

ENABLING DESIGN FOR ENVIRONMENTAL GOOD

SUMMARY OF NATIONAL REPORT



The report particularly relates to the United Nations (UN) Sustainable Development Goals (SDG) 9 and 12.



The report aligns with global movements to improve products and materials, shifting away from long term trend for ever higher consumption and waste disposal of single-use or short-life, unrepairable and unrecyclable products.

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Disclaimer

This is a summary of the full report commissioned as a study project by the Australian Government department, now known as Department of Climate Change, Energy, the Environment and Water (DCCEEW).

The project consortium was led by Associate Professor Simon Lockrey from RMIT, Richard Collins from Arcadis, and Helen Millicer GAICD from One Planet Consulting. They acknowledge the assistance of their teams and all the industry and government participants involved in consultation, workshops and reviews.

Photographic images courtesy of Adobe Stock.



Introduction

Impact of poorly designed products

Toxic pollution, environmental degradation and climate change are exacerbated by the poor design of products and materials that we allow to be sold into the Australian market.

Seventy percent of the impact of the product is locked in at its design stage. Products are often designed with built-in obsolescence, irreparability and non-recyclability – factors that we currently allow.

These, however, are design features that we can change through good strategic measures like certified labels, buying for good and fixing financial incentives.

Urgency for Change

With the impacts of climate change already being felt throughout the world, and with resource scarcity undermining national and global economies, Australia is well behind in incentivising and enforcing better design. As one of the highest consuming nations of manufactured products and materials, it is imperative that Australia and Australians develop and adopt new measures now for lesser costs and painful transitions in the future.

Why this Report

To identify solutions to this wicked problem of high waste and losses, in early 2023, the Australian Government published the seminal report *Enabling Design for Environmental Good*, recommending actions to increase circularity of products, particularly in key sectors like plastics. This is a summary of the report.

There are many factors and people who contribute to good or bad designed products and materials, it is not just the responsibility of designers. We all have a part to play in how we tender, commission, purchase and handle products during their lifespan.

The factors that determine the design and lifespan of products are grouped into four areas: **policy, regulatory, financial** and **educational**. All are required.

In preparing this report, consulting with industry and government experts and stakeholders and investigating impactful initiatives around the world, four industry sectors were identified as priorities for speedy and meaningful action in Australia.

Overarching principles and measures that influence design in Australia

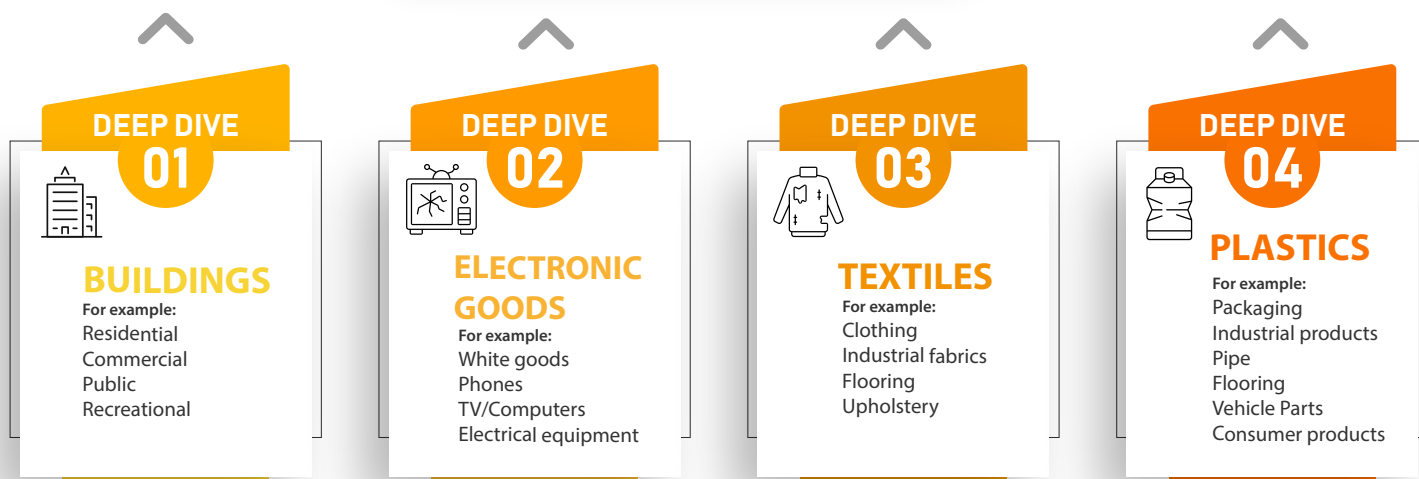


Figure 1: Report structure with overarching recommended actions and four priority sectors

The recommended actions in the report aim to help Australia reach recycling and emission targets, to reinvigorate key manufacturing sectors, modernise Australia’s recycling sector, increase resource security and productivity and strengthen Australia’s competitive position in the global race to a low emissions circular economy.

Global and local impactful actions were assessed and mapped along the innovation diffusion curve to take small-scale good

circular innovations to broad-scale mainstream practice. It was found that Australia was excellent at voluntary innovations but comparatively globally poor on taking those measures to become mainstream practice. To move beyond the Tipping Point, Australia needs to grow up by mainstreaming and embedding practices like formal Procurement Schemes, Extended Producer Schemes, laws, regulations and financial sector-wide levers.

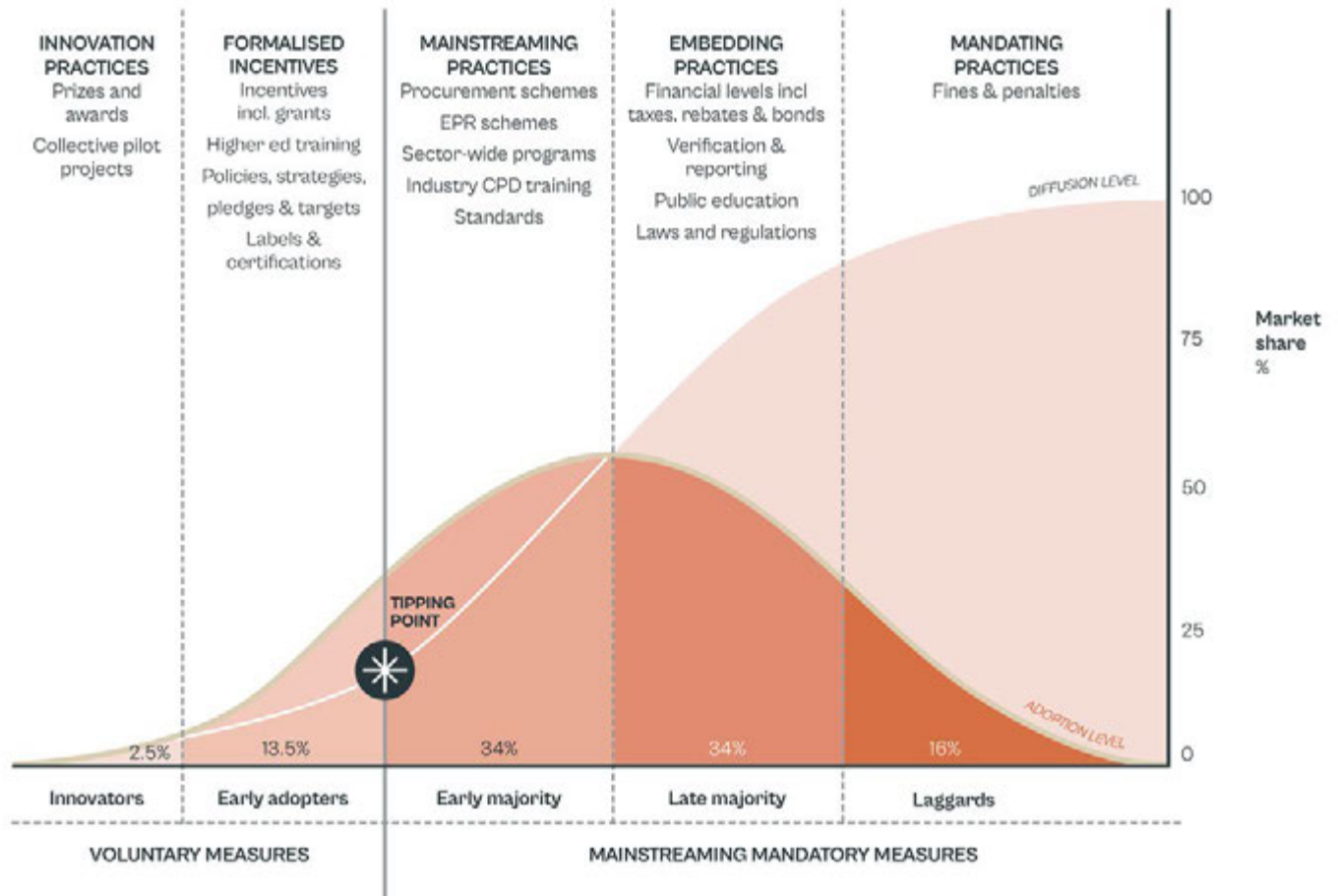


Figure 2: Innovators to Mainstream: Cumulative measures accelerating Eco-Design. Adapted by Millicer from Rogers (1962, 2010)

Recommended actions for Australia

| | | | | |
|---|--|---|--|---|
| 1 | 2 | 3 | 4 | 5 |
| Circular Australia Strategy for eco-design product | Improve Stewardship and introduce EPR | Activate Reuse and Repair Reset Program | Align product standards and specifications with global best | Establish Eco-Design Innovation Fund for national circular supply chains |
| 6 | 7 | 8 | 9 | 10 |
| Accelerate recycling by raising landfill fees on priority products | Financial and regulatory mechanisms fixing negative externalities | Buy for Good Program procurement for government and industry | Learning and Upskilling Program for Environmental Good | Public education |

These 10 recommended actions were identified to effectively and collectively mainstream and embed the circular improvements required in Australia. Those responsible – governments, industry bodies, manufacturers, retailers and users – were delegated roles and specific and necessary transformative actions that would ensure products remained in use for as long as possible in the

‘Product Domain’, with materials being recycled in the ‘Material Domain’ instead of going to landfill (refer to Figure 3). Without these recommended actions by these responsible governments, organisations and businesses, products and materials will continue to flow wasted, at record rates, to landfills.

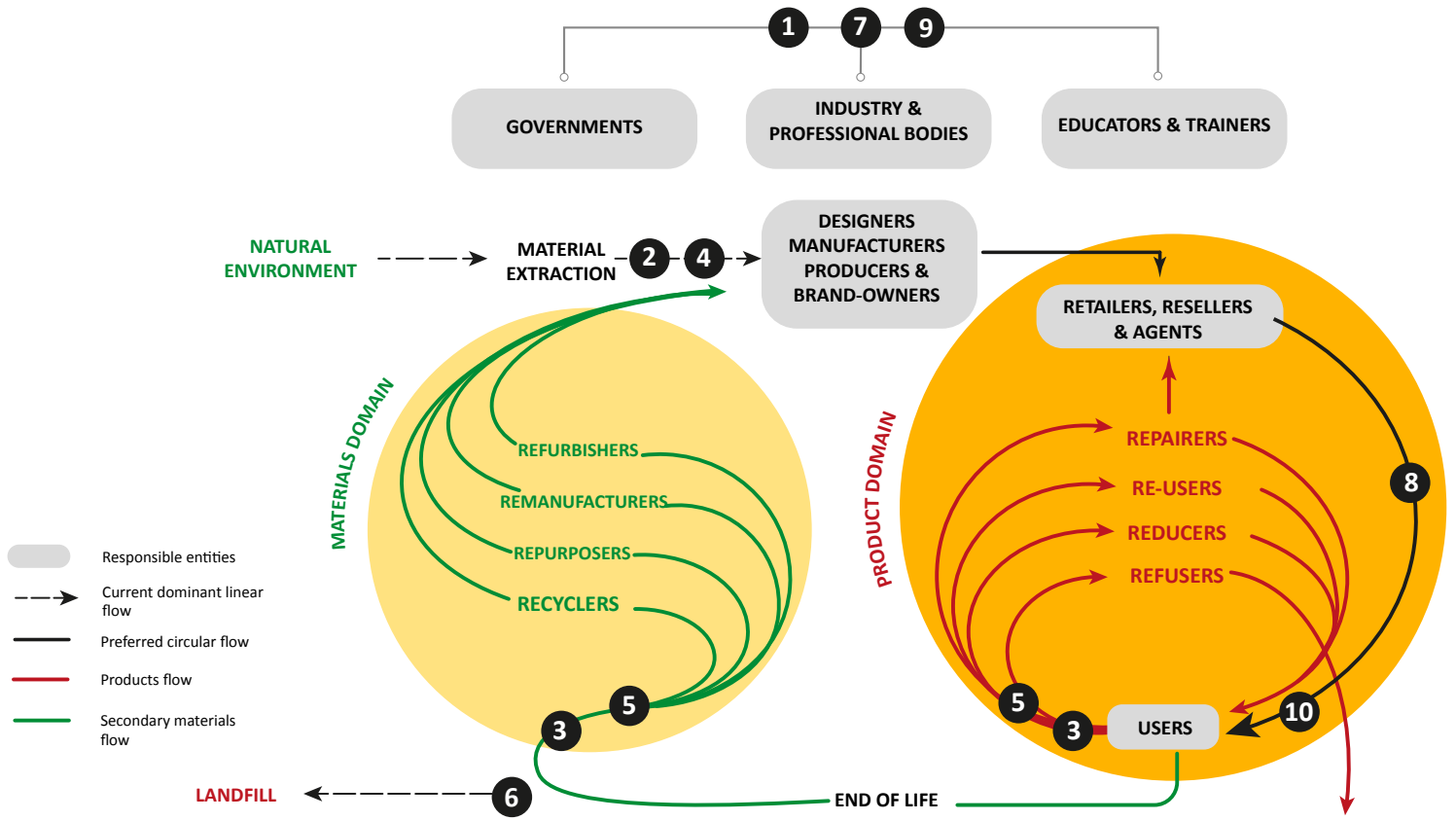
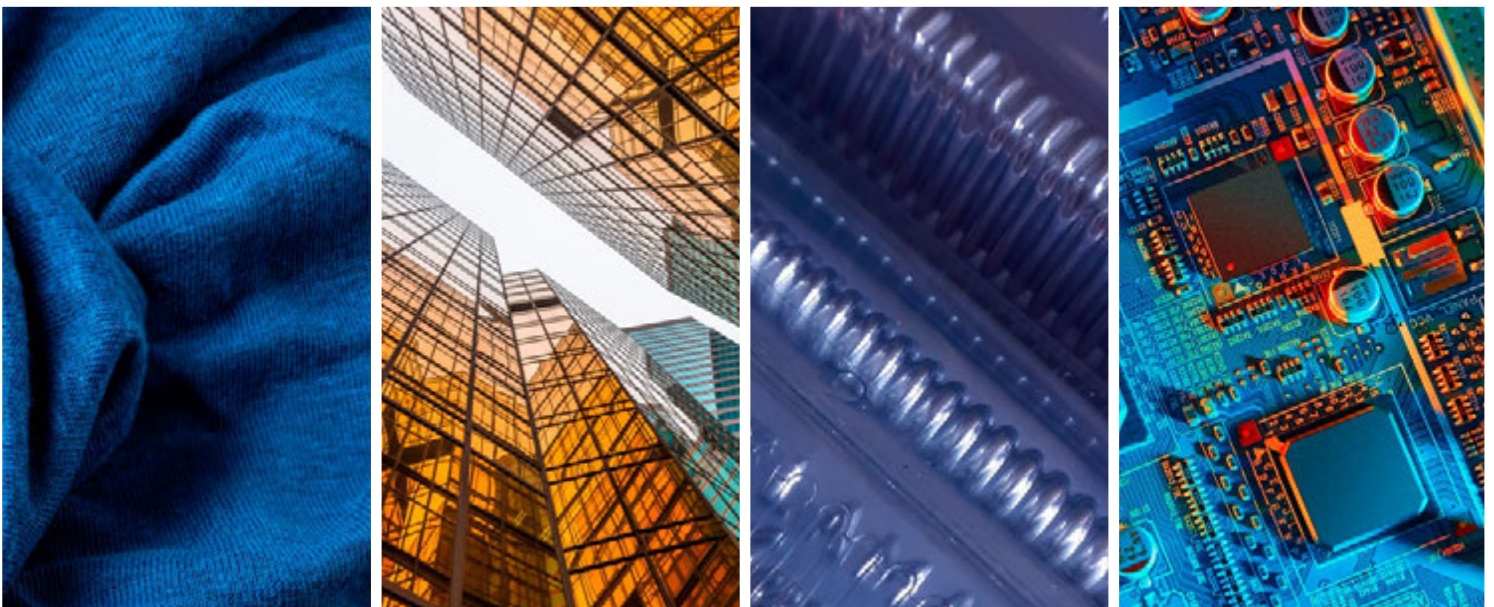


Figure 3: Levers, roles and points of influence: Reduce impacts through Eco-Design and systems change



TEXTILE SECTOR

Australia is the second highest consumer of textiles per person in the world. In 2018-19 Australia generated about 780,000 tonnes of textile 'waste', of which only about 7% was recycled, with almost all (93%), going to landfill. Textiles have the lowest recovery rate of all product groups used in Australia.

Textile waste was a governmental priority for 2021-22 and in June 2021, Australia's Environment Minister added clothing textiles to the list as most in need of a product stewardship program in Australia.

Due to the design of many textile products and inadequate systematic levers, there is little financial incentive for repair of textiles, and therefore few textile repair services.

Priority recommended actions for textiles (out of 10)

1 – A National Strategy (Lever 1) formed by governments and industry would harness circular opportunities for sector growth and align with global leaders. It would also contribute national data to track textiles consumption and disposal, waste avoidance and channels to divert for reuse and recycling.

4 – Raising standards and specifications for Eco-Design had the greatest support from sector stakeholders consulted for the report. They emphasised the need for use of certified labels, government regulations and industry procurers to restrict textile imports which are not reusable, recyclable or contain substances that limit the circularity of materials.

5 – The Eco-Design Innovation Fund was prioritised to stimulate new investment in eco-design supply chain projects in the textile sector. Funding is also needed to support industry investment into textile recovery infrastructure, with particular emphasis on sorting, fibre separation and remanufacturing technologies.

8 – Procurement power and market pull is necessary for this sector. For example, ambitious sustainable procurement for public sector uniforms could generate demand for eco-design and circular textiles with potential far-reaching influence on design in other clothing categories. Government leadership is crucial for showcasing and promoting best practices and driving demand for circular textiles.

Key Barriers to recovery and recycling of textiles

- Mixed material composition limits options for cost-effective separation, reprocessing or recycling
- Improvements in recycling technology are in their infancy and not widely available in Australia
- Lack of collection systems distributed throughout Australia

BUILDING SECTOR

The building sector is responsible for 44% of ‘waste’ produced in Australia, producing about 27 million tonnes of waste annually. There are several reasons this sector is a priority for action: The construction sector is the third largest industry in the country, its ‘wastes’ are the fastest growing and there is a current lack of technical capacity to engage in eco-design and sustainability issues.

While construction and demolition have a high recycling rate of approximately 75%, and there are frameworks for environmental standards in this sector, there is limited focus on design for high product and materials efficiency and built-in circularity. There is a clear need and demand for better design and more circular buildings, including using fewer virgin products and materials, instead opting for more reused products and recycled materials, more deconstruction and repurposing and systemic changes in use.

Priority recommended actions for building (out of 10)

1 – The building sector should be guided by an **Eco-Design for a Circular Australia Strategy and Action Plan (The Strategy)** to help guide designers, architects and specifiers as to what dimensions of Eco-Design could be applied for better circular economy outcomes.

4 – **Raising standards and specifications** is crucial to transitioning the building sector to widespread adoption of eco-design, including improving Australian standards for building products, forming specifications suited for reuse and recycling end markets, addressing issues such as circularity, chemical content and design for disassembly.

5 – **The Eco-Design Innovation Fund** could both help pilot and scale-up innovations in sustainable building products and systems. This could include a focus on new business models that extend across product supply chains.

PLASTIC SECTOR

Plastic pollution is one of the world’s top environmental issues. This is also the case in Australia, with consumption increasing while recovery or recycling rates remain stagnant at 13-15% per year.

There are very few drivers that improve the composition, additives, labelling or design of plastics, whether products are imported or locally manufactured in Australia. The diversity of plastics and plastic products has exploded, meaning reuse, repair and recycling is very difficult and landfill rates are very high, posing challenges for Australian companies seeking to produce plastics that can be reused or recycled.

Australia is one of the few countries in the world to host the full plastics supply chain, and thus has the potential to build and integrate chemical reprocessing into its refineries and resin production facilities, should the economics, regulations and collection systems change to support this transformation. Australia has potential, with a range of levers, to improve its eco-design of all plastics and related products, increase recycled content via its manufacturers and improve local business, employment and more circular systems.

Priority recommended actions for plastics (out of 10)

1 – Australia needs a **Circular Strategy**. It has an excellent opportunity, given its full plastics supply chain, to improve its recycling, recycled content and circularity of plastics. The big constraint to be addressed in the Strategy is for clear, timely, accountable policies, financial and regulatory measures that change the business case and market for improved design, reuse, recycling and recycled content.

5 – Currently, Australia’s plastics supply chain is mostly linear. Concerted efforts and new business models and collaborations are required to bring about big, broad and long-term changes. **The Eco-Design Innovation Fund** would both enable stakeholders to form collaborative partnerships and enable the development of trials that can grow into fully-fledged mainstream programs.

6 – As there are virtually no specialty collections for plastics at a meaningful scale in Australia, it is important to provide financial signals, incentives and plastics-specific diversions at landfills and resource recovery facilities. The recommended adjustment to **landfill fees** is a critical market mechanism for plastics products and packaging that would enable reprocessing recyclable ‘waste’ into new quality recycled materials and displacement of virgin plastics.

8 – **The ‘Buy for Good’ procurement program** was the top priority amongst sector stakeholders to give impetus and incentive for suppliers to provide better long-life products and support reuse, repair, take-back and recyclable plastics. Increasingly complex multi-material products and packaging can be addressed by better procurement, clearly specifying limitations of certain chemicals or features, requirements for disassembly and/or recyclability.

ELECTRONIC GOODS SECTOR

Materials in electronic goods, like rare earths and precious metals, are recyclable and valuable. Not only are we running out of rare resources that are environmentally and socially costly to mine, but we are also sending these highly refined products directly to landfill. These products are the highest contributors to landfill toxic pollution, with e-waste accounting for over two thirds of toxic chemicals found in Australian landfills.

The volume of e-waste in Australia has increased, as the size of electronic goods has increased. This is despite positive initiatives such as e-waste landfill bans and mandatory recycling in some Australian jurisdictions. Australia has strong electronic product design capability but is limited by most electronic product and component manufacturing occurring offshore. The daily use of electronic goods can be the motivator for adoption of recommended actions to improve circularity and lower waste and emissions.

Priority recommended actions for electronic goods (out of 10)

1 – **The Circular Strategy** could include a long-term vision for Australia to shift the behaviour, economics and incentives for consumers and producers to increase the durability and longer-term use of electronic goods. It could also develop a whole systems eco-

labelling strategy to encourage the uptake of well-designed goods and strengthen quality controls for imported goods. Importantly, it could also encourage product repair, refurbishment and upgrades, rather than 'replace-with-new' and high waste.

2 – Revising and energising **product stewardship** would safeguard eco-design principles to ensure accountability for material and resource choices in the design phase, both for imports and locally designed stock.

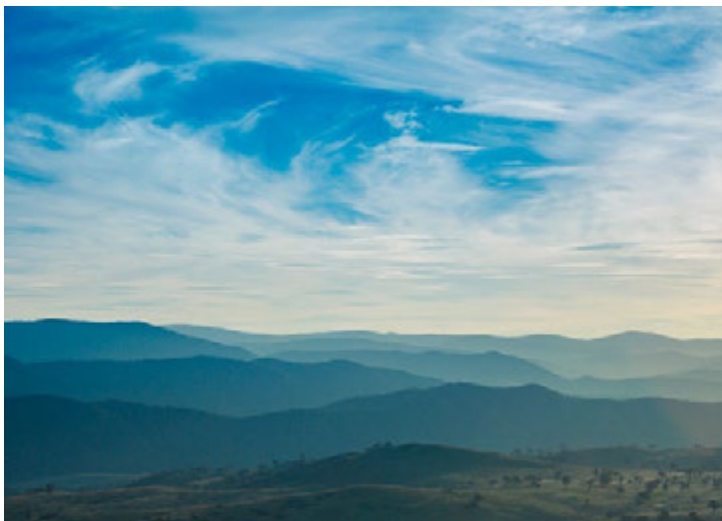
3 – The **'Reuse & Repair Reset' program** would activate reuse, repair and refurbishment of electronic goods and support the uptake of eco-designed products and services to support them. This includes incentivising big business to become a 'hero' of repair and reuse against their competitors, with Apple and France's Repairability Index as examples.

8 – Procurement is key to driving shifts in demand for a shift to eco-design. The **'Buy for Good' procurement program** would enable major procurers of electronic goods to use their purchasing power to scale up the demand for eco-designed electronic products that are more durable, reusable and repairable.

CONCLUDING SUMMARY

Australia has many voluntary measures but has not taken the steps to embed and mainstream them. As recommended in this report, we need to proactively adopt measures that enable mainstreaming of eco-designed products for the Australian market, such as procurement, labelling, mandatory financial and regulatory mechanisms. This report recommends actions for different stakeholders regarding the design of products to lower product-based environmental impacts and improve environmental performance. These measures, in the form of Recommended Actions, are key to securing Australia's position in the global rush for a more circular economy.

Of utmost urgency is the need to bring together governments, industry, business and community to develop and roll out a Circular Australia Strategy. This strategy would guide the realignment of policy, regulation, financial/ economic and education/ training transitions toward eco-design and circularity.



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