AUSTRALIAN INDUSTRIAL ECOLOGY NETWORK

Submission to the

NSW Circular Economy Policy & Discussion Statement: *Too Good to Waste*

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Do you support NSW having a circular economy policy? Why or why not?

The Australian Industrial Ecology Network (AIEN) absolutely supports NSW in having a clear and concise circular economy policy. The current resource utilisation trajectory is:

- Unsustainable. Scientists agree that at current resource consumption rates around 2.5 planet Earths would be required for sustainability to be possible. Increased resource demand pressures exist due to increasing global population and increasing affluence.

- Wasteful in the extreme. There are far too many products designed without thought regarding repair, material/component reuse or post-consumer fate. This lack of foresight is wasteful of materials, water, energy and labour.

As an affluent society, Australian and NSW in particular, must be at the forefront of addressing the issues surrounding sustainable resource utilisation.

What would you like to see in a Circular Economy Policy?

The AIEN would like to see a circular economy policy that equally addresses all key areas necessary for the circular economy to develop and grow as the social/resource management norm. The key areas to be addressed include:

- Improvements in product design and a move away from product obsolescence. This would include specific policies to maximise waste avoidance/elimination and waste minimisation.

- Improvements in the opportunity for materials recovery through better product dismantling regimes, resource segregation protocols, resource separation systems and materials logistics systems.

- Improvements in material reuse technologies and value being placed upon innovation in materials processing technologies. This should commence through properly harnessing existing technologies and fostering the development of improved technologies. Currently, the overwhelming focus for processing is based upon MRFs, aggregation protocols and separation technologies. There is but scant attention given to emerging technologies and materials reprocessing technologies for the reuse and re-manufacture of the collected, aggregated and separated resources.

- Improvements in marketing and acceptance of products with significant recycled content. With the emphasis placed upon the avoidance of resources reporting to landfill, targets are proliferating where 60%, 70%, 80% of materials are diverted from landfill. Unfortunately, commensurate effort has not been placed into establishing second hand and goods repair markets, conversion of landfill diverted materials into new consumer products and establishment and maintenance of the markets for repaired, second hand and high recycled content products.

A circular economy can only work where all of these facets operate in concert to utilise the resources within the economy in a balanced manner. World's best practice in separation and segregation technologies is ultimately useless without processing/re-manufacturing/re-purposing technologies and markets for those products.

How could the Government support a transition towards a Circular Economy?

Once upon a time, it was accepted that Government's role was to step in and drive social policy in areas where market failure was apparent. In the area of resource utilisation, Government has not acted adequately to this point. This is understandable given the historical focus of resource management being driven by human health concerns. This understanding cannot continue indefinitely, and Government must accept it has a role in driving the material/resource reuse economy from one categorised by oversupply of materials, resources subsequently having a negative value (incurring a gate fee) and the materials market being driven by a continuous stream of resources being "pushed" toward a very limited reuse/reprocessing capacity.

If Government is to seriously seek to bring about change, its strategies must be directed toward creating market pull. Inherent in this enlightenment will be an understanding that the major limitations to creating market pull are reuse/reprocessing capacity and infrastructure and suitable product markets and consumer acceptance. Governments must ultimately accept that markets have thus far failed spectacularly at delivering a market pull mechanism (except for the examples of metals recycling and some aspects of paper recycling) and that strategic intervention is required. All Government strategies must ultimately be directed to achieving market pull for resource use and away from mechanisms where gate fees, logistics costs, disposal levies, etc are the regimes governing resource management as equivalent to waste management.

This is the role of Government as markets are currently locked into the status quo and in many instances, Government comfortably presides, and is often complicit, in maintaining that status quo. 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 AIEN believes 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, Government policy must recognise the fundamental imperatives and subsequently facilitate/accommodate this transition.

What are the main barriers to the implementation of a circular economy? (pick up to three)

Government policy and legislation
Consumer awareness and preferences
Lack of technology
Lack of funding for research and development
Collaboration across supply chains
Other
These are the initial 3. Other areas just as important but it's useless educating consumers regarding scarcely existent preferences or assisting in collaboration when the commerciality of the basic material reuse strategy has not been fully established.

Support innovation

How could a new or improved research support platform support circular economy?

The AIEN believes any action in achieving significantly higher resource recovery rates must be predicated on the development of a genuine domestically based circular economy. It must not be based on, among other things, interjurisdictional transport arrangements, interjurisdictional waste levy distortions, international disposal masquerading as commodity trading, long-term reliance on energy from waste strategies, etc.

As previously indicated, 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.

NSW currently has world leading technology development in the following areas:

- Plastics reuse and recycling;
- Waste timber reuse and recycling;
- Waste aggregates reuse and recycling;
- Glass (cullet and fines) reuse and recycling; and
- Organics/biomass recycling.

With all of this research and development occurring, process patent applications being granted, etc to businesses in NSW, how is it that a Government as passionate and committed as that in NSW has remained largely on the side lines?

A new/improved platform must be actively seeking to search out and promote new and improved technologies. The passive cop-out that "Government shouldn't be picking winners" needs to be replaced with a focussed drive for the development and establishment of materials management and resource recovery solutions.

What services and support would you like to see a circular economy innovation hub provide?

The innovation hub should rightly support innovation and invention from tertiary institutions and research institutions as is currently the case. The innovation hub should also provide appropriate support in the private sector for genuine innovation.

The support currently afforded to private sector initiatives tends to be provided for existing 'waste industry' players to update equipment and processes or to support better aggregation, separation and segregation. As previously mentioned, there are other initiatives occurring in NSW regarding new processing technologies, new products from recycled materials, etc. The current WLRM programs have generally not meaningfully reached these innovative private sector developments. The AIEN would advocate for the innovation support offered to better reach and support genuine innovation in all aspects of the circular economy from product design through to product manufacture and marketing.

Do you have a comment about this focus area?

The AIEN believes industry support, marketing support, direct financial advice and other supports need to be included within the scope of the innovation hub support packages. Further, the AIEN believes the NSW EPA is itself too narrow in focus (primarily focussed on regulation, waste, the environment, etc) to genuinely grasp the drivers for other sectors crucial to the emergence and growth of the circular economy but not primarily a part of the 'waste' sector. For the circular economy to develop and grow, the supports required must be balanced and equally focussed on industry development, planning, marketing, etc. The NSW EPA is one vital aspect of the 'whole of Government approach' but remains only one aspect. Until this is recognised, and the understandable biases are addressed, the circular economy gestation is destined to take far longer than is necessary. NSW would do well to harness and promote the excellence already within its borders.

Procurement

What purchasing decisions do you make where circular economy principles can be applied?

The emphasis on encouraging/mandating recycled content is totally supported by the AIEN. All of us can do more to support reuse, rebirthing and recycling in our individual procurement decisions.

How do you think the NSW Government could increase the use of re-usable and recyclable material through its purchasing decisions?

The AIEN has recently forwarded a submission in relation to the National Waste Policy (NWP). Whilst not specifically within the auspices of the NSW Government, NSW is an active participant within the NWP framework. 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.

The AIEN requests the NSW Government to show leadership in the key area of balancing resource recovery rates with average recycled/reused/repurposed content. A 'market pull' circular economy will remain a distant dream unless policy specifically requires the utilisation of resources removed from the waste stream. The circular economy must be about a complete and integrated society-wide resource management system. The apparent inconsistency between an 80 per cent average resource recovery rate and a 30 per cent average recycled/reused/repurposed content is but one example of the shortcomings encountered by looking at resource management issues primarily through a 'waste management' and 'landfill diversion' lens.

Do you have a comment about this focus area?

This constitutes a great opportunity for NSW to show leadership in this area and commence moving the resource management sector toward a 'market pull' regime.

High quality, consistent recycling

What would help you with recycling more of the products you use?

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'.

Ideally, there would be more uniformity in resource management systems across local government areas. The confusion created through operating potentially very different management systems, at home, at work, at the residences of friends and relatives, etc undoubtedly contributes to the contamination problems.

More investment in infrastructure would ultimately increase the range of materials/resources reporting to recycle bins. That infrastructure would ideally be rolled out on a vast scale to maintain the concept of increased uniformity across LGAs as mentioned.

What can the NSW Government do to better support the recycling industry?

Unfortunately, the question will be easily interpreted as "What can the NSW Government do to better support the waste (re-identifying itself as the recycling) industry? The AIEN believes the best support that can be afforded the recycling industry is to ensure the correct investment environment exists to create markets for the recycling industry's products. The central tenet for the recycling industry (aka waste industry) is that their problems all disappear once a market is identified for their outputs.

This in many ways returns to the issues discussed under 'Procurement' and previous answers. However, several additional observations are offered with respect to the importance of markets to the recycling industry.

- It is the excess of recycled resources that:
  - ensures they remain with a negative market value;
  - ensures the circular economy will be difficult to start due to being driven by supply push considerations; and
  - ensures that lowest cost disposal options such as Queensland landfills and overseas (undetermined and unverified end fates) will be the preferred by industry participants.

- Were stable markets established for secondary materials with market volumes being comparable to the generation rates, resource prices would become truly market based. We need look no further than the secondary metals markets and elements of the paper recycling markets to see how establishment of a positive value for the resource leads to the positive outcomes we all seek.

This is why even an endless supply of money supporting waste segregation and landfill avoidance will never achieve the intended result.

The establishment of technologies, the support for manufacturing infrastructure that uses recycled resources as feed materials and the support for recycled content products in the market place is

absolutely critical. The NSW Government must endeavour to support a 'demand pull' economy for secondary/recycled materials in NSW. Policy should unswervingly be directed to this end. Ultimately the answer is MARKETS.

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Value organics

Would you support zero food and garden waste to landfill?

The AIEN would absolutely support zero food and garden waste to landfill. The answer once again is market creation and the highest net resource value (HNRV) for the resource.

What measures do you think would help organics become more circular and reduce food waste to landfill in NSW?

Traditionally the answer to organics recovery has focussed upon the generation of compost. Unfortunately, challenges associated with organics reprocessing have meant that 'composts' have been contaminated with glass, plastics etc. Generation of ever-increasing volumes of compost in dense urban areas will also increase the risk of rogue operators succumbing to the temptation to reduce costs by any means. Government should be cognisant of the risks as product prices drop through oversupply, raw materials are in excess, markets are saturated, and the contaminating materials lack their own markets and require disposal by some other means. Landfill then becomes problematic where mandated landfill diversion targets force 'creative' thinking among the recycling industry participants.

The AIEN again states the opportunity to make organics 'circular' lies in MARKETS. We utilise carbon in rural areas for the manufacture and growing of the organic needs of the nation. These needs are primarily in densely populated urban areas. All the time, carbon is being depleted from areas characterised as carbon deficient and is transported and accumulated in areas where organic carbon is overabundant. A market-based mechanism should be found to return the carbon back to the productive rural areas to create a sustainable agricultural model. In order to get the waste back into a form suitable for transport and broad use in agriculture, the organics must be converted into a broad acre fertiliser option to reduce the dependence upon chemical fertilisers. Utilisation of chemical fertilisers alone is increasingly unsustainable in carbon depleted soils. Utilisation of chemical fertilisers in carbon abundant soils is quite another matter.

A market solution usefully promoted by the NSW Government would be the production of balanced fertilisers in a suitable format for utilisation by broad acre agricultural interests. Such fertilisers could utilise a myriad of organic wastes, agricultural crop wastes, manures, animal litters and be supplemented with N, P and K units to achieve any specific analysis. There are currently multiple pioneers working on this specific solution within NSW and it constitutes the ideal solution in addressing multiple issues:

- Gets the nutrients to where they are most needed (especially organic matter);
- Increases soil moisture retention properties;
- Restores carbon units within carbon deficient soils; and
- Utilises the resource at its highest net resource value.

There are other technologies potentially underutilised in the management of organics in NSW with the capacity to deliver suitable product/resource value, contribute positively toward sustainability, and distribute nutrients and resource where it is most needed.

Simply producing more and more compost in already saturated markets is not considered a sustainable pursuit in the longer term.

Do you have a comment about this focus area?

The AIEN would seek to reiterate that successful moves to a circular economy will only result from increased support and attention in support for markets and value-added manufacture.

Mainstream product stewardship

How do you think product stewardship schemes can be expanded, and what products should be included in a product stewardship scheme?

Product stewardship schemes are an integral component of the circular economy. Everything possible should be done to encourage companies and Brands into the space where they take responsibility from cradle to cradle. However, at the risk of sounding repetitious, the schemes will only be successful where economically attractive rebirthing, recycling and materials reuse is possible through effective design, technologies/infrastructure and product markets for rebirthed goods and recycled content.

Ultimately anything can be recycled if the correct strategies are in place. The materials/products the AIEN believes should be recyclable (with world class technologies already available in NSW) include:

- Glass and glass fines. Merely crushing glass into fines as a sand substitute yields a product value of about $20/tonne. Recycling glass into asphalt and ultimately replacing asphalt may increase that value to around $300/tonne at best. Simple technology available in NSW can convert waste glass into building materials worth hundreds of $ per tonne with remarkably simple technology. The larger cullet could ultimately be a replacement for Caesarstone imported from Israel and valued at thousands of $ per tonne. Almost all glass (not suitable for direct reuse) would be suitable feed stock for this technology.

- Soft plastics can be used as an enhancement for asphalt (as in other jurisdictions) with a resource value of around $300/tonne as stated. Other technologies are available for the production of oil substitutes (value approx. $700/tonne) and for direct consumer product manufacture (value approx. $2,000/tonne). Almost all soft and hard plastics (not suitable for direct reuse) would be suitable feed stock for this technology.

You'll discern from the above, appropriate utilisation of the available technologies would be a massive enabler to an enormous increase in the potential for product stewardship to be practiced. The AIEN believes much of the reticence for invention/adoption/promotion of product stewardship initiatives lies in the lack of availability for genuine reuse options.

Do you have a comment about this focus area?

If we are to properly consider the circular economy, we should be working toward establishing the viable available technologies for the component streams and mandating the use of those materials back into the productive economy. Failure to ensure the reuse/recycle pathways are available means that socially, we are simply passing the buck back to product/packaging suppliers and making scapegoats of them based on their position in the marker/product supply side. However, other elements of the supply chains need to also be involved and play their necessary roles. I repeat, the AIEN believes much of the reticence for invention/adoption/promotion of product stewardship initiatives lies in the lack of availability for genuine reuse options.

The lack of availability for genuine reuse options is not that we lack technologies (and economically very attractive technologies for all waste stream components), we collectively lack the commitment, investment and courage to utilise what is already available to us.

Companies and brands would be jumping into product stewardship schemes if they realised the opportunities, we already have available. This must be a key focus for Government.

Responsible packaging

What actions would you like to see the NSW Government take to better support these national targets?

Of all jurisdictions in Australia, NSW is the best placed to capitalise on the remarkable ingenuity already being demonstrated within. It will be yet another series of commercialisation tragedies if these technologies fail to get support within NSW and need to be exported to achieve their inevitable success.

The AIEN would like to see a circular economy policy that equally addresses all key areas necessary for the circular economy to develop and grow as the social/resource management norm. The key areas to be addressed include:

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Support re-use and repair

What would encourage you to repair products you already own or choose second-hand products?

Re-use and repair starts with design. Products are worth repairing where the basic componentry is designed for long life. Things like Teflon bushes in high speed equipment, flimsy mountings, cheap initial pricing (furniture based on MDF boards, etc) all achieve market share through minimising upfront capital outlay.

Second-hand products are great where you know the components within are designed to last. It's about confidence in knowing that the item will likely last. The second-hand car market exists for just this reason. There is no problem establishing second-hand markets for quality furniture and many quality items.

Do you have a comment about this focus area?

Fix the social mentality whereby lower 'initial capital outlay' trumps 'whole of life cost' in purchasing decisions and the second-hand markets will surely appear. As an example, if electric drills were to be manufactured using quality components, second -hand drills would attract a legitimate value. The availability of brand new cheap imported drills (that we know won't last too long but are used infrequently) for $60 or $70 ultimately destroys re-use and second-hand markets.

The AIEN believes it to be incumbent upon Government to demonstrate the wisdom in promoting 'whole of life cost' assessment in all procurement decisions. Government leadership is considered vital in demonstrating the fallacy of making choices based solely upon minimisation of initial capital outlay.

Better Design

How would information on durability and repairability of products impact your purchasing decisions?

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