economic value from resources that would otherwise be wasted in landfill.



Blueprint for action



Existing policies and resource management frameworks have primarily focussed on raising awareness and placing obligations on manufacturers, importers, distributors and other persons in the following important areas:

- Separation and segregation of materials/components so as to avoid contamination;
- Aggregation of post-consumer materials/components; and
- Initial treatment of the post-consumer materials/components (in some cases).

The other important pre-requisites for a circular economy, however, include:

- Design of plastics and packaging to reduce waste and enable recycling at end of life;
- Processes and infrastructure to enable materials or components to be reused and/or recycled; and
- Establishment and support for consumer markets for the reused and/or recycled materials/components.

The AIEN believes a holistic Australian approach must incorporate these additional elements in order to successfully move toward a circular economy. The proposed actions and targets outlined in the Discussion Paper: *Updating the 2009 National Waste Policy*¹ are a commendable start, but they need to go much further.

Following the waste hierarchy, the National Waste Policy (NWP) discussion paper proposes a national target of an 80 per cent average recovery rate from all resource recovery streams by 2030.

AIEN's recommendations are outlined on the following pages, with a focus on four key areas: design, collection and segregation, reprocessing and end markets.

¹ <http://www.environment.gov.au/protection/national-waste-policy/consultation-on-updating-national-waste-policy>

KEY AREA 1:

Product and packaging design

The design stage provides the greatest opportunity to reduce waste at source and to ensure that products and packaging are designed for a circular materials flow.

Progress being achieved

The NWP discussion paper proposes a national target to reduce the total waste generated per capita by 10 per cent by 2030. This is supported by a target to phase out problematic and unnecessary plastics by that same time.

The Australian Packaging Covenant Organisation (APCO) is working with its 1,100 members to improve packaging design through:

- Mandatory use of the Sustainable Packaging Guidelines (SPG) for all new and updated packaging;
- Development of the PREP design tool to assist manufacturers to design for recycling¹; and
- Members being required to report annually on their progress in reducing and recycling packaging.

Areas for improvement

The AIEN believes more urgent action is required and the proposed waste reduction target is too modest, with the time frame suggested being too great. If the current waste and resource recovery issues are to be satisfactorily addressed, strong government signals are essential in the following areas:

- Stringent packaging design criteria that minimise use of packaging materials;
- Product design criteria that create an environment where repair and reuse become the predominant end of life options; and
- Education programs for manufacturers and consumers to ensure behaviours are strongly aligned with waste minimisation/avoidance initiatives.

In the absence of clear evidence suggesting economic harm and/or major disruption associated with compliance issues, the AIEN would advocate for more stringent targets than suggested. A 10 per cent reduction in per capita waste by 2030 is considered insufficient. Waste minimisation initiatives related to product design may take time to work through the economy. Mandated initiatives related to minimisation of packaging quantities, types, and there similar can, however, be implemented in much shorter time frames.

Presently, there are problematic plastics being used that cannot be reliably removed from plastic waste streams using current infrastructure. The presence of these contaminating plastic items consistently results in the diversion to landfill of large quantities of otherwise recyclable material. Examples of these contaminants include PVC (present in a small proportion of beverage containers) and coloured PET. Even in small quantities, these contaminants destroy the value and markets for large volumes of otherwise recyclable plastics.

In line with international trends and actions (for example, Japan, South Korea, France and California), the AIEN calls upon the Australian jurisdictions to move rapidly toward banning PVC, coloured PET in drink containers and other plastic materials that adversely impact on current domestic recycling systems.

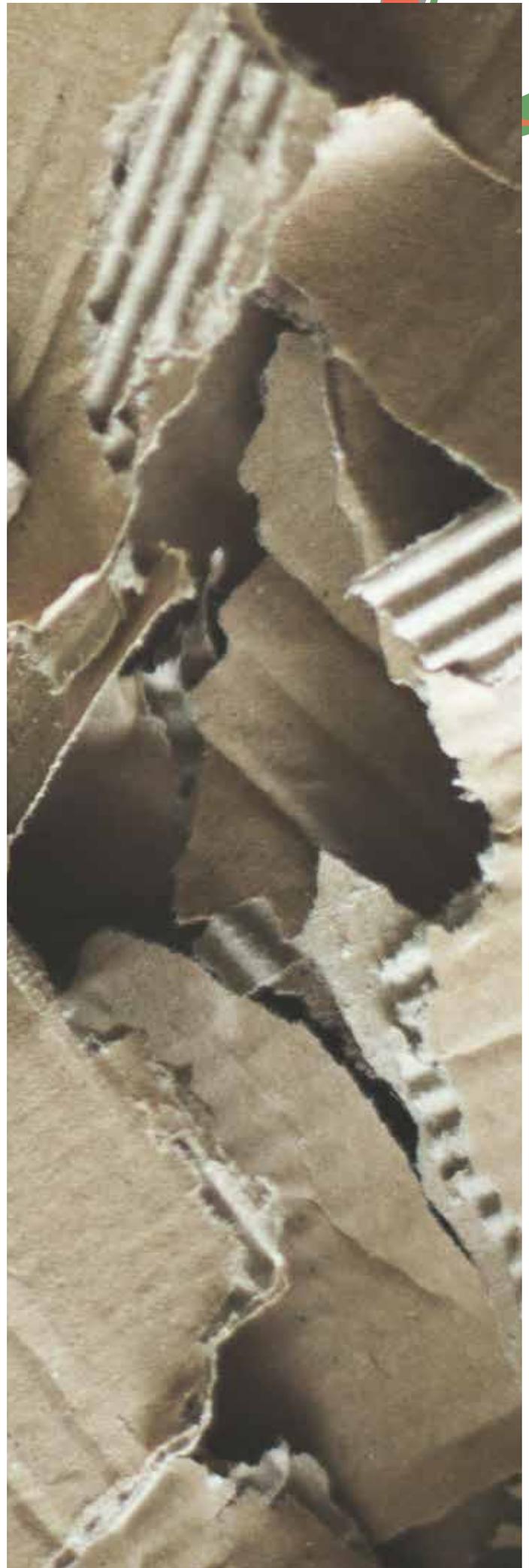
Consumers (households) also have a role in reducing their consumption of plastic shopping bags, straws and non-recyclable packaging. Governments could encourage this through a carefully targeted education program, supported by local councils and brand owners.

Finally, packaging suppliers and brand owners are disconnected from collection, segregation and reprocessing systems for their products at end of life. The new PREP design tool is helping companies to design for recovery, but more direct communication between packaging developers and recyclers would also assist.

¹ <https://prep.org.au/main/content/home>

RECOMMENDED ACTIONS

1. The Australian Government and State and Territory Governments establish a more ambitious waste reduction target higher than 10 per cent by 2030
2. The Australian Government works with other jurisdictions, APCO and other industry stakeholders, to clearly identify 'problematic and unnecessary' plastics packaging for a potential ban under the Product Stewardship Act. At a minimum these should include:
 - a. Single use plastic shopping bags;
 - b. PVC bottles and containers;
 - c. Coloured PET bottles and containers;
 - d. Polystyrene packaging; and
 - e. Plastic straws.
3. In recognition that government bans take some time to implement, APCO strengthen the Sustainable Packaging Guidelines to include a voluntary ban on problematic and unnecessary plastics including those mentioned above.
4. The Australian Government works with other jurisdictions, APCO and other industry stakeholders to develop an education program for households to encourage them to reduce their consumption of packaging.
5. AIEN works with APCO and key industry associations including Australian Council of Recycling (ACOR), National Waste and Recycling Industry Council (NWRIC) and Waste Management Association of Australia (WMAA) to develop closer links and communication channels between packaging developers and recyclers.



KEY AREA 2:

Collection and segregation

Progress being achieved

Household packaging is collected for recycling through two primary systems:

- Drop-off points for packaging covered by container refund systems (all jurisdictions except Victoria and Tasmania already have or plan to introduce a scheme); and
- Co-mingled collections: mixed recyclables (rigid plastics, cardboard packaging, paper, aluminium cans, steel cans) are placed in the yellow-top lid for kerbside collection.

This provides a convenient system for consumers.

Co-mingled collections are sent to a Materials Recovery Facility (MRF) where they are sorted into different material streams depending on available end markets.

Other systems include:

- Drop-off services funded by brand owners and other stakeholders, for example, REDcycle for soft plastics, Paintback for paint containers;
- Commercial services that collect packaging from retailers, manufacturers and other sources.

Areas for improvement

The main challenge at present is the level of segregation at MRFs. Import restrictions imposed by China, followed by several other Asian countries, have limited export markets, particularly for mixed paper and mixed plastics grades, and reduced prices (in some cases converting a positive value to a negative one).

MRFs are currently paid a gate fee to sort recyclables and send the segregated, baled materials to re-processors. Once fixed in a contract, the gate fee does not provide an incentive for the operator to invest in equipment or labour to positively sort any more materials for recycling, without a market value that can cover the additional cost.

A contributing factor to poor segregation and high costs at MRFs is the high level of contamination received by many operators. This includes non-targeted packaging like soft plastics, as well as general waste such as textiles.

Consumers need more education to help them 'recycle right'.

RECOMMENDED ACTIONS

1. Local councils change MRF contracts to incentivise increased segregation of materials to increase the market value of collected packaging, for example, through more investment or slower throughput.
2. MRF operators, with the support of state government funding programs, invest in technologies to improve segregation and the quality of sorted materials.
3. The Australian Government works with other jurisdictions, APCO and other industry stakeholders to develop an education program for households to help them 'recycle right'. That is, source-separate correctly at home.

KEY AREA 3:

Reprocessing



Progress being achieved

There are many companies in Australia that reprocess packaging into intermediate products like plastic pellets, or finished products like paper, plastic kerbing and furniture. AIEN members demonstrate many resource recovery examples/case studies espousing the circular economy and its principles.

Areas for improvement

The AIEN is fully supportive of a national target to achieve a mean recovery rate of 80 per cent from all resource recovery streams, following the waste hierarchy, by 2030. The AIEN would add the following points to consider in relation to the proposed target:

- The 80 per cent average recovery rate must be a real measure of (otherwise) waste resources being utilised back in the productive economy. The diversion must be verifiable, and the utilisation of the resources at the various levels in the hierarchy must be reported. This will allow follow-up targets in aiming for higher value resource utilisation into the future. It would not be acceptable to the AIEN if the compliant recovery rate was based around high levels of energy recovery without further vision to move to higher levels in the waste hierarchy.
- In seeking to achieve the 80 per cent recovery target, governments must be cognisant that genuine and fundamental change is required, involving new entrants to the recycling/resource reuse markets, new technologies and new marketing/commercial strategies. Simply funding or supporting new infrastructure for large industry incumbents will only result in improved transport, separation and segregation of the resource streams. The circular economy will only be realised when new processing technologies, new products and new markets are developed. Existing industry incumbents have a clear role but they are generally not best placed to develop new processing technologies, new products and new markets.

- The circular economy can only work once the resource management sector transitions from a supply push market (with rewards driven by gate fees), to a demand driven market with supply chain participants rewarded in accordance with the value they add. The circular economy is predicated on interrelated markets fully functioning as markets. The concept of a gate fee in resource recovery markets is ultimately as distorting to free trade/markets as government subsidies or tariffs in other commodity markets. If the circular economy is ever to become a reality, the policy must accommodate this transition.

In summary, the AIEN believes any action in achieving 80 per cent resource recovery rates (or greater) must be predicated on the development of a genuine domestically based circular economy. It must not be based on, among others, interjurisdictional transport arrangements, interjurisdictional waste levy distortions, international disposal masquerading as commodity trading, long-term reliance on energy from waste strategies.

The prerequisites include:

- Introduction of new entrants into the recycling/resource reuse markets, new technologies and new marketing/commercial strategies; and
- Transition to demand pull commodity markets for the reuse of preloved goods, recycled content within new goods and goods made exclusively from recycled content.

RECOMMENDED ACTIONS

1. State and Territory Governments provide financial support for R&D, investments in new equipment, and market development activities, particularly those that will increase recycling of plastics or glass.
2. State and Territory Governments reduce approval times for new or expanded recycling facilities.

KEY AREA 4:

End markets and procurement

Progress being achieved

Many organisations are purchasing products made from recycled materials, including recycled packaging. For example, many councils are working with manufacturers to trial innovative products such as asphalt made with soft plastics and glass.

Some multinational brand owners have targets for minimum levels of recycled content in plastics packaging. Additionally, large organisations are starting to work with recyclers to identify products that can be made from their own waste and then purchased by the organisation.

Further to the 2030 proposed target in the NWP discussion paper, an industry-led target was also announced, with 30 per cent average recycled content across all packaging¹.

Other proposed actions and targets in the NWP discussion paper include:

- All Australian governments to adopt sustainable procurement policies or guidance with measurable targets for use of recycled content by 2020;
- 30 per cent average recycled content in goods and products purchased by governments, by total volume, by 2025;
- National standards and specifications for high priority recycled materials or applications in place by 2020;
- Standardised national product labelling indicating the percentage of recycled content in packaging by 2020;
- Australian businesses adopt sustainable procurement policies or guidance with measurable targets for use of recycled content by 2025; and
- 30 per cent average recycled content in goods and products purchased by businesses, by total volume, by 2030.

Areas for improvement

The AIEN questions whether an 80 per cent average resource recovery rate is consistent with a 30 per cent average recycled/reused/repurposed content across all goods and infrastructure procurement. If a genuine domestic circular economy is to be realised, there must be a degree of correlation between average resource recovery and average recycled/reused/repurposed content in procured goods and infrastructure across the economy. Without these resource recovery and resource utilisation targets being consistent, excess/surplus materials will inevitably arise, market distortions will result and unwanted consequences will almost inevitably occur. It is anticipated more ambitious resource utilisation targets are required to achieve this consistency. Detailed analysis of material flows (waste generated and products purchased) should be undertaken at a sectoral level to determine the most appropriate overall target as well as targets for individual product categories.

More work needs to be done by all stakeholders to increase demand for products made with recycled materials. The actions and targets in the NWP discussion paper, if approved, need to be closely monitored and enforced to ensure that they are met. All large organisations in the public and private sector need to look for opportunities to buy products with recycled materials. A model that is starting to work well is for organisations to work closely with recyclers on 'closed loop collaborations' that enable them to buy products containing their own waste streams.

Household consumers can also support end markets by purchasing products with recycled content. A national labelling scheme for packaging, as proposed in the NWP discussion paper, will assist but it needs to be mandatory.

¹ <http://www.environment.gov.au/minister/price/media-releases/mr20180926.html>

RECOMMENDED ACTIONS

1. The Australian Government and State and Territory Governments establish a more ambitious recycled content target than 30 per cent by 2030.
2. The Australian Government introduces a mandatory labelling scheme for recycled content in packaging.
3. The Australian Government closely monitors and reports progress towards the targets in the NWP.
4. Organisations in the packaging value chain, including packaging suppliers, brand owners and retailers, work with recyclers to identify and purchase recycled products that meet their procurement needs.
5. State and Territory Government organisations and local councils work with recyclers to target recycled materials in procurement, particularly for civil construction.



